PROJECT MANUAL
VOLUME ONE
OSSINING UNION FREE SCHOOL DISTRICT
2024 BOND: PHASE 1- OHS LOCKER ROOM & CTE ADDITION

29 S Highland Avenue

Ossining, New York - 10562

DIVISIONS 00 THROUGH 14

CPL PROJECT NO.: R24.16761.00
DOCUMENT ISSUE DATE: April 27, 2026

NEW YORK STATE EDUCATION DEPARTMENT PROJECT CONTROL NUMBER(S):
Ossining High School: 66-14-01-03-0-003-047

DESIGN PROFESSIONAL'S CERTIFICATION:
The undersigned certifies that, to the best of his or her knowledge, information and belief, that the "Design conforms to all applicable provisions of the current New York State Uniform Fire Prevention Code, Building Code and Energy Conservation Code, the building standards of the New York State Education Department and that the “Work will involve known or suspected ACBM, and will be done in accordance with Industrial Code Rule #56".

ALTERATION WARNING STATEMENT:
It is a violation of the New York State Education Law and the Commissioner's regulations for any person, unless acting under the direction of a licensed Architect, Engineer or Land Surveyor, to alter an item in any way. If an item bearing the seal of an Architect, Engineer or Land Surveyor is altered, the altering party shall affix to the item, their seal and the notation " ALTERED BY ", followed by their signature and the date of such alteration, and a specific description of the alteration.

ARCHITECT / ENGINEER

CPL

26 IBM Road
Poughkeepsie, NY 12601
800-294-9000
www.cplteam.com

CONSTRUCTION MANAGER

Arris Contracting Company, Inc.

189 Smith Street Poughkeepsie, NY 12601
(914) 755-0494
FEberhard@arriscontracting.com

OWNER

Ossining Union Free School District
400 Executive Boulevard
Ossining, NY 10562
(914) 941-7700
www.ossiningufsd.org

CPL
ARCHITECTURE
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PLANNING
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SECTION 001116
INVITATION TO BID

THE OSSINING UNION FREE SCHOOL DISTRICT INVITES BIDS FOR "OUFSD_24BD_PH 1 - HS LKR RM & CTE ADDITION" PROJECT. SEPARATE SEALED BIDS WILL BE RECEIVED AT THE OSSINING UFSD, 400 EXECUTIVE BOULEVARD, OSSINING NY 10562, UNTIL 4:00 P.M., LOCAL TIME, ON 05-28-2026

1.01 PROJECT INFORMATION

A. Project Identification: OUFSD_24BD_PH 1 - HS LKR RM & CTE Addition
   1. Project Location(s):
      a. Ossining High School, 29 S Highland Avenue, Ossining, New York 10562

B. Owner: Ossining Union Free School District, 400 Executive Boulevard Ossining, NY 10562,
   1. Owner's Representative:
      a. Jared Mance
      b. PH: 914-762-5740

C. Architect/Engineer: CPL (Clark Patterson Lee), at 26 IBM Road, Poughkeepsie, NY 12601.

D. Construction Manager: Arris Contracting Company, Inc. - 189 Smith Street Poughkeepsie, NY 12601
   1. Construction Manager's Representative:
      a. Fred Eberhard
      b. PH: (914) 755-0494

E. Project Description: Locker room renovations, 2-story addition above existing locker room for fitness center and 3 science classrooms and 3-story addition for 9 CTE classrooms. General construction (including site work), mechanical, electrical, and plumbing trades will be involved. Interior renovations at existing building as required for new work.

F. Construction Contract: Bids will be received for the following Work:
   1. Multiple Contract Project consisting of the following prime contracts:
      a. General Construction.
      b. Mechanical Construction.
      c. Electrical Construction.
      d. Plumbing Construction.
      e. Fire Sprinkler Construction.

1.02 BID SUBMITTAL AND OPENING

A. Owner will receive sealed lump sum bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
   1. Bid Date: 05-28-2026
   2. Bid Time: 4:00 p.m. local time.
   3. Location: Ossining UFSD, 400 Executive Boulevard, Ossining NY 10562

B. Bids will be thereafter publicly opened.

1.03 BID SECURITY

A. Bid security shall be submitted with each bid in an amount not less than five percent (5%) of the base bid in the form and subject to the conditions provided in the "Instructions to Bidders".

1.04 PREBID MEETING

A. Prebid Meeting: A Pre-Bid meeting/walk-thru for the Project will be held at 4:00 pm, local time on Monday, May 11th, 2026, starting at the Ossining High School, 29 S Highland Ave, Ossining, NY 10562. Prospective bidders are to meet at the main entrance of the Ossining High School building. Prospective bidders are **requested** to attend. Prospective bidders may visit the site during business hours by appointment by contactingFred Eberhard at (914) 755-0494.

1.05 DOCUMENTS

A. Complete digital sets of Bidding Documents may be obtained online as a download at www.cplplanroom.com under 'public projects' for a non-refundable reproduction fee of $100.00.

B. Complete hard copy sets of Bidding Documents may be obtained from Rev, 330 Route 17A, Suite #2, Goshen, New York 10924 Tel: 1-877-272-0216, upon depositing the sum of $100 for each combined set of documents. Checks or money orders shall be made payable to Ossining Union Free School District. Any bidder requiring documents to be shipped shall make arrangements with nthe printer and pay for all packaging and shipping costs.

C. All bid addenda will be transmitted to registered plan holders via email and will be available at www.cplplanroom.com. Plan holders who have paid for hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use, and coordinate directly with the printer for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda.

D. A Bidder, upon 1) making the deposit required for the Bid Documents, 2) submitting a Proposal accompanied by a the required bid security, and 3) returning the plans and specifications used by such Bidder in good condition within thirty (30) days following the award of the Contract, or rejection of the Bid, shall have returned to them the full amount of the deposit for one copy of the plans and specifications.

1.06 TIME OF COMPLETION

A. Successful bidder shall begin the Work upon receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

1.07 BIDDER'S QUALIFICATIONS

A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

1.08 NOTIFICATION

A. Attention of the Bidder is particularly called to the Owner's sales tax exemption, the requirements as to conditions of employment to be observed, and the minimum wage rates to be paid under the Contract. In addition, the Bidding Documents contain detailed requirements for the qualification of Bidders. These include, among other things, rigid bonding and insurance requirements, financial statements, bank references, lists of lawsuits, arbitrations or other proceedings in which the Bidder has been named as a party, a statement of surety's intent to issue Performance and Payment Bonds, and a description of other projects of similar size and scope completed by the Bidder.

B. Bids shall be prepared as set forth in "Instructions to Bidders", enclosed in a sealed envelope bearing on its face the name and address of the Bidder and the title of the Work to which the bid enclosed relates.

C. No bids may be withdrawn for a period of forty-five (45) days after opening of bids.

1.09 AWARD OF BIDS

A. The Ossining Union Free School District hereby reserves the right to waive any informalities and reject any, or all, Bids or to accept the one that, in its judgement, will be in the best interest of Ossining Union Free School District.

B. The Owner further reserves its right to disqualify Bidders for any material failure to comply with the "Instructions to Bidders".

END OF SECTION

SECTION 002000
INSTRUCTIONS TO BIDDERS COVER

PART 1 GENERAL

2.01 SUMMARY

A. Attached is AIA Document A701-2018, Instructions to Bidders.
   1. AIA Document A701-2018 defines the conditions affecting award of contract and procedures with which Bidders must comply.

B. Atached is AIA Document A310-2010 Bid Bond
   1. AIA Document A310-2010 identifies the contractor, surety and owner and specifies the bond amount and project details.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

AIA® Document A701® – 2018

Instructions to Bidders

for the following Project:
(Name, location, and detailed description)

OUFSD 2024 Bond – Phase 1_OHS Locker Room & CTE Addition
29 S Highland Ave
Ossining, NY 10562

SED No.: 66-14-01-03-0-003-047

CPL Project No.: R24.16761.00

THE OWNER:
(Name, legal status, address, and other information)

Ossining Union Free School District
400 Executive Boulevard
Ossining, NY 10562

THE ARCHITECT:
(Name, legal status, address, and other information)

CPL Architects, Engineers and Landscape Architect, D.P.C. d/b/a CPL
26 IBM Road
Poughkeepsie, NY 12061

THE CONSTRUCTION MANAGER:

Arris Contracting Company, Inc.
189 Smith Street
Poughkeepsie, New York 12601

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents, apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, including all required allowances, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- **.1** the Bidder has read and understands the Bidding Documents;
- **.2** the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- **.3** the Bid complies with the Bidding Documents;
- **.4** the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- **.5** the Bidder has evaluated and satisfied itself as to the conditions and limitations under which the Work is to be performed, including without limitation (1) the location, condition, layout and nature of the Project site and surrounding areas, (2) generally prevailing climatic conditions, (3) anticipated labor supply and costs, and (4) availability and cost of materials, tools and equipment;
- **.6** the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- **.7** the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

§ 2.2 To be considered qualified, the Bidder must demonstrate to the Owner's satisfaction the following:

- **.1** The corporation, partnership, sole proprietorship of other business entity in whose name the Bid is submitted has been in business, continuously, for no less than the previous five (5) years performing or coordinating the work which it is bidding on;
- **.2** The Bidder has satisfactorily completed no less than five (5) projects of comparable size, complexity and type to this Project as a prime contractor to project owner;

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.3 The Bidder is not currently involved in bankruptcy proceedings.
.4 The Bidder is licensed to perform the work it is bidding on in the jurisdiction where the work will take place;
.5 The Bidder is capable of and intends to perform at least 25% of the Work with its own forces;
.6 The Bidder is able to perform the Work with manpower available to it; and
.7 The Bidder and its subcontractors have a minimum of five (5) years' experience in the Work and applicable trades.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders may obtain Bidding Documents as designated in the Advertisement or Invitation to Bid, for the deposit sum and method stated therein.
(Paragraph deleted)
(Paragraphs deleted.)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within thirty (30) days following the award of the Contract or the rejection of the Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.
Good condition as used in this section means that the Bidding Documents must be returned bound as issued, legible, and containing only the markings necessary for bidding purposes.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use for any other purpose is conferred by distribution of the Bidding Documents.

§ 3.1.6 All materials submitted as part of the bid shall become the property of the Owner and will not be returned to the Bidder. The Bidder is responsible for making its own copies of any or all parts of the Bid Documents for its files.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall consider federal, state and local Laws and Regulations and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing via email and shall be received by the Architect at least seven working days prior to the date for receipt of Bids, as follows:

Stephanie Wisniewski; swisniewski@CPLteam.com

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner, including phone calls, shall not be binding, and Bidders shall not rely upon them.

§ 3.2.4 In the absence of an interpretation, correction or change, should the Drawings disagree in themselves or with the Specifications, the better quality, the costlier or the greater quantity of work or materials shall be estimated upon, and unless otherwise ordered, shall be furnished.

§ 3.2.5 Communications regarding the Bidding Documents shall be directed to Stephanie Wisniewski; swisniewski@CPLteam.com

§ 3.2.6 EQUIVALENCY

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§ 3.2.6.1 In the Specifications, if two or more kinds, types, brands, or manufacturers or materials are named, they shall be regarded as the required standard of quality, and are presumed to be equal. The Contractor may select one of these items or, if the Contractor desires to use any kind, type, brand, manufacturer or material other than those named in the Specification, he shall indicate in writing to the Architect and Owner, and prior to the award of Contract, what kind, type, brand or manufacturer is included in the Base Bid for the specified item. Refer to Specification 012519 Equivalents for Equivalent Certification Form.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect no later than ten days prior to the date for receipt of Bids. Requests shall be submitted in the manner established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; (4) all supporting data including technical information, catalog cuts, warranties, installation instructions, operating procedures, significant qualities of proposed substitution (e.g. performance,weight, size, durability and visual effects); (5) samples, if applicable and requested; and (6) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.2.4 By making a request for substitution, the Bidder:

- **.1** represents that a representative of it has personally investigated the proposed substitute product and has determined that it is equal to or superior in all respects to that specified;
- **.2** represents that the warranty for the substitution will be the same, or greater than, that applicable to the specified product;
- **.3** certifies that the cost data is complete and includes all related costs under the Contract to be awarded, including professional services necessary and/or required for the Architect to implement the proposed substitution and waives any and all claims for additional costs related to the substitution which subsequently become apparent;
- **.4** represents that it will coordinate the installation of the accepted substitute, making all such changes to the Drawings effected by the change and to all Specifications as required for the work to be completed in all respects;
- **.5** shall submit an affidavit stating that (a) the proposed substitution conforms and meets all the requirements of the pertinent Specifications and the requirements shown on the Drawings and (b) the Bidder accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Architect; and
- **.6** represents the proposed substitution will have no effect on the construction schedule.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

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§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding *(Paragraphs deleted)*
Documents through the print method stated in the Advertisement or Invitation to Bid.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

§ 3.4.5 The failure of any Bidder to receive any such Addenda will not relieve the Bidder of any obligation contained in the Addenda. Any Addenda issued shall become part of the Bidding Documents and Contract Documents.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.7 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.1.8 In accordance with the Wicks Reform 2008, for Single Prime Contracts for projects under the monetary threshold of $1,500,000, the bid shall be accompanied by a separate sealed envelope naming each subcontractor for the Plumbing, HVAC and Electrical work, and providing the amount to be paid to such subcontractors. After the low bid is announced, the sealed list of subcontractors submitted with such low bid will be opened and the names of such subcontractors shall be announced. Thereafter, any change of subcontractor or agreed-upon amount to be paid to each subcontractor shall require the approval of the public owner that is based on the Bidder or Contractor demonstrating to the public owner a legitimate construction need for the change sought, which demonstration shall be open to public inspection. Legitimate construction need includes a change in the Project specifications, a change in material costs, a change to subcontractor status as determined pursuant to NY Labor Law Section 222(2)(e), or the subcontractor has become otherwise unwilling, unable or unavailable to perform the subcontract. Once the low bidder's list is opened, it must be open for public inspection. The sealed lists of subcontractors submitted by all other bidders shall be returned to them unopened after the contract award.

4.1.9 Pursuant to Section 220-i, each Bidder must provide proof of their registration with the Department of Labor of the State of New York, which proof must, at a minimum, include their certificate of registration. Failure to include proof of their registration will disqualify their bid from consideration for award and will result in rejection of their bid as nonresponsive.

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§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

(Paragraphs deleted)

Bid Security of not less than five percent (5%) of the total Base Bid (including all allowances) plus the sum of all alternates, in the form of a Bid Bond or a Certified Check made payable to the Owner.

§ 4.2.2 Except as stated under Section 4.4.3 hereof, the Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid, with the understanding that the Bid Security shall guarantee that the Bidder will not withdraw its Bid for a period of forty-five (45) days after the scheduled closing time for the receipt of Bids, and that if its Bid is accepted, the Bidder will enter into a formal contract with the Owner in accordance with the terms stated in the Bid and will furnish any required performance and payment bonds at the time required. In the event of the withdrawal of said Bid within the forty-five (45) day period or the failure of the successful Bidder to enter into the Contract with the Owner or the failure of the successful Bidder to furnish required performance and payment bonds at the time required, the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty, which represents the damage the Owner incurred as a result of the Bidder's default.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Bid Securities shall be returned to all Bidders except the three (3) lowest Bidders within three (3) days after the formal opening of bids. The remaining Bid Securities will be returned within forty-eight (48) hours after the Owner and the successful Bidder have executed the Contract and executed performance and payment bonds have been approved by the Owner. If a Contract has not been executed or performance and payment bonds have not been approved by the Owner within forty-five (45) days after the scheduled closing time for the receipt of bids, and the Bidder notifies the Owner that its bid is withdrawn and requests return of its Bid Security, then the Bid Security will be returned by the Owner within three (3) days after the request for its return unless the Bid Security has been forfeited under § 4.2.2.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in the same sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid, subject to any modification of such date, time and place included in any Addenda. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids. The Bidder assumes the risk of any delay in the mail or in the handling of the mail by employees of the Owner and the employees of the mail or delivery service used.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

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§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within three days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect and Owner, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be returned.

§ 4.4.4 Unless a Bid error complies with Section 4.4.3, a Bid may not be modified, withdrawn or canceled by the Bidder for a period of forty-five (45) days following the time and date designated for the receipt of Bids, and each Bidder agrees to this requirement in submitting a Bid.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available for the Project. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests. The responsibility of Bidders and of their proposed subcontractors will be considered in making the award. The Owner, through the Architect and Construction Manager, may make such investigation as the Owner deems necessary to determine the responsibility of any Bidder or to determine the ability of any Bidder to perform the Work.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 Contractor's Qualification Statement

§ 6.1.1 The Owner shall have the right to take such steps as it deems necessary to determine the ability of the Bidder to perform its obligations under the Contract, and the Bidder shall furnish the Owner all such information and data for this purpose as the Owner may request. The right is reserved to reject any Bid where an investigation of the available evidence or information does not satisfy the Owner that the Bidder is qualified and capable to carry out properly the terms of the Contract. The issuing of Bid Documents and acceptance of the Bidder's payment by the Owner shall not be construed as pre-qualification of that Bidder. If the Bidder is later discovered to have misrepresented or provided false or incorrect information with regard to any material party of the information submitted to the Owner, including but not limited to information regarding experience, debarment, claims, lawsuits, arbitrations, mediations, finances, license, contract termination, the Owner reserves the right to reject the Bid of such Bidder and, if a construction contract has been awarded, it will become automatically voidable at the sole discretion and election of the Owner.

§ 6.1.2 Within forty-eight (48) hours after the Bids are opened, the two (2) apparent low Bidders for each Prime Contract must submit the required pre-award submittal package described below to the Construction Manager via email:

.1 Workforce and Work Plan – Provide a detailed written Work Plan which shall demonstrate the Contractor's understanding of overall Project scope and shall include, but not be limited, to the following:

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.2 Sequential listing of specific Project activities required to successfully complete the Work of the Contract Documents.
    .1 Include Schedule and list Critical Milestones.
    .2 Include phasing of the Work, if required.
    .3 Include listing of long lead items.
    .4 Statement the Project can be completed in the established time.
.3 Resumes for the Bidder's proposed supervisory staff, including qualifications for specialized expertise or any certification(s).
.4 Any special coordination requirements with other trades.
.5 Any special storage and/or staging requirements for construction materials.
.6 Detailed Cost Estimate: A copy of a Detailed Cost Estimate outlined in CSI format by material and labor.
.7 A copy of the Bidder's two (2) most recent financial statements audited by a CPA or, if the Bidder has no audited financial statements, then the two (2) most recent financial statements prepared and/or reviewed by a CPA.
.8 A properly completed and executed AIA Document A305™-2020, Contractor's Qualification Statement.
.9 Required insurance certificates.
.10 A designation of the Work to be performed by the Bidder's own forces.
.11 Names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each.
.12 Names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.
.13 Names, addresses and phone numbers of the subcontractors that the Bidder proposes to use on the Project;
.14 A description of the Bidder's experience with at least five similar projects (completed in the last five years) of comparative size, complexity and cost together with documentary evidence showing that said projects were completed to their respective owner's satisfaction and were completed in a timely fashion listing type and scope of work. Provide names, addresses and current phone numbers of owners, architect and Construction manager associated with each project.
.15 The Bidder's proposed site safety plan.
.16 Proposed list of submittals and a proposed schedule for making and issuing them, within the Bidder's proposed work plan and schedule;

§ 6.2 Owner's Financial Capability

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 Submittals

§ 6.3.1

(Paragraphs deleted)

Intentionally omitted

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect, Construction Manager and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect or Construction Manager will notify the Bidder if either the Owner, Construction Manager or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner, Construction Manager or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

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§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner, Construction Manager and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner, which may be provided through the Construction Manager.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 The Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 The cost of the bonds shall be included in the Bid.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies licensed and admitted to do business in New York State and lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall
(Paragraphs deleted)
each be equal to one hundred (100) percent of the Contract Sum and shall be increased if and when the Contract Sum is increased by any Modification (as defined in AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, as revised for this Project) issued after award of the Contract.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than ten (10) days after the Bidder has received notice of the acceptance of its Bid but in no event shall bonds be delivered later than the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond and shall contain the following modifications in a rider to each bond or stated in the Modifications section of each bond (Section 16 of the Performance Bond and Section 18 of the Payment Bond):

.1 The Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Any addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder and notice to the Surety of such matters is hereby waived.

.2 Notwithstanding any prior provision of this bond, the Surety also agrees that no meeting is required to be offered, arranged or held with the Owner, Contractor and/or Surety prior to termination of the Contract or the Contractor. The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignee of the Owner

.3 Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or Surety shall cause written notice of such default (specifying said default in detail) to be given to the Owner, and the Owner shall have fourteen (14) days from receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within fourteen (14) days. Such Notice of Default shall be sent by certified or registered U.S. Mail, return receipt requested, first class postage prepaid, to the Owner.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor,

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(Paragraphs deleted)
Construction Manager as Adviser Edition, as revised for this Project and completed for the Contractor.

(Paragraphs deleted)
.2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds as revised for this Project.

.3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, as revised for this Project.

(Paragraphs deleted)
.4 Not used.

.5 Drawings

Number	**Title**	**Date**
Project Manual Section 000115	List of Drawings	

.6 Specifications

Section	**Title**	**Date**	**Pages**
Project Manual Section 000110	Table of Contents		

.7 Addenda:

Number	**Date**	**Pages**

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™-2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

[ ] The Sustainability Plan:

Title	**Date**	**Pages**

[ ] Supplementary and other Conditions of the Contract: Document Title

Document	**Title**	**Date**	**Pages**

.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

Advertisement or Invitation to Bid
Instructions to Bidders
Contractor's Bid Form
Contractor's Payment and Performance Bonds

ARTICLE 9: NEWFORMA REQUIREMENTS

§ 9.1 After notification of selection for the award of the Contract, the Bidder shall be required to use the Newforma Info

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Exchange for the transfer of Submittals, Shop Drawings and RFI's. There will be no exceptions to this requirement. The Contractor will be given a Login and Password free of charge.

ARTICLE 10: TAXES

§ 10.1 The Owner is an organization, which is exempt from New York State and Local Sales and Use Taxes. Materials purchased for use in fulfilling this Contract will be exempt from New York Sales Tax. The Owner will provide the Contractor with a completed Form ST-119.1, Exempt Organization Certification. The Contractor shall present a copy of this Form and a completed Form ST-120.1, Contractor Exempt Purchase Certificate, to each supplier.

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SECTION 002600
PROCUREMENT SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 DEFINITIONS

A. Procurement Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Procurement and Contracting Documents, submitted prior to receipt of bids.

B. Substitution Requests: Requests for changes in products, materials, equipment, and methods of construction from those indicated in the Contract Documents, submitted following Contract award. See Section 012500 "Substitution Procedures" for conditions under which Substitution requests will be considered following Contract award.

C. Equivalent Product: For products proposed as an Equivalent to the specified product. prior to award of contract use the form located in Section 012519 “Equivalents” after award of bid and prior to entering into a contract.

1.02 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.03 PROCUREMENT SUBSTITUTIONS

A. Procurement Substitutions, General: By submitting a bid, the Bidder represents that its bid is based on materials and equipment described in the Procurement and Contracting Documents, including Addenda. Bidders are encouraged to request approval of qualifying substitute materials and equipment when the Specifications Sections list materials and equipment by product or manufacturer name.

B. Procurement Substitution Requests will be received and considered by Owner when the following conditions are satisfied, as determined by Architect; otherwise requests will be returned without action:
   1. Extensive revisions to the Contract Documents are not required.
   2. Proposed changes are in keeping with the general intent of the Contract Documents, including the level of quality of the Work represented by the requirements therein.
   3. The request is fully documented and properly submitted.

1.04 SUBMITTALS

A. Procurement Substitution Request: Submit to Architect. Procurement Substitution Request must be made in writing[by **PRIME CONTRACT BIDDER ONLY** in compliance with the following requirements:
   1. Requests for substitution of materials and equipment will be considered if received no later than (10) OR Insert number days prior to date of bid opening.
   2. Submittal Format: Submit electronic copies of each written Procurement Substitution Request, using form bound in section 006000 of this Project Manual.
   3. Submittal Format: Submit Procurement Substitution Request, using format provided on Project Web site.
      a. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specifications Sections and drawing numbers.

b. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
   1) Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
   2) Copies of current, independent third-party test data of salient product or system characteristics.
   3) Samples where applicable or when requested by Architect.
   4) Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
   5) Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
   6) Research reports, where applicable, evidencing compliance with building code in effect for Project, from [ICC-ES] OR Insert applicable code organization.
   7) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.

c. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.

d. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

B. Architect's Action:
   1. Architect may request additional information or documentation necessary for evaluation of the Procurement Substitution Request. Architect will notify all bidders of acceptance of the proposed substitute by means of an Addendum to the Procurement and Contracting Documents.

C. Architect's approval of a substitute during bidding does not relieve Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 003000
REQUESTS FOR CLARIFICATION OF BID DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Requests for clarifications of the Bid Documents shall be submitted by Bidders to the Architect/Engineer via email (send to: SWisniewski@CPLteam.com) and to the Construction Manager vial email (send to: FEberhard@arriscontracting.com, CHanaburgh@arriscontracting.com and ASmith@arriscontracting.com). Requests shall include the following information:
   1. Project Name: Ossining Union Free School District, OUFSD_24BD_PH 1 - HS LKR RM & CTE Addition.
   2. Bidder's name and full contact information.
   3. Subject Specification Number.
   4. Subject Drawing Number.
   5. Clarification request/question.

B. All valid request for clarifications will be answered via written addendum.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 003114
CONSTRUCTION SCHEDULE

PART 1 GENERAL

1.01 CONSTRUCTION SCHEDULE

A. Contractor shall complete work of their Contract per the following Schedule:

Work	Start Date (Date listed or earlier if permitted by Owner)	Completion Date
Submittals:	Submittals to begin upon award of Contract.	Priority submittals within 15 days after NTP/NOA. Balance of submittals within 30 days of NTP/NOA.
Construction:	Refer to Milestone Schedule 011100	Refer to Milestone Schedule 011100

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 003119
EXISTING CONDITION INFORMATION

PART 1 GENERAL

1.01 EXISTING CONDITION INFORMATION

A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. Existing drawings that include information on existing conditions including previous construction at Project site are available for viewing or download at the office of Owner.

C. Existing specifications and submittals that include information on existing conditions including previous construction at Project site are available for viewing or download at the office of Owner.

D. Related Requirements:
   1. Section 002000 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
   2. Section 003126 "Existing Hazardous Material Information" for hazardous materials reports that are made available to bidders.
   3. Section 003132 "Geotechnical Data" for reports and soil-boring data from geotechnical investigations that are made available to bidders.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

SECTION 003126
EXISTING HAZARDOUS MATERIAL INFORMATION

PART 1 GENERAL

1.01 EXISTING HAZARDOUS MATERIAL INFORMATION

A. This Section with its referenced attachments are part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. A Pre-Renovation Survey Report for Asbestos-Containing Materials (ACM) and Lead-Based Paint (LBP) for Project, prepared by QuES&T, dated November 11th, 2025, is appended to this Document.

C. Related Requirements:
   1. Section 002000 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
   2. Section 020800 “Asbestos Abatement ” for procedures on the handling, removal and disposal of asbestos containing materials
   3. Section 024119 "Selective Structure Demolition" for notification requirements if materials suspected of containing hazardous materials are encountered.
   4. Section 028300 "Lead Safe Work Practices" for procedures on handling, removal and disposal of lead containing materials.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

QuES&T
Quality Environmental Solutions & Technologies, Inc.

PRE-RENOVATION SURVEY REPORT
FOR
ASBESTOS-CONTAINING MATERIALS (ACM)
& LEAD-BASED PAINT (LBP)

Prepared for:
OSSINING UFSD
400 Executive Boulevard
Ossining, NY 10562

at

OSSINING HIGH SCHOOL
29 S Highland Avenue
Ossining, NY 10562

November 11th, 2025
Updated January 8, 2026
Updated February 17, 2026

QuES&T Project #25-6955

1376 Route 9, Wappingers Falls, NY 12590 Phone (845) 298-6031 Fax (845) 298-6251
NYS MWBD MBE Cert # 49952-2006 NYSUCP DBE Certified NJUCP DBE Certified www.Qualityenv.com

QuES&T

Quality Environmental Solutions & Technologies, Inc.

February 17, 2026

Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

ATTN: Jared Mance

Via E-mail: jmance@ossiningufsd.org

Re: Ossining High School
Pre-Renovation Asbestos & Lead
QuES&T Project #25-6955

Dear Mr. Mance,

Attached is the Pre-Renovation Inspection Report for Asbestos-containing Materials (ACM) and Lead-Based Paints (LBP) identified throughout areas included within the above-referenced location(s) by **Qu**ality **E**nvironmental **S**olutions **& T**echnologies, Inc. **(QuES&T)**. The inspection included visual assessment of the location in question, and representative sampling, as required, in compliance with the requirements of all applicable federal, state, and local regulations.

The attached report summarizes the inspection protocol and inspection results for your review. **QuES&T** believes this report accurately reflects the material condition existing in the functional spaces at the time of our inspection.

Should you wish to discuss this matter further or require additional information concerning this submittal, please contact us at (845) 298-6031. **QuES&T** appreciates the opportunity to assist Ossining UFSD in the environmental services area.

Sincerely,

Dillon Stamper
Field Technician
NYS/AHERA Inspector/Project Monitor
Cert. #AH 24-6LUH4-SHAB
Niton-Certified XRF Technician

QuES&T

Quality Environmental Solutions & Technologies, Inc.

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EXECUTIVE SUMMARY

Quality **E**nvironmental **S**olutions & **T**echnologies, Inc. (**QuES&T**) was retained by Ossining UFSD to conduct a Pre-Renovation Survey for the presence of Asbestos-containing Materials (ACM) and Lead-based Paints (LBP) in support of the 2024 Bond Phase 1 Project of Ossining High School, located at 29 S. Highland Avenue, Ossining, NY 10562.

The survey included a visual inspection/assessment for suspect hazardous material(s), as detailed above, which are likely to be affected by planned demolition/renovations/construction activities. Inspection and sampling were limited to areas/materials slated for demolition/renovation/construction.

The survey was conducted by **QuES&T** personnel on September 4th, 2025, December 8th, 2025 and February 5, 2026. Asbestos and Lead inspections and/or sampling were conducted by NYSDOL Asbestos Inspector(s) Dillon Stamper (Cert. #AH 24-6LUH4-SHAB), Shannon Talsma (Cert. #AH 24-61PEC-SHAB), Caroline Annesi (Cert. #AH 25-6TL1I-SHAB) and Jessica Lopez (Cert. # AH 25-6AJ9Y-SHAB). The lead survey was conducted by Niton Certified XRF Technician Dillon Stamper, utilizing X-Ray Fluorescence Technology (XRF).

ASBESTOS
Laboratory analysis and/or existing sampling data indicated the following materials as Asbestos-containing Materials (greater than 1% asbestos) **(Refer to Table I & Appendix A for details and locations)**

Roof:
- Tar Paper Vapor Barrier
- Built Up Roofing
- Caulk on Louvres

Locker Rooms:
- 12”x12” Cementitious Ceiling Tiles

Office 10:
- 9”x9” Green Floor Tiles
- Black Mastic

LEAD
Based on review of the data generated by the Viken Pb200i Serial #3553 XRF Spectrum Analyzer, the following surfaces within the scope of work were identified as lead-based as defined by HUD/EPA (equal to or in excess of 1.0 milligram per square centimeter) (**Refer to Table II & Appendix C for details**):

Locker Rooms:
- Door Frames

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, “Lead Exposure in Construction” (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

1.0 INTRODUCTION:

Quality **E**nvironmental **S**olutions **&** **T**echnologies, Inc. **(QuES&T)** performed a Pre-Renovation Survey for the presence of Asbestos-containing Materials (ACM) and Lead-based Paint (LBP) in conformance with the requirements of all applicable federal, state, and local regulations. The survey included a visual inspection/assessment, and representative sampling of suspect hazardous materials, as required, throughout accessible interior locations to be affected by future renovations of Ossining High School, located at 29 S. Highland Avenue. Ossining, NY 10562.

Certified **QuES&T** personnel, Shannon Talsma, Dillon Stamper, and Jessica Lopez conducted field inspection(s) on September 4th, 2025, December 8th, 2025 and February 5, 2026. The inspection scope was established based on review of work scope drawings provided by CPL.

QuES&T established functional spaces based either on physical barriers (i.e. walls, doors, etc.) or homogeneity of material. Within each functional space identified, a visual inspection was performed using reasonable care and judgment, to identify and assess location, quantity, friability, and/or condition, as applicable, of all accessible installed building materials observed at the affected portion of the building/structure.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM and LBP concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey.

Homogenous material types were established based on appearance, color and texture. The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. The findings and conclusions of this report are not meant to be indicative of future conditions at the site and does not warrant against conditions that were not evident from visual observations or historical information obtained from others.

2.0 ASBESTOS SURVEY:

2.1 INSPECTION SUMMARY

QuES&T performed a Pre-Renovation Survey, in conformance with Title 12 NYCRR Part 56-5.1, for Ossining UFSD in support of a renovation project of Ossining High School, located at 29 S. Highland Avenue. Ossining, NY 10562. The survey included a visual inspection / assessment for Presumed Asbestos-containing Materials (PACM) and suspect miscellaneous Asbestos-containing Materials (ACM) throughout accessible interior locations to be affected by future renovations, as detailed above.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey. When any construction activity, such as demolition, remodeling, renovation or repair work, reveals PACM or suspect miscellaneous ACM that has not been identified, as part of this survey, all construction activities shall cease in the affected area.

The survey included both visual inspection of accessible spaces and representative sampling of suspect building materials for ACM. Samples collected were analyzed by a laboratory approved under the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP).

Samples were analyzed in the laboratory by Polarized Light Microscopy (PLM), Polarized Light Microscopy-NOB (PLM-NOB) and/or Quantitative Transmission Electron Microscopy (QTEM), as required. Sample collection and laboratory analysis were conducted in compliance with the requirements of Title 12 NYCRR Part 56-5.1, 29 CFR 1926.1101 and standard EPA & OSHA accepted methods. Samples consisting of multiple layers were separated and analyzed independently in the laboratory.

2.2 SAMPLE COLLECTION & ANALYTICAL PROCEDURES

Representative bulk sampling was performed on suspect building materials for laboratory analysis using PLM, PLM-NOB, and/or QTEM. The following is a summary of installed building materials sampled:

- Wall Materials – Joint Tape, Joint Compound, Sheetrock, CMU, Mortar, Cementitious Panel, Brick.
- Flooring Materials – Concrete, Ceramic Floor Tile, Grout, Setting Bed, Terrazzo.
- Ceiling Materials – Ceiling Tiles(Multiple Types).
- Roofing Materials – Tar Paper Vapor Barrier, Built Up Roofing, ISO Foam, EPDM.
- Thermal System Insulation Materials (TSI) – Pipe Insulation, Insulation.
- Miscellaneous Materials – Plaster, Mastic, Caulk.

Certified **QuES&T** personnel (Appendix D), Shannon Talsma (Cert. #AH 24-61PEC-SHAB), Dillon Stamper (Cert. #AH 24-6LUH4-SHAB), Caroline Annesi (Cert. #AH 25-6TL1I-SHAB) and Jessica Lopez (Cert. #AH 25-6AJ9Y-SHAB) performed visual assessments throughout interior and exterior construction areas. A total of One Hundred-One **(117)** samples of installed and accessible suspect building materials were analyzed by a laboratory approved under the NYSDOH ELAP. Fifty-Seven (**84**) samples were analyzed using Polarized Light Microscopy (PLM) for friable materials; Twenty-Four (**28**) samples were analyzed using Polarized Light Microscopy (PLM-NOB) for non-friable organically bound materials; and Twenty (**20**) samples were analyzed by Confirmatory-QTEM following negative-determinations using PLM-NOB protocols.

2.3 IDENTIFIED ASBESTOS-CONTAINING MATERIALS (ACM)

TABLE I: IDENTIFIED ACM
Ossining High School
29 S Highland Avenue
Ossining, NY 10562
(Refer to Appendix A for details)

KEY: **ACM** = Materials containing greater than 1% of asbestos;
LF = Linear Feet; **SF** = Square Feet; **PACM** = Presumed Asbestos-containing Materials;
Friable = ACM capable of being released into air, and which can be crumbled, pulverized, powdered, crushed or exposed by hand-pressure.

Location	Material	Approximate Quantity	Friable?	Condition
Roof, Original Roof, Bottom Layer, Below Built-Up Roof	Tar Paper Vapor Barrier	6000 SF	No	Good
Roof, Original Roof, On Tar Paper Vapor Barrier	Built Up Roof	6000 SF	No	Good
Roof, On Metal Louvres, Metal to Brick	Caulk	90 LF	No	Good
Interior, Locker Room Areas	12”x12” Cementitious Ceiling Tiles & Concealed Skylight Panels	1,800 SF	No	Good

Table I continued				
Office 10, Floor	9"x9" Green Floor Tile	36 SF	No	Good
Office 10, Floor	Black Mastic	36 SF	No	Good

3.0 LEAD SURVEY:

3.1 INSPECTION SUMMARY

QuES&T conducted a Limited Pre-Renovation Lead Survey, utilizing X-Ray Fluorescence Technology (XRF), throughout specific interior and exterior areas of Ossining High School, located at 29 S. Highland Avenue. Ossining, NY 10562 in support of a renovation project. The survey was limited to specific accessible, representative building components & immovable objects, potentially affected by scheduled renovation/construction activities.

Niton-certified XRF Technician(s) Jessica Lopez of **QuES&T**, collected a total of Twenty-Six **(26)** samples (including calibrations) on September 4th, 2025.

3.2 IDENTIFIED LEAD-BASED PAINT(S) (LBP)

Based on review of the data generated by the Viken Pb200i Serial #3553 XRF Spectrum Analyzer, the following surfaces tested were identified as lead-based as defined by HUD/EPA (equal to or in excess of 1.0 milligram per square centimeter):

TABLE II: IDENTIFIED LEAD-BASED PAINT
Ossining High School
29 S Highland Avenue
Ossining, NY 10562
(Refer to Appendix C for details)

Location	LBP Component	Substrate	Color	LBP Condition	Approximate Quantity
Locker Rooms	Door Frames	Metal	Green	Good	75 SF

NOTE: Locations and quantities of identified LBP's are limited to areas potentially affected by future renovation activities. Surfaces/components with LBP's may exist in other spaces not included in this scope of work.

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

4.0 RECOMMENDATIONS:

4.1 ASBESTOS

All construction personnel as well as individuals who have access to locations where asbestos containing materials (ACM) exists should be informed of its presence and the proper work practices in these areas. Conspicuous labeling of all ACM is suggested to ensure personnel is adequately informed. Personnel should be informed not to rest, lean or store material or equipment on or near these surfaces and not to cut, saw, drill, sand or disturb ACM. All removal, disturbance, and repair of ACM should be performed in compliance with Title 12 NYCRR Part 56 by persons properly trained to handle ACM. Facility custodial and maintenance personnel should receive training commensurate with their work activities; as defined in 29 CFR 1910.1001.

As specified in Title 12 NYCRR Part 56-5.1 (h) and (i), "If the building/structure asbestos survey finds that the portion of the building/structure to be demolished, renovated, remodeled, or have repair work contains ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material, which is impacted by the work, the owner or the owner's agent shall conduct, or cause to have conducted, asbestos removal performed by a licensed asbestos abatement contractor in conformance with all standards set forth in this Part. All ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material impacted by the demolition, renovation, remodeling or repair project shall be removed as per this Part, prior to access or disturbance by other uncertified trades or personnel. No demolition, renovation, remodeling or repair work shall be commenced by any owner or the owner's agent prior to the completion of the asbestos abatement in accordance with the notification requirements of this Part…All building/structure owners and asbestos abatement contractors on a demolition, renovation, remodeling, or repair project, which includes work covered by this part, shall inform all trades on the work site about PACM, ACM, asbestos material and suspect miscellaneous ACM…Bids may be advertised and contracts awarded for demolition, remodeling, renovation, or repair work, but no work on the current intermediate portion of the project shall commence on the demolition, renovation, remodeling or repair work by any owner or agent prior to completion of all necessary asbestos abatement work for the current intermediate portion of the entire project, in conformance with all standards set forth in this Part."

Prior to conducting demolition or construction work at the building, all ACM affected/impacted by such activities shall be removed utilizing a licensed asbestos abatement contractor and NYSDOL/EPA/NYC certified personnel prior to construction/demolition activities. All work conducted should be in accordance with all legal requirements, including but not limited to U.S. Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], New York State Industrial Code Rule 56 Asbestos Regulations (ICR 56) and Chapter 1 of Title 15 of the Rules of the City of New York Regulations, as applicable. Advance notification of the asbestos project to the USEPA, NYSDOL, and NYCDEP may be required.

All suspect building materials not sampled during this survey should be considered ACM until these materials are sampled and analyzed for ACM in the laboratory. Concealed ACM: In addition to the ACMs identified at the site, there is a possibility that concealed ACM may exist at the subject facility. As such, if any concealed suspect ACM is encountered during future construction related activities, the work should immediately stop. Prior to resuming the work, the suspect ACM should either be 1) Sampled by an appropriately-certified asbestos professional and submitted to an Approved NYSDOH ELAP laboratory for asbestos analysis or 2) Presumed to be ACM (PACM) and removed by a licensed asbestos abatement contractor for disposal in accordance with all applicable regulations.

4.2 LEAD

In addition to any identified Lead-based Paints (LBP), several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as LBP and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of

disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

Activities involving the disturbance of LBP in homes, child-occupied facilities, and/or pre-schools built before 1978 must follow the requirements outlined by EPA regulations (40 CFR 745).

In areas where demolition and/or renovations are to occur and lead is present, the demolition debris waste stream should be further analyzed during segregation for compliance with EPA regulations to ensure proper disposal. TCLP testing can be performed prior to waste segregation, but results may not be indicative of the actual waste streams produced during demolition.

5.0 DISCLAIMERS

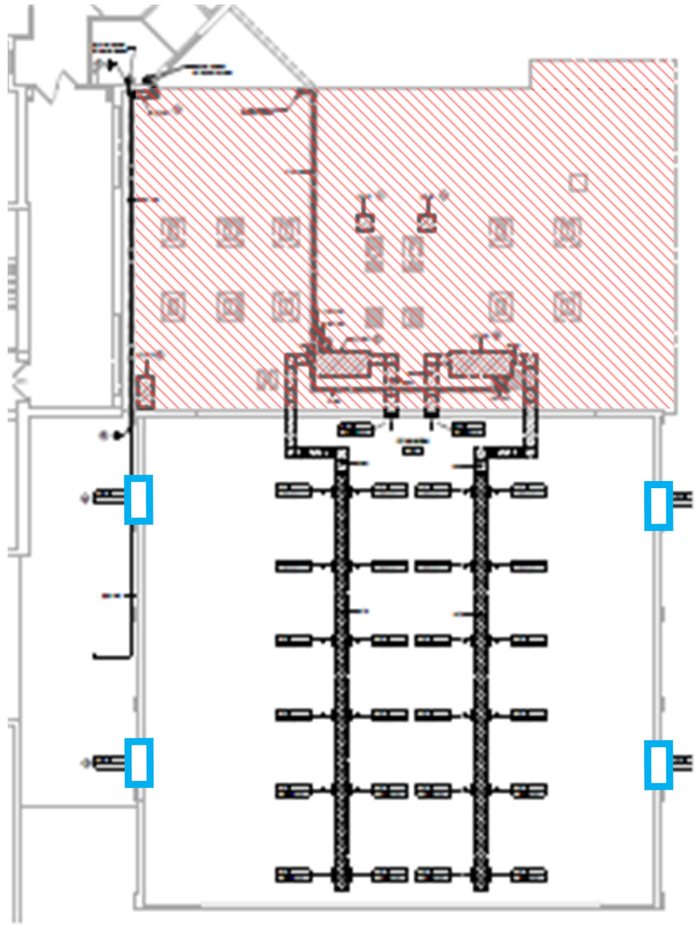
The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. Conditions may have changed since that time and the findings and conclusions of this report are not meant to be indicative of future conditions at the Site. This report does not warrant against conditions that were not evident from visual observations or historical information obtained, or conditions that could only be determined by physical sampling or other intrusive investigation techniques that are outside the proposed scope of work.

It should be noted that the information contained within this report is based solely upon site observations and the results of laboratory analysis for samples collected by **QuES&T.** These observations and results are time dependent, subject to changing site conditions and revisions to Federal, State and Local regulations. **QuES&T** warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the abatement industries. **QuES&T** also recognizes that inspection laboratory data is not usually sufficient to make all abatement and management decisions.

Due to the potential for concealed Asbestos-containing Materials (ACM) or other regulated materials, this report should not be construed to represent all ACM or regulated materials within the site(s). All quantities of ACM or other regulated materials identified, and all dimensions listed within this report are approximate and should be verified On-site.

This inspection report is not intended to be used as the sole basis for soliciting pricing for regulated materials abatement. An abatement plan, specification, drawing and/or Variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project. The Linear and/or Square Footages (LF / SF) listed within this Report are only approximates. Abatement Contractor(s) are required to visit the building(s) in order to take actual field measurements within each listed location.

Appendix A:
ASBESTOS SAMPLE LOCATIONS



ACM LOCATION KEY	
	ACM Tar Paper Vapor Barrier & Built Up Roof
	ACM Caulk

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 11/11/2025	**Version #** 1
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	**Prepared By:** DS

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

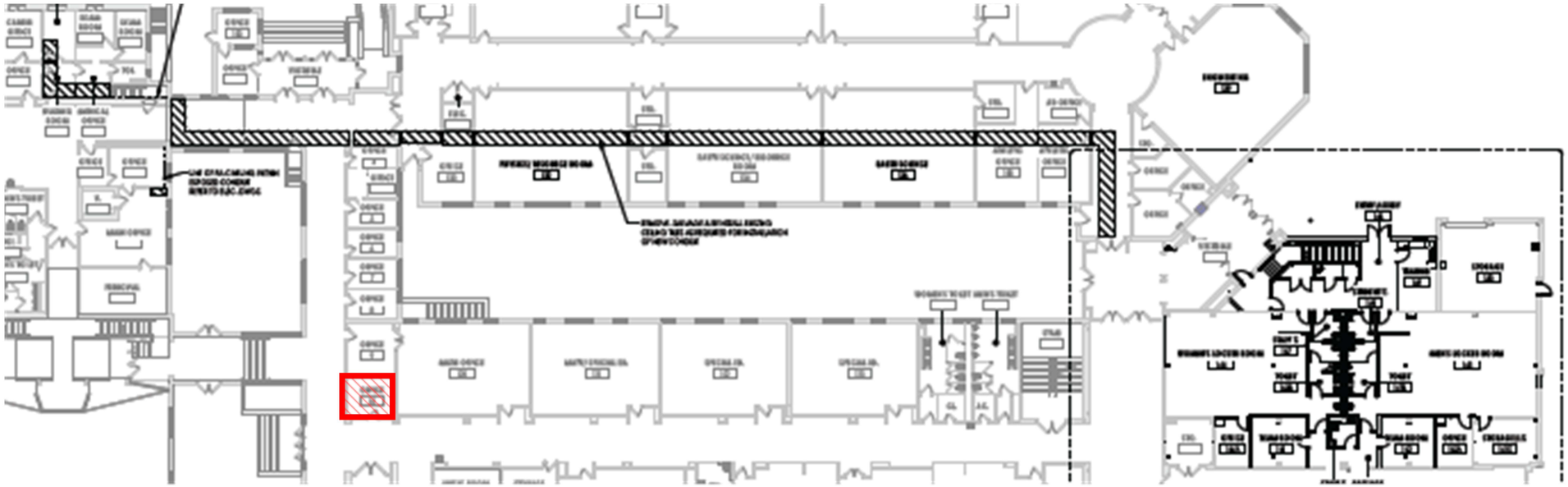
Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Asbestos Containing Material Locations

ACM - 01



ACM LOCATION KEY	
	ACM Floor Tile and Mastic

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 2/17/2026	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	**Prepared By:** CA

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

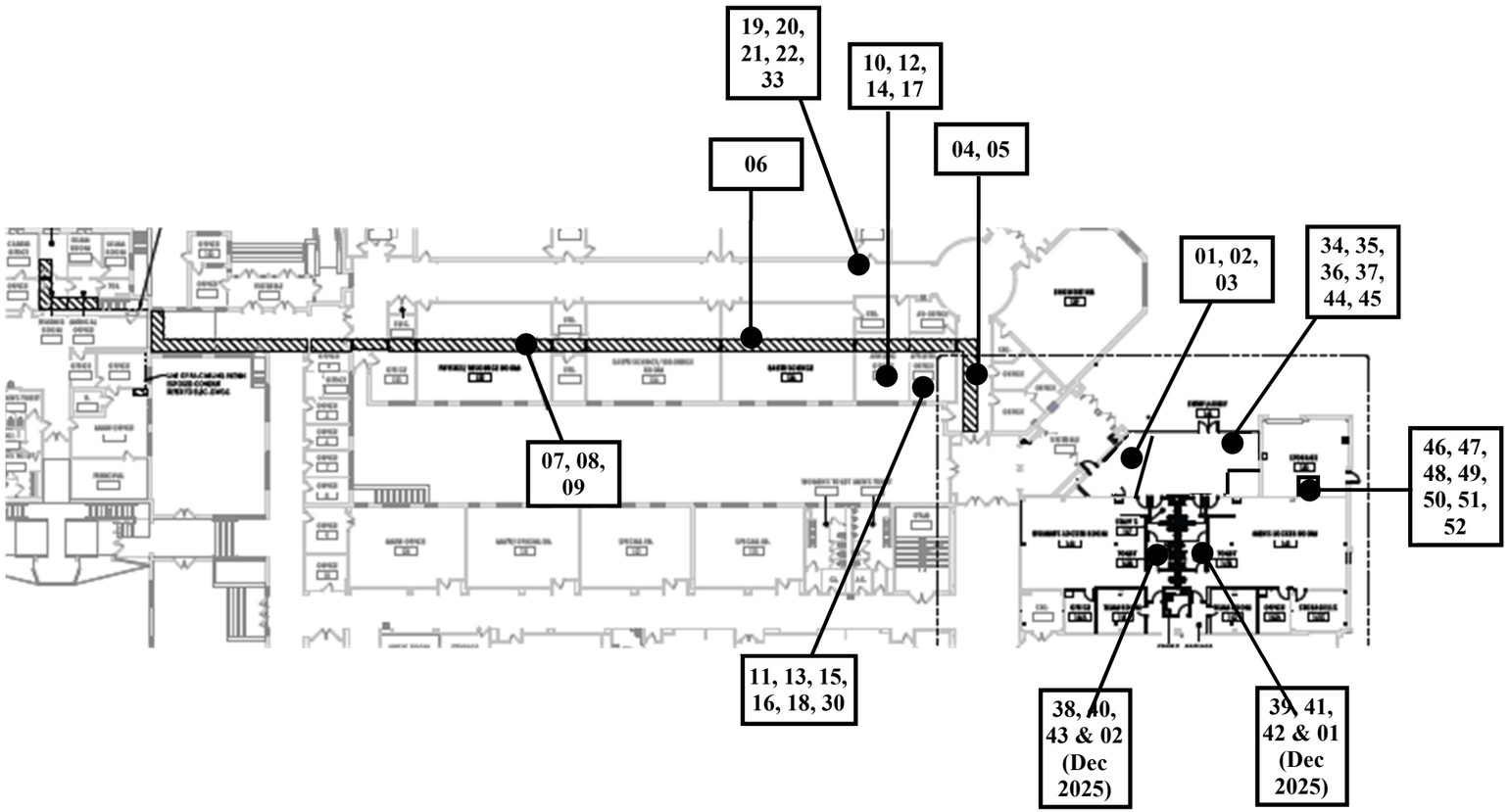
PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Asbestos Containing Material Locations

ACM - 02

Appendix B:
SAMPLE LOCATIONS
& ANALYTICAL RESULTS



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 01/08/2026	Version # 2
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	**Prepared By:** DS

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

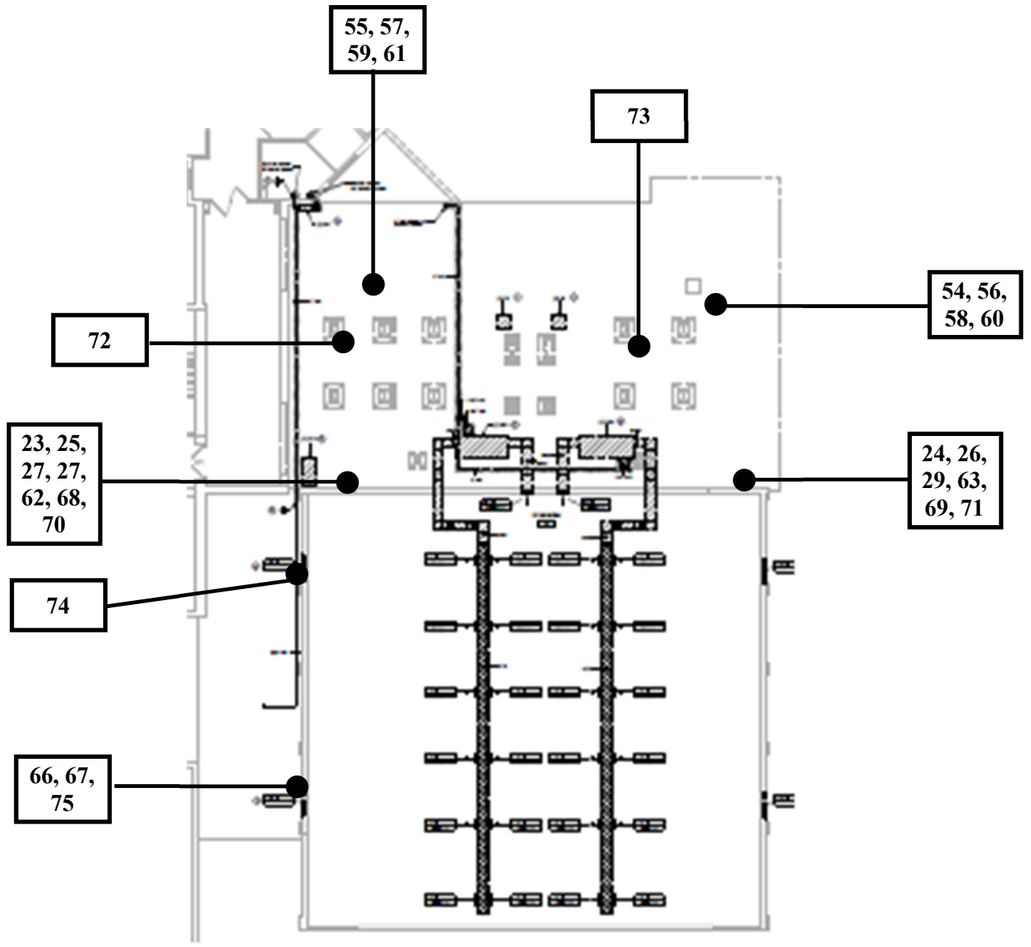
Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Sample Locations

SL - 01



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 11/11/2025	**Version #** 1
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	**Prepared By:** DS

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

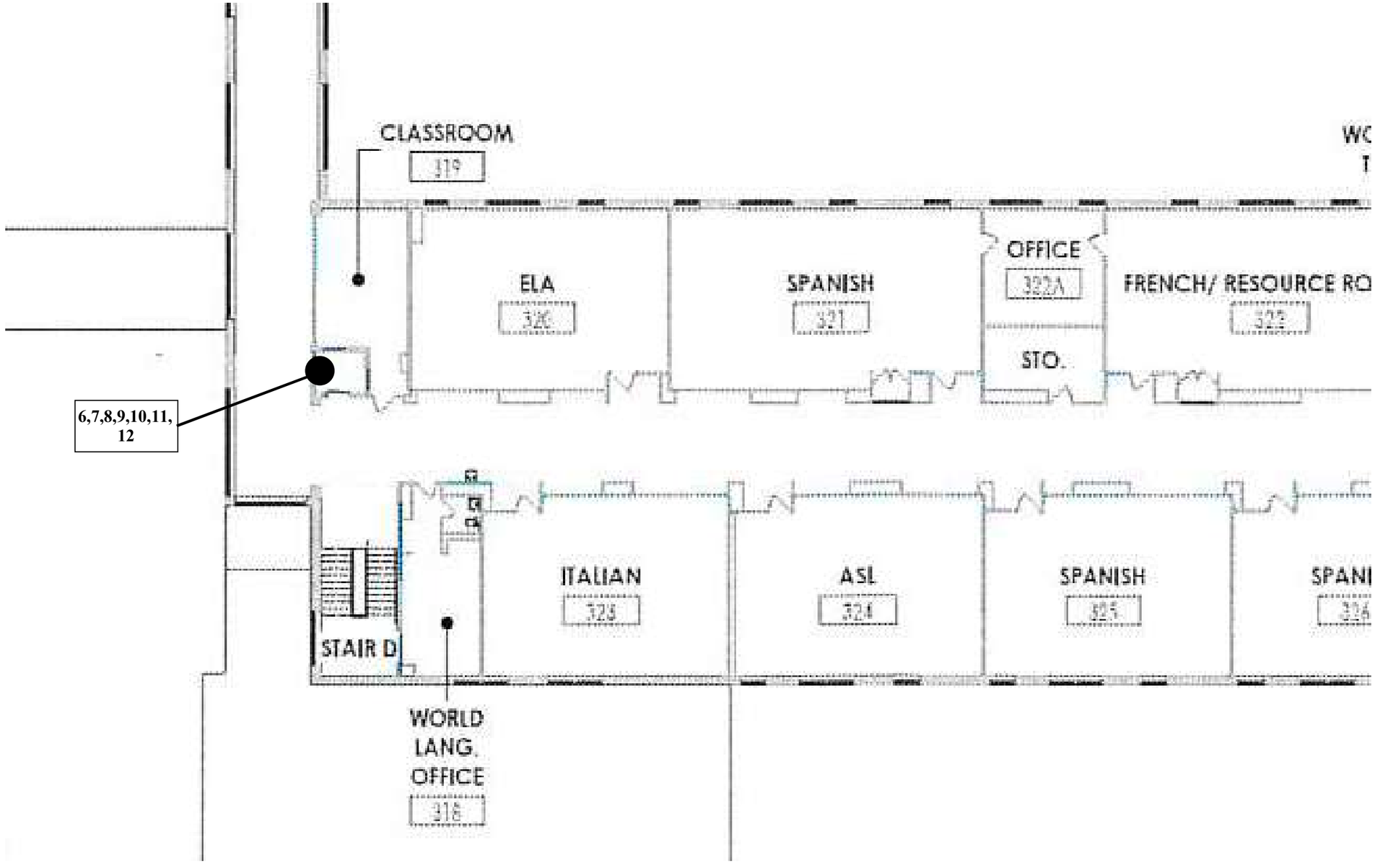
Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Sample Locations

SL - 02



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 2/17/2026	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	Prepared By: CA

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

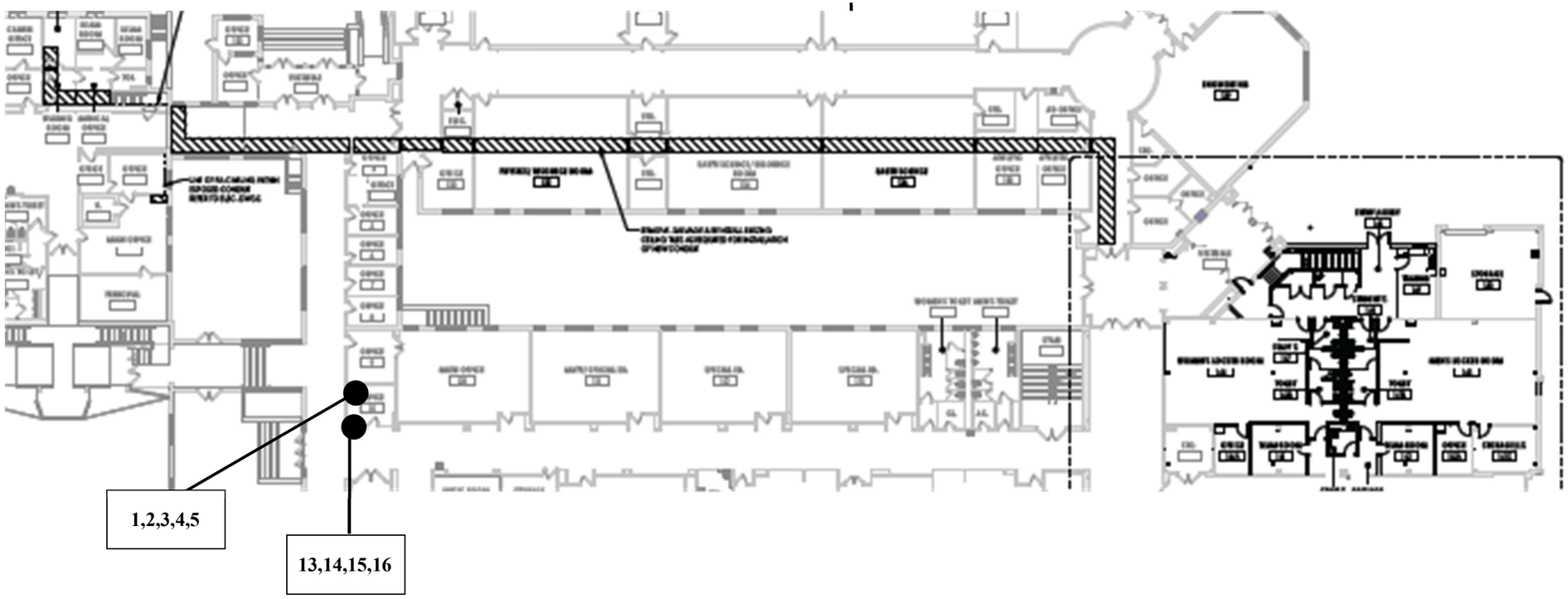
Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Sample Locations
3rd Floor

SL - 03



SAMPLE LOCATION KEY	
●	Sample Location

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

Date: 2/17/2026	Version # 1
Issued For: Asbestos Survey	
QuES&T Project #: 25-6955	
Project Manager: RWL	**Prepared By:** CA

QuES&T

Quality Environmental
Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

CLIENT

Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562

PROJECT LOCATION

Ossining High School
29 S Highland Ave
Ossining, NY 10562

Sample Locations

SL - 04

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 400 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT # : 25-6955
SAMPLED BY: D. Stamper, S. Talsma
J. Lopez
DATE SAMPLED: 4-Sep-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM

PROJECT NAME: 2024 Bond Phase 1
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-01	1	Basement	Athletic Trainer Office - Basement Crawlspace Access	In Crawl Space, On Metal Pipe	Pipe Insulation	3115788
6955-02	1	Basement	Athletic Trainer Office - Basement Crawlspace Access	In Crawl Space, On Metal Pipe	Pipe Insulation	3115789
6955-03	1	Basement	Athletic Trainer Office - Basement Crawlspace Access	In Crawl Space, On Metal Pipe	Pipe Insulation	3115790
6955-04	2	1	Hallway	Above Suspended Ceiling, On Metal Pipe	Pipe Insulation	3115791
6955-05	2	1	Hallway	Above Suspended Ceiling, On Metal Pipe	Pipe Insulation	3115792
6955-06	2	1	Earth Science Room 136	Above Suspended Ceiling, On Metal Pipe	Pipe Insulation	3115793
6955-07	3	1	Physics Room 132	Above Suspended Ceiling, On Metal HVAC Duct	Duct Insulation	3115794
6955-08	3	1	Physics Room 133	Above Suspended Ceiling, On Metal HVAC Duct	Duct Insulation	3115795
6955-09	3	1	Physics Room 134	Above Suspended Ceiling, On Metal HVAC Duct	Duct Insulation	3115796
6955-10	4	1	Athletic Office 138	Above Suspended Ceiling, Wall, On Sheetrock	Joint Tape	3115797
6955-11	4	1	Athletic Office Next to 138	Above Suspended Ceiling, Wall, On Sheetrock	Joint Tape	3115798
6955-12	5	1	Athletic Office 138	Wall, On Sheetrock	Joint Compound	3115799
6955-13	5	1	Athletic Office Next to 138	Wall, On Sheetrock	Joint Compound	3115800
6955-14	5	1	Athletic Office 138	Wall, On Sheetrock	Joint Compound	3115801
6955-15	5	1	Athletic Office Next to 138	Wall, On Sheetrock	Joint Compound	3115802

AS LABELED ON PAPERWORK
INITIALS: MP, 09/10/2025

Comments:

SUBMITTED BY: D. Stamper
RECEIVED BY: MDWarner

DATE: 9-5-25
SEP 5 '25 20:32
DATE:

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 400 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT # : 25-6955
SAMPLED BY: D. Stamper, S. Talsma
J. Lopez
DATE SAMPLED: 4-Scp-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM

PROJECT NAME: 2024 Bond Phase I
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-16	5	1	Athletic Office Next to 138	Wall, On Sheetrock	Joint Compound	3115803
6955-17	6	1	Athletic Office 138	Wall	Sheetrock	3115804
6955-18	6	1	Athletic Office Next to 138	Wall	Sheetrock	3115805
6955-19	7	1	Hallway Outside of Athletic Offices	Wall	CMU + Mortar	3115806
6955-20	7	1	Hallway Outside of Athletic Offices	Wall	CMU + Mortar	3115807
6955-21	8	1	Hallway Outside of Athletic Offices	Above Suspended Ceiling, Ceiling Deck	Concrete	3115808
6955-22	8	1	Hallway Outside of Athletic Offices	Above Suspended Ceiling, Ceiling Deck	Concrete	3115809
6955-23	9	Roof	Roof - Gym Wall Façade	Wall, Under EPDM	Cementitious Panel	3115810
6955-24	9	Roof	Roof - Gym Wall Façade	Wall, Under EPDM	Cementitious Panel	3115811
6955-25	10	Roof	Roof - Gym Wall Façade	Wall	Brick + Mortar	3115812
6955-26	10	Roof	Roof - Gym Wall Façade	Wall	Brick + Mortar	3115813
6955-27	11	Roof	Roof - Gym Wall Façade	Soffit, On Wire Lathe	Plaster	3115814
6955-28	11	Roof	Roof - Gym Wall Façade	Soffit, On Wire Lathe	Plaster	3115815
6955-29	11	Roof	Roof - Gym Wall Façade	Soffit, On Wire Lathe	Plaster	3115816
6955-30	12	1	Athletic Office Next to 138	Ceiling, Suspended, 2'x4' Dot Speck	Ceiling Tile	

Comments:

SUBMITTED BY: [signature] DATE: 9-5-25

RECEIVED BY: MD WARNER DATE: SEP 5 '25 10:32

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 400 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT # : 25-6955
SAMPLED BY: D. Stamper, S. Talsma
J. Lopez
DATE SAMPLED: 4-Sep-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM

PROJECT NAME: 2024 Bond Phase 1
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-31	12	1	Athletic Office 138	Ceiling, Suspended, 2'x4' Dot Speck	Ceiling Tile	
6955-32	13	1	Hallway Outside of Athletic Offices	Ceiling, Suspended, 2'x2' Tectum	Ceiling Tile	3115817
6955-33	13	1	Hallway by Main Entrance	Ceiling, Suspended, 2'x2' Tectum	Ceiling Tile	3115818
6955-34	14	1	Locker Room Vestibule	Entry, Weather Mat Area, On Ceramic Floor Tile	Grout	3115819
6955-35	14	1	Locker Room Vestibule	Entry, Weather Mat Area, On Ceramic Floor Tile	Grout	3115820
6955-36	15	1	Locker Room Vestibule	Entry, Weather Mat Area, On Concrete	Ceramic Floor Tile	3115821
6955-37	15	1	Locker Room Vestibule	Entry, Weather Mat Area, On Concrete	Ceramic Floor Tile	3115822
6955-38	16	1	Girls Locker Room	Bathroom, Floor, Below Ceramic Floor Tile	Setting Bed	3115823
6955-39	16	1	Boys Locker Room	Bathroom, Floor, Below Ceramic Floor Tile	Setting Bed	3115824
6955-40	17	1	Girls Locker Room	Bathroom, Floor, On Ceramic Floor Tile	Grout	3115825
6955-41	17	1	Boys Locker Room	Bathroom, Floor, On Ceramic Floor Tile	Grout	3115826
6955-42	18	1	Boys Locker Room	Bathroom, Floor	Ceramic Floor Tile	3115827
6955-43	18	1	Girls Locker Room	Bathroom, Floor	Ceramic Floor Tile	3115828
6955-44	19	1	Locker Room Vestibule	Floor	Terrazzo	3115829
6955-45	19	1	Locker Room Vestibule	Floor	Terrazzo	3115830

Comments:

SUBMITTED BY: [signature] DATE: 9-5-25

RECEIVED BY: MD WARNER SEP 5 '25 20:32 DATE:

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 400 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT # : 25-6955
SAMPLED BY: D. Stamper, S. Talsma
J. Lopez
DATE SAMPLED: 4-Sep-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM

PROJECT NAME: 2024 Bond Phase 1
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-46	20	1	Storage Room Roof Access Hatch	Wall, On Sheetrock	Joint Compound	3115831
6955-47	20	1	Storage Room Roof Access Hatch	Wall, On Sheetrock	Joint Compound	3115832
6955-48	20	1	Storage Room Roof Access Hatch	Wall, On Sheetrock	Joint Compound	3115833
6955-49	21	1	Storage Room Roof Access Hatch	Wall	Sheetrock	3115834
6955-50	21	1	Storage Room Roof Access Hatch	Wall	Sheetrock	3115835
6955-51	22	1	Storage Room Roof Access Hatch	In Wall	Insulation	3115836
6955-52	22	1	Storage Room Roof Access Hatch	In Wall	Insulation	3115837
6955-53	22	1	Storage Room Roof Access Hatch	In Wall	Insulation	3115838
6955-54	23	Roof	Roof - Original Roof	Under BUR	Tar Paper Vapor Barrier	
6955-55	23	Roof	Roof - Original Roof	Under BUR	Tar Paper Vapor Barrier	
6955-56	24	Roof	Roof - Original Roof	Top Layer	Built Up Roof	
6955-57	24	Roof	Roof - Original Roof	Top Layer	Built Up Roof	
6955-58	25	Roof	Roof	Bottom Layer, On Metal Deck	ISO Foam	
6955-59	25	Roof	Roof	Bottom Layer, On Metal Deck	ISO Foam	
6955-60	26	Roof	Roof	Top Layer, On ISO Foam	EPDM	

Comments:

SUBMITTED BY: [signature] DATE: 9-5-25

RECEIVED BY: MD WARNER DATE: SEP 5 '25 20:32

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
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Ossining, NY 10562
CONTACT: Jared Mance

PROJECT #: 25-6955
SAMPLED BY: D. Stamper, S. Talsma
J. Lopez
DATE SAMPLED: 4-Sep-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM

PROJECT NAME: 2024 Bond Phase 1
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-61	26	Roof	Roof	Top Layer, On ISO Foam	EPDM	
6955-62	27	Roof	Roof - Gym Wall Façade	Wall, Behind EPDM, On Cementitious Panel	Mastic	
6955-63	27	Roof	Roof - Gym Wall Façade	Wall, Behind EPDM, On Cementitious Panel	Mastic	
6955-64	28	Roof	Roof	Over Locker Room, On HVAC Duct	Insulation	
6955-65	28	Roof	Roof	Over Locker Room, On HVAC Duct	Insulation	
6955-66	29	Roof	Roof	Wall, Side of Gym, On Far Louvre	Caulk	
6955-67	29	Roof	Roof	Wall, Side of Gym, On Far Louvre	Caulk	
6955-68	30	Roof	Roof	Gym Window Panels, Metal to Brick	Caulk	
6955-69	30	Roof	Roof	Gym Window Panels, Metal to Brick	Caulk	
6955-70	31	Roof	Roof	Gym Window Panels, Metal to Brick	Caulk	
6955-71	31	Roof	Roof	Gym Window Panels, Metal to Brick	Caulk	
6955-72	32	Roof	Roof	Skylights, Plastic to Metal	Caulk	
6955-73	32	Roof	Roof	Skylights, Plastic to Metal	Caulk	
6955-74	33	Roof	Roof	On Gym Wall Façade, On Louvre	Caulk	
6955-75	33	Roof	Roof	On Gym Wall Façade, On Louvre	Caulk	

Comments:

SUBMITTED BY: [signature] DATE: 9-5-25

RECEIVED BY: MD Wazuer SEP 5 '25 20:32 DATE:

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-30	6955-31	6955-54	6955-55
Layer Number					
Lab ID Number		3115585	3115586	3115587	3115588
Sample Location		1st Floor, Athletic Office next to 138, Ceiling, Suspended, 2' x 4' Dot Speck	1st Floor, Athletic Office 138, Ceiling, Suspended, 2' x 4' Dot Speck	Roof - Original Roof, Under BUR	Roof - Original Roof, Under BUR
Sample Description		Ceiling Tile	Ceiling Tile	Tar Paper Vapor Barrier	Tar Paper Vapor Barrier
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	Yes	Yes
	Color	Beige/White	Beige/White	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	< 0.1	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	< 0.1 Inconclusive	ND Inconclusive
Other Materials Present	% Organic	26.0	22.9	92.4	95.8
	% Carbonates	28.0	28.6	2.2	1.9
	% Other Inorganic	46.0	48.5	5.4	2.3

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. ND = Not Detected.
Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Above, Is Less Than One Percent).
This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

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Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-56	6955-57	6955-58	6955-59
Layer Number					
Lab ID Number		3115589	3115590	3115591	3115592
Sample Location		Roof - Original Roof, Top Layer	Roof - Original Roof, Top Layer	Roof, Bottom Layer, On Metal Deck	Roof, Bottom Layer, On Metal Deck
Sample Description		Built Up Roof	Built Up Roof	ISO Foam	ISO Foam
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Black	Black	Yellow	Yellow
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	< 0.1	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	< 0.1 Inconclusive	ND	ND
Other Materials Present	% Organic	96.7	69.1	99.0	99.3
	% Carbonates	1.0	19.7	0.5	0.3
	% Other Inorganic	2.3	11.2	0.5	0.4

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Eastern Analytical Services, Inc.

Bulk Sample Results

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Collected By : D. Stamper/S. Talsma/J. Lopez
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Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-60	6955-61	6955-62	6955-63
Layer Number					
Lab ID Number		3115593	3115594	3115595	3115596
Sample Location		Roof, Top Layer, On ISO Foam	Roof, Top Layer, On ISO Foam	Roof - Gym Wall Facade, Wall, Behind EPDM, On Cementitious Panel	Roof - Gym Wall Facade, Wall, Behind EPDM, On Cementitious Panel
Sample Description		EPDM	EPDM	Mastic	Mastic
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black	Black	Yellow	Yellow
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	73.7	75.2	82.6	85.7
	% Carbonates	1.3	1.3	11.8	12.6
	% Other Inorganic	25.0	23.5	5.6	1.7

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Eastern Analytical Services, Inc.

Bulk Sample Results

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Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-64	6955-65	6955-66	6955-67
Layer Number					
Lab ID Number		3115597	3115598	3115599	3115600
Sample Location		Roof, Over Locker Room, On HVAC Duct	Roof, Over Locker Room, On HVAC Duct	Roof, Wall, Side of Gym, On Far Louvre	Roof, Wall, Side of Gym, On Far Louvre
Sample Description		Insulation	Insulation	Caulk	Caulk
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Yellow	Yellow	White	White
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	0.3	0.4
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	0.3 Inconclusive	0.4 Inconclusive
Other Materials Present	% Organic	99.1	99.1	21.9	18.5
	% Carbonates	0.5	0.7	71.1	74.0
	% Other Inorganic	0.4	0.2	6.7	7.1

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-68	6955-69	6955-70	6955-71
Layer Number					
Lab ID Number		3115601	3115602	3115603	3115604
Sample Location		Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black	Black	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	70.8	71.0	51.0	51.1
	% Carbonates	24.5	24.2	45.9	46.9
	% Other Inorganic	4.7	4.8	3.1	2.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

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Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-72	6955-73	6955-74	6955-75
Layer Number					
Lab ID Number		3115605	3115606	3115607	3115608
Sample Location		Roof, Skylights, Plastic to Metal	Roof, Skylights, Plastic to Metal	Roof, On Gym Wall Facade, On Louvre	Roof, On Gym Wall Facade, On Louvre
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Plm	NOB Plm	NOB Plm	NOB Plm
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black	Black	White	White
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND Inconclusive	ND Inconclusive	ND Inconclusive	ND Inconclusive
Other Materials Present	% Organic	94.5	71.7	64.0	64.2
	% Carbonates	1.6	7.8	25.2	24.9
	% Other Inorganic	3.9	20.5	10.8	10.9

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		6955-01	6955-02	6955-03	6955-04
Layer Number					
Lab ID Number		3115788	3115789	3115790	3115791
Sample Location		Basement, Athletic Trainer Office - Crawlspace Access, In Crawl Space, On Metal Pipe	Basement, Athletic Trainer Office - Crawlspace Access, In Crawl Space, On Metal Pipe	Basement, Athletic Trainer Office - Crawlspace Access, In Crawl Space, On Metal Pipe	1st Floor, Hallway, Above Suspended Ceiling, On Metal Pipe
Sample Description		Pipe Insulation	Pipe Insulation	Pipe Insulation	Pipe Insulation
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Brown/White/Silver	Brown/White/Silver	Brown/White/Silver	Yellow/White/Silver
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	40.0	45.0	50.0	40.0
	% Cellulose	15.0	15.0	10.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	10.0	15.0	5.0
	% Carbonates	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	30.0	30.0	25.0	35.0

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Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Can Not Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing. Overall Lab Accuracy ± 17%. Samples received in acceptable condition unless otherwise noted.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

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Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-05	6955-06	6955-07	6955-08
Layer Number					
Lab ID Number		3115792	3115793	3115794	3115795
Sample Location		1st Floor, Hallway, Above Suspended Ceiling, On Metal Pipe	1st Floor, Earth Science Room 136, Above Suspended Ceiling, On Metal Pipe	1st Floor, Physics Room 132, Above Suspended Ceiling, On Metal HVAC Duct	1st Floor, Physics Room 133, Above Suspended Ceiling, On Metal HVAC Duct
Sample Description		Pipe Insulation	Pipe Insulation	Duct Insulation	Duct Insulation
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Yellow/White/Silver	Yellow/White/Silver	Yellow/Brown/ Silver	Yellow/Brown/ Silver
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	45.0	40.0	45.0	50.0
	% Cellulose	15.0	20.0	20.0	15.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	5.0	10.0	5.0	5.0
	% Carbonates	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	35.0	30.0	30.0	30.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-09	6955-10	6955-11	6955-12
Layer Number					
Lab ID Number		3115796	3115797	3115798	3115799
Sample Location		1st Floor, Physics Room 134, Above Suspended Ceiling, On Metal HVAC Duct	1st Floor, Athletic Office 138, Above Suspended Ceiling, Wall, On Sheetrock	1st Floor, Athletic Office next to 138, Above Suspended Ceiling, Wall, On Sheetrock	1st Floor, Athletic Office 138, Wall, On Sheetrock
Sample Description		Duct Insulation	Joint Tape	Joint Tape	Joint Compound
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes	No
	Homogenous	No	No	No	Yes
	Fibrous	Yes	Yes	Yes	No
	Color	Yellow/Brown/ Silver	Beige/White	Beige/White	White
Sample Treatment		Homogenized	Homogenized	Homogenized	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	50.0	ND	ND	ND
	% Cellulose	20.0	50.0	50.0	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	5.0	15.0	20.0	25.0
	% Carbonates	ND	10.0	10.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	25.0	25.0	20.0	40.0

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Signature :
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NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-13	6955-14	6955-15	6955-16
Layer Number					
Lab ID Number		3115800	3115801	3115802	3115803
Sample Location		1st Floor, Athletic Office next to 138, Wall, On Sheetrock	1st Floor, Athletic Office 138, Wall, On Sheetrock	1st Floor, Athletic Office next to 138, Wall, On Sheetrock	1st Floor, Athletic Office next to 138, Wall, On Sheetrock
Sample Description		Joint Compoubd	Joint Compound	Joint Compound	Joint Compound
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	White	White	White	White
Sample Treatment		None	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	25.0	25.0	30.0
	% Carbonates	35.0	35.0	40.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	35.0	40.0	35.0	35.0

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Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-17	6955-18	6955-19	6955-19
Layer Number				1	2
Lab ID Number		3115804	3115805	3115806	3115806
Sample Location		1st Floor, Athletic Office 138, Wall	1st Floor, Athletic Office next to 138, Wall	1st Floor, Hallway Outside of Athletic Offices, Wall	1st Floor, Hallway Outside of Athletic Offices, Wall
Sample Description		Sheetrock	Sheetrock	CMU & Mortar (CMU Layer)	CMU & Mortar (Mortar Layer)
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	No	Yes
	Fibrous	Yes	Yes	No	No
	Color	Gray/Brown	Gray/Brown	Gray/Black	Gray
Sample Treatment		Homogenized	Homogenized	Homogenized	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	10.0	10.0	ND	ND
	% Cellulose	20.0	15.0	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	15.0	25.0	30.0
	% Carbonates	25.0	30.0	25.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	30.0	30.0	50.0	45.0

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Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-20	6955-20	6955-21	6955-22
Layer Number		1	2		
Lab ID Number		3115807	3115807	3115808	3115809
Sample Location		1st Floor, Hallway Outside of Athletic Offices, Wall	1st Floor, Hallway Outside of Athletic Offices, Wall	1st Floor, Hallway Outside of Athletic Offices, Above Suspended Ceiling, Ceiling Deck	1st Floor, Hallway Outside of Athletic Offices, Above Suspended Ceiling, Ceiling Deck
Sample Description		CMU & Mortar (CMU Layer)	CMU & Mortar (Mortar Layer)	Concrete	Concrete
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	Yes	No	No
	Fibrous	No	No	No	No
	Color	Gray/Black	Gray	Gray/Brown	Gray/Brown
Sample Treatment		Homogenized	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	30.0	20.0	25.0
	% Carbonates	25.0	25.0	35.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	55.0	45.0	45.0	40.0

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Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-23	6955-24	6955-25	6955-25
Layer Number				1	2
Lab ID Number		3115810	3115811	3115812	3115812
Sample Location		Roof, Gym Wall Facade, Wall, Under EPDM	Roof, Gym Wall Facade, Wall, Under EPDM	Roof, Gym Wall Facade, Wall	Roof, Gym Wall Facade, Wall
Sample Description		Cementitious Panel	Cementitious Panel	Brick & Mortar (Brick Layer)	Brick & Mortar (Mortar Layer)
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	No	Yes
	Fibrous	Yes	Yes	No	No
	Color	Gray/Brown	Gray/Brown	Red	Gray
Sample Treatment		Homogenized	Homogenized	Homogenized	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	15.0	10.0	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	15.0	25.0	30.0
	% Carbonates	20.0	25.0	ND	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	50.0	75.0	45.0

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Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-26	6955-26	6955-27	6955-28
Layer Number		1	2		
Lab ID Number		3115813	3115813	3115814	3115815
Sample Location		Roof, Gym Wall Facade, Wall	Roof, Gym Wall Facade, Wall	Roof, Gym Wall Facade, Soffit, On Wire Lath	Roof, Gym Wall Facade, Soffit, On Wire Lath
Sample Description		Brick & Mortar (Brick Layer)	Brick & Mortar (Mortar Layer)	Plaster (Scratch Layer Only)	Plaster (Scratch Layer Only)
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	Yes	No	No
	Fibrous	No	No	No	No
	Color	Red	Gray	Brown/Gray	Brown/Gray
Sample Treatment		Homogenized	None	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	30.0	35.0	35.0
	% Carbonates	ND	20.0	20.0	25.0
	% Other	ND	ND	ND	ND
	% Unidentified	75.0	50.0	45.0	40.0

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NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-29	6955-32	6955-33	6955-34
Layer Number					
Lab ID Number		3115816	3115817	3115818	3115819
Sample Location		Roof, Gym Wall Facade, Soffit, On Wire Lath	1st Floor, Hallway Outside of Athletic Offices, Ceiling, Suspended, 2' x 2' Tectum	1st Floor, Hallway by Main Entrance, Ceiling, Suspended, 2' x 2' Tectum	1st Floor, Locker Room Vestibule, Entry, Weather Mat Area, On Ceramic Floor Tile
Sample Description		Plaster (Scratch Layer Only)	Ceiling Tile	Ceiling Tile	Grout
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	Yes	No
	Homogenous	No	No	No	Yes
	Fibrous	No	Yes	Yes	Yes
	Color	Brown/Gray	White/Brown	White/Brown	Brown
Sample Treatment		Homogenized	Homogenized	Homogenized	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	5.0
	% Cellulose	ND	15.0	15.0	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	35.0	20.0	20.0	20.0
	% Carbonates	20.0	20.0	15.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	45.0	50.0	55.0

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Signature :
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NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-35	6955-36	6955-37	6955-38
Layer Number					
Lab ID Number		3115820	3115821	3115822	3115823
Sample Location		1st Floor, Locker Room Vestibule, Entry, Weather Mat Area, On Ceramic Floor Tile	1st Floor, Locker Room Vestibule, Entry, Weather Mat Area, On Concrete	1st Floor, Locker Room Vestibule, Entry, Weather Mat Area, On Concrete	1st Floor, Girls Locker Room, Bathroom, Floor, Below Ceramic Floor Tile
Sample Description		Grout	Ceramic Floor Tile	Ceramic Floor Tile	Setting Bed
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	Yes	No	No	No
	Fibrous	Yes	No	No	No
	Color	Brown	Gray/Black	Gray/Black	Brown/Gray
Sample Treatment		None	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	5.0	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	20.0	35.0	35.0	25.0
	% Carbonates	25.0	ND	ND	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	50.0	65.0	65.0	45.0

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Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-39	6955-40	6955-41	6955-42
Layer Number					
Lab ID Number		3115824	3115825	3115826	3115827
Sample Location		1st Floor, Boys Locker Room, Bathroom, Floor, Below Ceramic Floor Tile	1st Floor, Girls Locker Room, Bathroom, Floor, On Ceramic Floor Tile	1st Floor, Boys Locker Room, Bathroom, Floor, On Ceramic Floor Tile	1st Floor, Boys Locker Room, Bathroom, Floor
Sample Description		Setting Bed	Grout	Grout	Ceramic Floor Tile
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	Yes	Yes	No
	Fibrous	No	No	No	No
	Color	Brown/Gray	Gray/Brown	Gray/Brown	Brown/White
Sample Treatment		Homogenized	None	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	30.0	30.0	35.0
	% Carbonates	30.0	20.0	25.0	ND
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	50.0	45.0	65.0

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Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
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Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-43	6955-44	6955-45	6955-46
Layer Number					
Lab ID Number		3115828	3115829	3115830	3115831
Sample Location		1st Floor, Girls Locker Room, Bathroom, Floor	1st Floor, Locker Room Vestibule, Floor	1st Floor, Locker Room Vestibule, Floor	1st Floor, Storage Room Roof Access Hatch, Wall, On Sheetrock
Sample Description		Ceramic Floor Tile	Terrazzo	Terrazzo	Joint Compound
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	Yes	Yes
	Homogenous	No	No	No	No
	Fibrous	No	No	No	No
	Color	Brown/White	Gray/Red	Gray/Red	White
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	30.0	20.0	25.0	25.0
	% Carbonates	ND	40.0	40.0	35.0
	% Other	ND	ND	ND	ND
	% Unidentified	70.0	40.0	35.0	40.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Can Not Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing. Overall Lab Accuracy ± 17%. Samples received in acceptable condition unless otherwise noted.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-47	6955-48	6955-49	6955-50
Layer Number					
Lab ID Number		3115832	3115833	3115834	3115835
Sample Location		1st Floor, Storage Room Roof Access Hatch, Wall, On Sheetrock	1st Floor, Storage Room Roof Access Hatch, Wall, On Sheetrock	1st Floor, Storage Room Roof Access Hatch, Wall	1st Floor, Storage Room Roof Access Hatch, Wall
Sample Description		Joint Compound	Joint Compound	Sheetrock	Sheetrock
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	Yes
	Homogenous	Yes	Yes	Yes	No
	Fibrous	No	No	Yes	Yes
	Color	White	White	Gray	Gray/Brown/White
Sample Treatment		None	None	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	5.0	5.0
	% Cellulose	ND	ND	5.0	15.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	25.0	20.0	15.0
	% Carbonates	40.0	35.0	30.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	35.0	40.0	40.0	35.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/12/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		6955-51	6955-52	6955-53
Layer Number				
Lab ID Number		3115836	3115837	3115838
Sample Location		1st Floor, Storage Room Roof Access Hatch, In Wall	1st Floor, Storage Room Roof Access Hatch, In Wall	1st Floor, Storage Room Roof Access Hatch, In Wall
Sample Description		Insulation	Insulation	Insulation
Method of Quantification		Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	Yes	Yes	Yes
	Homogenous	No	No	No
	Fibrous	Yes	Yes	Yes
	Color	Yellow/Black/ Brown/Silver	Yellow/Black/ Brown/Silver	Yellow/Black/ Brown/Silver
Sample Treatment		Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND
	% Chrysotile	ND	ND	ND
	% Other	ND	ND	ND
	% Total Asbestos	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	30.0	35.0	40.0
	% Cellulose	20.0	15.0	15.0
	% Other	ND	ND	ND
	% Unidentified	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	10.0	10.0	10.0
	% Carbonates	ND	ND	ND
	% Other	ND	ND	ND
	% Unidentified	40.0	40.0	35.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/14/2025
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-30	6955-31	6955-54	6955-55
Layer Number					
Lab ID Number		3115585	3115586	3115587	3115588
Sample Location		1st Floor, Athletic Office next to 138, Ceiling, Suspended, 2' x 4' Dot Speck	1st Floor, Athletic Office 138, Ceiling, Suspended, 2' x 4' Dot Speck	Roof - Original Roof, Under BUR	Roof - Original Roof, Under BUR
Sample Description		Ceiling Tile	Ceiling Tile	Tar Paper Vapor Barrier	Tar Paper Vapor Barrier
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	Yes	Yes	No	No
	Homogenous	No	No	Yes	Yes
	Fibrous	Yes	Yes	Yes	Yes
	Color	Beige/White	Beige/White	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	2.7	1.2
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	2.7	1.2
Other Materials Present	% Organic	26.0	22.9	92.4	95.8
	% Carbonates	28.0	28.6	2.2	1.9
	% Other Inorganic	46.0	48.5	2.7	1.1

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. ND = Not Detected. Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/14/2025
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		6955-56	6955-57	6955-60	6955-61
Layer Number					
Lab ID Number		3115589	3115590	3115593	3115594
Sample Location		Roof - Original Roof, Top Layer	Roof - Original Roof, Top Layer	Roof, Top Layer, On ISO Foam	Roof, Top Layer, On ISO Foam
Sample Description		Built Up Roof	Built Up Roof	EPDM	EPDM
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	Yes	Yes	No	No
	Color	Black	Black	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	< 0.1	2.2	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	< 0.1	2.2	ND	ND
Other Materials Present	% Organic	96.7	69.1	73.7	75.2
	% Carbonates	1.0	19.7	1.3	1.3
	% Other Inorganic	2.3	9.0	25.0	23.5

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/14/2025
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-62	6955-63	6955-66	6955-67
Layer Number					
Lab ID Number		3115595	3115596	3115599	3115600
Sample Location		Roof - Gym Wall Facade, Wall, Behind EPDM, On Cementitious Panel	Roof - Gym Wall Facade, Wall, Behind EPDM, On Cementitious Panel	Roof, Wall, Side of Gym, On Far Louvre	Roof, Wall, Side of Gym, On Far Louvre
Sample Description		Mastic	Mastic	Caulk	Caulk
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Yellow	Yellow	White	White
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	3.5	3.7
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	3.5	3.7
Other Materials Present	% Organic	82.6	85.7	21.9	18.5
	% Carbonates	11.8	12.6	71.1	74.0
	% Other Inorganic	5.6	1.7	3.5	3.8

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. ND = Not Detected.
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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/14/2025
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		6955-68	6955-69	6955-70	6955-71
Layer Number					
Lab ID Number		3115601	3115602	3115603	3115604
Sample Location		Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick	Roof, Gym Window Panels, Metal to Brick
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black	Black	Black	Black
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	70.8	71.0	51.0	51.1
	% Carbonates	24.5	24.2	45.9	46.9
	% Other Inorganic	4.7	4.8	3.1	2.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Date Collected : 09/04/2025
Collected By : D. Stamper/S. Talsma/J. Lopez
Date Received : 09/05/2025
Date Analyzed : 09/14/2025
Analyzed By : Fahrudin Lalic
Signature :
Analytical Method : NYS-DOH 198.4
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-72	6955-73	6955-74	6955-75
Layer Number					
Lab ID Number		3115605	3115606	3115607	3115608
Sample Location		Roof, Skylights, Plastic to Metal	Roof, Skylights, Plastic to Metal	Roof, On Gym Wall Facade, On Louvre	Roof, On Gym Wall Facade, On Louvre
Sample Description		Caulk	Caulk	Caulk	Caulk
Analytical Method		NOB Tem	NOB Tem	NOB Tem	NOB Tem
Appearance	Layered	No	No	No	No
	Homogenous	Yes	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Black	Black	White	White
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Materials Present	% Organic	94.5	71.7	64.0	64.2
	% Carbonates	1.6	7.8	25.2	24.9
	% Other Inorganic	3.9	20.5	10.8	10.9

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 400 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT # : 25-6955
SAMPLED BY: D. Stamper
DATE SAMPLED: 8-Dec-25
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, QTEM
TURN-AROUND TIME: RUSH

PROJECT NAME: 2024 Bond Phase 1
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S Highland Avenue
Ossining, NY 10562

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-01	1	1	Boys Locker Room	Additional Locker Room 12x12, Generators	Ceiling Tile 3138337	
6955-02	1	1	Girls Locker Room	Bathroom, 12x12 Generators	" 3138338	

Comments:

SUBMITTED BY: [signature]

RECEIVED BY: [signature]

DATE: 12-8-25

DATE:

PAGE 1 OF 1

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - 2024 Bond Phase 1 - Ossining High School - 29 South Highland Avenue - Ossining, NY

Client QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 12/08/2025
Collected By : D. Stamper
Date Received : 12/08/2025
Date Analyzed : 12/09/2025
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.6
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number		6955-01	6955-02
Layer Number			
Lab ID Number		3138337	3138338
Sample Location		1st Floor, Boys Locker Room, Additional Locker Area, 12 x 12, Cementitious	1st Floor, Girls Locker Room, Bathroom, 12 x 12, Cementitious
Sample Description		Ceiling Tile	Ceiling Tile
Analytical Method		NOB Plm	NOB Plm
Appearance	Layered	Yes	Yes
	Homogenous	No	No
	Fibrous	Yes	Yes
	Color	Gray/White	Gray/White
Asbestos Content	% Amosite	ND	ND
	% Chrysotile	12.5	14.4
	% Other	ND	ND
	% Total Asbestos	12.5	14.4
Other Materials Present	% Organic	12.0	9.8
	% Carbonates	25.2	32.6
	% Other Inorganic	50.3	43.2

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. Samples received in acceptable condition unless otherwise noted. ND = Not Detected.
Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Cannot Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing (Unless "% Other Inorganic", As Reported Above, Is Less Than One Percent).
This method does not remove vermiculite and may underestimate the level of asbestos present in a sample containing greater than 10% vermiculite.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Quality Environmental Solutions and Technologies, Inc.
Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 300 Exectutive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT NAME: Pre-Construction Environmental Testing
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S. Highland Avenue
Ossining, NY 10562

PROJECT #: 256955
SAMPLED BY: C. Annesi, J. Lopez

DATE SAMPLED: 5-Feb-26
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, TEM

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-01	1	1	Office 10	Above Suspended Ceiling, On Metal Beams	Spray-On Fireproofing	3147357
6955-02	1	1	Office 10	Above Suspended Ceiling, On Metal Beams	Spray-On Fireproofing	3147358
6955-03	1	1	Office 10	Above Suspended Ceiling, On Metal Beams	Spray-On Fireproofing	3147359
6955-04	1	1	Office 10	Above Suspended Ceiling, On Metal Beams	Spray-On Fireproofing	3147360
6955-05	1	1	Office 10	Above Suspended Ceiling, On Metal Beams	Spray-On Fireproofing	3147361
6955-06	2	3	Elevator Shaft	Ceiling	Plaster	3147362
6955-07	2	3	Elevator Shaft	Ceiling	Plaster	3147363
6955-08	2	3	Elevator Shaft	Ceiling	Plaster	3147364
6955-09	3	2	Elevator Shaft	Wall	CMU	3147365
6955-10	3	2	Elevator Shaft	Wall	CMU	3147366
6955-11	4	2	Elevator Shaft	Wall	Mortar	3147367
6955-12	4	2	Elevator Shaft	Wall	Mortar	3147368
6955-13	5	1	Office 10	On Floor, Green 9X9, Black Mastic	Floor Tile and Mastic	
6955-14	5	1	Office 10	On Floor, Green 9X9, Black Mastic	Floor Tile and Mastic	
6955-15	6	1	Office 10	Floor, Under 9X9 Floor Tile	Slab	3147369

ASBESTOS FLOOR PREP WORK
INITIAL - MP 02/09/2026

Comments:

SUBMITTED BY: C Ann
DATE: 2/6/26

RECEIVED BY: MDWeaver
FEB 6'26 20:00
DATE:

Quality Environmental Solutions and Technologies, Inc.

Bulk Sample Chain of Custody

CLIENT: Ossining UFSD
ADDRESS: 300 Executive Blvd
Ossining, NY 10562
CONTACT: Jared Mance

PROJECT NAME: Pre-Construction Environmental Testing
PROJECT BUILDING: Ossining High School
PROJECT ADDRESS: 29 S. Highland Avenue
Ossining, NY 10562

PROJECT # : 256955
SAMPLED BY: C. Annesi, J. Lopez

DATE SAMPLED: 5-Feb-26
STATE SAMPLED IN: New York
ANALYSIS METHOD: PLM, NOB-PLM, TEM

TURN-AROUND TIME: 5-DAY

Sample	HM#	Floor	Space Name/ID #	Location	Material	Results
6955-16	6	1	Office 10	Floor, Under 9X9 Floor Tile	Slab	3147370

Comments:

SUBMITTED BY: C Annesi

FEB 6'26 DATE: 2/6/26

RECEIVED BY: M DeGrace

DATE:

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-01	6955-02	6955-03	6955-04
Layer Number					
Lab ID Number		3147357	3147358	3147359	3147360
Sample Location		1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams
Sample Description		Spray-On Fireproofing	Spray-On Fireproofing	Spray-On Fireproofing	Spray-On Fireproofing
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Green/White	Green/White	Green/White	Green/White
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	15.0	10.0	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	15.0	10.0	10.0
	% Carbonates	30.0	30.0	25.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	45.0	45.0	40.0

Results Applicable To Those Items Tested. Report Cannot be Reproduced, Except Entirely, Without Written Approval of the Laboratory. ND = Not Detected. Reporting Limit is <1%.
Liability Limited To Cost Of Analysis. This Report Must Not be Used by the Client to Claim Product Endorsement by NVLAP or Any Agency of the US Government.
These Results Can Not Be Used To Claim That NOB Items Tested Are Non-Asbestos Containing. Samples received in acceptable condition unless otherwise noted.
AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-05	6955-06	6955-06	6955-07
Layer Number			1	2	1
Lab ID Number		3147361	3147362	3147362	3147363
Sample Location		1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling
Sample Description		Spray-On Fireproofing	Plaster (Plaster Layer)	Plaster (Scratch Layer)	Plaster (Plaster Layer)
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	No	Yes
	Homogenous	No	No	Yes	No
	Fibrous	Yes	No	No	No
	Color	Green/White	White/Gray	Gray	White/Gray
Sample Treatment		Homogenized	Homogenized	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	15.0	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	20.0	30.0	20.0
	% Carbonates	30.0	40.0	25.0	40.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	40.0	45.0	40.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-07	6955-08	6955-08	6955-09
Layer Number		2	1	2	
Lab ID Number		3147363	3147364	3147364	3147365
Sample Location		3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	2nd Floor, Elevator Shaft, Wall
Sample Description		Plaster (Scratch Layer)	Plaster (Plaster Layer)	Plaster (Scratch Layer)	CMU
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	No	No
	Homogenous	Yes	No	Yes	No
	Fibrous	No	No	No	No
	Color	Gray	White/Gray	Gray	Gray/Black
Sample Treatment		None	Homogenized	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	35.0	15.0	30.0	20.0
	% Carbonates	25.0	40.0	25.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	45.0	45.0	50.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-10	6955-11	6955-12	6955-15
Layer Number					
Lab ID Number		3147366	3147367	3147368	3147369
Sample Location		2nd Floor, Elevator Shaft, Wall	2nd Floor, Elevator Shaft, Wall	2nd Floor, Elevator Shaft, Wall	1st Floor, Office 10, Floor, Under 9 x 9 Floor Tile
Sample Description		CMU	Mortar	Mortar	Slab
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray/Black	Gray	Gray	Gray
Sample Treatment		Homogenized	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	35.0	35.0	35.0
	% Carbonates	30.0	25.0	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	40.0	45.0	45.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number	6955-16
Layer Number	
Lab ID Number	3147370
Sample Location	1st Floor, Office 10, Floor, Under 9 x 9 Floor Tile
Sample Description	Slab
Method of Quantification	Scanning Option

Appearance	Layered	No
	Homogenous	Yes
	Fibrous	No
	Color	Gray
Sample Treatment		None
Asbestos Content	% Amosite	ND
	% Chrysotile	ND
	% Other	ND
	% Total Asbestos	ND
Other Fibrous Materials Present	% Fibrous Glass	ND
	% Cellulose	ND
	% Other	ND
	% Unidentified	ND
Non-Fibrous Materials Present	% Silicates	30.0
	% Carbonates	20.0
	% Other	ND
	% Unidentified	50.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-01	6955-02	6955-03	6955-04
Layer Number					
Lab ID Number		3147357	3147358	3147359	3147360
Sample Location		1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams
Sample Description		Spray-On Fireproofing	Spray-On Fireproofing	Spray-On Fireproofing	Spray-On Fireproofing
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	No	No	No
	Fibrous	Yes	Yes	Yes	Yes
	Color	Green/White	Green/White	Green/White	Green/White
Sample Treatment		Homogenized	Homogenized	Homogenized	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	15.0	10.0	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	15.0	10.0	10.0
	% Carbonates	30.0	30.0	25.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	45.0	45.0	40.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-05	6955-06	6955-06	6955-07
Layer Number			1	2	1
Lab ID Number		3147361	3147362	3147362	3147363
Sample Location		1st Floor, Office 10, Above Suspended Ceiling, On Metal Beams	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling
Sample Description		Spray-On Fireproofing	Plaster (Plaster Layer)	Plaster (Scratch Layer)	Plaster (Plaster Layer)
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	No	Yes
	Homogenous	No	No	Yes	No
	Fibrous	Yes	No	No	No
	Color	Green/White	White/Gray	Gray	White/Gray
Sample Treatment		Homogenized	Homogenized	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	15.0	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	15.0	20.0	30.0	20.0
	% Carbonates	30.0	40.0	25.0	40.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	40.0	45.0	40.0

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AIHA LAP, LLC No. 100263 Rhode Island DOH No. AAL-072 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AL-709936

Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-07	6955-08	6955-08	6955-09
Layer Number		2	1	2	
Lab ID Number		3147363	3147364	3147364	3147365
Sample Location		3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	3rd Floor, Elevator Shaft, Ceiling	2nd Floor, Elevator Shaft, Wall
Sample Description		Plaster (Scratch Layer)	Plaster (Plaster Layer)	Plaster (Scratch Layer)	CMU
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	Yes	No	No
	Homogenous	Yes	No	Yes	No
	Fibrous	No	No	No	No
	Color	Gray	White/Gray	Gray	Gray/Black
Sample Treatment		None	Homogenized	None	Homogenized
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	35.0	15.0	30.0	20.0
	% Carbonates	25.0	40.0	25.0	30.0
	% Other	ND	ND	ND	ND
	% Unidentified	40.0	45.0	45.0	50.0

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Date Collected : 02/05/2026
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Date Received : 02/06/2026
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Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Sample ID Number		6955-10	6955-11	6955-12	6955-15
Layer Number					
Lab ID Number		3147366	3147367	3147368	3147369
Sample Location		2nd Floor, Elevator Shaft, Wall	2nd Floor, Elevator Shaft, Wall	2nd Floor, Elevator Shaft, Wall	1st Floor, Office 10, Floor, Under 9 x 9 Floor Tile
Sample Description		CMU	Mortar	Mortar	Slab
Method of Quantification		Scanning Option	Scanning Option	Scanning Option	Scanning Option
Appearance	Layered	No	No	No	No
	Homogenous	No	Yes	Yes	Yes
	Fibrous	No	No	No	No
	Color	Gray/Black	Gray	Gray	Gray
Sample Treatment		Homogenized	None	None	None
Asbestos Content	% Amosite	ND	ND	ND	ND
	% Chrysotile	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Total Asbestos	ND	ND	ND	ND
Other Fibrous Materials Present	% Fibrous Glass	ND	ND	ND	ND
	% Cellulose	ND	ND	ND	ND
	% Other	ND	ND	ND	ND
	% Unidentified	ND	ND	ND	ND
Non-Fibrous Materials Present	% Silicates	25.0	35.0	35.0	35.0
	% Carbonates	30.0	25.0	20.0	20.0
	% Other	ND	ND	ND	ND
	% Unidentified	45.0	40.0	45.0	45.0

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Eastern Analytical Services, Inc.

Bulk Sample Results

RE: CPN 256955 - Ossining UFSD - Pre-Construction Environmental Testing - Ossining High School - 29 S. Highland Avenue - Ossining, NY

Client: QuES&T, Inc.
1376 Route 9
Wappingers Falls, NY 12590

Date Collected : 02/05/2026
Collected By : C. Annesi/J. Lopez
Date Received : 02/06/2026
Date Analyzed : 02/09/2026
Analyzed By : George Htay
Signature :
Analytical Method : NYS-DOH 198.1
NVLAP Lab Code : 101646-0 (Testing)
NYS Lab No. 10851
Paul Stascavage ,Lab Director

Sample ID Number	6955-16
Layer Number	
Lab ID Number	3147370
Sample Location	1st Floor, Office 10, Floor, Under 9 x 9 Floor Tile
Sample Description	Slab
Method of Quantification	Scanning Option

Appearance	Layered	No
	Homogenous	Yes
	Fibrous	No
	Color	Gray
Sample Treatment		None
Asbestos Content	% Amosite	ND
	% Chrysotile	ND
	% Other	ND
	% Total Asbestos	ND
Other Fibrous Materials Present	% Fibrous Glass	ND
	% Cellulose	ND
	% Other	ND
	% Unidentified	ND
Non-Fibrous Materials Present	% Silicates	30.0
	% Carbonates	20.0
	% Other	ND
	% Unidentified	50.0

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Appendix C:
XRF ANALYTICAL DATA

Quality Environmental Solutions & Technologies
1376 Route 9
Wappingers Falls, NY 12590
(845) 298-6031

Limited XRF LBP Testing

Ossining UFSD
Ossining High School
29 S Highland Ave
Ossining, NY 10562
25-6955

Sample	Building/Address	Interior/Exterior	Floor	Space/Room/Description	Object	Component	Substrate	Color	Condition	Result	Pb Concentration
											(mg/cm2)
1	NIST (1.04 +/- 0.06)										0.9
2	NIST (<0.01)										-0.1
3	Ossining High School	Exterior	Roof	Above Locker Roof	Beam	Structural Beam	Metal	Grey	Good	Negative	0.1
4	Ossining High School	Exterior	Roof	Above Locker Roof	Window	Frame	Metal	Grey	Good	Negative	0.6
5	Ossining High School	Interior	1st	Hallway	Wall	Wall	Block	Beige	Good	Negative	0
6	Ossining High School	Interior	1st	Athletic Office	Wall	Wall	Sheetrock	Grey	Good	Negative	0
7	Ossining High School	Interior	1st	138 Room	Wall	Wall	Sheetrock	Grey	Good	Negative	0.1
8	Ossining High School	Interior	1st	136 Science Room	Wall	Wall	Sheetrock	Beige	Good	Negative	-0.1
9	Ossining High School	Interior	1st	134 Room	Wall	Wall	Sheetrock	Beige	Good	Negative	0.1
10	Ossining High School	Interior	1st	132 Room	Wall	Wall	Sheetrock	Beige	Good	Negative	0
11	Ossining High School	Interior	1st	Main Entry Hallway	Wall	Wall	Sheetrock	White	Good	Negative	0
12	Ossining High School	Interior	1st	Open Door/Nurses	Wall	Wall	Plaster	Pink	Good	Negative	0.4
13	Ossining High School	Interior	1st	Girls Locker Room	Wall	Wall	Block	Beige	Good	Negative	0.2
14	Ossining High School	Interior	1st	Girls Locker Room	Floor	Floor	Concrete	Grey	Good	Negative	0.1
15	Ossining High School	Interior	1st	Girls Locker Room	Locker	Locker	Metal	Red	Good	Negative	0
16	Ossining High School	Interior	1st	Boys Locker Room	Wall	Wall	Block	White	Good	Negative	-0.3
17	Ossining High School	Interior	1st	Boys Locker Room	Floor	Floor	Concrete	Grey	Good	Negative	0.1
18	Ossining High School	Interior	1st	Girls Locker Room	Door	Door	Wood	Green	Good	Negative	-0.1
19	Ossining High School	Interior	1st	Girls Locker Room	Door	Frame	Metal	Green	Good	Positive	3.9
20	Ossining High School	Interior	1st	Boys Locker Room	Door	Frame	Metal	Green	Good	Positive	3.7
21	Ossining High School	Interior	1st	Locker Room Vestibule	Radiator	Radiator	Metal	Green	Good	Negative	0.1
22	Ossining High School	Interior	1st	Locker Room Vestibule	Window	Sill	Metal	Grey	Good	Negative	0.1
23	Ossining High School	Interior	1st	Locker Room Vestibule	Wall	Wall	Sheetrock	White	Good	Negative	-0.1
24	Ossining High School	Interior	1st	Boys Locker Room	Bench	Bench	Wood	Red	Good	Negative	-0.1
25	NIST (1.04 +/- 0.06)										0.9
26	NIST (<0.01)										-0.1

Conducted: 09/04/2025
XRF Technician(s): Jessica Lopez

Appendix D:
PERSONNEL LICENSES & CERTIFICATIONS

NEW YORK STATE

MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISE ("MWBE")

CERTIFICATION

Empire State Development's Division of Minority and Women's Business Development grants a

Minority Business Enterprise (MBE)

pursuant to New York State Executive Law, Article 15-A to:

Quality Environmental Solutions & Technologies Inc. DBA QuEST

Certification Awarded on: May 13, 2024
Expiration Date: May 13, 2029
File ID#: 49952

NEW YORK STATE OF OPPORTUNITY. Division of Minority and Women's Business Development

A Division of Empire State Development

United States Environmental Protection Agency

This is to certify that

Quality Environmental Solutions & Technologies, Inc.

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint renovation, repair, and painting activities pursuant to 40 CFR Part 745.89

In the Jurisdiction of:

All EPA Administered States, Tribes, and Territories

This certification is valid from the date of issuance and expires December 01, 2026

NAT-119213-3

Certification #

November 09, 2021

Issued On

Michelle Price, Chief

Lead, Heavy Metals, and Inorganics Branch

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NEW YORK STATE | Department of Labor

DIVISION OF SAFETY & HEALTH LICENSE AND CERTIFICATE UNIT, STATE OFFICE CAMPUS, BLDG. 12, ALBANY, NY 12226

ASBESTOS HANDLING LICENSE

Quality Environmental Solutions & Technologies, Inc.
1376 Route 9, Wappinger Falls, NY, 12590

License Number: 29085
License Class: RESTRICTED
Date of Issue: 01/02/2025
Expiration Date: 01/31/2026
Duly Authorized Representative: Lawrence J Holzapfel

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Amy Phillips, Director
For the Commissioner of Labor

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

CAROLINE M ANNESI
CLASS(EXPIRES)
D INSP (03/26) H PM (03/26)
C ATEC (03/26)

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C ATEC (06/26) D INSP (06/26)
H PM (06/26)

CERT# 25-6AJ9Y-SHAB
DMV# 262028351

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H PM (12/26)

CERT# 25-6LUH4-SHAB
DMV# 190870975

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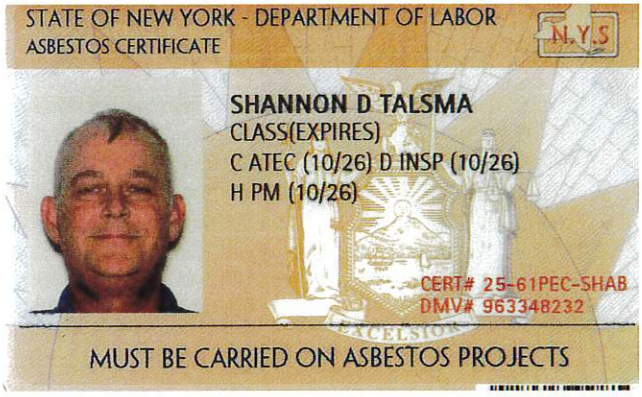

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SECTION 003132
GEOTECHNICAL DATA

PART 1 GENERAL

1.01 GEOTECHNICAL DATA

A. This Section with its referenced attachments are part of the Procurement and Contracting Requirements for Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations. They are made available for Bidders' convenience and information, but are not a warranty of existing conditions. This Document and its attachments are not part of the Contract Documents.

B. Because subsurface conditions indicated by the soil borings are a sampling in relation to the entire construction area, and for other reasons, the Owner, the Architect, the Architect's consultants, and the firm reporting the subsurface conditions do not warranty the conditions below the depths of the borings or that the strata logged from the borings are necessarily typical of the entire site. Any party using the information described in the soil borings and geotechnical report shall accept full responsibility for its use.

C. A geotechnical investigation report for Project, prepared by Terracon, dated May 23, 2025, is available for viewing and is appended to this Document.
   1. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from the data.
   2. Any party using information described in the geotechnical report shall make additional test borings and conduct other exploratory operations that may be required to determine the character of subsurface materials that may be encountered.

D. Related Requirements:
   1. Section 002000 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
   2. Section 003119 "Existing Condition Information" for information about existing conditions that is made available to bidders.
   3. Section 003126 "Existing Hazardous Material Information" for hazardous materials reports that are made available to bidders.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

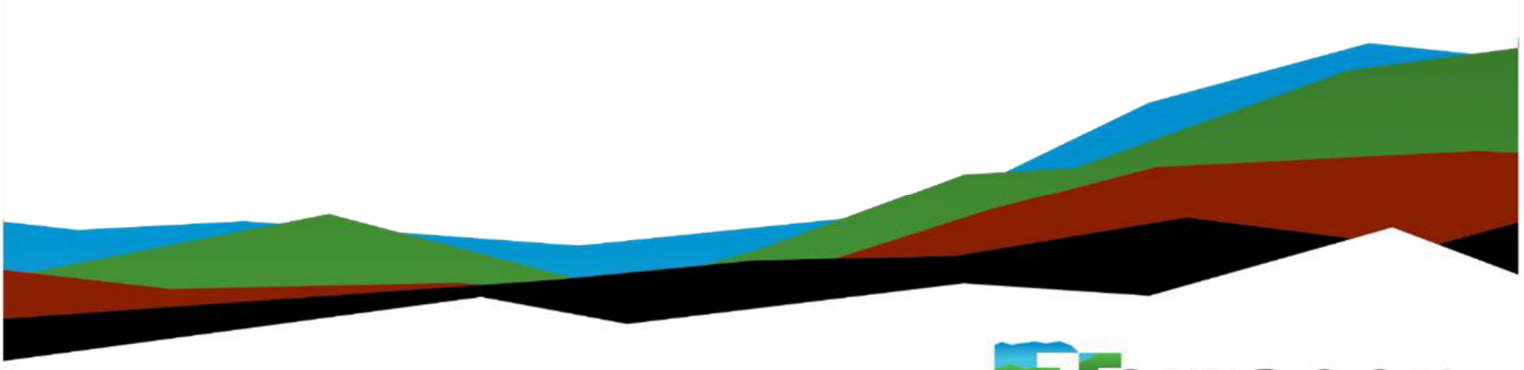
Ossining High School Building Additions

Geotechnical Engineering Report

May 23, 2025 | Terracon Project No. JB245257

Prepared for:

CPL Architects Engineers Landscape
Architect & Surveyor DPC
26 IBM Road
Poughkeepsie, NY 12601



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May 23, 2025

CPL Architects Engineers Landscape Architect & Surveyor DPC
26 IBM Road
Poughkeepsie, NY 12601

Attn: Lisa Fasciglione, Architectural Project Manager
P: (845) 522-5796
E: ljfasciglione@cplteam.com

Re: Geotechnical Engineering Report
Ossining High School Building Additions
29 South Highland Avenue
Ossining, NY
Terracon Proposal No. JB245257

Dear Ms. Fasciglione:

We have completed the Geotechnical Engineering services for the above referenced project in general accordance with Terracon proposal no. PJB245257 which was authorized on or about January 27, 2025. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs for the proposed project.

We appreciate the opportunity to be of service to you. If you have any questions concerning this report or if we may be of further service, please contact us at your convenience.

Sincerely,

Terracon Consultants – NY, Inc.

Asa Barnhill, P.E.
Sr. Staff Geotechnical Engineer

Joseph Robichaud Jr., P.E.
Principal / Operations Manager

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Exploration and Testing Procedures

Photography Log
Site Location and Exploration Plans
Exploration and Laboratory Results
Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed building additions and site improvements at three adjacent properties in Ossining, New York. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per IBC
- Site preparation and earthwork
- Demolition considerations
- Foundation design and construction
- Floor slab design and construction
- Lateral earth pressures

The geotechnical engineering Scope of Services for this project included the advancement of 8 test borings to depths ranging from 7.8 to 26.5 feet below existing site grades, limited laboratory testing, an engineering evaluation of the conditions encountered and preparation of this report.

Drawings showing the site and test boring locations are included as the attached **Site Location** and **Exploration Plan**, respectively. Photographs from this exploration are included in the **Photography Log**.

Site Conditions

Existing conditions at the site are summarized in the following table.

Item	Description
Parcel Information	The three properties involved with this project are as follows: ■ Ossining High School: 29 South Highland Avenue in Ossining, NY. ■ Church Building: 1 Emwilton Place, Ossining, NY ■ Repository Building: 3 Emwilton Place, Ossining, NY The Ossining High School property is involved with all three proposed addition/improvement areas planned for the project, while the Church and Repository building properties are only involved with the CTE Building Addition referenced herein. (See Exhibit D)
Existing Improvements	■ Ossining High School: Existing high school with associated athletic fields, parking lots, and drives. The existing building is a 2 to 3-story structure including some crawlspace and basement levels. An existing retaining wall borders the western and southern limits of the property. ■ Church Building: Existing church building with an annex and associated parking. The existing building is 2-stories and contains a crawlspace. Existing retaining walls border the property on all sides. ■ Repository Building: Existing building with an associated driveway and retaining walls that border the property on all sides.
Current Ground Cover	Grass, concrete, and asphalt paving.
Existing Topography	■ Ossining High School: Grades generally sloping downhill away from the school between elevation 250 and 220 feet. ■ Church Building: Grades generally between elevation 251 and 245 feet with a downhill gradient to the southwest. ■ Repository Building: Grades generally between elevation 260 and 256 feet with grades sloping downhill away from the existing building.

Project Description

Our understanding of the project is tabulated below.

Item	Description
Project Description	Selective demolition and three new building additions/site improvements are planned at the Ossining High School campus. The three locations are referenced on the Plan as: <u>Church Steam Building Demo & Addition (CTE Addition):</u> The Church and Repository building properties are owned by the school district and are planned as part of the expansion of the school campus. At the Church building property, the main church building is planned to be renovated while the eastern annex is planned to be demolished. At the Repository building property, the building is planned to be demolished along with the existing retaining walls. The demolition is planned to be phased with the repository building in the 1st phase followed by the church annex and retaining wall demolition in the 2nd phase. After the demolition, a new 3-story addition is planned to connect to the main church building at the first and second floor levels, while the new addition is also planned to connect to the existing high school building via a skywalk to the 2nd and 3rd floor levels. A new retaining wall is planned along the northern limits of the Church and Repository building properties with the high school with a maximum exposed wall height of about 3 feet. Additionally, a new retaining wall is planned along the southern limits of the Church and Repository building properties with maximum exposed wall heights of about 5 feet. <u>OHS Music Wing Demo & Addition (Music Wing Addition):</u> A 1-story addition is planned to the western portion of the existing high school building. <u>OHS Student Commons (Student Commons Improvements):</u> ■ Demolition and replacement of the existing structures (ramps, stairs, and retaining walls) is being considered.

Item	Description
Information Provided	■ Email request for proposal on November 8, 2024. ■ "OUFSD 24' Bond HS and Church Projects" plan which included proposed boring locations by CPL dated November 2024 (Plan). ■ "Partial Topographic & Utility Survey" dated January 21, 2025 and field utility sketches dated January 28, 2025 by Control Point Associates (Control Point). ■ "CTE Addition – New Work Site Plan" by CPL dated April 18, 2025. ■ Four-page architectural PDF drawing set (A100 through A103) and a one-page civil drawing titled "OHS Overall Site Plan" (OHS C200) by CPL both dated March 26, 2025. Follow up email and phone correspondence with CPL.
Proposed Structure	Referencing drawing A101 we understand the square footage of the additions to be as the following. ■ CTE Addition: 6,850 sq ft ■ Music Wing Addition: 3,690 sq ft ■ Student Commons Improvements: Not described on plan. Area is assumed to be less than 4,000 square feet.
Building Construction	The additions are planned to be slab-on-grade and steel framed with a brick façade.
Finished Floor Elevation	■ CTE Addition: Finished floor elevation is shown as 250.49 feet. ■ Music Wing Addition: Not provided - assumed to match or be near the existing finished floor elevation.
Maximum Loads	In the absence of information provided by the design team, we will use the following loads in estimating settlement based on our experience with similar projects. ■ Columns: 150 kips ■ Walls: 5 kips per linear foot (klf) ■ Slabs: 150 pounds per square foot (psf)

Item	Description
Grading/Slopes	■ CTE Addition: Fills on the order of 4 feet and cuts on the order of 9 feet are shown on the plans provided. ■ The Music Wing Addition and Student Commons Improvements area is in the conceptual stage of design, so grading plans have not been developed at the time of this report. Minimal cuts and fills, on the order of 3 feet or less, are assumed and are considered in preparation of this report.
Below-Grade Structures	None anticipated.
Free-Standing Retaining Walls	As previously referenced, new retaining walls along the northern and southern limits of the Church and Repository building properties as shown on the provided plans. Maximum exposed wall heights of 5 feet are shown on the plans provided. It should be noted that borings specific to these new retaining walls were not requested within this scope. General lateral earth pressure recommendations have been provided in this report.
Pavements	None requested.
Building Code	2020 Building Code of New York State.

If any of the above information is incorrect, please let us know so we can review the conclusions and recommendations provided in this report for applicability to the actual design and update the report as appropriate.

As the design of the project progresses and site grading plans and building loads are fully developed, we should be retained to assess this site-specific information relative to the recommendations contained herein.

Subsurface Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical analysis and evaluation of the site. Conditions observed at each exploration point are indicated on the individual subsurface logs. The individual logs can be found in the **Exploration Results** attachment to this report, together with the results of whatever laboratory testing was performed, and the GeoModel can be found in the **Figures** section.

Subsurface Profile

We have identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Fill**	Silty sand with varying amounts of gravel, with schist, brick, asphalt and wood fragments, and organics noted.
2	**Native coarse-grained soils**	Silty sand with lesser amounts of gravel, very loose to medium dense.
3	**Glacial Till**	Silty sand with varying amounts of gravel, schist fragments, cobbles and boulders noted, medium dense to very dense.
4	**Weathered Bedrock**	Schist fragments recovered.

Surface Materials and Fill Soils

Surface materials consisted of about 2 to 6 inches of topsoil, 1.5 to 8 inches of asphalt pavement section (asphalt and subbase combined), or 5.5 inches of concrete at the locations investigated. The surficial material thickness as indicated on the subsurface logs should be regarded as a rough approximation only; contractors are advised to make their own estimates or determination of existing surface material thicknesses for bidding purposes.

Fill soils were encountered in five of the eight test borings to depths ranging between 2 and 5.6 feet below ground surface (BGS). The fill soils consisted of silty sand with varying amounts of gravel, schist, asphalt, wood and brick fragments, with lesser amounts of organics noted. It is possible that fill soils may be encountered in other locations at the site, especially within the backfill zone along the existing foundation walls. Fills associated with the existing buildings to be demolished and existing utilities should also be anticipated.

Native Soils and Weathered Bedrock

Underlying the surface materials or fill soils where encountered, native coarse-grained soils were encountered in six of the eight borings to depths ranging between 4 and 10 feet BGS. The coarse-grained soils were generally comprised of silty sand with lesser

amounts of gravel and noted to be very loose to medium dense in relative density on the basis of measured SPT 'N' values.

Glacial till was encountered underlying the coarse-grained soils or fill soils of each test boring and extended to depths ranging between 15.5 and 26.5 feet BGS. The glacial till primarily consisted of silty sand with varying amounts of gravel, with schist fragments, and cobbles and boulders noted. The glacial till was noted to be medium dense to very dense in relative density on the basis of measured SPT 'N' values.

Underlying the glacial till, weathered bedrock was encountered in test boring B-8, at a depth of 25 feet BGS. Schist fragments were recovered from the split spoon sampler at this depth. The boring terminated with spoon refusal at 25.5 feet BGS. Bedrock is mapped as the Manhattan Formation which consists of amphibolite, gneiss, and schist according to the 1970 Geologic Map of NYS.

Groundwater Conditions

Measurable groundwater was encountered during drilling at two of the eight borings, BH-2 and BH-3, at depths of 6 and 10 feet BGS, respectively. It should be noted that adequate time may not have elapsed upon completion of sampling for groundwater, if present, to enter and achieve a static level in the augers.

We expect that groundwater is present where the soils became gray in color, which was observed in 5 of the 8 borings. At the CTE Addition area, we believe that groundwater may be present at a depth of about 10 or more feet BGS. At the Music Wing Addition and Student Commons Improvements area we believe that groundwater is 15 or more feet BGS. The groundwater table is assumed to generally follow an east to west downward gradient towards Sing Song Brook and ultimately the Hudson River which is about a half-mile to the west of the school campus.

Although not specifically encountered in the test borings at this site, artesian ground water conditions may occur within glacial till deposits, most commonly at the interface of the glacial till and underlying bedrock surface, or where granular seams and/or layers are present within the glacial till stratum.

Water may also, at times, tend to become locally perched or trapped atop the siltier seams and layers within the fill soils and at the interface of the fills and native glacial till deposits.

Groundwater conditions, and the extent of any perched water, should be expected to vary with seasonal fluctuations in precipitation and runoff. Additionally, grade adjustments on and around the site, as well as drainage improvements, may affect the water table. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Assignment of Site Class is required to determine the Seismic Design Category for a structure. The Site Class is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Seismic Site Classification

Based on the soil properties observed at the site, it is our professional opinion that the seismic Site Class is D. Subsurface explorations at this site were extended to a maximum depth of 26.5 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions in the site locale. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth, if desired.

Geotechnical Overview

The subsurface conditions encountered at the project site are considered suitable for support of the proposed building additions and site improvements using shallow spread foundations and slab-on-grade design. Based on the conditions disclosed by our investigation, we offer the following general conclusions.

- New foundations may be supported on undisturbed native soils or on imported Structural Fill which is placed over the native soils after all existing utilities, fill, remains of former structures or otherwise unsuitable materials which may be found are removed. Existing fills should not be relied upon for new foundation support.

- If existing fill throughout the site is similar in composition to that found in the test borings, consideration may be given to support of new floor slabs over the existing fill provided the subgrade surfaces are proof-rolled and stabilized as may be required. It should be understood the proof-rolling will lessen, but not eliminate, the possibility that settlement of slabs constructed over the existing fill may occur over time and require periodic maintenance.

- It is recommended that any existing utilities be rerouted such that they are outside of the new building addition footprints and abandoned utilities be removed in their entirety as part of the site development.

- We expect the soils excavated on site will in general be composed of excessively silty materials unsuitable for reuse as Structural Fill or backfill. It should be assumed that an imported granular material will be required for the purposes of backfill about the structure's foundations and floor slabs, unless otherwise noted. The excavated soils should be reused in non-sloping landscape areas only or wasted off-site.

- Groundwater is generally expected to be below foundation excavation depths and should not be a significant factor in planning for design and construction of the building addition. If perched water is encountered during construction, it is expected to be limited in volume and occur as relatively slow seepage, and standard sump and pump methods should be sufficient for its removal. Dewatering is a means and methods consideration for the contractor.

The following sections of this report provide more specific recommendations to assist in planning for the geotechnical aspects of the project. We should be provided with the opportunity to review plans and specifications prior to their release for bidding to confirm that our recommendations were properly understood and implemented, and to allow us to refine our recommendations, if warranted, based upon the final design.

The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include demolition of the existing building/portions of buildings and retaining walls as required, clearing and grubbing, removal of whatever existing unsuitable material that may be found, stabilization of subgrade surfaces as necessary, foundation excavation and associated site fill and backfill.

The following sections provide recommendations for use in the preparation of specifications for the work. The recommendations include critical quality criteria as necessary to render the site in the state considered suitable in our geotechnical engineering evaluation for foundations and floor slabs.

Construction site safety is the sole responsibility of the contractor, who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility is neither implied nor shall it be inferred.

Site Preparation

Site preparation should begin with demolition of the existing building/portions of buildings, retaining walls, and other structures as required, along with stripping of pavements and existing subbase as applicable from the building addition and improvement areas.

Any old building foundations, ramps, stairs, slabs or below grade structures including existing or abandoned utilities should be removed in their entirety along with their associated backfill from beneath the proposed building and new improvement areas, extending at least five feet beyond its perimeter where achievable. Utilities should be rerouted as necessary to keep them outside of the new building footprints.

Should the owner elect to leave existing fills in place beneath floor slabs, proof-rolling and stabilization of the subgrades as described below will lessen but cannot eliminate the risk of settlement. If this risk cannot be accepted, the existing fills should be removed and replaced in their entirety beneath proposed floor slabs as part of the site preparation. Utility trench backfill should be removed in its entirety and should not be considered to be left in place beneath slabs on grade.

Prior to placing new fills to raise site grades, and/or after cuts are made to the plan subgrade elevations, the subgrades should be proof-rolled using a steel drum roller with a static weight of at least 7 tons. The roller should operate in its vibratory mode, unless requested otherwise by the Geotechnical Engineer observing the work, and travel at a speed not exceeding three feet per second (two miles per hour). The roller should complete at least two passes over all subgrade surfaces in opposing directions. The method of proof-rolling may be modified by the Geotechnical Engineer based upon the conditions revealed at the time of construction.

Soft areas identified by the proof-rolling should be investigated to determine the cause and stabilized accordingly. These investigations may include the excavation of test pits. If existing fills are found and determined by to be unsuitable by the Geotechnical Engineer, they should be removed and replaced as deemed necessary.

Bulk Cut Considerations

Based on the findings of the subsurface investigation, bulk cuts to establish finished grades in the CTE Addition area are not expected to encounter a generalized groundwater condition. However, perched groundwater may be encountered in places and should be dewatered as necessary for construction to proceed in the dry.

Fill Material Types

For the purposes of fill/backfill within the proposed building, imported Structural Fill should be used. The Structural Fill should consist of imported sand and gravel which meets the limits of gradation given below. Any imported materials should be free of recycled concrete, asphalt, bricks, glass, and pyritic shale rock.

Imported Structural Fill	
Sieve Size	**Percent Finer**
3"	100
¼"	30 to 75
No. 40	5 to 40
No. 200	0 to 10

As previously noted, we recommend against the reuse of excavated onsite soils for fill or backfill beneath or around the proposed additions, retaining walls, and other structures.

Fill Compaction Requirements

New Structural Fill should be placed in uniform loose layers no more than about one-foot thick where heavy vibratory compaction equipment is used. Thinner lifts should be used where hand operated equipment is required for compaction. Each lift should be compacted to no less than 95 percent of the material's maximum dry density as determined by the Modified Proctor Compaction Test, ASTM D1557. In landscape areas, the compaction requirement may be relaxed to 90 percent of maximum dry density.

Grading and Drainage

All grades should provide effective drainage away from the proposed building additions during and after construction, with such drainage maintained throughout the life of the structure. Water retained next to buildings can result in soil movements greater than those outlined in this report, which may in turn lead to unsatisfactory differential floor slab and/or foundation displacements, cracked slabs and walls, or roof leaks.

Temporary Excavations

Excavations must be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P and its appendices, along with any state and local codes, as applicable. The contractor should be aware that slope height, slope inclination, and excavation depth should in no

instance exceed OSHA regulations. Flatter slopes than those stipulated by the regulations or temporary shoring may be required depending upon the soil/groundwater conditions encountered and other external factors. OSHA regulations are strictly enforced and if they are not followed, the owner, contractor, and/or earthwork and utility subcontractor could be liable and subject to substantial penalties.

If groundwater is encountered, construction dewatering should be conducted as required to allow the work to proceed in relatively dry conditions. The means and methods of dewatering should be made the contractor's responsibility.

Construction Observation and Testing

The earthwork efforts should be monitored under the direction of the Geotechnical Engineer. Monitoring should include documentation of adequate removal of surface materials and any unsuitable fills, proof-rolling, and mitigation of any areas identified as needing improvement through proof-rolling. Each lift of new Structural Fill should be satisfactorily placed and compacted prior to placement of additional lifts.

The monitoring should also include evaluation of foundation bearing grades and subgrades for floor slabs. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

It should be understood that subsurface conditions will be more fully known when the site is excavated. The continuation of the Geotechnical Engineer into the construction phase of the project will allow for validation of the subsurface conditions assumed to exist for this study and in the development of the design recommendations in this report, along with assessing any variations, providing interim recommendations as necessary and reviewing associated design changes.

Shallow Foundations

If the site has been prepared in accordance with the recommendations outlined previously in the **Earthwork** section and under the **Foundation Construction Considerations** below, the following parameters may be assumed in the design of conventional shallow spread foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing Pressure [1, 2]	▪ Native coarse-grained soils (GeoModel Layer 2) – 3,000 pounds per square foot (psf) ▪ Glacial Till (GeoModel Layer 3) – 4,000 psf
Required Bearing Stratum [3]	▪ Native coarse-grained soils (GeoModel Layer 2) ▪ Glacial Till (GeoModel Layer 3) ▪ Structural Fill over undisturbed native soils (over GeoModel Layers 2 or 3)
Minimum Foundation Dimensions	Columns: 36 inches Continuous: 24 inches
Ultimate Coefficient of Sliding Friction [4]	▪ 0.40 (concrete on GeoModel Layer 2) ▪ 0.45 (concrete on GeoModel Layer 3) ▪ 0.45 (concrete on Structural Fill over undisturbed native soils) (over GeoModel Layers 2 or 3)
Minimum Embedment below Finished Grade [5]	Exterior footings: 48 inches Interior footings in heated areas: 24 inches Interior footings in unheated areas: 48 inches
Estimated Total Settlement from Structural Loads [2]	Less than about (1) inch
Estimated Differential Settlement [2, 6]	About 3/4 of total settlement

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Values assume that exterior grades are no steeper than 20% within 10 feet of structure.
2. Values provided are for maximum loads noted in **Project Description**.
3. The bearing grades should be prepared per the recommendations presented below in the **Foundation Construction Considerations**.
4. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be disregarded for foundations subject to net uplift conditions.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure. Interior footings in heated areas may be seated at the 24-inch depth if allowed by local building codes.
6. Differential settlements are noted for equivalent-loaded foundations and bearing elevation as measured over a span of 50 feet.

Construction Adjacent to Existing Building

Differential settlement between each addition and the existing building is expected to approach the magnitude of the total settlement of each addition. Expansion joints should be provided between the existing building and each proposed addition to accommodate differential movements between the structures. Underground piping between the structures should be designed with flexible couplings and utility knockouts in foundation walls should be oversized so minor deflections in alignment do not result in breakage or distress. Care should be taken during excavation adjacent to existing foundations to avoid disturbing existing foundation bearing soils.

Where existing and new foundations will abut, they should match (or nearly match) in bearing elevation. If new foundations are to be positioned lower than existing foundations, the new foundation should not encroach within a zone extending out and down from the base of the existing foundation at an inclination of 1V:1.5H. Excavations that encroach within this zone should be sheeted, shored and/or braced as required to support the soil and existing structure loads. If new foundations are positioned within this zone, the existing foundations should be underpinned or extended deeper to establish bearing at a lower level. Additionally, new foundations should be positioned so as not to impose new loads upon existing foundation walls unless the existing walls are designed to accommodate the added load.

A licensed structural engineer should evaluate if the structural capacity of the existing foundations can withstand additional loading if any is planned. Additional loads on existing foundations could cause building settlements to occur.

Foundation Construction Considerations

The foundations may be seated directly on undisturbed native soils or on imported Structural Fill placed over the native soils. If over-excavation is required beneath the foundations to remove unsuitable material, the excavation should extend horizontally beyond each side of the foundation a distance equal to at least one-half the depth of the undercut below the final bearing grade elevation. Replacement material should meet the specification and compaction guidelines for Structural Fill as outlined herein.

Foundation bearing grades should be proof-compacted using a mechanical or large reversible plate tamper to densify the soils loosened by the excavation process unless otherwise directed by the Geotechnical Engineer observing the grades. If groundwater seepage occurs, proof-compacting should be eliminated, and a minimum six-inch thick base of clean crushed stone placed over a geotextile fabric should be provided to establish a more uniform and stable base for construction and to assist in dewatering. The stone should be an ASTM C33 Blend 57 aggregate and the fabric a non-woven synthetic filter fabric meeting NYSDOT standard specifications section 737-01 for drainage geotextile.

All final bearing grades should be relatively firm, stable, and free of loose soil, mud, water and frost. The Geotechnical Engineer should approve the condition of the foundation bearing grades immediately prior to placement of reinforcing steel and concrete.

Floor Slabs

Floor Slab Design Parameters

New floor slabs should be constructed upon a minimum six-inch-thick subbase course which conforms to the requirements for NYSDOT Type 2 Subbase or ASTM C33 Blend 57 aggregate. Consideration should be given to using a thicker subbase course in areas subject to heavier loads and/or use, or those exposed to freezing temperatures.

The use of a vapor retarder should be considered beneath concrete slabs on grade to be covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding its use and placement.

Floor slab subgrades should be prepared as outlined in the **Earthwork** section herein. Under these conditions, a modulus of subgrade reaction equal to 150 pounds per cubic inch (psi/in) may be assumed at the top of the stone base layer for slab design purposes.

Floor Slab Construction Considerations

Even with the base course recommended above, we caution that the subgrades may not support repeated heavy construction traffic or telehandlers without suffering rutting and weaving that may be especially severe during wet seasons. If the grades are to be repeatedly traversed by these types of equipment, they should be reinforced as necessary to support them. Areas which become disturbed should be excavated and stabilized accordingly.

The Geotechnical Engineer should approve the condition of floor slab subgrades immediately prior to placement of the subbase course. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

Earth Retaining Wall Design

As previously referenced, borings specific to the new retaining wall structures were not requested within this scope. Subsurface conditions may vary in these areas. The following general parameters and recommendations may be considered for earth retaining wall design, however, we recommend that additional investigations (borings or test pits) be performed in these areas to better define the subsurface conditions for design.

Design Parameters

All permanent earth-retaining foundation walls or structures should be designed to resist the lateral pressures generated by earth backfill along with any temporary or permanent surcharge loads. Active earth pressures may be assumed for site walls that are free to deflect as the backfill is placed. At-rest earth pressures should be assumed for all building walls and site walls that are braced prior to backfilling or applying surcharge loads. The following design parameters are provided to assist in calculating lateral earth pressures, whichever apply, and to analyze the stability of unbraced walls by sliding and overturning.

- Soil angle of internal friction - 30 degrees
- Coefficient of At-Rest earth pressure (k_o) - 0.50
- Coefficient of Active earth pressure (k_a) - 0.33
- Coefficient of Passive earth pressure (k_p) - 3.0
- Total unit weight of compacted soil - 120 pcf
- Coefficient of sliding friction - 0.40 (concrete on GeoModel Layer 2)
  - 0.45 (concrete on GeoModel Layer 3)
  - 0.45 (concrete on Structural Fill over undisturbed native soils) (over GeoModel Layers 2 or 3)

The recommended design parameters assume that wall backfill consists of imported Structural Fill as described in the **Earthwork** section herein (excavated site soils should not be reused for this purpose), idealized non-sloping conditions on each side of the wall, and that the backfill remains permanently well-drained. Water must not be allowed to collect against the wall unless the wall is designed to accommodate the added hydrostatic pressure. Drainage system recommendations are provided below.

Options to Limit Lateral Earth Pressure

There are several options that may be considered if it is necessary to reduce the lateral loads acting against earth retaining or foundation walls. These include the use of engineered or lightweight materials such as crushed aggregate, expanded shale or expanded polystyrene (geofoam) within the foundation wall backfill zone. Whichever

material is selected, the engineered backfill material should occupy the entire backfill zone wedge formed by a line extending up and away from a point two feet outside the base of the wall at an angle no less than 45 degrees off the vertical.

The following parameters may be assumed in the evaluation of engineered wall backfill materials. Note that the parameters are presented unfactored (i.e., they do not include a factor of safety) and assume the backfill remains drained at all times.

Engineered Material	Total Unit Weight (pcf)	Coefficient of Lateral Pressure
ASTM C33 Blend 57 Crushed Aggregate	95	0.23
Nominal 3/8" Expanded Shale Aggregate	65	0.33
Foamed Glass Aggregate	20	0.29
Geofoam (ASTM D6817)	2	N/A

Subsurface Drainage for Earth Retaining Walls

Earth retaining walls should be provided with a foundation level drain which may consist of a nominal 4-inch diameter perforated PVC or corrugated HDPE pipe embedded at the base of a minimum 12-inch-wide column of clean crushed stone (e.g., ASTM C33 Blend 57 stone). The stone should be enveloped in an appropriate non-woven filter fabric (meeting NYSDOT standard specifications table 737-01C for drainage geotextile) to inhibit siltation. Backfill soils behind the crushed stone drainage layer should consist of imported Structural Fill. The drain line should be sloped to provide positive gravity drainage to daylight, a stormwater system, or to a sump pit and pump.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include, either specifically or by implication, any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating, including excavation support and dewatering requirements/design, are the responsibility of others.

Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider performing a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

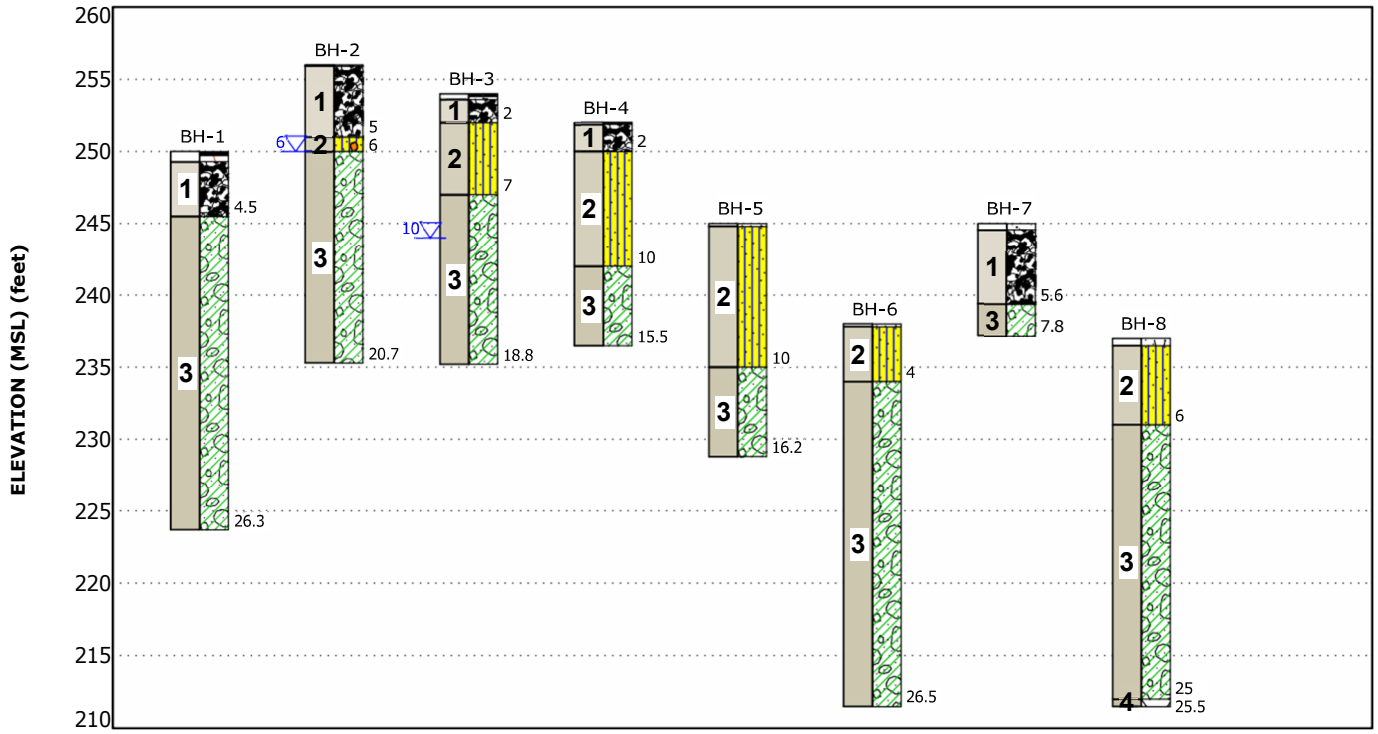
Contents:

GeoModel

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

30 Corporate Cir Ste 201
Albany, NY

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Fill	Silty sand with varying amounts of gravel, with schist, brick, asphalt and wood fragments, and organics noted.
2	Native coarse-grained soils	Silty sand with lesser amounts of gravel, very loose to medium dense.
3	Glacial Till	Silty sand with varying amounts of gravel, schist fragments, cobbles and boulders noted, medium dense to very dense.
4	Weathered Bedrock	Schist fragments recovered.

Legend

- Asphalt
- Aggregate Base Course
- Fill
- Glacial Till
- Silty Sand with Gravel
- Silty Sand
- Topsoil
- Concrete
- Weathered Rock

First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
4	15.5 to 26.3	Church Steam Addition (BH-1 through BH-4)
4	7.8 to 26.5	Music Wing Addition and Student Commons Improvements Area (BH-5 through BH-8)

Boring Layout and Elevations: The test boring locations were selected by CPL and Terracon and were established in the field by Terracon using a hand-held GPS unit (estimated horizontal accuracy of ±10 feet). Some boring locations were adjusted in the field as necessary to facilitate drilling access. Approximate ground surface elevations were obtained by interpolation from the previously referenced plan. If more precise locations and/or elevations are desired, the as-completed test locations should be surveyed.

Subsurface Exploration Procedures: Aside from boring BH-7, the test borings were completed using a standard rotary drill rig equipped with hollow stem augers. As the augers were advanced, the soils were sampled at intervals of five feet or less in accordance with the Standard Method for Penetration Test and Split-Barrel Sampling of Soils, ASTM D1586. Boring BH-7 was completed using an Acker Kodiak drill rig with a 70-pound hammer and 15-inch drop height, this representing approximately ¼ the theoretical drive energy as compared with a standard SPT hammer. As such, the blow counts on the log have been divided by a factor of 4 from those recorded in the field so as to emulate what would have resulted if a standard SPT hammer was used. Upon completion of drilling the boreholes were backfilled with auger cuttings, sand and/or concrete cylinders.

Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual descriptions of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. The sampling depths, penetration distances, water level measurements and other information as applicable were recorded on the field boring logs.

The soil samples were placed in appropriate containers and taken to our laboratory for visual classification by a geologist or geotechnical engineer. The soils were described based on the material's color, texture, plasticity, moisture condition, etc. Soil classifications are in general accordance with the Unified Soil Classification System

(USCS) as summarized herein. Final boring logs were prepared, and they represent the Geotechnical Engineer's interpretation based on the field logs and visual classifications, along with any laboratory testing performed.

Laboratory Testing

Selected samples recovered from the test borings were submitted for laboratory testing as part of the subsurface investigation, to confirm the visual classifications and to provide quantitative index properties for use in the geotechnical evaluation. This testing was performed in general accordance with the following standard methods:

- ASTM D2216 - Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils (w/o hydrometer)

Photography Log

BH-7 boring location and Student Commons Improvement area.

BH-8 boring location and Student Commons Improvement area.

Music Wing Addition area.

BH-6 boring location.

CTE Addition area.	BH-1 boring location.
BH-2 and BH-3 boring locations.	BH-4 boring location.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan – CTE Addition
Exploration Plan – Music Wing Addition and Student Commons Improvements Area

Note: All attachments are one page unless noted above.

Site Location

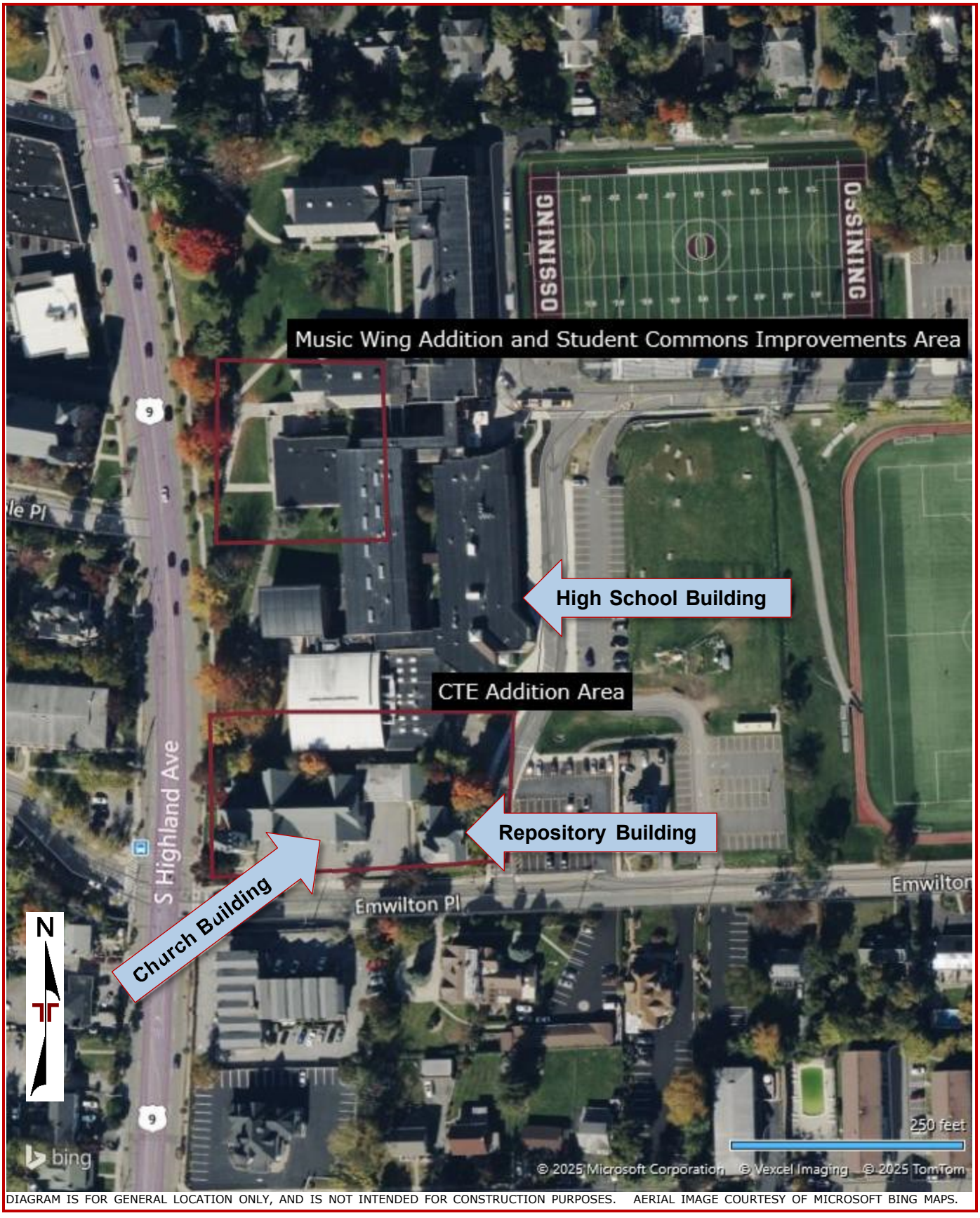


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES. AERIAL IMAGE COURTESY OF MICROSOFT BING MAPS.

Exploration Plan – CTE Addition Area

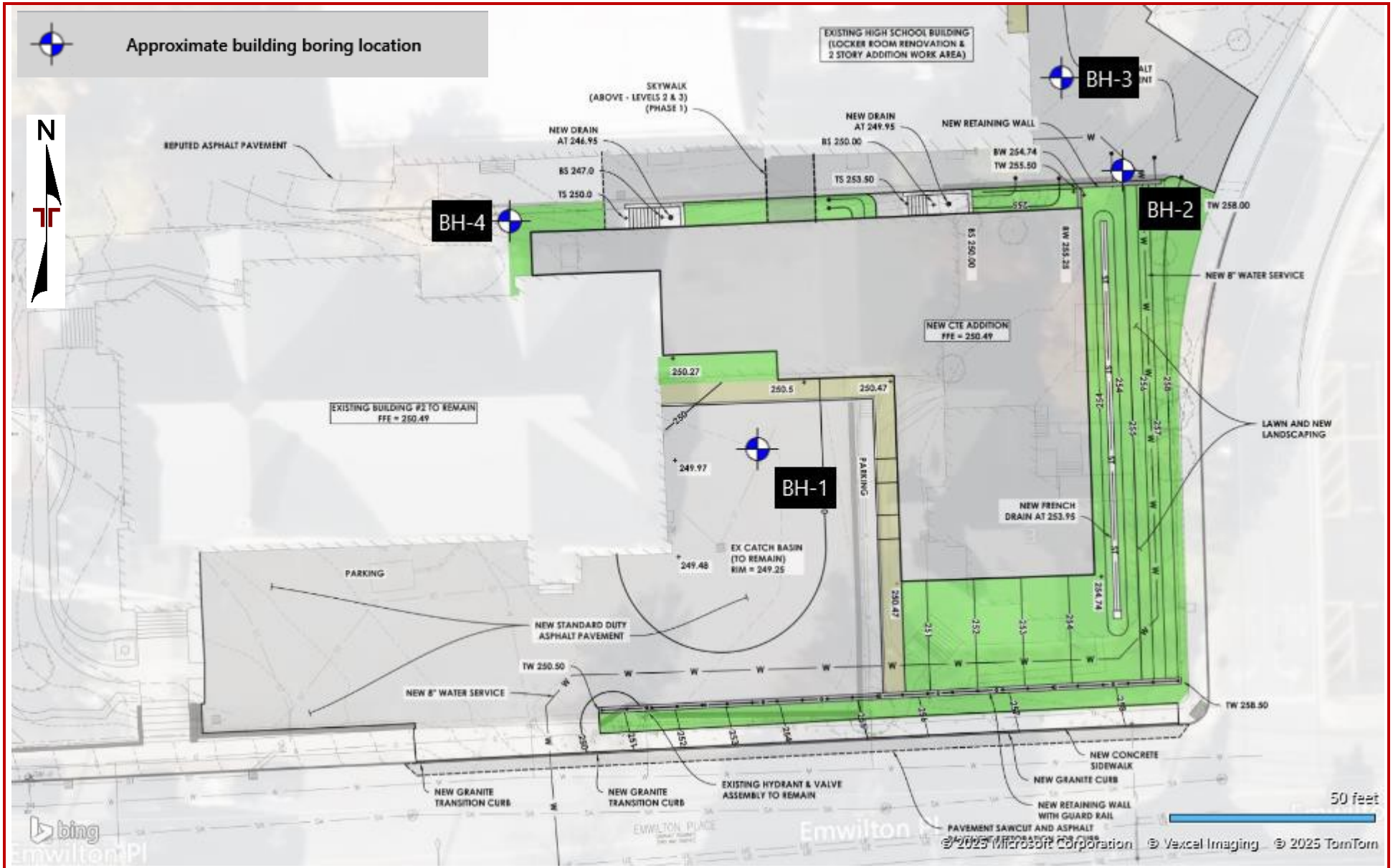


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Exploration Plan – Music Wing Addition and Student Commons Improvements Area

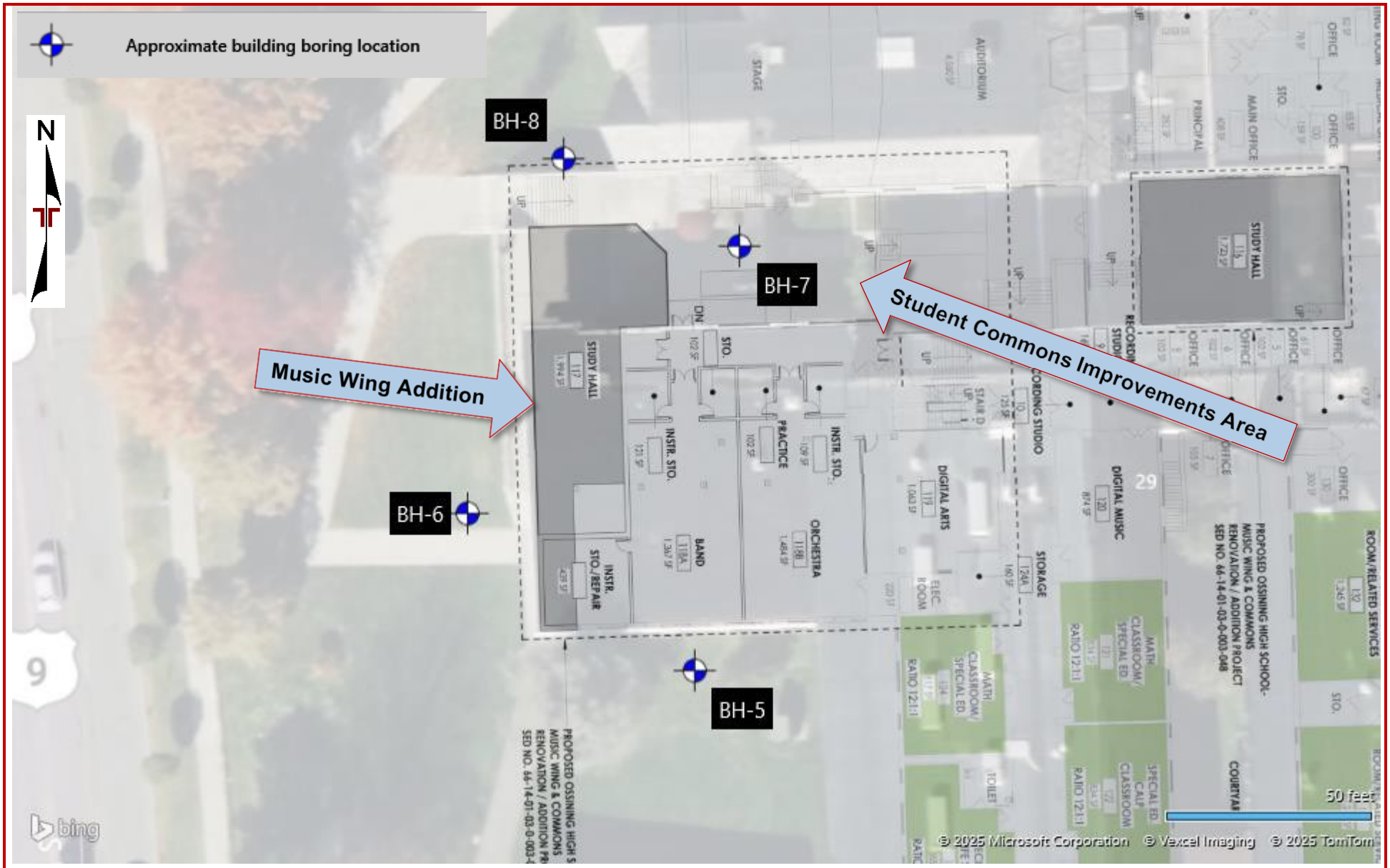


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

Exploration and Laboratory Results

Contents:

Boring Logs (8 pages)
Laboratory Test Results (4 pages)

Note: All attachments are one page unless noted above.

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-1

Location: See Exploration Plan

Latitude: 41.1590° Longitude: -73.8601°

Depth (Ft.) | Approximate Elevation: 250 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
		0.3 **4"ASPHALT** 249.7			5	22-50/2"	
		0.7 **4" SUBBASE** 249.3					
1		**FILL - SILTY SAND WITH GRAVEL**, asphalt and brick fragments noted, brown			19	2-3-5-8 N=8	10.1
		4.5 - Boulder noted 245.5					
3		**SILTY SAND (SM)**, with schist, trace gravel, brown, medium dense to very dense, (Glacial Till)			23	11-15-18-21 N=33	
					24	25-24-24-25 N=48	
		- Similar, grades gray			20	11-15-17 N=32	8.7
		- Cobbles noted			18	17-23-28 N=51	
					22	9-14-15 N=29	
		- Weathered rock fragments noted			19	13-54-50/3"	
		26.3 223.7					
		Spoon Refusal at 26.3 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "CTE Addition - New Work Site Plan" by CPL dated 4/18/25.

Water Level Observations
No free water observed

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Logged by
DOL

Boring Started
03-25-2025

Boring Completed
03-25-2025

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-2

Location: See Exploration Plan

Latitude: 41.1591° Longitude: -73.8598°

Depth (Ft.) Approximate Elevation: 256 (Ft.)

Model Layer	Depth (Ft.)	Elevation	Material Description	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1	0.1	255.9	**1.5" ASPHALT**				
			FILL - POORLY GRADED SAND WITH GRAVEL, trace silt, cobbles noted, wood fragments noted at 5', brown		8	4-1-9-50/3" N=10	
					7	23-6-5-4 N=11	
	5.0	251			14	WH-4-6-5 N=10	
2	6.0	250	**SILTY SAND WITH GRAVEL (SM)**, brown, loose				
3			**SILTY SAND WITH GRAVEL (SM)**, schist fragments noted, grayish brown, medium dense to very dense, (Glacial Till)		20	10-13-15-19 N=28	
			- Grades gray, cobbles noted		13	40-27-22 N=49	7.6
					17	9-18-25 N=43	
	20.7	235.3			8	22-50/2"	
			Spoon Refusal at 20.7 Feet				

Depth (Ft.): 5, 10, 15, 20

Water Level Observations: ▽ at 5 ft

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "CTE Addition - New Work Site Plan" by CPL dated 4/18/25.

Water Level Observations
▽ Perched water at 6' while drilling

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Logged by
DOL

Boring Started
03-24-2025

Boring Completed
03-24-2025

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-3

Location: See Exploration Plan

Latitude: 41.1592° Longitude: -73.8598°

Depth (Ft.) Approximate Elevation: 254 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Elevation	Description	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1		0.2	253.8	**2" ASPHALT**						
		0.4	253.6	**3" AGGREGATE BASE COURSE**						
				FILL - SILTY SAND WITH GRAVEL, asphalt fragments noted, gray				17	13-6-6-7 N=12	
		2.0	252							
2				**SILTY SAND (SM)**, trace gravel, gray, loose to medium dense				12	3-2-2-3 N=4	15.2
					5			12	3-2-2-4 N=4	
		7.0	247					18	3-5-6-11 N=11	
3				**SILTY SAND (SM)**, trace gravel, schist fragments noted, grayish brown, medium dense to very dense, (Glacial Till)						
					10					
				- Similar, grades gray				29	15-20-22 N=42	9.1
					15			17	20-28-24 N=52	
		18.8	235.2							
				Auger Refusal at 18.8 Feet						

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "CTE Addition - New Work Site Plan" by CPL dated 4/18/25.

Water Level Observations
10' while drilling

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Logged by
DOL

Boring Started
03-24-2025

Boring Completed
03-24-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-4

Location: See Exploration Plan

Latitude: 41.1591° Longitude: -73.8603°

Depth (Ft.) | Approximate Elevation: 252 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
1		0.2 **1.5" ASPHALT** 251.85 **FILL - SILTY SAND WITH GRAVEL**, asphalt fragments noted 2.0 250			11	8-2-2-2 N=4	
2		**SILTY SAND (SM)**, trace gravel, brown, medium dense			19	4-4-6-6 N=10	12.2
					14	3-5-5-5 N=10	
					18	4-6-8-10 N=14	
		10.0 242					
3		**SILTY SAND (SM)**, trace gravel, schist fragments noted, gray, dense to very dense, (Glacial Till)			17	7-12-21 N=33	
		15.5 236.5			5	50/4"	
		Auger Refusal at 15.5 Feet					

5
10
15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "CTE Addition - New Work Site Plan" by CPL dated 4/18/25.

Water Level Observations
No free water observed

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Logged by
DOL

Boring Started
03-21-2025

Boring Completed
03-21-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-5

Location: See Exploration Plan

Latitude: 41.1599° Longitude: -73.8604°

Depth (Ft.) | Approximate Elevation: 245 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
2		0.2 **2" TOPSOIL**, brown 244.8 **SILTY SAND (SM)**, trace gravel, brown, loose to medium dense			18	1-2-4-3 N=6	
		- Rootlets noted			17	5-4-3-3 N=7	
		- Cobbles noted			16	2-5-5-4 N=10	14.0
		- Rootlets noted			16	6-4-4-4 N=8	
3		10.0 235 **SILTY SAND WITH GRAVEL (SM)**, brown, medium dense to very dense, (Glacial Till)			19	10-13-15 N=28	10.4
		16.2 228.8 ***Spoon Refusal at 16.2 Feet***			13	10-13-50/2"	

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "Partial Topographic & Utility Survey" by Control Point, dated 1/21/25.

Water Level Observations
No free water observed

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Logged by
DOL

Boring Started
03-21-2025

Boring Completed
03-21-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-6

Location: See Exploration Plan

Latitude: 41.1600° Longitude: -73.8606°

Depth (Ft.) Approximate Elevation: 238 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
2		0.2 **2" TOPSOIL**, brown 237.8					
		SILTY SAND (SM), rootlets noted, brown, loose to medium dense			14	1-2-3-3 N=5	
					18	5-6-9-4 N=15	
		4.0 234					
3		**SILTY SAND (SM)**, trace gravel, cobbles and schist fragments noted, brown, medium dense to dense, (Glacial Till)			23	6-9-11-13 N=20	
					24	20-20-18-21 N=38	
					18	8-13-32 N=45	
		- Similar, grades gray			20	10-18-20 N=38	9.5
					16	9-15-25 N=40	
					19	11-17-23 N=40	
		26.5 211.5					
		Boring Terminated at 26.5 Feet					

Depth (Ft.): 5, 10, 15, 20, 25

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "Partial Topographic & Utility Survey" by Control Point, dated 1/21/25.

Water Level Observations
No free water observed

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Logged by
DOL

Boring Started
03-20-2025

Boring Completed
03-20-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-7

Location: See Exploration Plan

Latitude: 41.1601° Longitude: -73.8603°

Depth (Ft.) | Approximate Elevation: 245 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
		0.5 **5.5" CONCRETE**, brown 244.55					
1		**FILL - SILTY SAND**, cobbles noted, brown			2	N=4	
		- Similar, gray			13	N=8	15.0
		5.6 239.4					
3		**SILTY SAND (SM)**, schist noted, brown, medium dense to very dense, (Glacial Till)			22	N=10	12.4
		7.8 237.2			11	N=50+	
		Auger Refusal at 7.8 Feet					

5

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "Partial Topographic & Utility Survey" by Control Point, dated 1/21/25.

Water Level Observations
No free water observed

Drill Rig
Acker Kodiak

Hammer Type
Automatic

Driller
Caleb Schindler

Notes
- Acker Kodiak drill rig used in this area due to limited access. Lower available drilling torque and down pressure which likely caused shallower auger refusal.
- 70 lb hammer with 15" drop height utilized used for this boring which corresponds to 1/4 the energy of the standard hammer. SPT blow counts were factored by 0.25 to get N blows.
- Borings backfilled with soil cuttings upon completion. Concrete patch placed back at suface with cement grout mix used to infil annulus.

Advancement Method
2 1/4" ID HSA

Abandonment Method
See notes.

Logged by
DOL

Boring Started
03-20-2025

Boring Completed
03-20-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
30 Corporate Cir Ste 201
Albany, NY

Boring Log No. BH-8

Location: See Exploration Plan

Latitude: 41.1602° Longitude: -73.8605°

Depth (Ft.) Approximate Elevation: 237 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)
		0.5 **6" TOPSOIL**, brown 236.5					
2		**SILTY SAND (SM)**, trace gravel, brown, very loose to loose			12	1-2-3-2 N=5	
					13	1-1-1-3 N=2	16.2
					24	5-8-10-11 N=18	
		6.0 231					
3		**SILTY SAND (SM)**, trace gravel, cobbles and schist fragments noted, brown, medium dense to dense, (Glacial Till)			24	19-13-19-19 N=32	11.6
					22	8-12-13 N=25	
					17	7-10-9 N=19	
					22	13-17-27 N=44	
		25.0 212					
4		25.5 **WEATHERED ROCK**, gray 211.5			1	67/6"	
		Spoon Refusal at 25.5 Feet					

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevations were interpolated from "Partial Topographic & Utility Survey" by Control Point, dated 1/21/25.

Water Level Observations
No free water observed

Drill Rig
CME 750X

Hammer Type
Automatic

Driller
Caleb Schindler

Notes

Advancement Method
2 1/4" ID HSA

Abandonment Method
Boring backfilled with soil cuttings upon completion.

Logged by
DOL

Boring Started
03-19-2025

Boring Completed
03-19-2025

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

30 Corporate Cir Ste 201
Albany, NY

Summary of Laboratory Results

Boring ID	Depth (Ft.)	Soil Classification USCS	% Gravel	% Sand	% Fines	Water Content (%)	Organic Content (%)
BH-1	0.7-2.7	SILTY SAND WITH GRAVEL	16.7	42.3	41.0	10.1	
BH-1	10-11.5	SILTY SAND	8.4	48.4	43.1	8.7	
BH-2	10-11.5	SILTY SAND WITH GRAVEL	20.0	41.8	38.2	7.6	
BH-3	2-4	SILTY SAND	13.3	50.5	36.3	15.2	
BH-3	10-11.5	SILTY SAND	3.0	54.0	43.0	9.1	
BH-4	2-4	SILTY SAND	10.1	52.7	37.2	12.2	
BH-5	4-6	SILTY SAND	6.7	44.8	48.5	14.0	
BH-5	10-11.5	SILTY SAND WITH GRAVEL	21.8	42.9	35.2	10.4	
BH-6	15-16.5	SILTY SAND	11.8	45.7	42.6	9.5	
BH-7	3-5	SILTY SAND	4.6	52.8	42.6	15.0	
BH-7	5-7	SILTY SAND	4.9	50.5	44.7	12.4	
BH-8	2-4	SILTY SAND	4.5	54.8	40.7	16.2	
BH-8	6-8	SILTY SAND	4.2	55.1	40.7	11.6	

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29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
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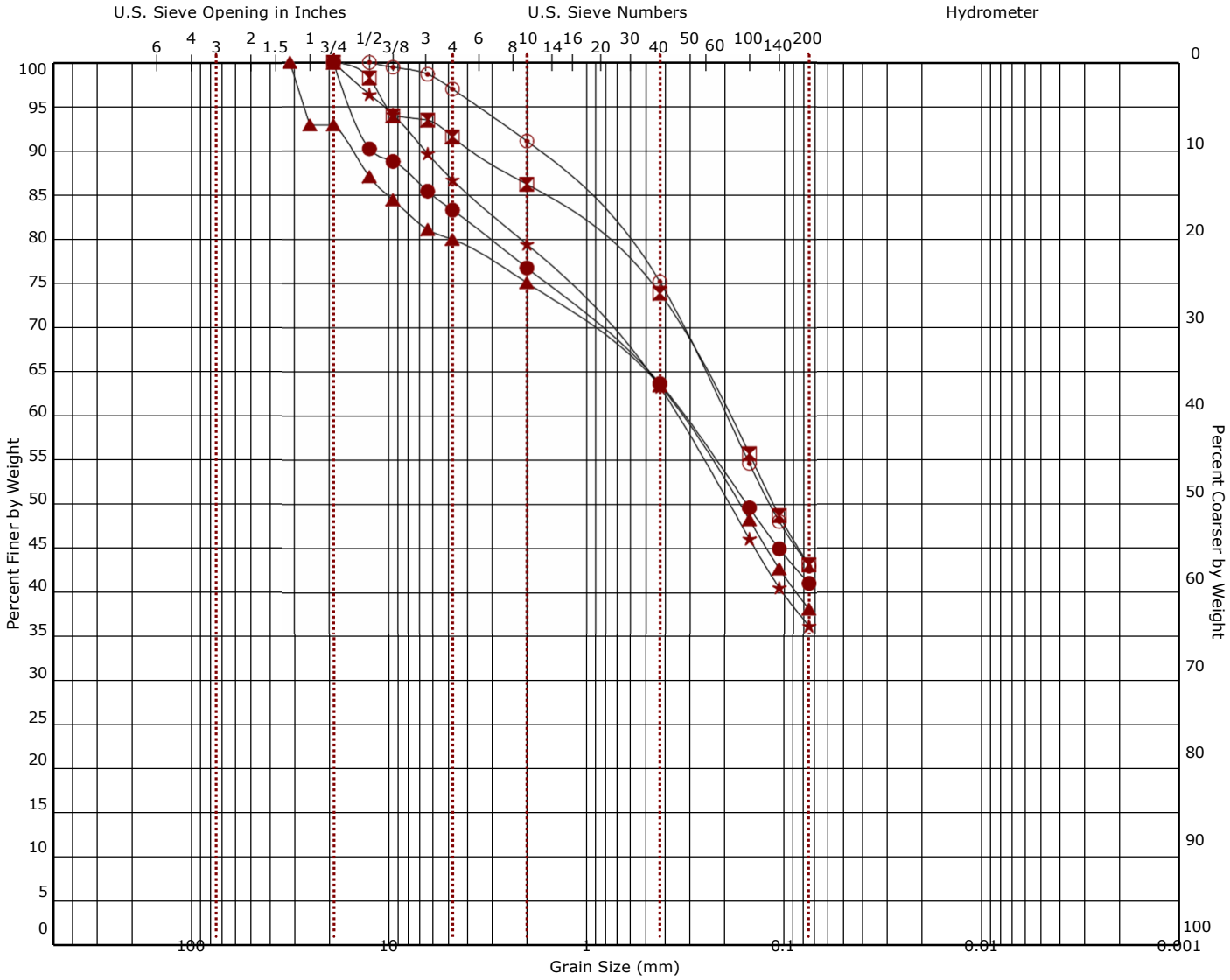
Albany, NY

Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
BH-1	0.7 - 2.7	SILTY SAND with GRAVEL	SM					
BH-1	10 - 11.5	SILTY SAND	SM					
BH-2	10 - 11.5	SILTY SAND with GRAVEL	SM					
BH-3	2 - 4	SILTY SAND	SM					
BH-3	10 - 11.5	SILTY SAND	SM					

Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
BH-1	0.7 - 2.7	19	0.324			0.0	16.7	42.3	41.0		
BH-1	10 - 11.5	19	0.192			0.0	8.4	48.4	43.1		
BH-2	10 - 11.5	31.5	0.336			0.0	20.0	41.8	38.2		
BH-3	2 - 4	19	0.349			0.0	13.3	50.5	36.3		
BH-3	10 - 11.5	12.5	0.197			0.0	3.0	54.0	43.0		

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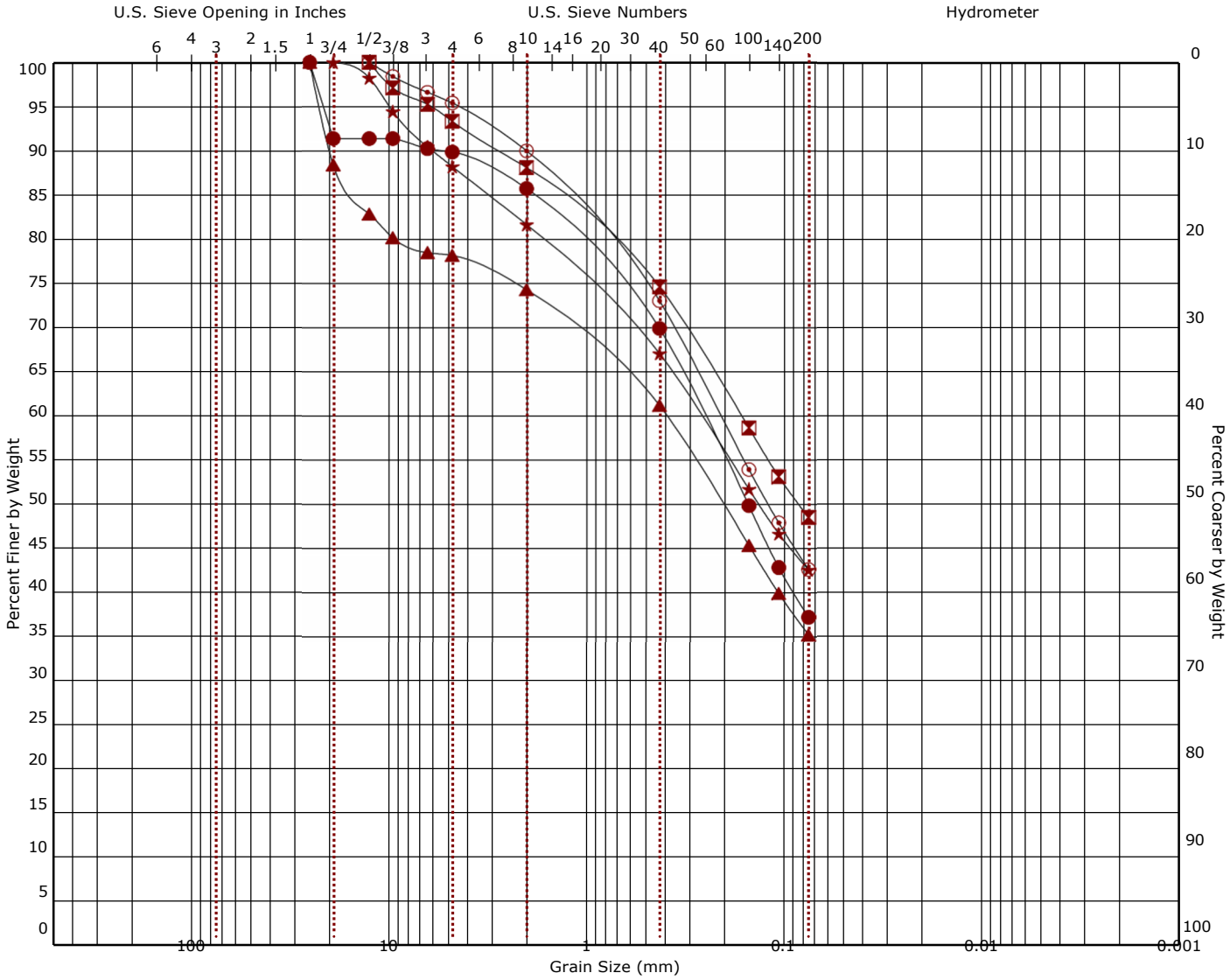
Albany, NY

Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
BH-4	2 - 4	SILTY SAND	SM					
BH-5	4 - 6	SILTY SAND	SM					
BH-5	10 - 11.5	SILTY SAND with GRAVEL	SM					
BH-6	15 - 16.5	SILTY SAND	SM					
BH-7	3 - 5	SILTY SAND	SM					

Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
BH-4	2 - 4	25	0.254			0.0	10.1	52.7	37.2		
BH-5	4 - 6	12.5	0.164			0.0	6.7	44.8	48.5		
BH-5	10 - 11.5	25	0.394			0.0	21.8	42.9	35.2		
BH-6	15 - 16.5	19	0.263			0.0	11.8	45.7	42.6		
BH-7	3 - 5	12.5	0.209			0.0	4.6	52.8	42.6		

Ossining High School Building Additions
29 S Highland Ave | Osinning, NY
Terracon Project No. JB245257

Terracon
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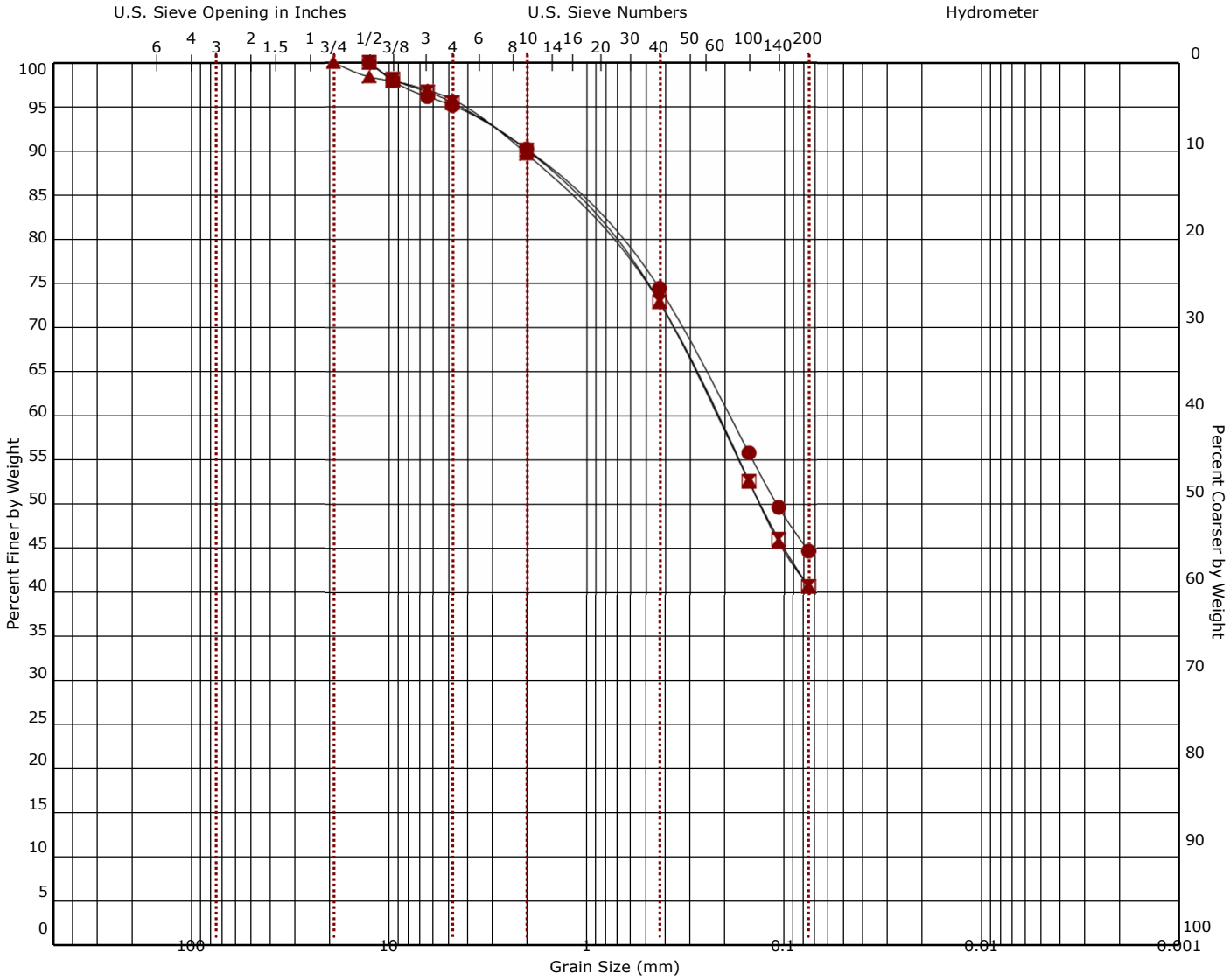
Albany, NY

Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Boring ID	Depth (Ft)	Description	USCS	LL	PL	PI	Cc	Cu
BH-7	5 - 7	SILTY SAND	SM					
BH-8	2 - 4	SILTY SAND	SM					
BH-8	6 - 8	SILTY SAND	SM					

Boring ID	Depth (Ft)	D_{100}	D_{60}	D_{30}	D_{10}	%Cobbles	%Gravel	%Sand	%Fines	%Silt	%Clay
BH-7	5 - 7	12.5	0.19			0.0	4.9	50.5	44.7		
BH-8	2 - 4	12.5	0.22			0.0	4.5	54.8	40.7		
BH-8	6 - 8	19	0.219			0.0	4.2	55.1	40.7		

Supporting Information

Contents:

General Notes
Unified Soil Classification System

Note: All attachments are one page unless noted above.

Terracon
30 Corporate Cir Ste 201
Albany, NY

General Notes

Sampling

Water Level

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Cave In Encountered

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

Field Tests

N	Standard Penetration Test Resistance (Blows/Ft.)
(HP)	Hand Penetrometer
(T)	Torvane
(DCP)	Dynamic Cone Penetrometer
UC	Unconfined Compressive Strength
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils
(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Consistency of Fine-Grained Soils
(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

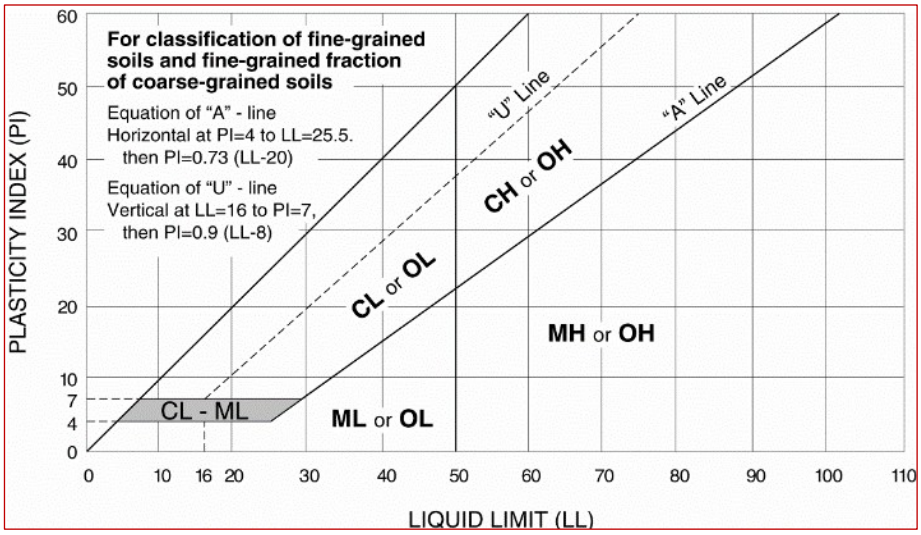
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N] Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P] Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



SECTION 003140
STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

PART 1 GENERAL

1.01 STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. This Section with its referenced attachments are part of the Procurement and Contracting Requirements for the Project. They provide additional project information for Bidders' convenience and are intended to supplement rather than serve in lieu of Bidders' own investigations and documentation.

B. A Stormwater Pollution Prevention Plan (SWPPP), prepared by CPL, dated November 2025 is available for viewing and is appended to this Document.

C. Related Sections:
   1. Section 312500 "Erosion and Sedimentation Control".

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
for the proposed

Ossining High School
2024 Bond
By Ossining Union Free School District

1 Emwilton Place
Ossining, NY 10562

November 2025

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Appendix A
Written Storm Water Pollution Prevention Plan

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Stormwater Pollution Prevention Plan (SWPPP)
Ossining High School – 2024 Bond – Ossining, NY

The following information is required to be included on the SWPPP site map by the SPDES General Permit for Construction Activity, (GP-0-25-001):

1. Direction(s) of storm water flow and approximate slopes anticipated after major grading activities.
2. Total areas of soil disturbance and areas that will not be disturbed.
3. Locations of major structural and nonstructural BMPs identified in the SWPPP.
4. Locations where stabilization practices are expected to occur.
5. Locations of off-site material, waste, borrow and equipment storage areas.
6. Locations of all Waters of the United States (including Wetlands and surface waters of the state).
7. Locations where storm water discharge to a surface water and/or discharge to MS4.
8. Areas where final stabilization has been accomplished and no further construction-phase permit requirements apply.

INSTRUCTIONS TO OWNER/OPERATOR/OPERATORS ENGINEER AND CONTRACTORS

Responsibilities for Compliance with Storm Water Discharge Permit Regulations at Construction Sites

Operator’s Engineer's Responsibilities:

1. Prepare the SWPPP using good engineering practices, Best Management Practices, and in compliance with all federal, state and local permit requirements. This preparation shall also include providing a description of the Project as it relates to site ownership and development responsibilities.
2. Prepare the NOI form for the Operator's signature and forward to Operator for signature; SWPPP must be complete prior to NOI submittal.
3. Include a signed NOI in the SWPPP prepared for the Project.
4. Participate at the pre-construction meeting with Contractor and appropriate subcontractors, which should include a review with all parties the requirements of the SWPPP, if requested by Operator.
5. Certify to Operator the Contractor’s compliance with SWPPP record keeping requirements, if requested by Operator.

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Operator's Responsibilities:

1. Require the Contractor to implement fully the SWPPP prepared for the site by the Operator's Engineer.
2. Forward a copy of the original permit certificate received from the regulatory agency to the Contractor for inclusion in the SWPPP Ledger and display at the Project.
3. Ensure (through periodic observations by Operator's Project Manager) and document that the Contractor is implementing the controls, inspections, maintenance, record-keeping, and all other requirements of the SWPPP.
4. File an appropriately signed Notice of Termination ("NOT") form when site work construction is completed and stabilization is achieved.
5. Request and receive all SWPPP records from the Contractor and archive those records for a minimum of five (5) years after the NOT is filed.

Contractor's Responsibilities:

1. Sign the SWPPP Contractor's Certification Form in the SWPPP prepared for the Project (Appendix G).
2. Provide subcontractor training and require all subcontractors to sign the Subcontractor's Certification Form in the SWPPP prepared for the Project (Appendix H).
3. Implement the Erosion and Sediment Control Plans, and other requirements of the SWPPP.
4. Provide Trained Individuals, and documentation of qualifications, for the controls implemented at the Project.
5. Conduct all necessary inspections at the required intervals and prepare and retain written documentation of those inspections and all other written documentation required by the Construction General Permit.
6. Keep a copy of the SWPPP, all NOI's, permit certificates, permit language, Materials Management Process (MMP), inspection records, and other required records on the Project.
7. Post in a prominent place at the Project entrance and inside the job trailer office wall those documents required to be posted under the terms of the Construction General Permit including, the NOI (Appendix D).
8. Update and make changes to the SWPPP and supporting documents (such as the BMPs) as needed and with the approval of the Operator and the Operator's Engineer.
9. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, and written records required by the Construction General Permit to the Operator for archiving.

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- e. Pre-construction Meeting
- f. SWPPP Certification Requirements for the Contractor and Subcontractors
- g. SWPPP Location Requirements
- h. SWPPP Ledger
- i. Inspections and Record Keeping
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Section III - Operator's Name and Address
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Section VI- Description of Soils
Section VII - Name of Receiving Waters
Section VIII - Erosion and Sediment Controls
- a. **Temporary Structural Practices, Permanent Structural Practices, Temporary Stabilization Practices, Permanent Stabilization Practices**
- b. Sequence of Major Construction Activities

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Section XIII - Control of Non-Storm Water Discharges
Section XIV - Historical Properties
Section XV - Industrial Activities
Section XVI – Enhanced Phosphorus Removal Standards

Appendix B Site and Soils Mapping
Appendix C Erosion and Sedimentation Control Plan(s) and Details
Appendix D Notice of Intent (NOI)
Appendix E NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001).
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Appendix Q Drainage Calculations
Appendix R Post Construction Storm water BMP Operations and Maintenance Plan
Appendix S Cultural and Environmental Mapping
Appendix T Climate Change Considerations

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I SCOPE

a. PURPOSE: Development and proper implementation of the New York State Department of Environmental Conservation (NYSDEC), State Pollutant Discharge Elimination System (SPDES) Construction General Permit governing stormwater discharges during construction and the National Pollutant Discharge Elimination System (NPDES) Construction General Permit governing storm water discharges during construction, and in accordance with Erosion and Sediment Control practices is critical. The Contractor's participation in this program is mandatory and its non-compliance is subject to various remedies, including without limitation, monetary set-offs, withholding payments; reimbursement for costs, expenses (including reasonable attorney's fees), fines and civil penalties incurred by the Operator. This section provides a descriptive explanation of the Storm Water Pollution Prevention Program and required Contractor participation.

b. SPDES CONSTRUCTION GENERAL PERMIT FOR STORM WATER DISCHARGE FROM CONSTRUCTION SITES: Regulations promulgated by the NYSDEC to regulate the discharge of storm water from Construction Activity on sites where one (1) or more acre of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-25-001). In order to use the Construction General Permit, a Notice of Intent (NOI) form must be completed and mailed to the NYSDEC. Authorization to discharge stormwater under the General Permit will be effective when the owner or operator has satisfied all of the criteria listed in the SPDES General Permit for Construction Activity (GP-0-25-001).

c. NOTICE OF INTENT: The Operator will petition the NYSDEC for stormwater discharges during construction at this site to be covered by the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001, following completion of this SWPPP. An NOI form will be filed by the Operator.

d. RESPONSIBILITIES OF CONTRACTOR REGARDING THE CONSTRUCTION GENERAL PERMIT: The Contractor shall manage the discharge of stormwater from the site in accordance with the NYSDEC General Permit for Stormwater Discharges from Construction Activities and the following provisions:

1. The Contractor shall be responsible for conducting the Storm Water Management **practices in accordance with the permit.**
2. The Contractor shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the Contractor's failure to comply with the permit provisions.

e. PRE-CONSTRUCTION MEETING: A Pre-Construction SWPPP Meeting (although not required by the General Permit) may occur before any land disturbing activities are started. If a pre construction SWPPP meeting is held it should include a review and explanation of the following topics:

- Erosion and sediment control for water quality protection
- Implementation of Erosion and Sediment Control Plans
- The importance to proper installation of erosion and sediment control measures
- Regular inspection by **Qualified Inspector** of erosion and sediment control measures
- Diligent maintenance to erosion and sediment control measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of erosion and sediment control measures
- Record-keeping for inspections and maintenance activities

f. SWPPP CERTIFICATION REQUIREMENTS FOR THE CONTRACTOR AND SUBCONTRACTOR(S): The SWPPP shall provide forms for both the Contractor and Subcontractor(s) identifying the Company Name, Business Address and Telephone Number along with the Responsible Person for the Contractor and all subcontractors' who will implement the measures identified in the SWPPP. **The Contractor shall sign, the Contractor's Certification Statement** (Appendix G) **and all Subcontractors shall sign the Subcontractor's Certification Statement** (Appendix H) verifying they have been instructed on how to comply with and fully understand the requirements of the NYSDEC and SWPPP. **These certifications must be signed, by a responsible corporate officer or other party meeting the "Signatory Requirements", the NYS DEC SPDES General Permit for Stormwater Runoff from construction Activity (GP-0-25-001), on behalf of each entity, prior to the beginning of any Construction Activities and shall be filed in the Project's SWPPP.**

g. SWPPP LOCATION REQUIREMENTS: The SWPPP Ledger is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the Project, shall be readily available upon request by the Operator's personnel or NYSDEC or any other agency with regulatory authority over storm water issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. A copy of the General Permit (GP-0-25-001), NOI, NOI Acknowledgment Letter, MS4 Acceptance Form (if applicable) SWPPP, and inspection reports shall be maintained at the construction site until all disturbed areas have achieved final stabilization and the Notice of Termination has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock; that is accessible during normal working hours to an individual performing a compliance inspection.

h. SWPPP: A minimum of two (2) copies of the SWPPP, shall be provided by the Operator's Engineer. One (1) copy shall be provided for use by the General Contractor and one (1) copy shall be provided as an original.

i. INSPECTIONS AND RECORD-KEEPING: Inspections are required as described in Part IV, C of the General Permit GP-0-25-001 by a qualified inspector.

1. INSPECTOR QUALIFICATIONS - Inspections must be conducted by a "Qualified" Inspector. "Qualified" is defined as a person knowledgeable in the principles and practices of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the Construction Activity such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control(CPESC), licensed Landscape Architect. It also means that someone working under the direct supervision of a licensed Professional Engineer, or Landscape Architect, provided that person has training in the principles and practices or erosion and sediment control. Training in the principles and practices of erosion and sediment control means that an individual performing the site inspection has received four (4) hours of training, endorsed by the Department, from a Soil and Water Conservation District, CPESC, Inc. or other department endorsed entity in proper erosion and sediment control principles no later than two (2) years from the date of the current general permit issued. After receiving the initial training, an individual working under the direct supervision of a licensed Professional Engineer or licensed Landscape Architect shall receive four (4) hours of training every three (3) years. Inspections of post construction stormwater management practices that include structural components, such as a dam for impoundment, shall be performed by a licensed Professional Engineer.

2. RAINFALL MONITORING – A rain gage should be maintained on the site and a record of the rainfall amounts (in tenths of an inch) and dates shall be recorded every 24 hours on the Rain Log (Appendix O).

3. INSPECTOR RESPONSIBILITIES – The Qualified Inspector shall be trained in all the inspection and maintenance practices necessary for keeping the Erosion and Sediment Controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of Qualified Inspector training will be kept on site with the SWPPP.

4. INSPECTION PROCEEDURES - Inspections must include all areas of the site disturbed by Construction Activities and areas used for storage of materials that are exposed to precipitation. Qualified Inspectors must look for evidence of, or the potential for, pollutants entering the storm water conveyance system. Erosion and Sediment Control measures identified in the SWPPP must be observed to ensure proper operation. Discharge locations must be inspected to ascertain whether Erosion and Sediment Control measures are effective in preventing significant impacts to Waters of the United States, where accessible. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of off-site tracking. The following inspection and maintenance

practices will be used to maintain Erosion and Sediment Controls and stabilization measures:

a. All control measures will be inspected at least at the frequency identified in this Section. The minimum inspection frequency shall be once every seven (7) calendar days.
b. All measures will be maintained in good working order; if repairs or other measures are found to be necessary, they will be initiated within 24 hours of report, and completed within 48 hours of report and documented with photos.
c. Built up sediment will be removed from silt fence when it has reached 25% of the height of the fence.
d. Silt fences will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.
e. Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.
f. An Inspection Report (Appendix I) will be completed after each inspection. Copies of the report forms to be completed by the Qualified Inspector(s) are included in this SWPPP.
g. Disturbed Areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.
h. Report to U.S. Environmental Protection Agency, or NYSDEC within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event. The following events require 24 hour reporting: a) any unanticipated bypass which exceeds any effluent limitation in the permit, b) any upset which exceeds any effluent limitation in the permit, and c) a violation of a maximum daily discharge limitation for any of the pollutants listed by the EPA in the permit to be reported within 24 hours. The written submission must contain a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times, and if the non-compliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the non-compliance.
i. Spills or Releases of Hazardous Substances or Oil in excess of reportable quantities (as established under 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302) must be reported.

5. MONITORING – There are no monitoring requirements required under this SWPPP and NOI coverage.

6. THIRD PARTY INSPECTIONS – Where required or requested by the Operator, third party inspections by the design engineer shall be in addition to and shall not replace inspections by the Contractor (Qualified Inspector). The third party inspector shall complete and sign any inspection report and include a copy of the report in the SWPPP following each inspection.

7. RECORDKEEPING - It is imperative that documentation of the inspection and maintenance of all erosion and sediment control measures as soon as possible after

the inspection and/or maintenance is completed. The inspection reports identify any incidents of non-compliance with the permit conditions. Where a report does not identify any incidents of non-compliance, the report must contain a certification that the Project is in compliance with the SWPPP and the Construction General Permit or other applicable State Permit. The report must be signed in accordance Part VII.H of the General Permit (GP-0-25-001). These records are used to prove that the required inspection and maintenance were performed and shall be placed in the SWPPP Ledger. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The Contractor shall retain copies of the SWPPP, all reports and data for a minimum of **five (5) years** after the project is complete in paper and CD format.

The forms found in this SWPPP shall be used by the Qualified Inspector(s) to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order. The following list identifies the required Inspection and Maintenance documentation and record keeping that must be maintained by the Contractor under this SWPPP:

Appendix I	**Inspection Report**
Appendix J	**Stabilization Schedule**
Appendix K	**Implementation Schedule**
Appendix L	**Modification Report**
Appendix M	**Final Stabilization/Notice of Termination Checklist**
Appendix N	**Reportable Quantity Release Form**
Appendix O	**Project Rainfall Log**

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the Operator's Engineer, and the Operator for review upon request during visits to the Project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the permittee for five years following the final stabilization of the site.

8. OTHER RECORD KEEPING REQUIREMENTS - The Contractor shall keep the following records related to Construction Activities at the site:

- Dates when major grading activities occur and the areas which were graded
- Dates and details concerning the installation of structural controls
- Dates when Construction Activities cease in an area
- Dates when stabilization measures are initiated
- Dates when an areas is stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of Hazardous Substances or Oil
- Records of reports filed with regulatory agencies if reportable quantities of Hazardous Substances or Oil spilled

j. SWPPP MODIFICATIONS: The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever:

1. There is a change in design, construction, operation, or maintenance at the construction site that has or could have a significant effect on the discharge of pollutants to the Waters of the United States that has not been previously addressed in the SWPPP. In addition to modifying the SWPPP, the site map may also require an amendment.

2. Inspections or investigations by site staff, or by local, state or federal officials, determine that the discharges the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site. Modifications that are the result of an inspection must be initiated within 24 hours and completed within 48 hours.

3. Based on the results of an inspection, it must be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection.

4. There is a release containing a Hazardous Substance or Oil in an amount equal or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117 or 40 CFR Part 302 occurs during a 24 hour period. Revisions to the SWPPP must be completed within seven (7) calendar days of knowledge of the release.

Any such changes to the SWPPP must be made in writing on the Modification Report (Appendix L) within 7 days of the date such modification or amendment is made. Changes must also be drawn on the Progress Drawing.

k. FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE: A site can be considered finally stabilized when all soil disturbing activities have been completed and:

1. A uniform perennial vegetative cover with a density of **80%** for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established.
2. The facility no longer discharges storm water associated with Construction Activities.
3. A Notice of Termination (NOT) form filed by the Operator(s) with the NYSDEC. The NOT must be submitted within 30 days of final stabilization.

II PROJECT NAME AND LOCATION

Ossining High School – 2024 Bond
1 Emwilton Place
Ossining, NY 10562

A general location map with enough detail to identify the location of the construction site, the receiving waters within one (1) mile of the site (if applicable) is included in Appendix B.

III OPERATOR'S NAME AND ADDRESS

Ossining Union Free School District
400 Executive Boulevard
Ossining, NY 10562

IV PROJECT DESCRIPTION

This SWPPP is for the proposed Ossining High School – 2024 Bond Project.

The proposed project includes demolition of existing buildings and construction of a building addition. The proposed construction will also include modifications to parking lots, modifications to sidewalks, and drainage improvements.

The total project disturbance area is approximately 1.63 acres. The estimated time for completion of the construction on the project is 365 calendar days. General soil disturbing activities will include:

a. Construction of temporary construction exit points
b. Install temporary erosion control measures
c. Installation of storm sewer pipes, inlets, and storm water structures
d. Mass grading
e. Construction of walkways, and driveways
f. Final grading
g. Install permanent water quality and quantity control practices
h. Final stabilization

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V EXISTING SITE CONDITIONS:

1. Existing Conditions:

The project site tributary area is approximately 2.6 acres.

The topography of the projects site ranges from elevations 214 to 262 feet. The site has slopes ranging from 0% to 25%. The site drains to an on-site storm sewer system that discharges to a municipal storm sewer system.

Runoff is conveyed via overland shallow sheet flow and an underground storm sewer system prior to the runoff being conveyed either to the west or to the northeast to the above-mentioned municipal storm sewer system.

VI NAME OF RECEIVING WATERS

The site discharges into a municipal storm sewer system.

VII DESCRIPTION OF SOILS

Soil Types within the Subject Area

i)

Symbol	Soil Name	Hydrologic Soil Group
Ub	Udorthents, smoothed	B
Uf	Urban Land	-
UpC	Urban land-Paxton complex, 8 to 15 percent slopes	D
UpD	Urban land-Paxton complex, 15 to 25 percent slopes	D

ii) More information pertaining soils can be found in the Site and Soils mapping (Appendix B) section of this report.

VIII EROSION AND SEDIMENT CONTROLS

a. The project will utilize temporary and permanent erosion and sediment control practices to prevent sediment from leaving the project area. A list of the practices anticipated are as follows:

Temporary Structural					
	BMP	**Notes**		**BMP**	**Notes**
☒	Inlet Protection		☐	Brush Barrier	
☐	Outlet Protection		☐	Temporary Stream Crossing	

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Temporary Structural					
	BMP	**Notes**		**BMP**	**Notes**
☐	Perimeter Protection		☐	Pipe Slope Drain	
☒	Stabilized Construction Entrance/Exit		☐	Wind Fence	
☐	Stone Staging Area		☐	Temporary Diversion Channels	
☐	Temporary Sediment Basin		☐	Temporary Diversion Berms	
☐	Temporary Gravel and Riprap Sediment Trap		☐	Other	
☐	Temporary Rock Dam Sediment Trap		☐	Other	
☐	Check Dam		☐	Other	
☒	Sediment Fence		☐		
☒	Temporary Seeding		☐	Chemical Stabilization	
☒	Temporary Mulching		☐	Other	
☒	Rolled Erosion Control Product (RECP)	**1 on 3 slope or greater**	☐	Other	
☐	Slope Tracking (Soil Roughening)		☐	Other	
☐	Watering to Minimize Wind Erosion		☐	Other	
Permanent Stabilization					
	BMP	**Notes**		**BMP**	**Notes**
☐	RECP (all slopes exceeding 3:3 (3 horizontal to 1 vertical)		☐	Vegetation Protection	
☒	Permanent Seeding		☐	Sod	
☒	Permanent Planting (vegetative landscaping)		☐	Other	
☒	Mulching		☐	Other	
Permanent Structural					
	BMP	**Notes**		**BMP**	**Notes**
☐	Outlet Protection		☐	Stormwater Channel	
☒	Storm Drainage System		☐	Retaining Wall	
☒	Curb		☐	Gradient Terrace	
☐	Stormwater Pond		☐	Stormwater Retention Pond	
☐	Stormwater Infiltration		☐	Stormwater Filtration	
☐	Bio Swale		☐	Bio Retention Basin	
☒	Other	**Hydrodynamic Separator**	☐	Other	

Temporary Structural					
	BMP	Notes		BMP	Notes
☐	Other		☐	Other	

b. Sequence of Major Construction Activities

The Contractor will be responsible for implementing the following Erosion and Sediment Control and Storm Water Management control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor. The order of activities will be as follows (refer to the Grading & Sediment and Erosion Control Plans C203, C204 and C205, contained in this SWPPP for details):

Construction Sequence (Note – Should match sequence on SWPPP plans)

1. Construct stabilized construction entrance/exit at locations designated on plans.
2. Install perimeter silt fence.
3. Have a qualified professional conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by the NYSDEC permit have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.
4. No soil disturbance related to demolition or construction may begin until steps 1-3 above have been verified by Owner's Representative.
5. Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where construction is planned to commence within 7 days after clearing and grubbing.
6. Strip topsoil and stockpile in a location acceptable to construction manager. When stockpile is complete, install perimeter silt fence around stock pile, seed surface with 100% perennial ryegrass mixture at a rate of 2-4 lbs. per 1000 sf. Apply 90-100 lbs per 1000 sf of mulch.
7. Commence earthwork cut and fills. The work shall be progressed to allow a reasonable transfer of cut and fill earth for rough grading and earth moving. The contractor will be given some latitude to vary from the following schedule in order to meet the field conditions encountered. Contractor shall review variations to SWPPP with design engineer and qualified professional prior to implementation. All changes to SWPPP drawings must be documented within onsite SWPPP.
8. Stabilize all areas as soon as practicable, idle in excess of 7 days and in which construction will not commence with 14 days.
9. If it is anticipated that more than five acres will be disturbed at one time. The owner will apply for a five-acre waiver. If possible, stage or phase the work in such a manner that only five acres of soil will be disturbed at a time. Provide temporary or permanent stabilization in disturbed areas as needed to maintain a total disturbance

of less than five acres. Disturbance of more than 5 acres at one time is not anticipated for this project.

10. Following rough grading, utility installation should begin, trench excavation/backfill areas should be stabilized progressively at the end of each workday with seed and straw mulch at a rate of 100% perennial rye grass at 2-4 lbs/1000 sf mulched at 90-100 lbs/1000 sf.
11. Construct all curb inlets, area inlets, and storm sewer manholes, as shown on the plans.
12. Install inlet/outlet protection at the locations of all grade inlets, curb inlets, and at the ends of all exposed storm sewer pipes prior to final paving.
13. Finish grade and pavement subgrade preparation.
14. As landscaped areas are brought to grade, stabilize with topsoil, seeding and mulching per specifications.
15. Asphalt paving and concrete work.
16. Remove temporary construction exits only prior to pavement construction (these areas are to be paved last).
17. The developer/owner/operator shall have a qualified professional conduct an assessment of the site and final report to determine all permanent stormwater measures have been installed per plans and 80% uniform germination/stabilization has been achieved prior to the removal of all remaining temporary erosion and sediment control devices.

SECTION IX STORM WATER MANAGEMENT

A. METHODOLOGY

Stormwater runoff rates discharged from the site under the existing conditions provide the basis on which to compare the impacts of the proposed site improvements. Analysis points are established where runoff exits the site to provide a fixed location at which existing and proposed stormwater quantities can be compared. The areas draining to each analysis point are delineated using topographic survey maps, grading plans and utility plans. HydroCAD 10.00-24 (40 node s/n 00475) by HydroCAD Software Solutions LLC was used to model the existing and proposed condition. This program simulates the USDA Soil Conservations Service's TR-20 hydrologic model to analyze discharges from drainage areas and retention basins.

The parameters required to calculate stormwater runoff are area, curve number, and time of concentration. Each drainage area is evaluated using the guidelines described in USDA Soil Conservation Service's TR-55 to determine the curve number and time of concentration.

The runoff curve number (CN) is based on a weighted average of ground cover and soil type. The underlying soil types are described in county soil maps. Site and grading plans and survey maps outline

existing and proposed ground cover. CN values for specific locations are determined from the tables presented in TR-55.

Time of concentration (Tc) represents the amount of time it takes for runoff to travel from the hydraulically most distant point of the watershed to the point of analysis. Surface roughness, slope, channel shape and flow patterns are the factors that affect the time of concentration. Stormwater runoff flows through the drainage area as sheet flow, shallow concentrated flow, open channel flow, or concentrated flow (such as in storm sewers). For this report sheet flow will become shallow concentrated flow after a maximum of 150 feet for the existing condition and 100 feet for the proposed condition. The sum of the travel times over the various surfaces within the assumed flow path for a specific drainage area determines that area's time of concentration. The figures and formulas in TR-55 are employed to compute travel times for sheet flow and shallow concentrated flow. Manning's equation is used to determine flow velocities through pipes.

The stage-storage-discharge relationship for the proposed detention area is determined from topographical data and outlet structure characteristics. Discharge rates and storage volumes at various elevations (stage) are represented by this relationship. The pond storage capacity is calculated by determining the surface area at various elevations.

B. EXISTING CONDITIONS

The existing drainage area comprises a total of 2.6 acres. The area to be developed consists of existing buildings, parking lots, driveways, sidewalks, and grass areas. Residential properties are located to the north, east, west, and south of the project site.

The overall drainage area of the project site was divided into two sub areas for analysis purposes, labeled DA-1 and DA-2 in the Existing Drainage Map (Figure-02) found in Appendix Q.

Drainage Area DA-1, consisting of 1.4 acres, includes existing driveways, parking lots, sidewalks, and grass areas. This area drains to the north via sheet flow and is collected by an existing storm sewer system. The runoff is then conveyed to an existing hydrodynamic separator; Analysis Point #1.

Drainage Area DA-2, consisting of 1.2 acres, includes existing buildings, parking lots, driveways, sidewalks, and grass areas. This area drains to the west via sheet flow to a storm sewer system. The runoff is then conveyed via an underground storm sewer system to a manhole; Analysis Point #2.

Table II summarizes the hydrologic characteristics of the drainage areas described above. See Appendix Q for computations for the existing drainage conditions.

Table II
Existing Conditions Summary

Drainage Area	Size (ac)	Composite Cn	Tc (min)
Area DA-1	1.4	86	9.4
Area DA-2	1.2	90	6.4

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C. PROPOSED CONDITIONS

The proposed drainage area comprises a total of 2.6 acres. The site will include a new building addition, parking lots, driveways, sidewalks, and grass areas. Catch basins and manholes will be constructed in order to collect and treat storm water runoff.

The overall drainage area of the project site was divided into four sub areas for analysis purposes, labeled DA-1, DA-2, and DA-3 in the Proposed Drainage Map (Figure-03) found in Appendix Q.

Drainage Area DA-1, consisting of 1.4 acres, includes a new sidewalk, existing sidewalks, existing driveways, and existing parking lots. This area drains to the north via sheet flow and is collected by an existing storm sewer system. The runoff is then conveyed to an existing hydrodynamic separator; Analysis Point #1.

Drainage Area DA-2, consisting of 0.7 acres, includes part of the new building addition, new sidewalks, and grass areas. This area drains to the west via sheet flow to a storm sewer system. The runoff is then conveyed via an underground storm sewer system to a manhole; Analysis Point #2.

Drainage Area DA-3, consisting of 0.5 acres, includes part of the new building addition, new sidewalks, a new parking lot, and grass areas. This area drains to the west via sheet flow to a new storm sewer system. The runoff is then conveyed via an underground storm sewer system to a new hydrodynamic separator and then to a manhole; Analysis Point #2.

Table III summarizes the hydrologic characteristics of the drainage areas described above. See Appendix Q for computations for the proposed drainage conditions.

Table III
Proposed Conditions Summary

Drainage Area	Size (ac)	Composite Cn	Tc (min)
Area DA-1	1.4	86	9.4
Area DA-2	0.7	92	7.2
Area DA-3	0.5	88	11.5

State Pollutant Discharge Elimination System (SPDES)

Since the subject site will have land disturbance of more than 1-acre a State Pollutant Discharge Elimination System (SPDES) permit will be completed as part of the project. A Storm Water Pollution Prevention Plan (SWPPP) will be developed in accordance with the EPA Phase II regulations. The SWPPP will be for the most part modeled on the New York State DEC Guidelines and will meet the following criteria as the principle objectives contained in an approved SWPPP.

1) Reduction or elimination of erosion and sediment loading to water-bodies during construction activities.
2) Control the impact of storm water runoff on the water quality of the receiving waters.
3) Control the increase volume and peak runoff rate of runoff during and after construction.
4) Maintenance of storm water controls during and after completion of construction.

The aforementioned objectives will be accomplish by incorporating the several of the design criteria outlined within the Technical Guidelines provided by New York State Department of Environmental Conservation, Stormwater Management Design Manual and summarized below.

A. WATER QUALITY VOLUME

The New York State Department of Environmental Conservation, Stormwater Management Design Manual was used to determine the water quality criteria. Specifically the unified storm water sizing criteria was followed for water quality to meet the State of New York pollutant goals. The water quantity volume is intended to improve water quality by capturing and treating 90% of the average annual storm water runoff volume. The following equation is given within the design manual for calculating the water quality storage volume and was used to size subject practices.

$$WQ_v = \frac{(P)\,(R_v)(A)}{12}$$

where:

WQ_v = water quality volume (acre-ft)
P = 90% Rainfall Event Number (1" was used per ICW Guidelines)
R_v = 0.05 + 0.009 (I) , where I is percent of impervious cover

Storm water quality calculations are provided within the Appendix R and are summarized in the Table below.

Water Quality Volumes		
Practice	**Water Quality Volume Required (CF)**	**Volume Provided and Reduced (CF)**
Hydrodynamic Separator	2,643	2,643

B. CHANNEL PROTECTION VOLUME

Channel protection volume is not required for the site because as a redevelopment project there is no increase in discharge rate from the project site.

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C. RUNOFF REDUCTION VOLUME

The Runoff Reduction Volume (RRv) for the site shall be equal to 100% of the water quality volume per section 4.3 of the Stormwater Management Design Manual. In the event that a project cannot meet the 100% requirement a reduced percentage based on the formula located on page 4-6 of the Stormwater Management Design Manual will be allowed.

RRv Values for Proposed Site Conditions	
WQv Required =	2,643 cf / 0.061af
RRv Minimum =	44 cf / 0.001 af
RRv Provided =	48 cf / 0.001 af

D. OVERBANK FLOOD

Overbank Flood protection is provided by controlling the peak discharge from the 10-year storm to 10-year predevelopment rates. This requirement is being satisfied as the proposed development is reducing the peak discharge from the 10 yr storm below pre-development rates. Refer to Table IV for details.

E. EXTREME STORM

Extreme Storm protection is provided by controlling the peak discharge from the 100-year storm to 100-year predevelopment rates. This requirement is being satisfied as the proposed development is reducing the peak discharge from the 100 yr storm below pre-development rates. Refer to Table V for details

Summary of Findings

A. Summary of Results

Table V and Table VI depicts the peak discharges from the site for each of the design storms for the existing and proposed conditions.

Table V - Existing and Proposed Peak Discharge for the 10-Year Storm (cfs)

Drainage Area	10 yr Design Storm Discharge	
	Existing	Proposed
Point of Analysis #1	5.28	5.18
Point of Analysis #2	5.83	5.21
Total	**11.11**	**10.39**

Table VI - Existing and Proposed Peak Discharge for the 100-Year Storm (cfs)

Drainage Area	100 yr Design Storm Discharge	
	Existing	Proposed
Point of Analysis #1	10.81	10.59
Point of Analysis #2	11.31	10.07
Total	**22.12**	**20.66**

As depicted in the above tables, the overall total peak discharge from the site for the design storms will be decreased after this project is constructed and the stormwater management plan is implemented.

X OTHER CONTROLS

a. Off-Site Vehicle Tracking

A stabilized construction entrance/exit will be provided at each entrance used for construction access to help reduce vehicle tracking of sediments. The paved streets adjacent to the site entrance will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin. The job Contractor's Superintendent will be responsible for seeing that these procedures are followed.

b. Excavation Spoil Materials

Excavation spoil materials may be generated during excavations including, but not limited to footings and utilities installation. These materials must be properly managed to prevent them from contributing to storm water discharges. The materials generated from the development of this Project will be managed by the following method: Stockpiled on-site, the general site contractor to specify location and provide erosion control for excavated spoil materials.

c. Dust Control

Minimizing wind erosion and controlling dust will be accomplished by one or more of the following methods

- Covering 30% or more of the soil surface with a non-erodible material.
- Roughening the soil to produce ridges perpendicular to the prevailing wind. Ridges should be about six (6) inches in height.
- Frequent watering of excavation and fill areas.
- Providing gravel or paving at entrance/exit drives, parking areas and transit paths.

d. Equipment Service Area

The Contractor shall identify an area on the Erosion and Sediment Control Plan for equipment cleaning, maintenance and repair. This area shall be protected by a temporary perimeter berm preventing all surface runoff from leaving the area, or equivalent measure, and shall be located no closer than 100' from any Waters of the United States or state, and shall be located no closer than 50' from any storm inlet. External washing of trucks and other

construction vehicles must be confined to this area. No engine degreasing or asphalt equipment or tool washing is permitted.

e. Material Stockpiles

Stormwater runoff to and from material stockpiles shall be controlled to prevent materials from creating a diversion of surface water to disturbed soils or from entering the surface water. Topsoil stockpiles shall be surrounded with perimeter sediment control measures such as silt fence and be covered with non-erosive material as soon as practicable but no longer than 14 days after completion of the pile. Non-erosive material may include temporary seeding with straw mulch and tackifier, Mulch, or other material providing suitable cover.

f. Masonry Mixing Area

Non-stormwater discharges into storm drainage systems or waterways containing slurries from concrete or mortar mixing operations shall not be permitted. Masonry mixing areas shall be located a minimum distance of 100 linear feet from drainage ways, inlets and surface waters and all storm water runoff from these areas shall be contained by a berm or other measures. Run-on water to these areas will be diverted to prevent mixing of clean water and water contaminated with concrete slurry.

XI COMPLIANCE WITH OTHER STATE AND LOCAL REGULATIONS

At a minimum, the Contractor will obtain copies of any and all local and state regulations which are applicable to Storm Water Management, Erosion and Sediment Control, and pollution minimization at this Project and will comply fully with such regulations. The Contractor will submit written evidence of such compliance if requested by the Operator or any agent of a regulatory body. The Contractor will comply with all conditions of the *NYSDEC* General Permit for Stormwater Discharges from Construction Activities including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the Project and allowing regulatory personnel access to the Project and to records in order to determine compliance. The Contractor shall also comply with any additional or more stringent requirements imposed by the permit issued by an approved state storm water program, or with permits issued, or requirements imposed by the Town to which the Project discharges storm water. Requirements with which the Contractor must comply include installation of post-construction measures required by the State, County, or City.

XII MATERIALS MANAGEMENT PLAN

a. Progress Drawing

A Progress Drawing consisting of a print of the Erosion and Sediment Control Plans shall be posted inside the job trailer wall. The Progress Drawing will be used to record the locations of the Job Trailer, Sanitary Waste Facilities, Solid Waste Facilities, Fuel Storage Area, Equipment Service Area, and Concrete Washout Pit. Any time any of these facilities are

relocated on the site, a new location will be noted on the Progress Drawing and a Modification Report (Appendix L) will be prepared.

b. Materials Covered

The following materials or substances are expected to be present onsite during construction:

Concrete/Additives/Wastes	Cleaning solvents
Detergents	Petroleum based products
Paints/Solvents	Pesticides
Acids	Fertilizers
Solid and construction wastes	Sanitary wastes
Soil stabilization additives	

c. Materials Management Practices

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The Contractor's Superintendent will be responsible for ensuring that these procedures are followed:

1. Good Housekeeping

The following good housekeeping practices will be followed onsite during construction:

a) An effort will be made to store only enough products required to do the job.
b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, all containers will be stored with their lids on when not in use. Drip pans shall be provided under all dispensers.
c) Products will be kept in their original containers with the original manufacturer's label in legible condition.
d) Substances will not be mixed with one another unless recommended by the manufacturer.
e) Whenever possible, all of a product will be used up before disposing of the container.
f) Manufacturer's recommendations for proper use and disposal will be followed.
g) The Contractor's Superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Substances

These practices will be used to reduce the risks associated with Hazardous Substances. Material Safety Data Sheets (MSDS's) for each product with hazardous properties that is used at the Project will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another

copy of each MSDS will be maintained in the job trailer at the Project. Each employee who must handle a Hazardous Substance will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

a) Products will be kept in original containers with the original labels in legible condition.
b) Original labels and MSDS's will be procured and used for each product.
c) If surplus product must be disposed manufacturer's and local/state/federal required methods for proper disposal must be followed.

3. Hazardous Waste

It is imperative that all Hazardous Waste be properly identified and handled in accordance with all applicable Hazardous Waste Standards, including the storage, transport and disposal of the Hazardous Wastes. There are significant penalties for the improper handling of Hazardous Wastes. It is important that the Site Superintendent seeks appropriate assistance in making the determination of whether a substance or material is a Hazardous Waste. For example, Hazardous Waste may include certain Hazardous Substances, as well as pesticides, paints, paint solvents, cleaning solvents, pesticides, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable, and can include the containers for those substances; other materials and substances can also be or become Hazardous Wastes, however. The Contractor's Superintendent is also responsible for ensuring that all site personnel are instructed as to these Hazardous Waste requirements and also that the requirements are being followed.

4. Product Specific Practices

The following product specific practices will be followed on the job site:

a) Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Petroleum storage tanks shall be located at minimum 100 linear feet from drainage ways, inlets and surface waters. Maximum total aggregate above ground storage capacity (for the total permit area) shall not exceed 1,320 gallons (which includes both bulk and equipment operational storage volumes in fuel tanks 55 gallons and greater). Total aggregate petroleum storage exceeding 1,320 gallons shall require preparation, certification (using a Professional Engineer or providing a Self-Certified SPCC Plan if applicable) and implementation of a Spill Prevention Control and Countermeasures (SPCC) Plan. The SPCC Plan must be prepared and fully implemented prior to the commencement of work. The SPCC Plan, if needed, will be furnished by the Contractor. **Any petroleum storage tanks stored onsite will be located within a containment area that is designed with**

an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Any mobile petroleum tank shall be parked in a vehicular service area surrounded by a berm that provides a containment volume that is equal to 110% of the volume of the largest tank. Containment must provide sufficient volume to contain expected precipitation and 110% volume of the largest tank. Accumulated rainwater or spills from containment areas are to be promptly pumped into a containment device and disposed of properly by a licensed Hazardous Waste transporter. Drip pans shall be provided for all dispensers. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on the PROGRESS DRAWING by the Contractor once the locations have been determined.

b) Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to storm water. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

d) Concrete Wastes

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in specifically designated diked and impervious washouts which have been prepared to prevent contact between the concrete wash and storm water. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters or highway right of ways, or any location other than the designated concrete washout. Waste concrete may be poured into forms to make riprap or other useful concrete products. Proper signage designating the “Concrete Washout” shall be placed near the facility. Concrete Washouts shall be located at minimum 100 linear feet from drainage ways, inlets and surface waters.

The hardened residue from the concrete wash out areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the Contractor. Maintenance of the washout is to include removal of hardened concrete. The Facility shall have sufficient volume to contain all the concrete waste resulting from washout and a minimum freeboard of 12 inches. Facility shall not be filled

beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The Contractor's Superintendent will be responsible for seeing that these procedures are followed.

Saw-cut Portland Cement Concrete (PCC) slurry shall not be allowed to enter storm drains or Watercourses. Saw-cut residue should not be left on the surface of pavement or be allowed to flow over and off pavement. Residue from saw-cutting and grinding shall be collected by vacuum and disposed of in the concrete washout facility.

The Project may require the use of multiple concrete wash out areas. These concrete wash out areas are to be made available to all trades and subcontractors working on the Project. The Contractor may designate certain wash out areas for particular trades or subcontractors, but the Contractor is responsible for the management of all concrete washout areas on the Project. All concrete wash out areas will be located in an area where the likelihood of the area contributing to storm water discharges is negligible. If required, additional BMPs must be implemented to prevent concrete wastes from contributing to storm water discharges. The location of concrete wash out area(s) must be identified on the PROGRESS DRAWING by the Contractor once the locations have been determined.

e) Solid and Construction Wastes

All waste materials will be collected and stored in an appropriately covered container and/or securely contained metal dumpster rented from a local waste management company which must be a licensed solid waste management company. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied a minimum of once per week or more often if necessary. Once building construction has commenced, the dumpster will be emptied a minimum of once per week or when 95% full, or more often if necessary to prevent over-flow and the trash will be hauled to a landfill. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal.

All waste dumpsters and roll-off containers will be located in an area where the likelihood of the containers contributing to storm water discharges is negligible. Solid waste containers shall be located no less than 50 feet from any storm inlet, drainage way, or surface water. If required, additional BMPs must be implemented, such as gravel bags, wattles, dikes, berms, and fences around the base to prevent wastes from contributing to storm water discharges. The location of waste dumpsters and roll-off containers must be identified on the PROGRESS DRAWING by the Contractor once the locations have been determined.

f) Sanitary Wastes

A minimum of one portable sanitary unit will be provided for every ten (10) workers on the site. All sanitary waste will be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units will be located in an area where the likelihood of the unit contributing to storm water discharges is negligible. Additional containment BMPs must be implemented, such as gravel bags or specially designed plastic skid containers around the base, to prevent wastes from contributing to storm water discharges. The location of sanitary waste units must be identified on the PROGRESS DRAWING by the contractor once the locations have been determined

g) Contaminated Soils

Any contaminated soils (resulting from spills of Hazardous Substances or Oil or discovered during the course of construction) which may result from Construction Activities will be contained and cleaned up in accordance with applicable state and federal regulations. Contaminated soils not resulting from Construction Activities, or which pre-existed Construction Activities, but which are discovered by virtue of Construction Activities, should be reported in the same manner as spills, but with sufficient information to indicate that the discovery of an existing condition is being reported. If there is a release that occurs by virtue of the discovery of existing contamination, this should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

D. Spill Prevention and Response Procedures

The Contractor will train all personnel in the proper handling and cleanup of spilled Hazardous Substances or Oil. No spilled Hazardous Substances or Oil will be allowed to come in contact with storm water discharges. If such contact occurs, the storm water discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated storm water. It shall be the responsibility of the Contractor's Superintendent to be properly trained, and to train all personnel in spill prevention and clean up procedures.

1. In order to prevent or minimize the potential for a spill of Hazardous Substances or Oil to come into contact with storm water, the following steps will be implemented:

a) All Hazardous Substances or Oil (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, with their lids on, preferably under cover, when not in use.
b) The minimum practical quantity of all such materials will be kept at the Project.

c) A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.
d) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.
e) It is the Contractors responsibility to ensure that all Hazardous Waste discovered or generated at the Project site is disposed of properly by a licensed hazardous material disposal company. The Contractor is responsible for not exceeding Hazardous Waste storage requirements mandated by the EPA or state and local authority.

2. In the event of a spill of Hazardous Substances or Oil, the following procedures must be followed:

a) All measures must be taken to contain and abate the spill and to prevent the discharge of the Hazardous Substance or Oil to storm water or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the Hazardous Substances.)
b) If the release is equal to or in excess of a reportable quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The SWPPP must identify measures to prevent the recurrence of such releases and to respond to such releases. The form must be completed in accordance with this requirement.

XIII CONTROL OF NON-STORM WATER DISCHARGES

Certain types of discharges are allowable under the NYSDEC General Permit for Stormwater Discharges from Construction Activities, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined previously in this SWPPP will be strictly followed to ensure that no contamination of these non-storm water discharges takes place. The following non-storm water discharges are allowed by the NYSDEC and may occur at the Project:

1. Discharges from fire-fighting activities;
2. Fire hydrant flushings;
3. Waters used to wash vehicles where detergents are not used;
4. Water used to control dust;
5. Potable water including uncontaminated water line flushings;
6. Routine external building wash down that does not use detergents;
7. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used;
8. Uncontaminated air conditioning or compressor condensate;

9. Uncontaminated ground water or spring water;
10. Foundation or footing drains where flows are not contaminated with process materials such as solvents;
11. Uncontaminated excavation dewatering;
12. Landscape irrigation

XIV HISTORICAL PROPERTIES

The Church Rectory at 1 Emwilton Avenue, the United Methodist Church, and the Ossining High School at 29 South Highland Avenue all contribute to the Downtown Ossining Historic District, which is listed in the State and National Registers of Historic Places. The school district plans to provide second and third floor additions to the existing school, build a connecting structure from the school to the adjacent church and former rectory, renovate the church for school purposes, re-use or demolish and build a new structure at the existing church annex, and demolish the former rectory to build a new school-related structure.

XV INDUSTRIAL ACTIVITIES

There are no discharges planned from industrial activities as part of this project.

XVI ENHANCED PHOSPHORUS REMOVAL STANDARDS

This project is not required to provide enhanced phosphorus removal practices.

XVII CULTURAL AND ENVIRONMENTAL MAPPING

The SHPO correspondence is ongoing. Applicable correspondence letters are attached in Appendix S. The SEQR review has been completed, and subsequent documents are attached in Appendix S.

XVIII CLIMATE CHANGE CONSIDERATION

This report presents the consideration for future physical risks due to climate change, in accordance with Part III.A.2 of the permit. Overall site planning, control measures and practices, conveyance systems and detention systems were evaluated against the seven (7) physical risks identified by NYSDEC due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR 490, and associated guidance. Appendix T provides a description of each consideration, specific to the project.

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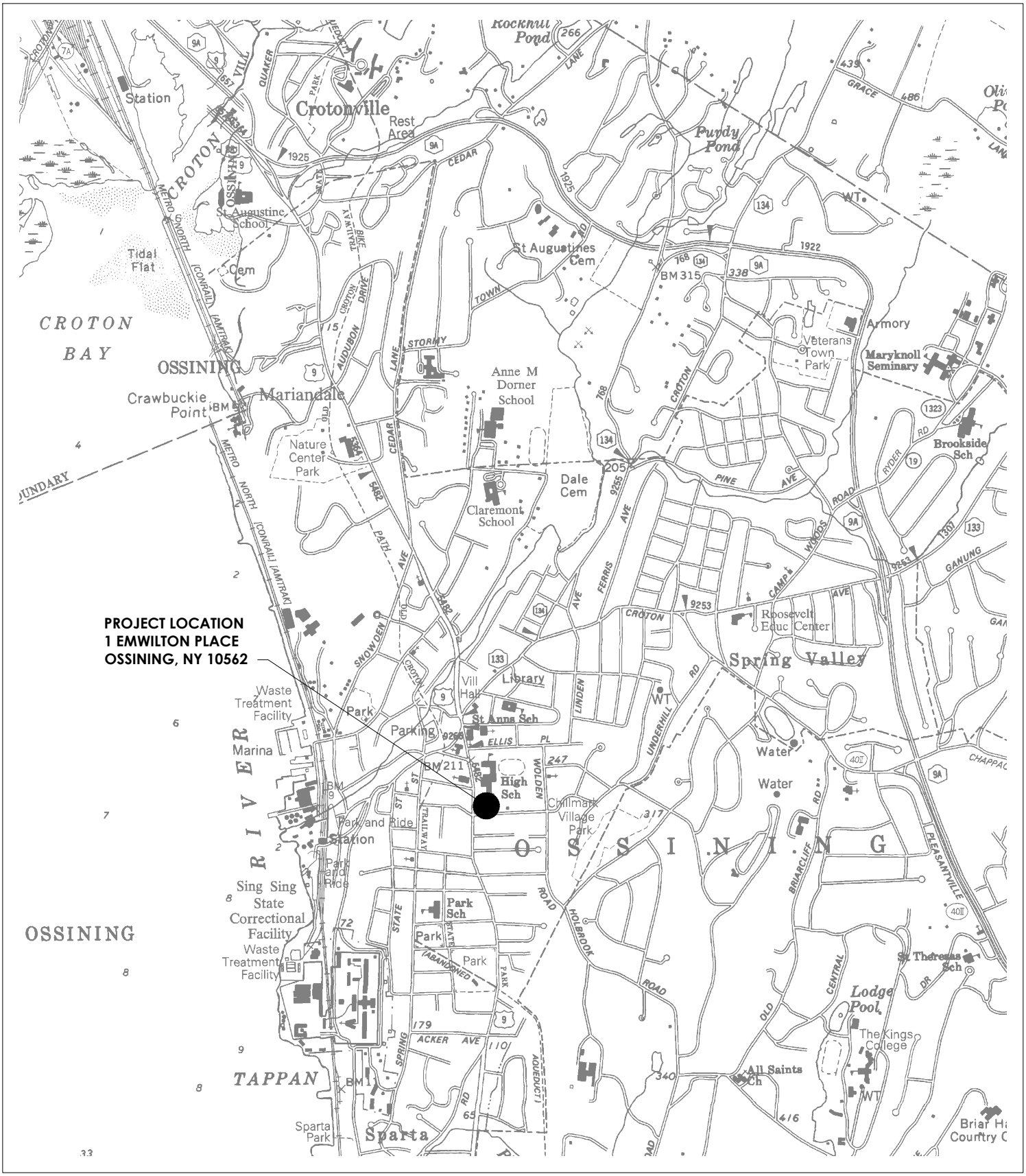
Appendix B
Site and Soils Mapping



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26 IBM Road
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NY ENGINEERING FIRM CERTIFICATE #0021419

Client Name

OSSINING UNION FREE SCHOOL DISTRICT

Project Name

2024 BOND

Drawing Title

PROJECT LOCATION PLAN

Drawing Number

FIG-01

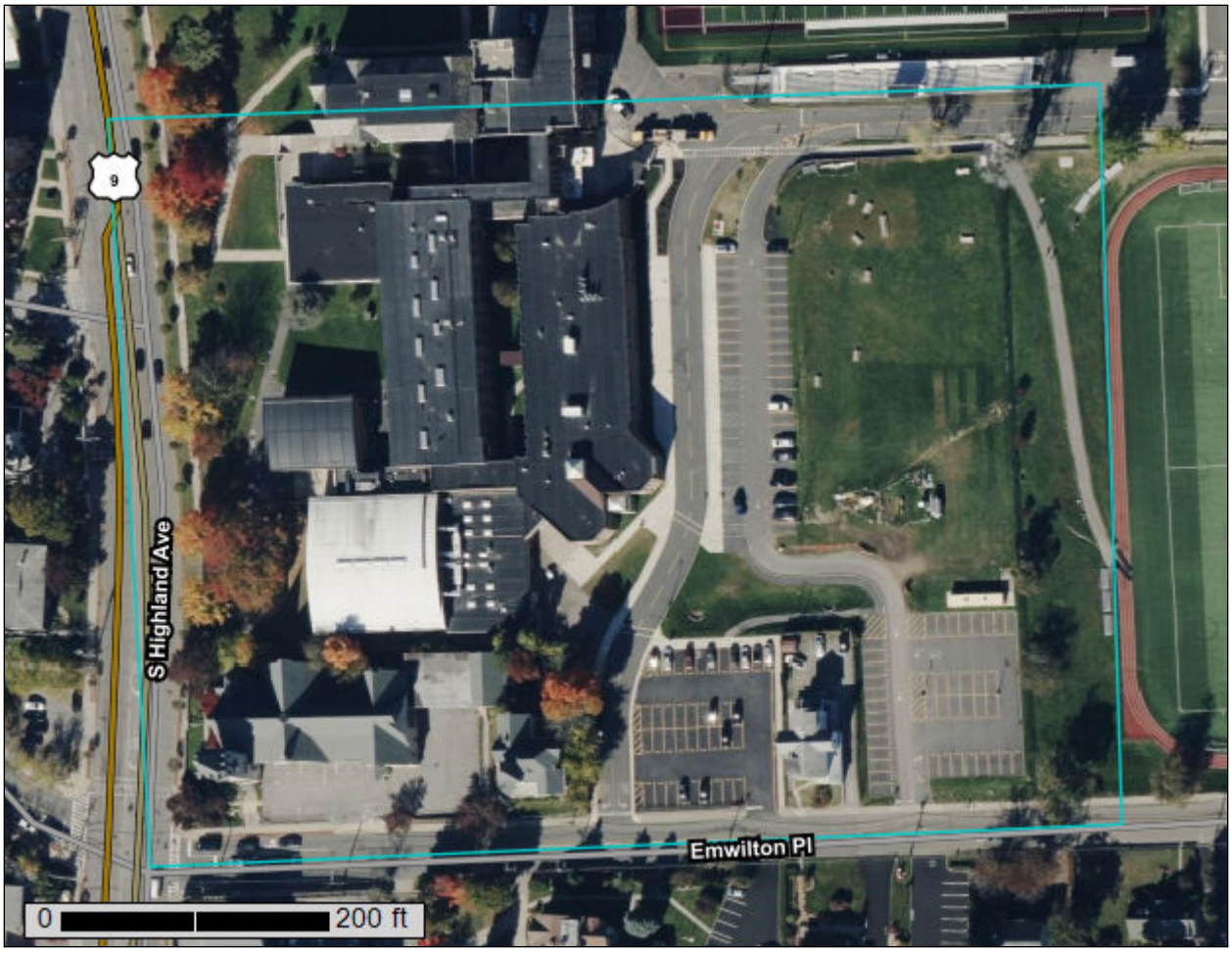
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Westchester County, New York



November 4, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

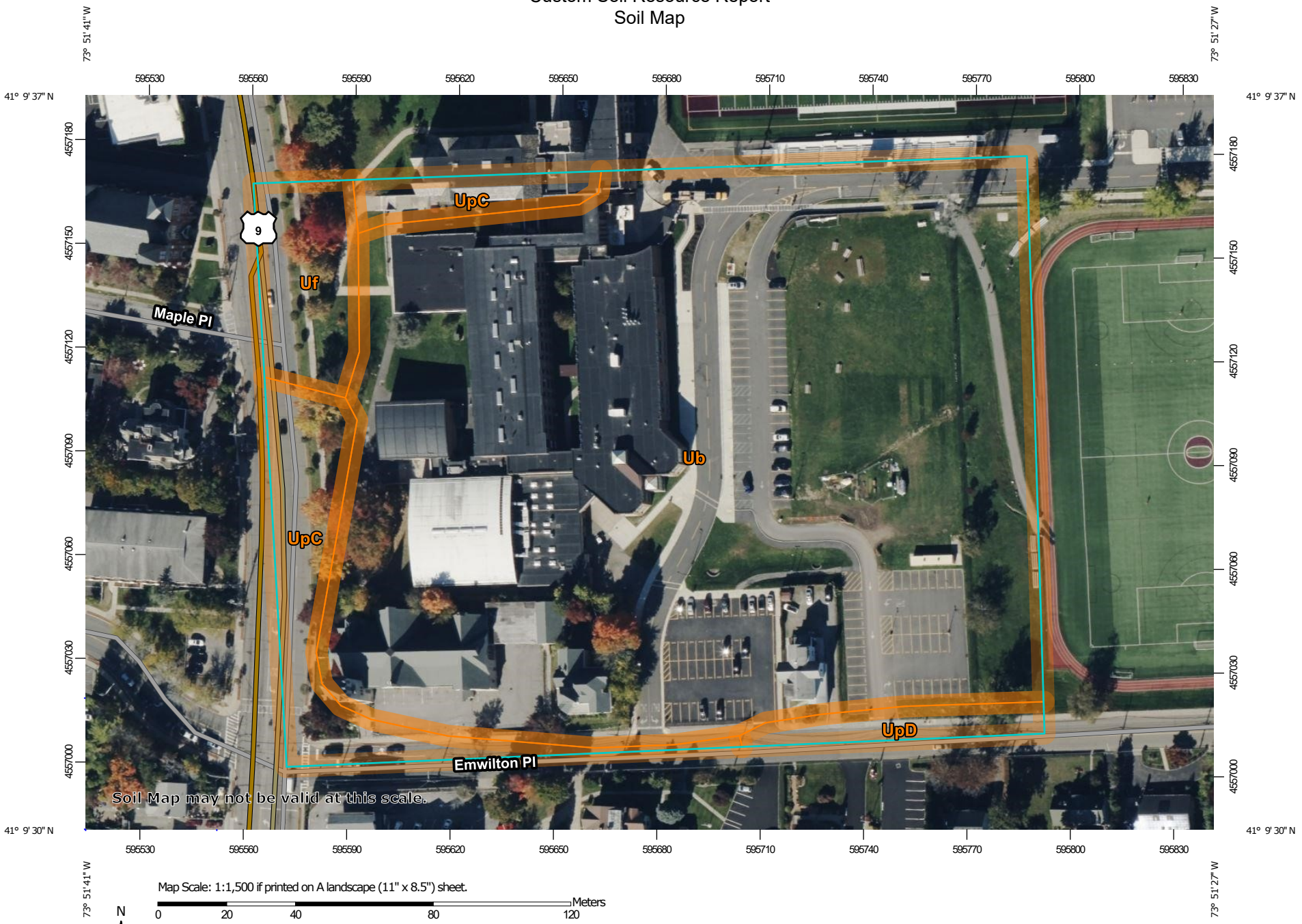
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Westchester County, New York
Survey Area Data: Version 21, Aug 28, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ub	Udorthents, smoothed	7.8	84.5%
Uf	Urban land	0.4	4.5%
UpC	Urban land-Paxton complex, 8 to 15 percent slopes	0.8	9.0%
UpD	Urban land-Paxton complex, 15 to 25 percent slopes	0.2	2.0%
Totals for Area of Interest		**9.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Westchester County, New York

Ub—Udorthents, smoothed

Map Unit Setting

National map unit symbol: bd7f
Elevation: 0 to 2,400 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 115 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Smoothed

Typical profile

H1 - 0 to 4 inches: gravelly loam
H2 - 4 to 70 inches: very gravelly loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 40 to 60 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 5.95 in/hr)
Depth to water table: About 18 to 48 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.6 inches)

Minor Components

Udorthents, wet substratum

Percent of map unit: 5 percent
Hydric soil rating: No

Urban land

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Leicester

Percent of map unit: 2 percent
Hydric soil rating: No

Hollis

Percent of map unit: 2 percent
Hydric soil rating: No

Charlton

Percent of map unit: 2 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 2 percent
Hydric soil rating: No

Sun
Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Uf—Urban land

Map Unit Setting

National map unit symbol: bd7j
Elevation: 50 to 2,400 feet
Mean annual precipitation: 46 to 50 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 115 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Minor Components

Udorthents
Percent of map unit: 5 percent
Hydric soil rating: No

Riverhead
Percent of map unit: 2 percent
Hydric soil rating: No

Udorthents, wet substratum
Percent of map unit: 2 percent
Hydric soil rating: No

Unadilla
Percent of map unit: 2 percent
Hydric soil rating: No

Chatfield
Percent of map unit: 2 percent
Hydric soil rating: No

Sutton
Percent of map unit: 2 percent
Hydric soil rating: No

UpC—Urban land-Paxton complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w67t
Elevation: 10 to 880 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Paxton and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 15 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Description of Paxton

Setting

Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 5 percent
Landform: Drumlins, depressions, ground moraines, hills, drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Woodbridge

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

UpD—Urban land-Paxton complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2w680
Elevation: 20 to 870 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Paxton and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

M - 0 to 10 inches: cemented material

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: 0 inches to manufactured layer
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: Unranked

Description of Paxton

Setting

Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam

Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 10 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Ridgebury

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drainageways, drumlins, depressions
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Udorthents

Percent of map unit: 5 percent
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Woodbridge

Percent of map unit: 5 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

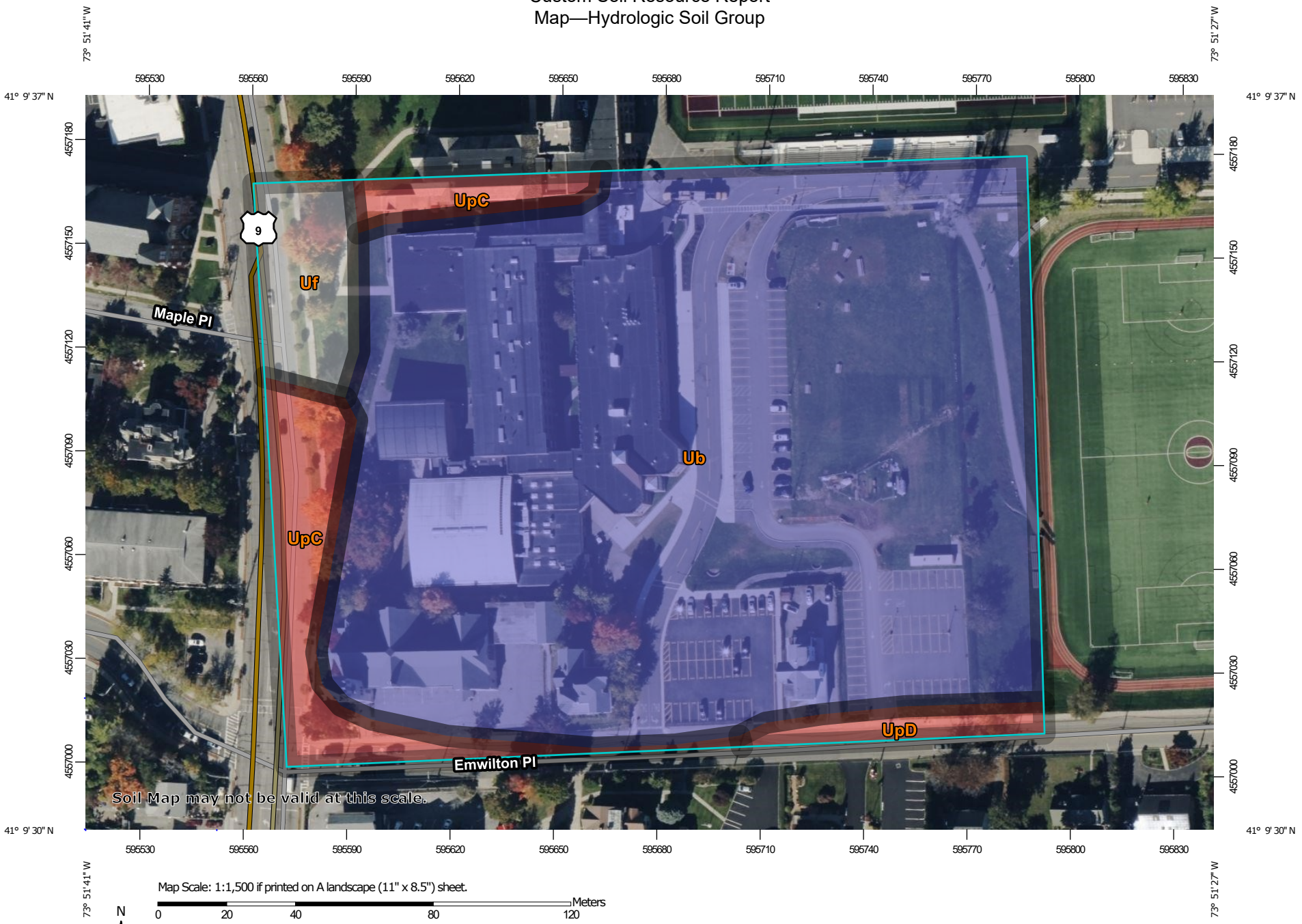
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Map Scale: 1:1,500 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Westchester County, New York
Survey Area Data: Version 21, Aug 28, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 21, 2022—Oct 27, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ub	Udorthents, smoothed	B	7.8	84.5%
Uf	Urban land		0.4	4.5%
UpC	Urban land-Paxton complex, 8 to 15 percent slopes	D	0.8	9.0%
UpD	Urban land-Paxton complex, 15 to 25 percent slopes	D	0.2	2.0%
Totals for Area of Interest			**9.3**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Appendix C
Erosion and Sedimentation Control Plan(s) and Details

Bound Separately See Complete Set of Site Plan Documents

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Appendix D
Notice of Intent (NOI)

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Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.11

(Submission #: HQG-WN5H-C9CG5, version 1)

Details

Originally Started By	Johnathan Nicklas
Alternate Identifier	Ossining High School 2024 Bond Region 3
Submission ID	HQG-WN5H-C9CG5
Status	Draft
Active Steps	Form Submitted

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR ��428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Pl
or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more tl
50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional ha
determined is a historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet
- 5-20 acres of disturbance—50 feet
- 20+ acres of disturbance—100 feet?

Yes

4.a.i. Have the impacts to historic properties been resolved?
Yes

4.a.i.1. Which of the following documentation will be maintained at the construction site?
b) Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area

Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:
Executed Memorandum of Agreement

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?
Yes

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001?
Yes

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC&#65533;s website?
No

Owner/Operator Information

8. Owner/Operator Name
Ossining Union Free School District

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
Mary Fox-Alter	914-941-7700	mfoxalter@ossiningufsd.org

10. Owner/Operator Mailing Address

400 EXECUTIVE BLVD
OSSINING, NY 10562-2559
USA

11. Is the billing contact different from the Owner/Operator Contact?
No

12. What type of organization is the owner/operator?
School District

Site Information

13. Project/Site Name
Ossining High School 2024 Bond

14. Site Address

1 EMWILTON PL
OSSINING, NY 10562-4809
Westchester

DEC Region
3

15. Site Latitude & Longitude
41.15895220386555,-73.8603501775973

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
The proposed project includes demolition of existing buildings and construction of a building addition. The proposed construction will also include modifications to parking lots, modifications to sidewalks, and drainage improvements.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
2.6

20. Total Area to be Disturbed (acres)
1.6

21. Existing Impervious Area to be Disturbed (acres)
0.7

22. Future Impervious Area Within Disturbed Area (acres)
0.7

Nature of the project:
Redevelopment with no increase in impervious area

23. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
85

C (%)
0

D (%)
15

25. Enter the planned start and end dates of the disturbance activities.

Start Date
01/01/2026

End Date
12/31/2029

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Hudson River

27. Type of waterbody identified in question 26?
River Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.
Village of Ossining

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

37. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?
Yes

37.a. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2024

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP
James Basile

41. SWPPP Preparer Organization Name
CPL

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
James Basile	585.324.0454	jbasile@cplteam.com

43. SWPPP Preparer Address

255 WOODCLIFF DR
STE 200
FAIRPORT, NY 14450-4226

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form
Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?

Yes

Erosion & Sediment Control Criteria

45. Has a construction sequence schedule for the planned management practices been prepared?

Yes

Post-Construction Criteria

Site Planning and Soil Restoration

46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

Reduction of Clearing and Grading
Locating Development in Less Sensitive Areas
Preservation of Undisturbed Area

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.

All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
0.061	0.001	0.001	0.061	0.062

Water Quantity Criteria

50. Per Section 9.2.1.C.VI and VII of the 2024 Design Manual, is there 0% change to hydrology that increases the discharge rate and volume from the project site?

Yes

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?

Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.

Owner

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Vegetated Swale (RR-5)	0.050	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
Hydrodynamic	Contech	CS-4	0.55

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
Yes

59.a. Which form is required per Part I.D.2.b.ii.?
MS4 SWPPP Acceptance Form

MS4 SWPPP Acceptance Form Download

Download the MS4 SWPPP Acceptance Form from the link below.
MS4 SWPPP Acceptance Form

60. MS4 Acceptance or No Jurisdiction Form Upload

NONE PROVIDED
Comment
NONE PROVIDED

60.a. Has the form been signed by the principal executive officer or ranking elected official or duly authorized representative of that person in accordance with Part VII.J. and submitted along with this NOI?
Yes

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form

NONE PROVIDED
Comment
NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?
NONE PROVIDED

Additional Project Information

62. Enter any additional pertinent project information in the text box below.
NONE PROVIDED

Status History

	User	Processing Status
11/5/2025 3:24:57 PM	Johnathan Nicklas	Draft

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted		
Issue SPDES Permit ID	Daniel von Schilgen	

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	Ossining High School 2024 Bond
eNOI Submission ID:	HQG-WN5H-C9CG5
Owner/Operator Name:	Ossining Union Free School District

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James	C	Basile
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature Date

Revised: January 2025

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: Ossining High School

eNOI Submission ID: HQG-WN5H-C9CG5

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Mary		Fox-Alter
Owner/Operator First Name	MI	Owner/Operator Last Name

_____

Signature

_____

Date

Revised: January 2025

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Ossining Union Free School District
2. Contact Person:	Mary Fox-Alter
3. Street Address:	400 Executive Blvd
4. City/State/Zip:	Ossining, NY 10562
II. Project Site Information	
5. Project/Site Name:	Ossining High School 2024 Bond
6. Street Address:	1 Emwilton Place
7. City/State/Zip:	Ossining, NY 10562
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4 Operator:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Street Address:	
14. City/State/Zip:	
15. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

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Appendix E
NYS DEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001)

https://dec.ny.gov/sites/default/files/2025-01/permit_swdischargesfromconst.pdf

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Appendix F
Blank Notice of Termination (NOT)

Table of Contents

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Construction General Permit (CGP) Electronic Notice of Termination (eNOT) GP-0-25-001 2
(Submission #: HQA-56PE-AR0YN, version 1) 2
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Form Input 2
Owner/Operator Information 2
Project Site Information 2
Reason for Termination 3
Certifications 3
Status History 3

Construction General Permit (CGP)
Electronic Notice of Termination (eNOT)
GP-0-25-001

version 1.0

(Submission #: HQA-56PE-AR0YN, version 1)

Details

Originally Started By	Johnathan Nicklas
Alternate Identifier	NYR
Submission ID	HQA-56PE-AR0YN
Status	Draft

Form Input

Owner/Operator Information

1. SPDES Identification Number
NYR

2. Owner/Operator Name
NONE PROVIDED

3. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*

4. Owner/Operator Mailing Address

[NO STREET ADDRESS SPECIFIED]
[NO CITY SPECIFIED], *[NO STATE SPECIFIED][NO ZIP CODE SPECIFIED]*
[NO COUNTRY SPECIFIED]

Project Site Information

Site Information

5. Project/Site Name
NONE PROVIDED

6. Site Address

[NO STREET ADDRESS SPECIFIED]
[NO CITY SPECIFIED], *[NO STATE SPECIFIED][NO ZIP CODE SPECIFIED]*
[NO COUNTY SPECIFIED]

The project location must be within the state of New York. Please use the two-character state code, "NY".

7. Site Latitude & Longitude
NONE PROVIDED

Reason for Termination

8. Reason for Termination

NONE PROVIDED

Certifications

eNOT Owner/Operator Certification Form Download

Download the eNOT Owner/Operator Certification Form by clicking the link below.
eNOT Owner/Operator Certification Form

16. Upload eNOT Owner or Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

16.a. Has the eNOT Owner or Operator Certification been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOT?

NONE PROVIDED

Status History

	User	Processing Status
2/4/2025 11:04:32 AM	Johnathan Nicklas	Draft

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Appendix G
General Contractor's Certification

STORM WATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

CONTRACTOR'S CERTIFICATION*:*

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Name: _____
(Print)

Signature: _____

Title: _____

Company Name: _____

Address: _____

Telephone Number: _____

Date: _____

Scope of Services: _____

Date: _____

Received by: _____
[Name]

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Appendix H
Subcontractor's Certification

STORM WATER POLLUTION PREVENTION PLAN
SUBCONTRACTOR'S CERTIFICATION

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

SUBCONTRACTOR'S CERTIFICATION:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Name: _____
(Print)

Signature: _____

Title: _____

Company Name: _____

Address: _____

Telephone Number: _____

Date: _____

Scope of Services: _____

Date: _____

Received by: _____
[Name]

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Appendix I
Inspection Report

ATTACHMENT 1

Construction Stormwater Compliance Inspection Report

Project Name and Location: Municipality: County:	Date:	Page 1 of 2
	Permit # (if any): **NYR**	
	Entry Time:	Exit Time:
On-site Representative(s) and contact information:	Weather Conditions:	
Name and Address of SPDES Permittee/Title/Phone/Fax Numbers: Contacted: Yes ☐ No ☐		

INSPECTION CHECKLIST

SPDES Authority

	Yes	No	N/A		Law, rule or permit citation
1.	☐	☐	☐	Is a copy of the NOI posted at the construction site for public viewing?	
2.	☐	☐	☐	Is an up-to-date copy of the signed SWPPP retained at the construction site?	
3.	☐	☐	☐	Is a copy of the SPDES General Permit retained at the construction site?	

SWPPP Content

	Yes	No	N/A		Law, rule or permit citation
4.	☐	☐	☐	Does the SWPPP describe and identify the erosion & sediment control measures to be employed?	
5.	☐	☐	☐	Does the SWPPP provide a maintenance schedule for the erosion & sediment control measures?	
6.	☐	☐	☐	Does the SWPPP describe and identify the post-construction SW control measures to be employed?	
7.	☐	☐	☐	Does the SWPPP identify the contractor(s) and subcontractor(s) responsible for each measure?	
8.	☐	☐	☐	Does the SWPPP include all the necessary 'CONTRACTOR CERTIFICATION' statements?	
9.	☐	☐	☐	Is the SWPPP signed/certified by the permittee?	

Recordkeeping

	Yes	No	N/A		Law, rule or permit citation
10.	☐	☐	☐	Are inspections performed as required by the permit (every 7 days and after ½" rain event)?	
11.	☐	☐	☐	Are the site inspections performed by a qualified professional?	
12.	☐	☐	☐	Are all required reports properly signed/certified?	
13.	☐	☐	☐	Does the SWPPP include copies of the monthly/quarterly written summaries of compliance status?	

Visual Observations

	Yes	No	N/A		Law, rule or permit citation
14.	☐	☐	☐	Are all erosion and sediment control measures installed/constructed?	
15.	☐	☐	☐	Are all erosion and sediment control measures maintained properly?	
16.	☐	☐	☐	Have all disturbances of 5 acres or more been approved prior to the disturbance?	
17.	☐	☐	☐	Are stabilization measures initiated in inactive areas?	
18.	☐	☐	☐	Are permanent stormwater control measures implemented?	
19.	☐	☐	☐	Was there a discharge into the receiving water on the day of inspection?	
20.	☐	☐	☐	Are receiving waters free of there evidence of turbidity, sedimentation, or oil ? (If no , complete Page 2)	

Overall Inspection Rating: ❑ Satisfactory ❑ Marginal ❑ Unsatisfactory	
Name/Agency of Lead Inspector:	**Signature of Lead Inspector:**
Names/Agencies of Other Inspectors:	

Water Quality Observations

Describe the discharge(s) [source(s), impact on receiving water(s), etc.] _____

_____

_____

_____

_____

Describe the quality of the receiving water(s) both upstream and downstream of the discharge_____

_____

_____

_____

_____

_____

Describe any other water quality standards or permit violations _____

_____

_____

Additional Comments:_____

_____

_____

_____

_____

_____

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Appendix J
Stabilization Form

STORM WATER POLLUTION PREVENTION PLAN

Stabilization Schedule for Major Grading Activities

OSSINING HIGH SCHOOL – 2024 BOND

			Note: When these activities cease and if activities cease for more than 14 days these columns need to be completed.					
Major Site Construction Activity Areas	**Begin Date**	**Completion Date**	**Temporary Cease Date**	**Resume Date**	**Begin Date for Stabilization Temporary**	**Begin Date for Stabilization Permanent**	**Type of Stabilization (List measures used such as stone, seeding, mulch, landscaping, etc…)**	**Contractor Responsible for Work**
Temp. Gravel Const. Entrance								
Existing Pavements and Structures Removed, Utilities Removed/Relocated								
Mass Grading								
Access Drives Constructed								
Walkways Constructed								
Building Foundation								
Storm Sewers and Utility Installations								
Pervious Areas Stabilized								

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Appendix K
Implementation Schedule

STORM WATER POLLUTION PREVENTION PLAN
IMPLEMENTATION SCHEDULE

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

***To be completed prior to initiation of construction by the contractor.**

The Contractor will be responsible for implementing all Erosion and Sediment Control and Storm Water Management control structures. The Contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the Contractor.

Construction Activity	*Proposed Initiation Date	*Proposed Completion Date	Actual Initiation Date	Actual Completion Date	Contractor Responsible for Implementation
Preconstruction Meeting					
Temporary Construction Access					
Material laydown/staging area prep					
Install inlet protection					
Install perimeter protection					
Stabilize all areas					
Remove inlet protection					
Clean storm Sewers					
Final inspection					

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Appendix L
Modification Log & Report

STORM WATER POLLUTION PREVENTION PLAN
MODIFICATION LOG

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

CHANGES REQUIRED FOR STORM WATER POLLUTION PREVENTION PLAN

The SWPPP must be amended whenever there is a change in design, construction, operation, or maintenance at the construction site that has a significant effect on the discharge of pollutants to the Waters of the United States that has not been previously addressed in the SWPPP, if inspections or investigations by site staff, local, state or federal officials determine that discharges are causing water quality exceedances or the SWPPP is ineffective in eliminating or significantly minimizing pollutants in storm water discharges from the construction site, or based on the results of an inspection, or there is a release containing a Hazardous Substance or Oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24 hour period, the SWPPP must be modified to include additional or modified BMPs designed to correct identified problems. Revisions to the SWPPP must be completed within seven (7) calendar days following the inspection. Modifications that are the result of inspections shall be initialed within 24 hours and completed within 48 hours. All modifications are to be referenced on both the forms and on a Progress Drawing.

MODIFICATION LOG

MODIFICATION NUMBER*	DATE	BRIEF DESCRIPTION	PROJECT MANAGER REVIEW

***Modification Log Number to correspond with Modification Report Number**

STORM WATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

NUMBER _____ **DATE _____**

TO:
ADDRESS:

TELEPHONE:
FACSIMILE:
SENT VIA: ☐ **Facsimile** ☐ **Courier** ☐ **US Mail**

INSPECTOR: _____ **_____**
(Print Name) **(Inspector Signature)**

QUALIFICATIONS OF INSPECTOR: _____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN:
_____
_____
_____
_____
_____
_____
_____
_____

REASONS FOR CHANGES:
_____
_____
_____
_____
_____
_____
_____

TO BE PERFORMED BY: _____ **ON OR BEFORE: _____**

Project Manager: **_____**

Other Operator: _____

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Appendix M
Final Stabilization/Termination Checklist

STORM WATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

1. ☐ **All soil disturbing activities are complete and the facility no longer discharges storm water associated with Construction Activities.**

2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**

3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 80% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION*:*

"I certify under penalty of law that all storm water discharges associated with Construction Activity from the identified project that are authorized by the NPDES Construction General Permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been remove in addition all permanent stormwater structures have been constructed as described in the SWPPP"

Company Name: _____

Name (Print):_____

Signature: _____

Title: _____

Date: _____

Date: _____

Received by: _____
[Name]

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Appendix N
Reportable Quantity Release Form

STORM WATER POLLUTION PREVENTION PLAN
REPORTABLE QUANTITY RELEASE FORM

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

STORMWATER POLLUTION PREVENTION PLAN DATED NOVEMBER, 2025

The discharges of Hazardous Substances or Oil in storm water discharges from construction sites must be prevented or minimized in accordance with the SWPPP. Where a release containing a Hazardous Substance or Oil in an amount equal to or in excess of a reportable quantity established under 40CFR Part 110, 40CFR Part 117 and 40CFR Part 302 occurs, the following steps must be taken:

1. **All measures must be taken to contain and abate the spill and to prevent the discharge of Hazardous Substances or Oil to storm water or off-site.**

2. **Contact the Project Manager or Operator's Engineer immediately upon knowledge of release.**

3. **If a release is equal to or in excess of a reportable quantity, the SWPPP must be modified within seven (7) calendar days of knowledge of the discharge to provide a description of the release, the circumstances leading to the release, and the date of the release. The plans must identify measures to prevent the recurrence of such releases and to respond to such releases**

Date of Spill	Material Spilled	Approximate Quantity of Spill (in gallons)	Agency(s) Notified	Date of Notification	SWPPP Revision Date

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Appendix O
Project Rainfall Log

YEAR 2026

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562
STORM WATER POLLUTION PREVENTION PLAN
PROJECT RAINFALL LOG

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
PM Initials												

Note: Rainfall amounts are to be based on a 24-hour rainfall event, instead of a cumulative total of rainfall over several days.

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Appendix P
Pre-Construction Meeting Attendance Record

STORM WATER POLLUTION PREVENTION PLAN
OPTIONAL PRE-CONSTRUCTION MEETING AGENDA AND ATTENDANCE RECORD

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

Topic	Discussed	Further action or Information Required (Yes or No)
Overview of SPDES Permit Program		
General Discussion of SWPPP and Records Retention Requirements		
Phasing of Project		
Review of Erosion and Sediment Control Plans (to include all temporary and permanent structural and stabilization measures)		
Locating solid waste containers, portable toilets, concrete washout areas, fueling areas and tank storage area on Progress Drawing		
Posting the Progress Drawing (marked on the Erosion and Sediment Control Plans) at job trailer		
Posting requirements for the Notice of Intent (NOI), Must be posted at Project entrance and inside job trailer wall.		
Allowable non-storm water discharges and handling procedures		
Materials management to include proper material storage, etc.		
Signatory Authorization Delegation		
Contractor's Certification		
Subcontractor's Certification		
Inspection form and required inspection timeframe		
Stabilization schedule		
Implementation schedule		
Modification report and modifying plans		
Final stabilization		
Reportable quantity release procedures		
Rain gage requirement and rainfall logs		
State specific requirements		
Import/Export – Fill and Spoil Materials		
SWPPP accessibility to regulatory officials		
Inspections – assisting and cooperating with regulatory officials – inspection reports and notices of violation (any response must be coordinated through Project Manager)		

Attendance Roster **Date: _____**

Name	Company	Telephone Number	Signature

Attendance Roster (continued)

Name	Company	Telephone Number	Signature

Items which require further action or additional information: _____
_____
_____

Additional items discussed (not addressed above): _____
_____
_____
_____
_____
_____
_____

***This completed form must be included in both the Project Manager's and Construction Site SWPPP Ledger.**

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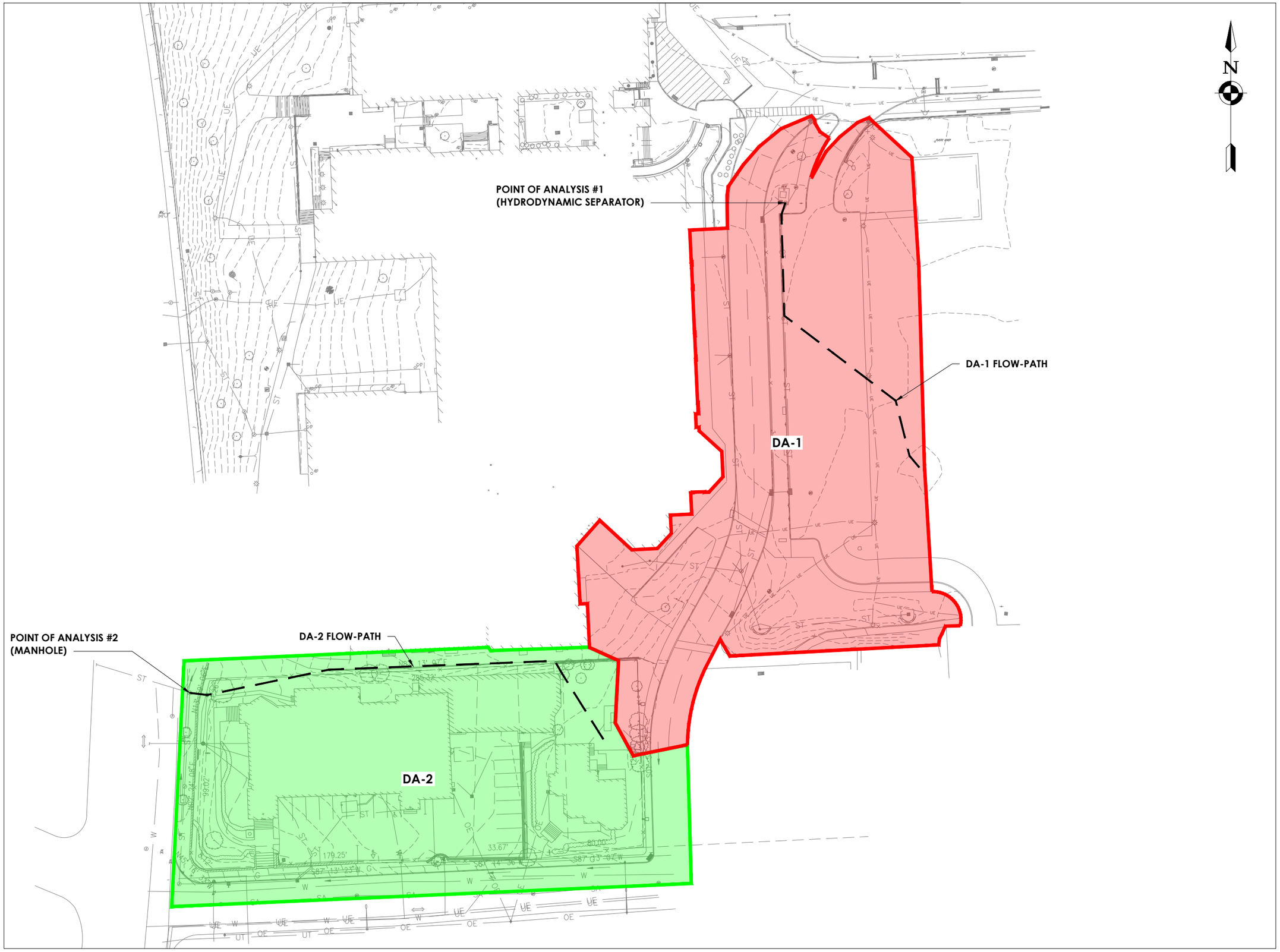
Appendix Q
Drainage Calculations



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Poughkeepsie, NY 12601

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NY ENGINEERING FIRM CERTIFICATE #0021419

PROJECT INFORMATION

Project Number

R25.17713.00

Client Name

OSSINNING UNION FREE SCHOOL DISTRICT

Project Name

2024 BOND: PHASE 0

Project Address

3 EMWILTON PL,
OSSINING NY 10562

SHEET INFORMATION

Issued	Scale
11/07/2025	1" = 60'
Drawn By	**Checked By**
JEN	JCB

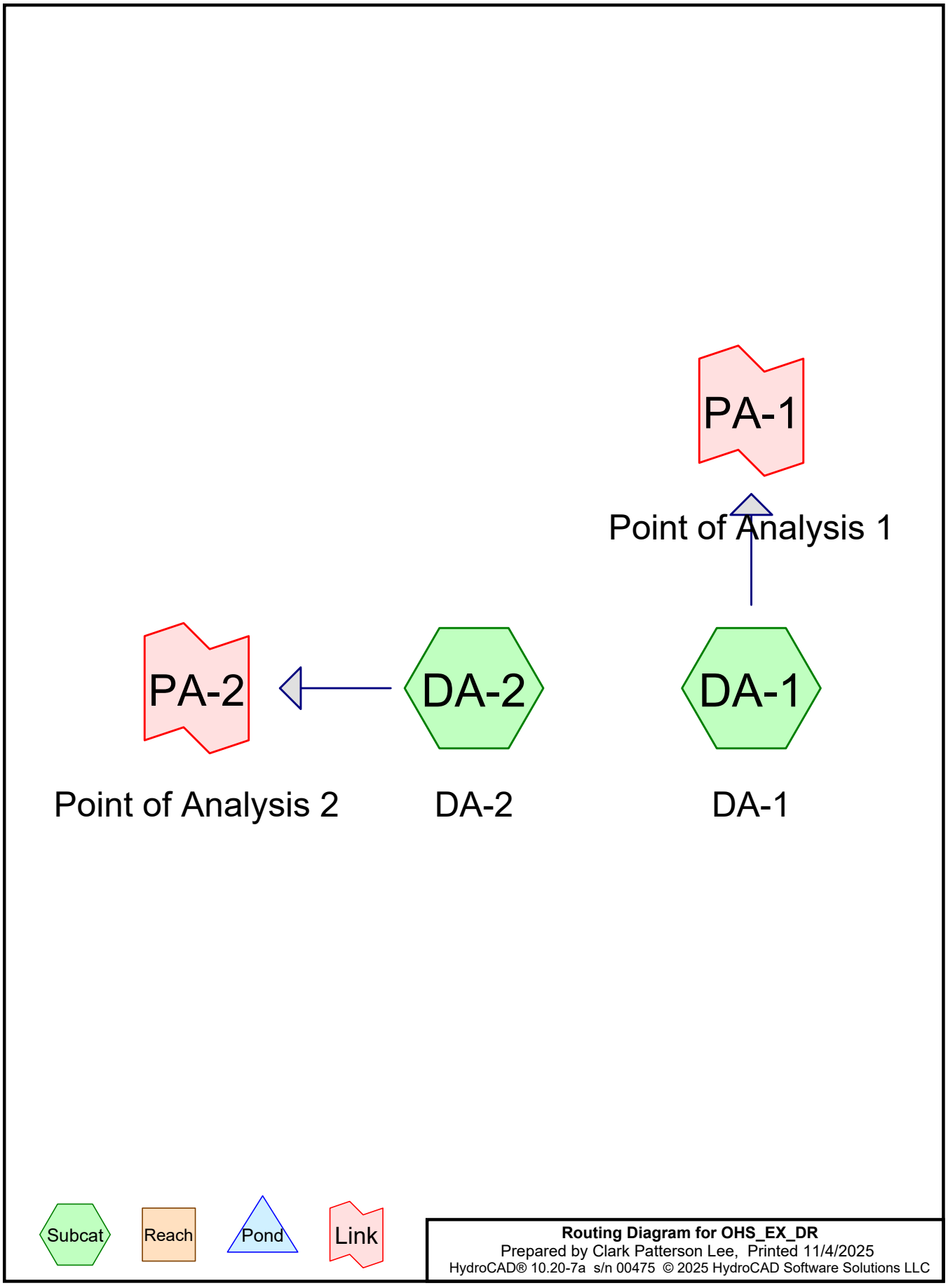
Drawing Title

EXISTING DRAINAGE MAP

Drawing Number

OSS
FIG-02

Plotted By: Johnathan Nicklas
Date last plotted: 11/5/2025 11:17 AM
Date last accessed: 11/5/2025 11:16 AM
Drawing Name: C:\Users\jnicklas\DC\ACCDocs\CPL\R25.17713.00-Ossining UFSD 24' BD Sitework Phase 0\Project Files\01 Design\03 Civil\CAD\Drainage Maps\OHS_R25.17713.00_EX_DR.dwg
Sheet size: 11x17



Routing Diagram for OHS_EX_DR
Prepared by Clark Patterson Lee, Printed 11/4/2025
HydroCAD® 10.20-7a s/n 00475 © 2025 HydroCAD Software Solutions LLC

Project Notes

Defined 3 rainfall events from NY-Ossining IDF
Defined 3 rainfall events from NY-Ossining IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	2.78	2
2	10-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	5.13	2
3	100-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.709	61	>75% Grass cover, Good, HSG B (DA-1, DA-2)
0.032	80	>75% Grass cover, Good, HSG D (DA-2)
1.821	98	Paved parking, HSG B (DA-1, DA-2)
2.562	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.530	HSG B	DA-1, DA-2
0.000	HSG C	
0.032	HSG D	DA-2
0.000	Other	
2.562		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.709	0.000	0.032	0.000	0.741	>75% Grass cover, Good	DA-1, DA-2
0.000	1.821	0.000	0.000	0.000	1.821	Paved parking	DA-1, DA-2
0.000	**2.530**	**0.000**	**0.032**	**0.000**	**2.562**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	DA-2	0.00	0.00	12.0	0.0500	0.012	0.0	12.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.371 ac 66.23% Impervious Runoff Depth>1.33"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=2.19 cfs 0.152 af

Subcatchment DA-2: DA-2 Runoff Area=1.191 ac 76.66% Impervious Runoff Depth>1.63"
Flow Length=307' Tc=6.4 min CN=90 Runoff=2.67 cfs 0.162 af

Link PA-1: Point of Analysis 1 Inflow=2.19 cfs 0.152 af
Primary=2.19 cfs 0.152 af

Link PA-2: Point of Analysis 2 Inflow=2.67 cfs 0.162 af
Primary=2.67 cfs 0.162 af

Total Runoff Area = 2.562 ac Runoff Volume = 0.314 af Average Runoff Depth = 1.47"
28.92% Pervious = 0.741 ac 71.08% Impervious = 1.821 ac

Summary for Subcatchment DA-1: DA-1

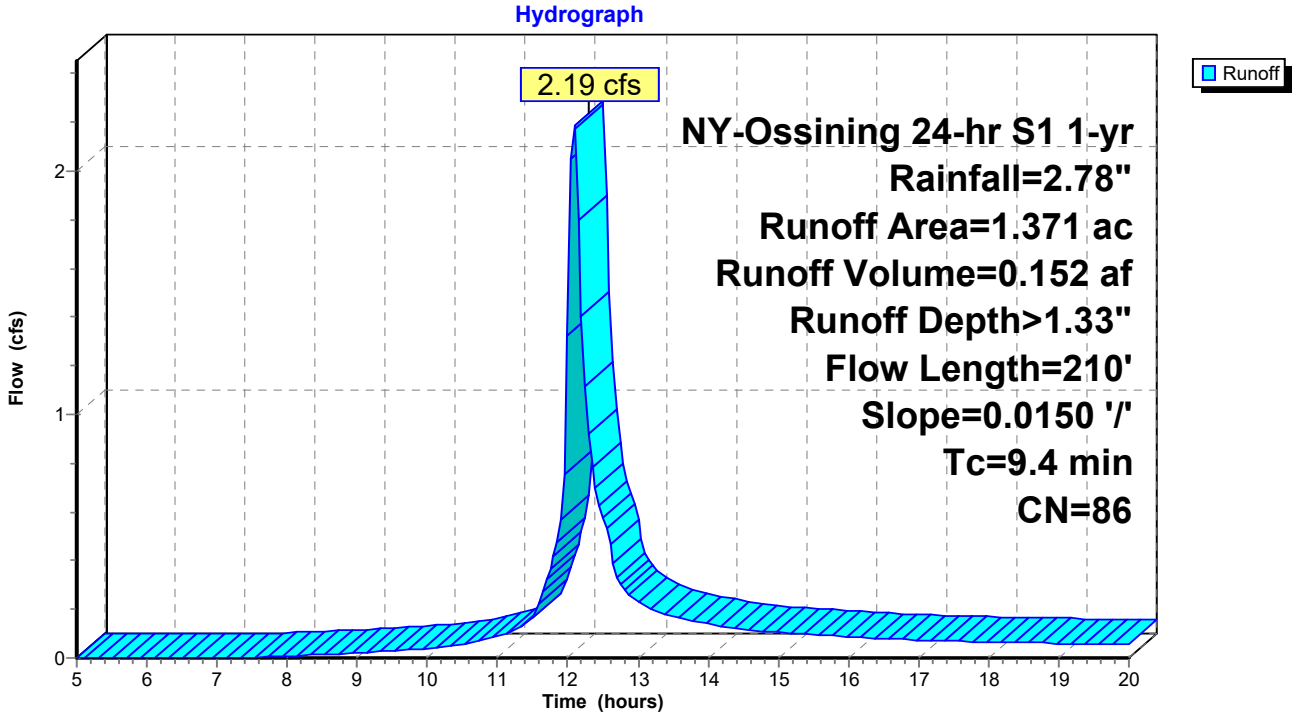
Runoff = 2.19 cfs @ 12.09 hrs, Volume= 0.152 af, Depth> 1.33"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr Rainfall=2.78"

Area (ac)	CN	Description
0.463	61	>75% Grass cover, Good, HSG B
0.908	98	Paved parking, HSG B
1.371	86	Weighted Average
0.463		33.77% Pervious Area
0.908		66.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

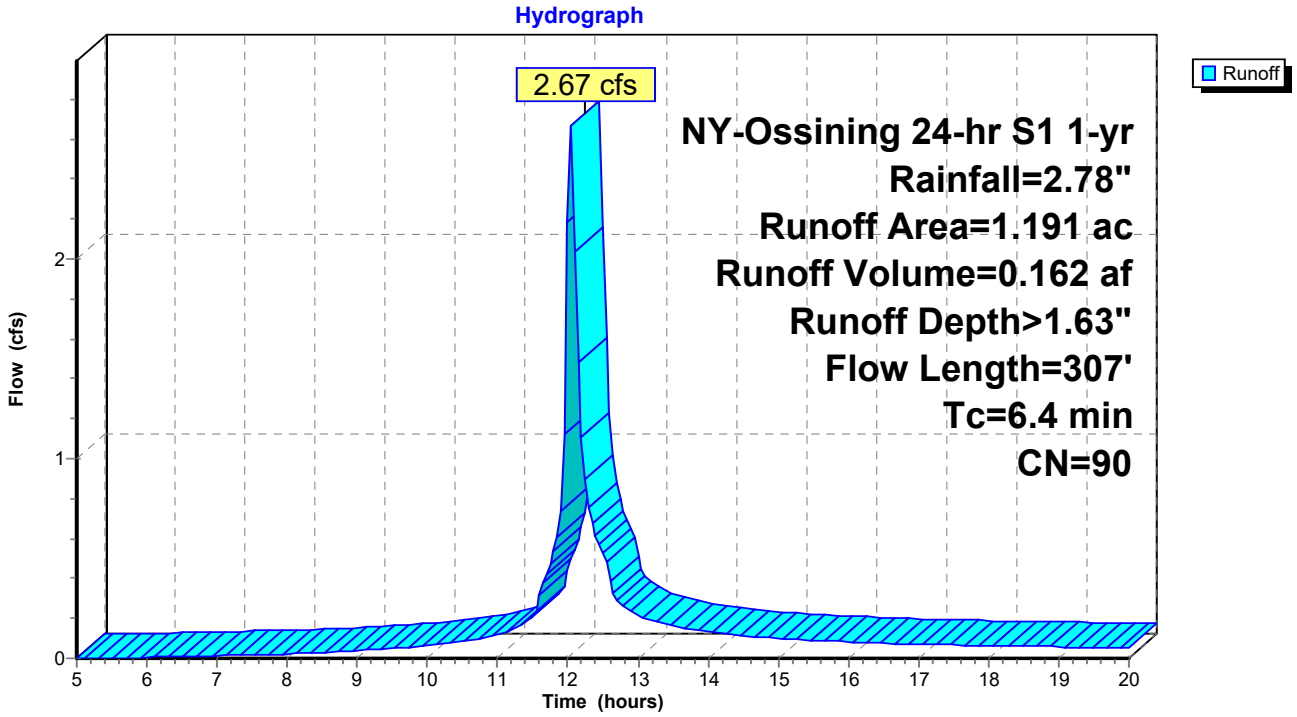
Runoff = 2.67 cfs @ 12.05 hrs, Volume= 0.162 af, Depth> 1.63"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr Rainfall=2.78"

Area (ac)	CN	Description
0.246	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.913	98	Paved parking, HSG B
1.191	90	Weighted Average
0.278		23.34% Pervious Area
0.913		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	52	0.0450	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	10	0.3333	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.6	38	0.0150	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.5	112	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	83	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	307	Total			

Subcatchment DA-2: DA-2

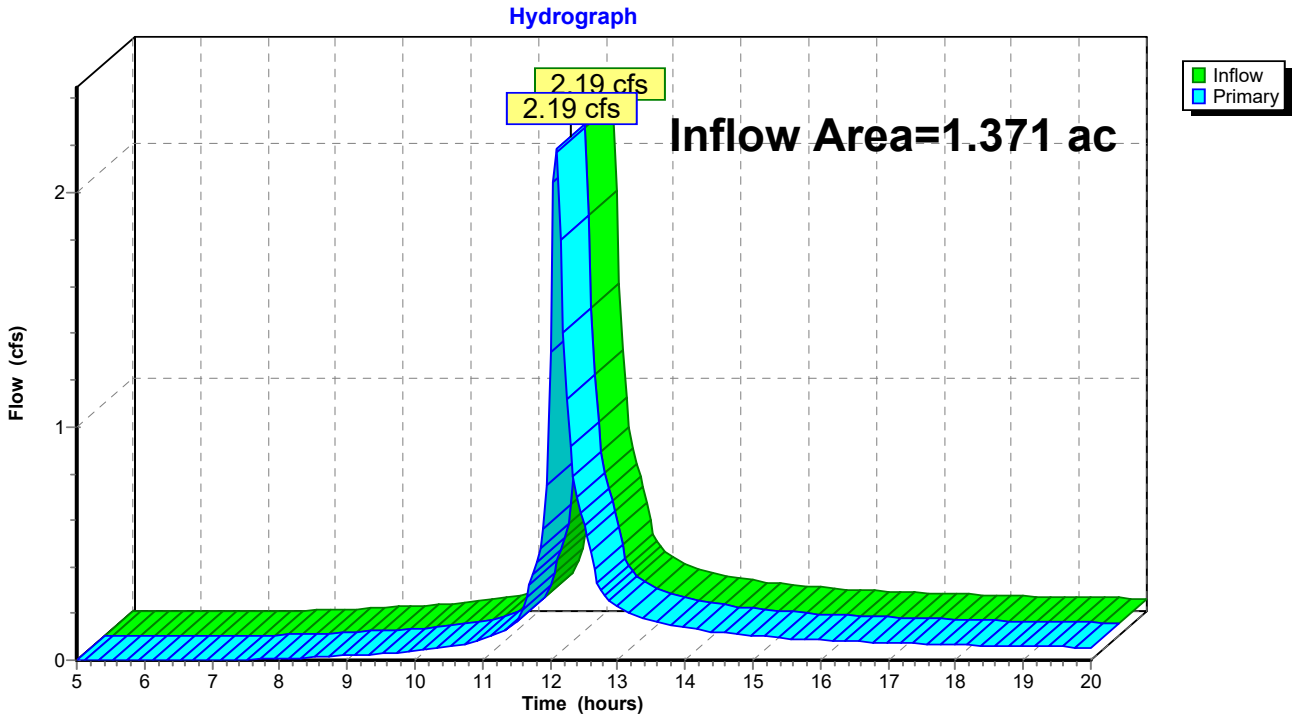


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.371 ac, 66.23% Impervious, Inflow Depth > 1.33" for 1-yr event
Inflow = 2.19 cfs @ 12.09 hrs, Volume= 0.152 af
Primary = 2.19 cfs @ 12.09 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

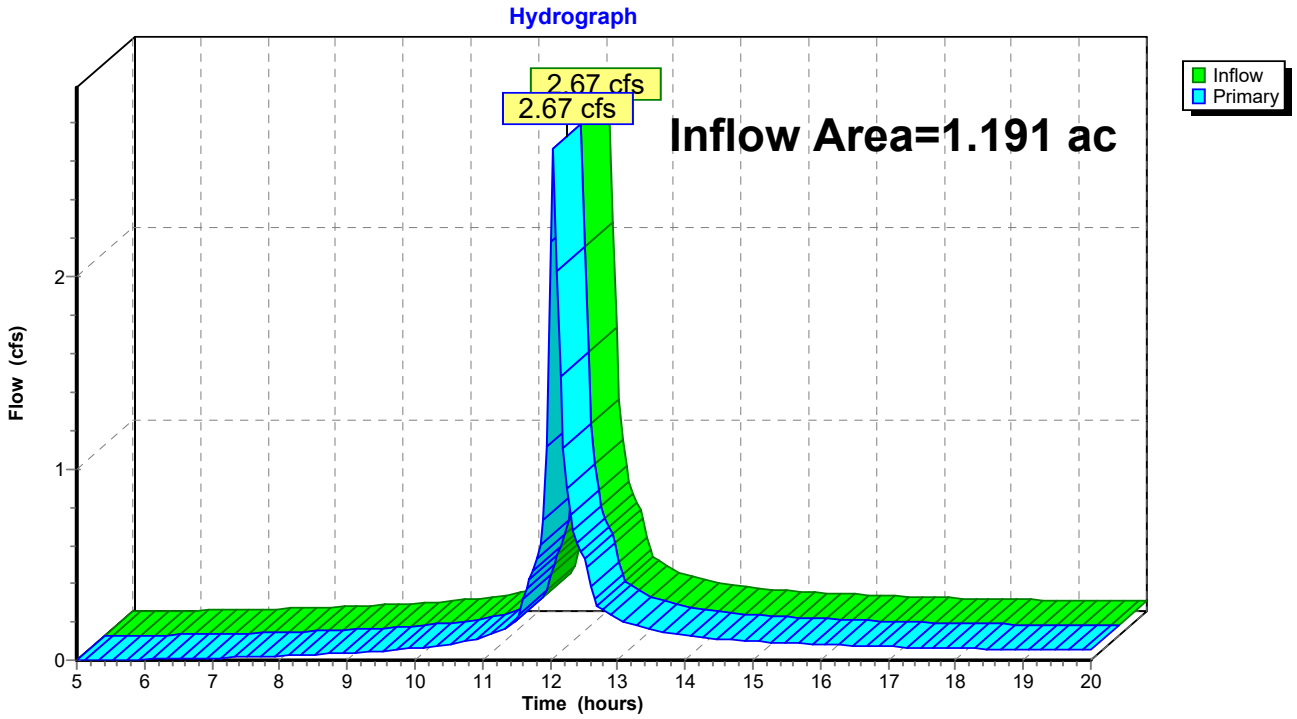


Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.191 ac, 76.66% Impervious, Inflow Depth > 1.63" for 1-yr event
Inflow = 2.67 cfs @ 12.05 hrs, Volume= 0.162 af
Primary = 2.67 cfs @ 12.05 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.371 ac 66.23% Impervious Runoff Depth>3.30"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=5.28 cfs 0.376 af

Subcatchment DA-2: DA-2 Runoff Area=1.191 ac 76.66% Impervious Runoff Depth>3.68"
Flow Length=307' Tc=6.4 min CN=90 Runoff=5.83 cfs 0.366 af

Link PA-1: Point of Analysis 1 Inflow=5.28 cfs 0.376 af
Primary=5.28 cfs 0.376 af

Link PA-2: Point of Analysis 2 Inflow=5.83 cfs 0.366 af
Primary=5.83 cfs 0.366 af

Total Runoff Area = 2.562 ac Runoff Volume = 0.742 af Average Runoff Depth = 3.48"
28.92% Pervious = 0.741 ac 71.08% Impervious = 1.821 ac

Summary for Subcatchment DA-1: DA-1

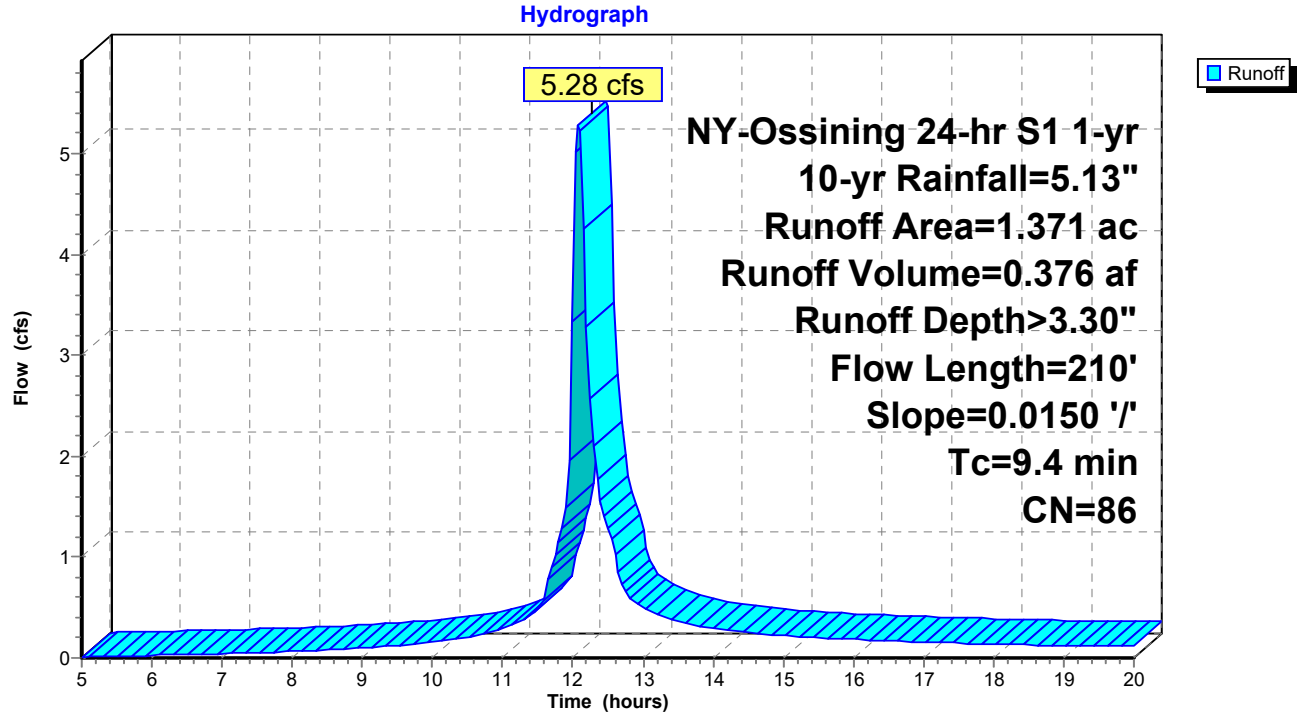
Runoff = 5.28 cfs @ 12.08 hrs, Volume= 0.376 af, Depth> 3.30"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 10-yr Rainfall=5.13"

Area (ac)	CN	Description
0.463	61	>75% Grass cover, Good, HSG B
0.908	98	Paved parking, HSG B
1.371	86	Weighted Average
0.463		33.77% Pervious Area
0.908		66.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

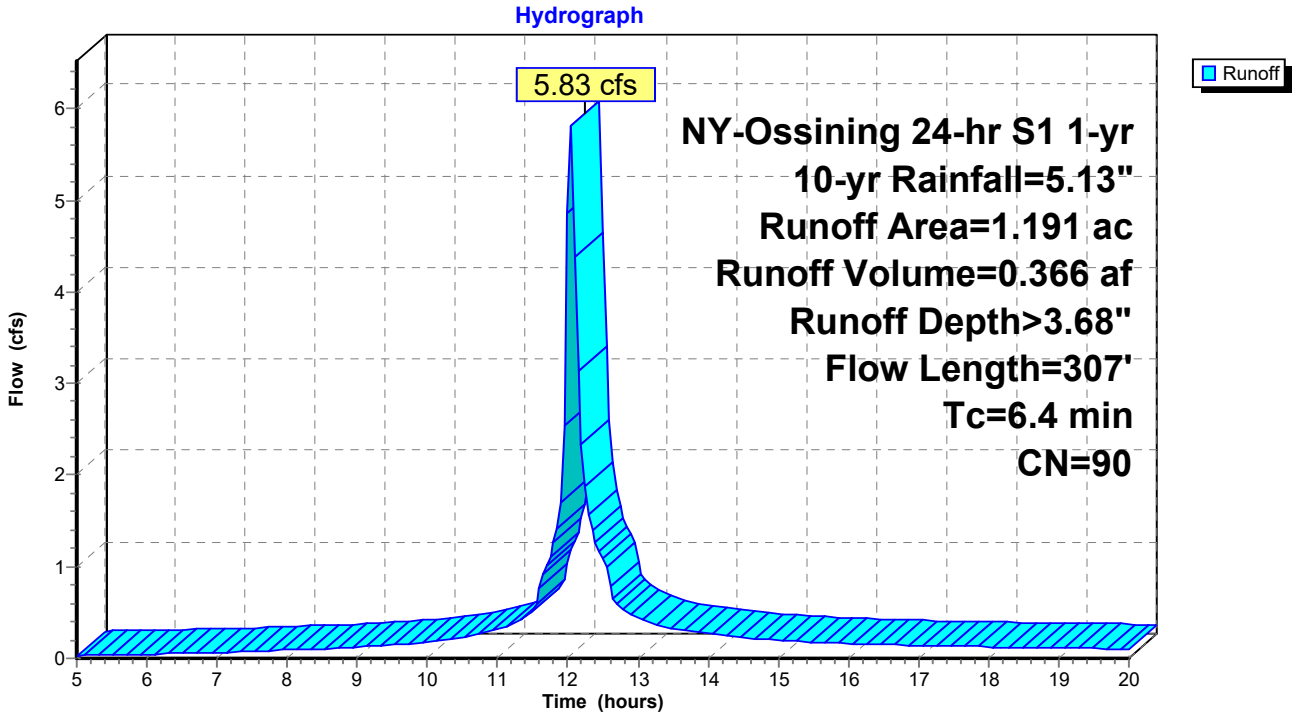
Runoff = 5.83 cfs @ 12.04 hrs, Volume= 0.366 af, Depth> 3.68"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 10-yr Rainfall=5.13"

Area (ac)	CN	Description
0.246	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.913	98	Paved parking, HSG B
1.191	90	Weighted Average
0.278		23.34% Pervious Area
0.913		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	52	0.0450	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	10	0.3333	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.6	38	0.0150	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.5	112	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	83	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	307	Total			

Subcatchment DA-2: DA-2

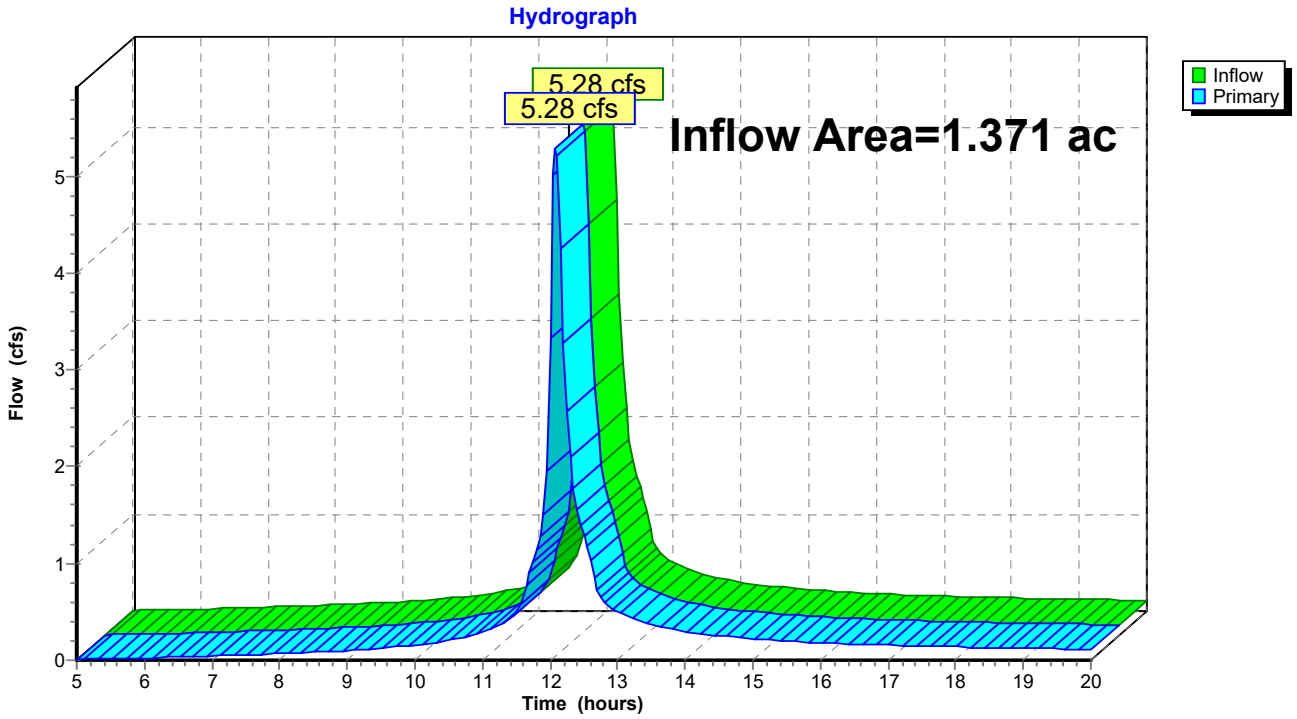


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.371 ac, 66.23% Impervious, Inflow Depth > 3.30" for 10-yr event
Inflow = 5.28 cfs @ 12.08 hrs, Volume= 0.376 af
Primary = 5.28 cfs @ 12.08 hrs, Volume= 0.376 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

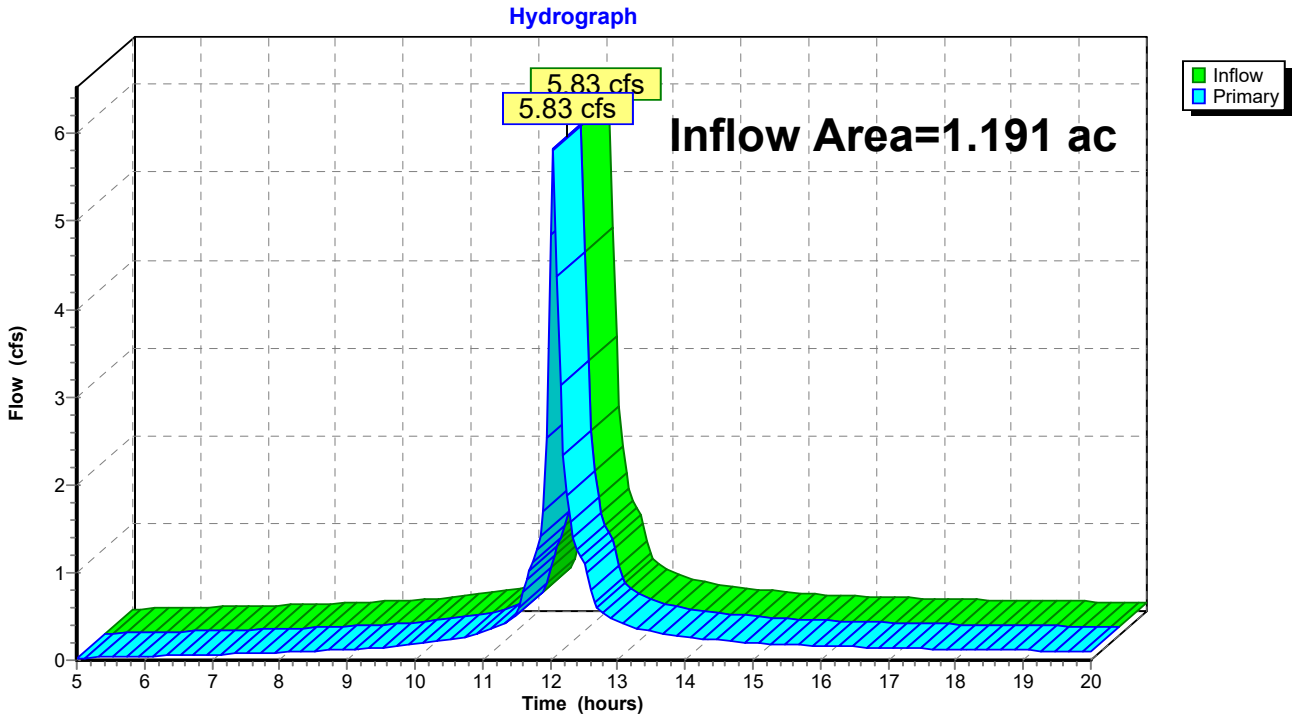


Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.191 ac, 76.66% Impervious, Inflow Depth > 3.68" for 10-yr event
Inflow = 5.83 cfs @ 12.04 hrs, Volume= 0.366 af
Primary = 5.83 cfs @ 12.04 hrs, Volume= 0.366 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.371 ac 66.23% Impervious Runoff Depth>6.96"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=10.81 cfs 0.795 af

Subcatchment DA-2: DA-2 Runoff Area=1.191 ac 76.66% Impervious Runoff Depth>7.38"
Flow Length=307' Tc=6.4 min CN=90 Runoff=11.31 cfs 0.732 af

Link PA-1: Point of Analysis 1 Inflow=10.81 cfs 0.795 af
Primary=10.81 cfs 0.795 af

Link PA-2: Point of Analysis 2 Inflow=11.31 cfs 0.732 af
Primary=11.31 cfs 0.732 af

Total Runoff Area = 2.562 ac Runoff Volume = 1.527 af Average Runoff Depth = 7.15"
28.92% Pervious = 0.741 ac 71.08% Impervious = 1.821 ac

Summary for Subcatchment DA-1: DA-1

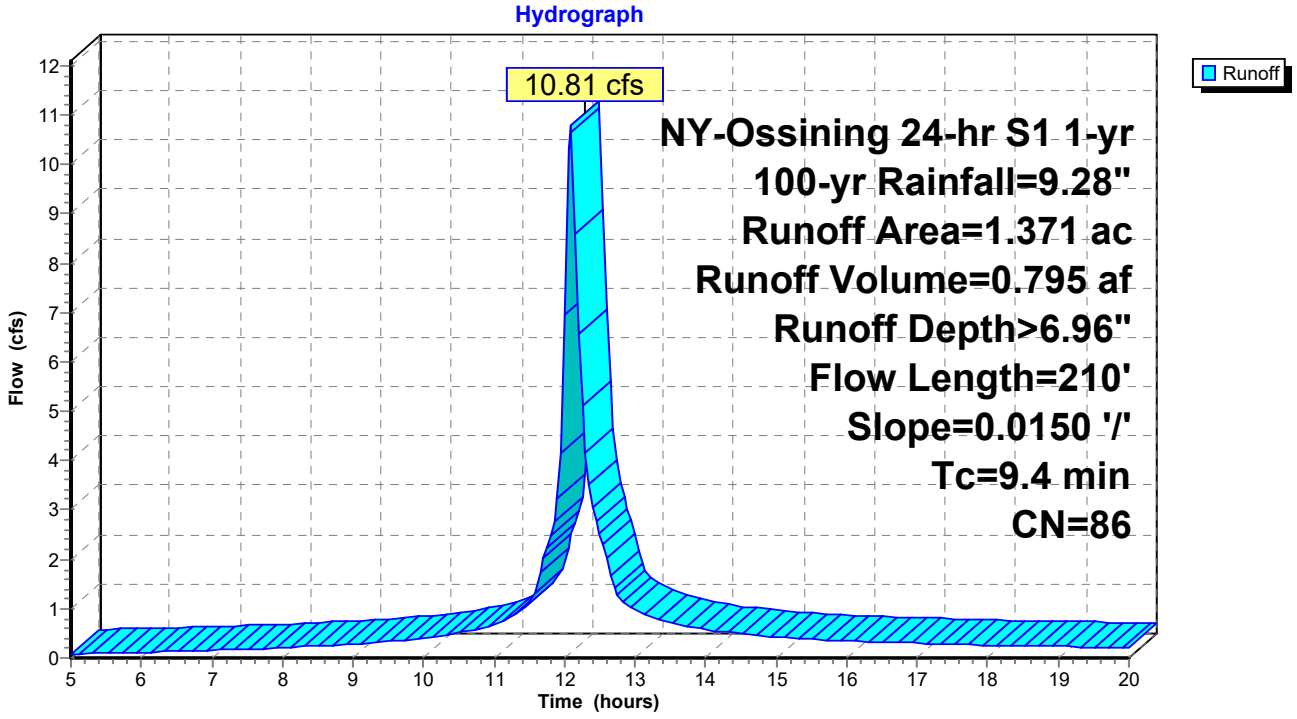
Runoff = 10.81 cfs @ 12.08 hrs, Volume= 0.795 af, Depth> 6.96"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 100-yr Rainfall=9.28"

Area (ac)	CN	Description
0.463	61	>75% Grass cover, Good, HSG B
0.908	98	Paved parking, HSG B
1.371	86	Weighted Average
0.463		33.77% Pervious Area
0.908		66.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

[47] Hint: Peak is 131% of capacity of segment #6

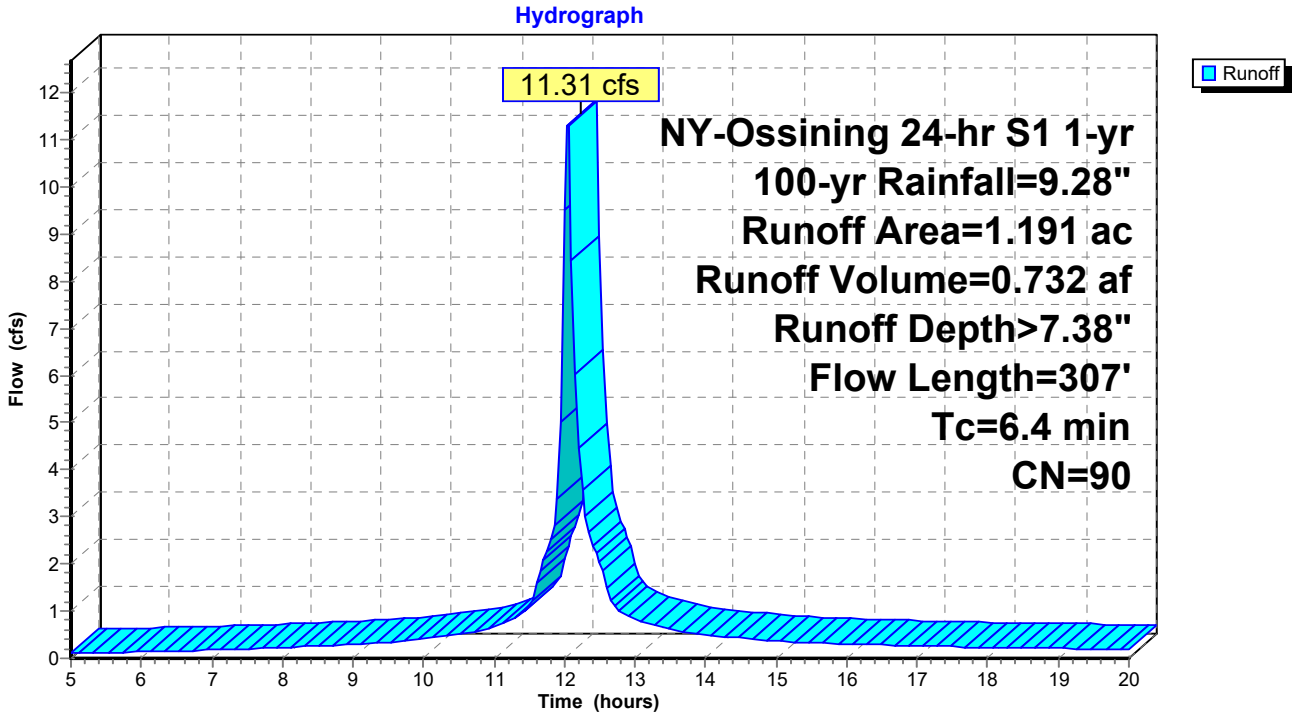
Runoff = 11.31 cfs @ 12.04 hrs, Volume= 0.732 af, Depth> 7.38"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 100-yr Rainfall=9.28"

Area (ac)	CN	Description
0.246	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.913	98	Paved parking, HSG B
1.191	90	Weighted Average
0.278		23.34% Pervious Area
0.913		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	52	0.0450	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	10	0.3333	0.34		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.6	38	0.0150	1.04		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.5	112	0.0350	3.80		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	83	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
6.4	307	Total			

Subcatchment DA-2: DA-2

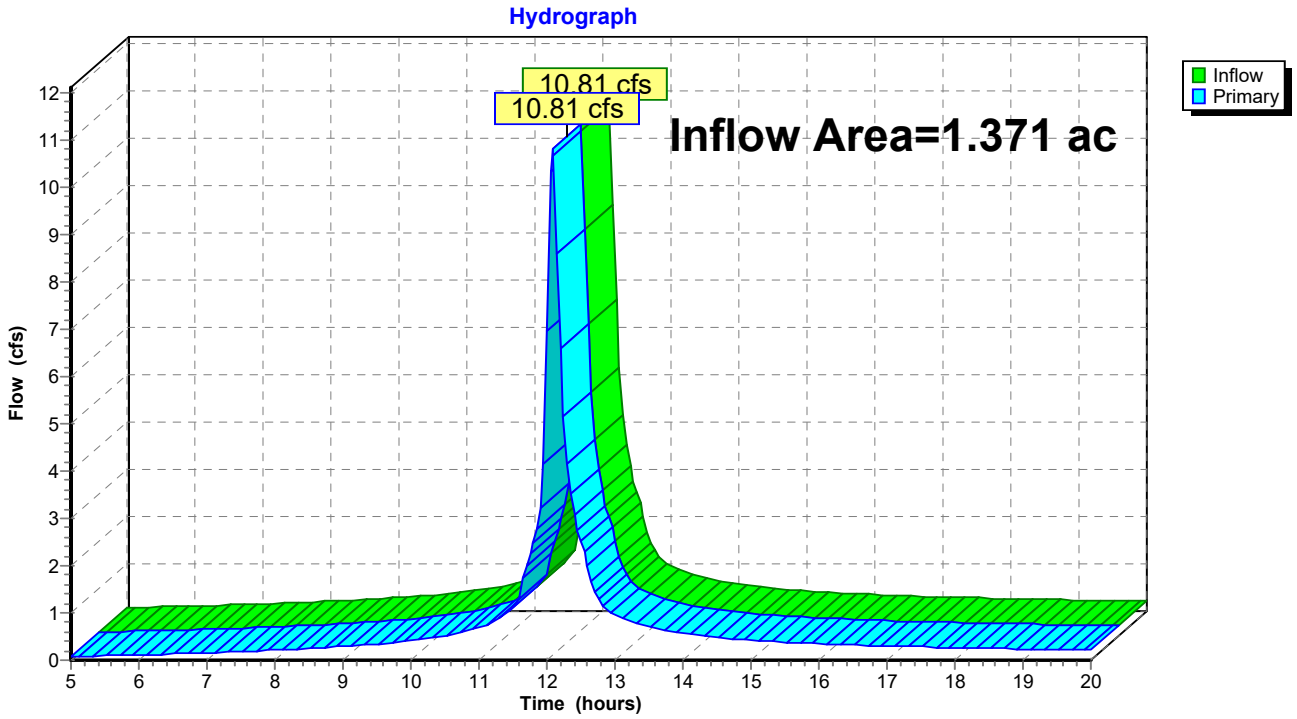


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.371 ac, 66.23% Impervious, Inflow Depth > 6.96" for 100-yr event
Inflow = 10.81 cfs @ 12.08 hrs, Volume= 0.795 af
Primary = 10.81 cfs @ 12.08 hrs, Volume= 0.795 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

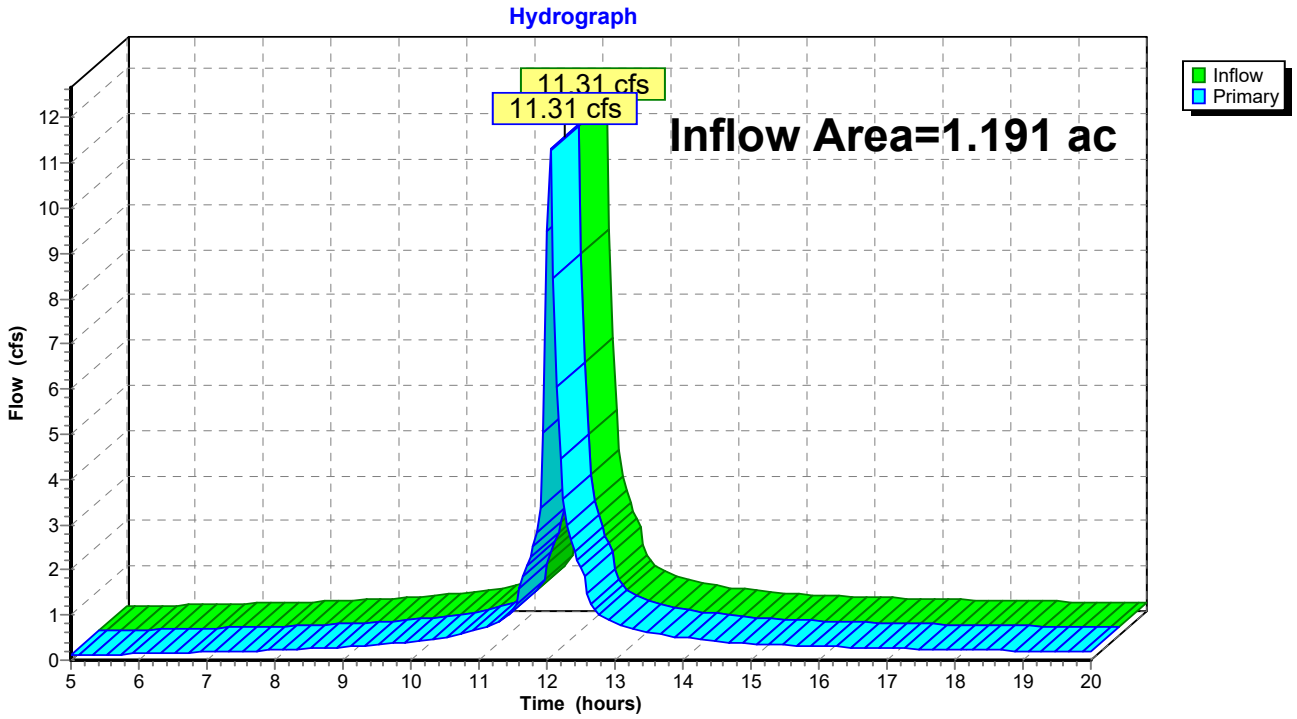


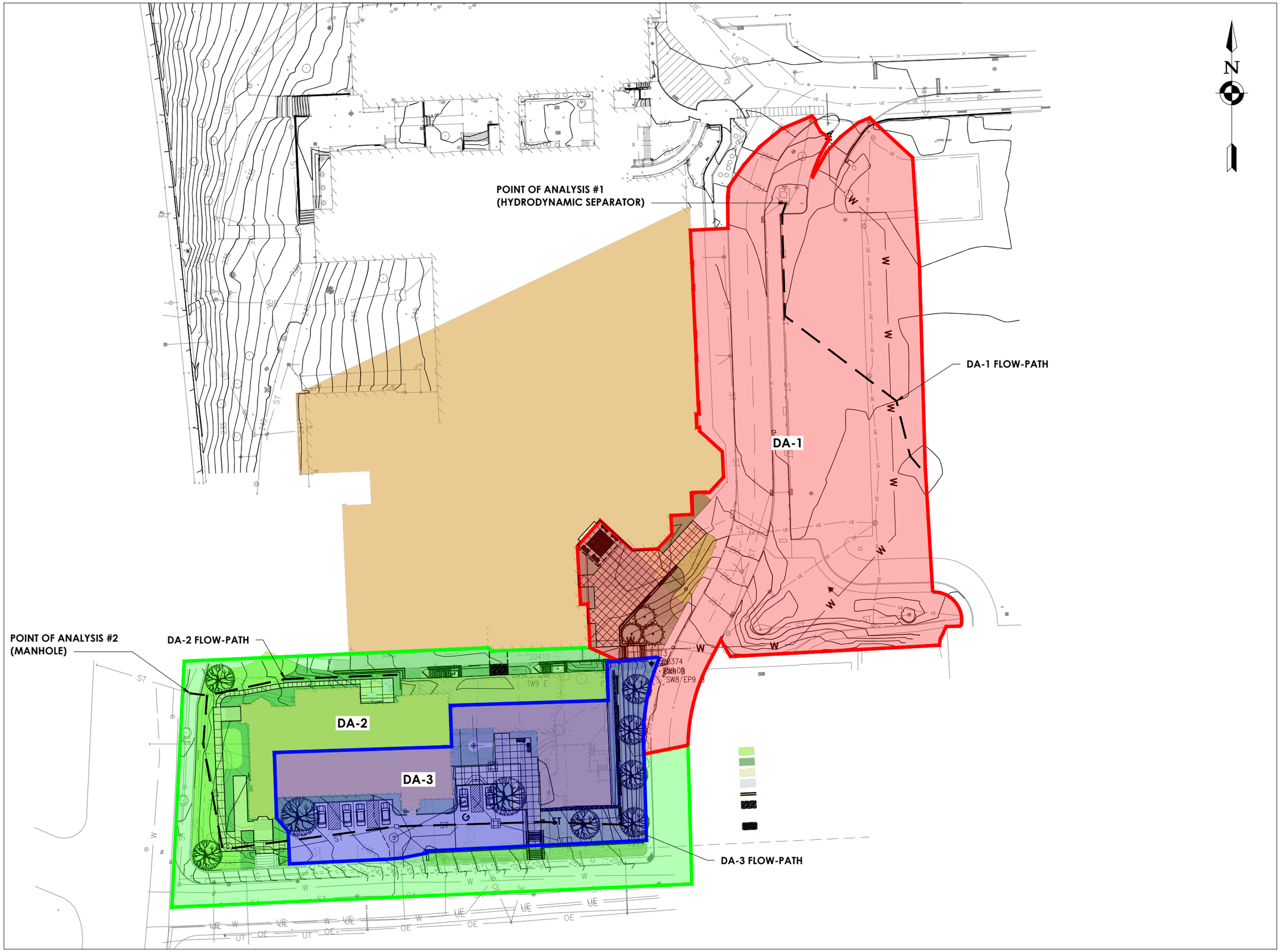
Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.191 ac, 76.66% Impervious, Inflow Depth > 7.38" for 100-yr event
Inflow = 11.31 cfs @ 12.04 hrs, Volume= 0.732 af
Primary = 11.31 cfs @ 12.04 hrs, Volume= 0.732 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2





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26 IBM Road
Poughkeepsie, NY 12601

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NY ENGINEERING FIRM CERTIFICATE #0021419

PROJECT INFORMATION

Project Number

R25.17713.00

Client Name

OSSINNING UNION FREE SCHOOL DISTRICT

Project Name

2024 BOND: PHASE 0

Project Address

3 EMWILTON PL,
OSSINING NY 10562

SHEET INFORMATION

Issued	Scale
11/07/2025	1" = 60'
Drawn By	**Checked By**
JEN	JCB

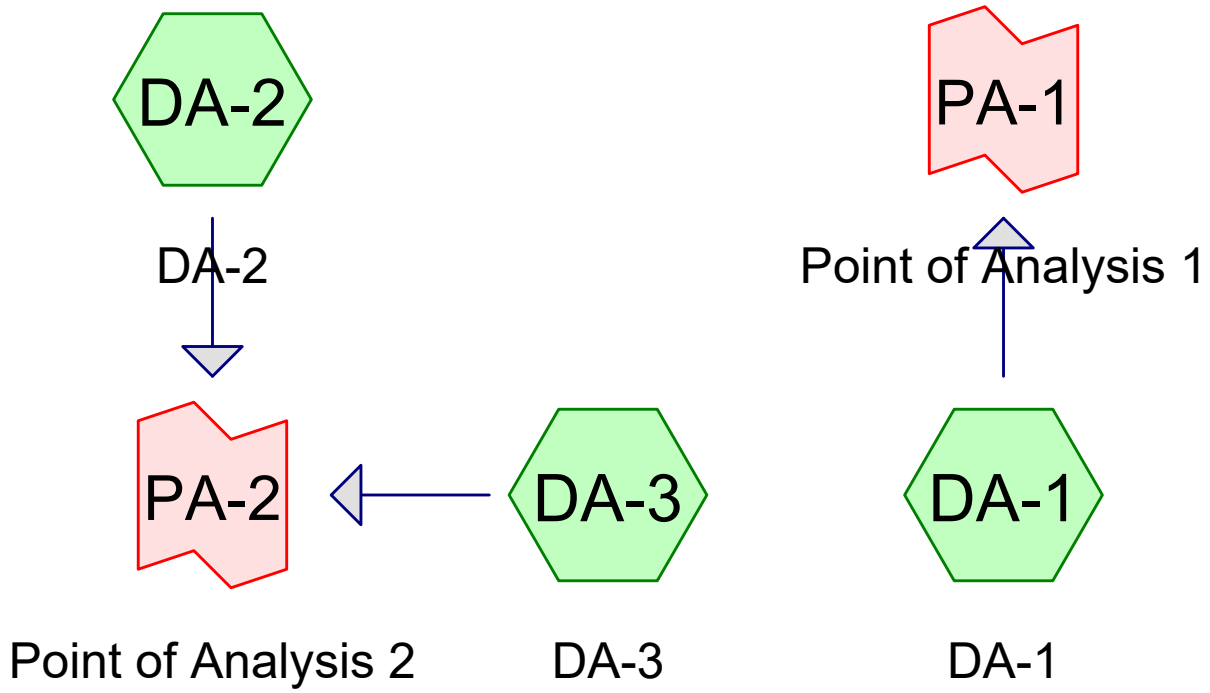
Drawing Title

EXISTING DRAINAGE MAP

Drawing Number

OSS
FIG-03

Plotted By: Johnathan Nicklas
Date last plotted: 11/5/2025 11:19 AM
Date last accessed: 11/5/2025 11:18 AM
Sheet size: 11x17
Drawing Name: C:\Users\jnicklas\DC\ACCDocs\CPL\R25.17713.00-Ossining UFSD 24' BD Sitework Phase 0\Project Files\01 Design\03 Civil\CAD\Drainage Maps\OHS_R25.17713.00_PR_DR.dwg



Subcat Reach Pond Link

Routing Diagram for OHS_PR_DR
Prepared by Clark Patterson Lee, Printed 11/4/2025
HydroCAD® 10.20-7a s/n 00475 © 2025 HydroCAD Software Solutions LLC

Project Notes

Defined 3 rainfall events from NY-Ossining IDF
Defined 3 rainfall events from NY-Ossining IDF

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	2.78	2
2	10-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	5.13	2
3	100-yr	NY-Ossining 24-hr S1	1-yr	Default	24.00	1	9.28	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.680	61	>75% Grass cover, Good, HSG B (DA-1, DA-2, DA-3)
0.032	80	>75% Grass cover, Good, HSG D (DA-2)
1.850	98	Paved parking, HSG B (DA-1, DA-2, DA-3)
2.562	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.530	HSG B	DA-1, DA-2, DA-3
0.000	HSG C	
0.032	HSG D	DA-2
0.000	Other	
2.562		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.680	0.000	0.032	0.000	0.712	>75% Grass cover, Good	DA-1, DA-2, DA-3
0.000	1.850	0.000	0.000	0.000	1.850	Paved parking	DA-1, DA-2, DA-3
0.000	**2.530**	**0.000**	**0.032**	**0.000**	**2.562**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	DA-2	0.00	0.00	12.0	0.0500	0.012	0.0	12.0	0.0	
2	DA-3	0.00	0.00	380.0	0.0200	0.012	0.0	12.0	0.0	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.344 ac 67.34% Impervious Runoff Depth>1.33"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=2.15 cfs 0.149 af

Subcatchment DA-2: DA-2 Runoff Area=0.728 ac 81.46% Impervious Runoff Depth>1.80"
Flow Length=139' Tc=7.2 min CN=92 Runoff=1.72 cfs 0.109 af

Subcatchment DA-3: DA-3 Runoff Area=0.490 ac 71.84% Impervious Runoff Depth>1.48"
Flow Length=480' Tc=11.5 min CN=88 Runoff=0.81 cfs 0.060 af

Link PA-1: Point of Analysis 1 Inflow=2.15 cfs 0.149 af
Primary=2.15 cfs 0.149 af

Link PA-2: Point of Analysis 2 Inflow=2.42 cfs 0.169 af
Primary=2.42 cfs 0.169 af

Total Runoff Area = 2.562 ac Runoff Volume = 0.319 af Average Runoff Depth = 1.49"
27.79% Pervious = 0.712 ac 72.21% Impervious = 1.850 ac

Summary for Subcatchment DA-1: DA-1

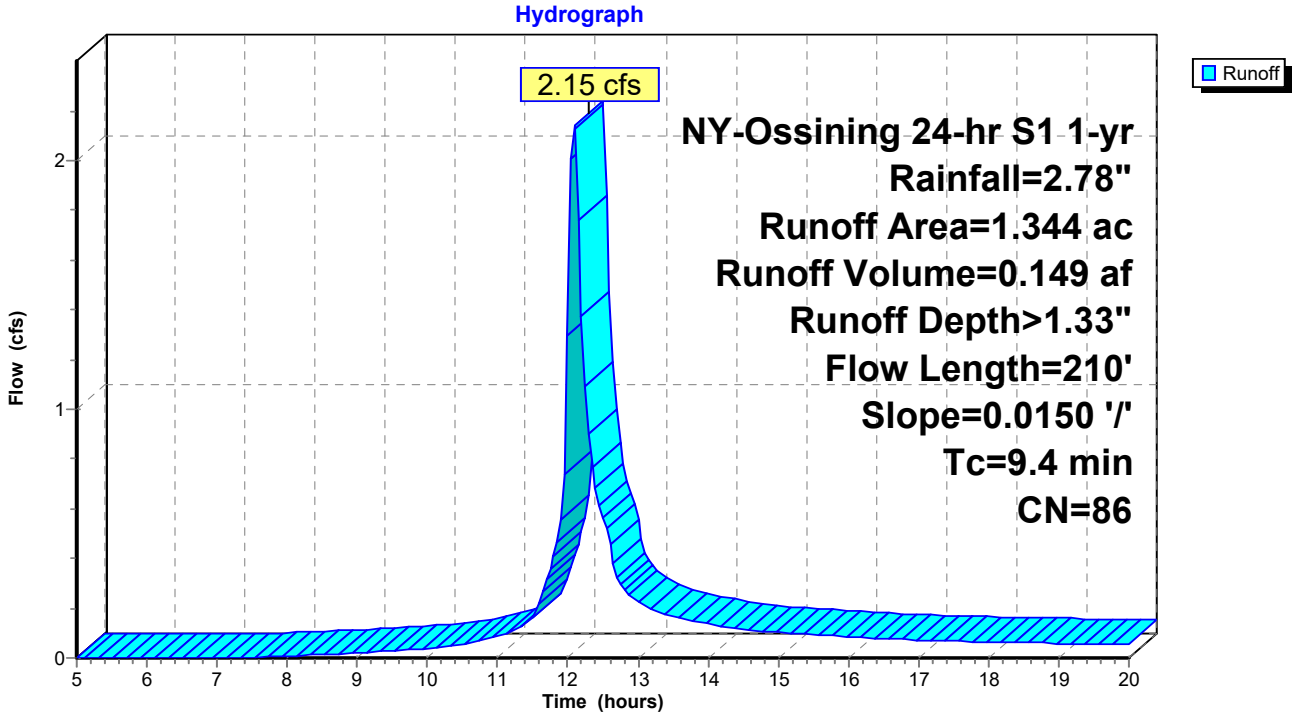
Runoff = 2.15 cfs @ 12.09 hrs, Volume= 0.149 af, Depth> 1.33"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr Rainfall=2.78"

Area (ac)	CN	Description
0.439	61	>75% Grass cover, Good, HSG B
0.905	98	Paved parking, HSG B
1.344	86	Weighted Average
0.439		32.66% Pervious Area
0.905		67.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

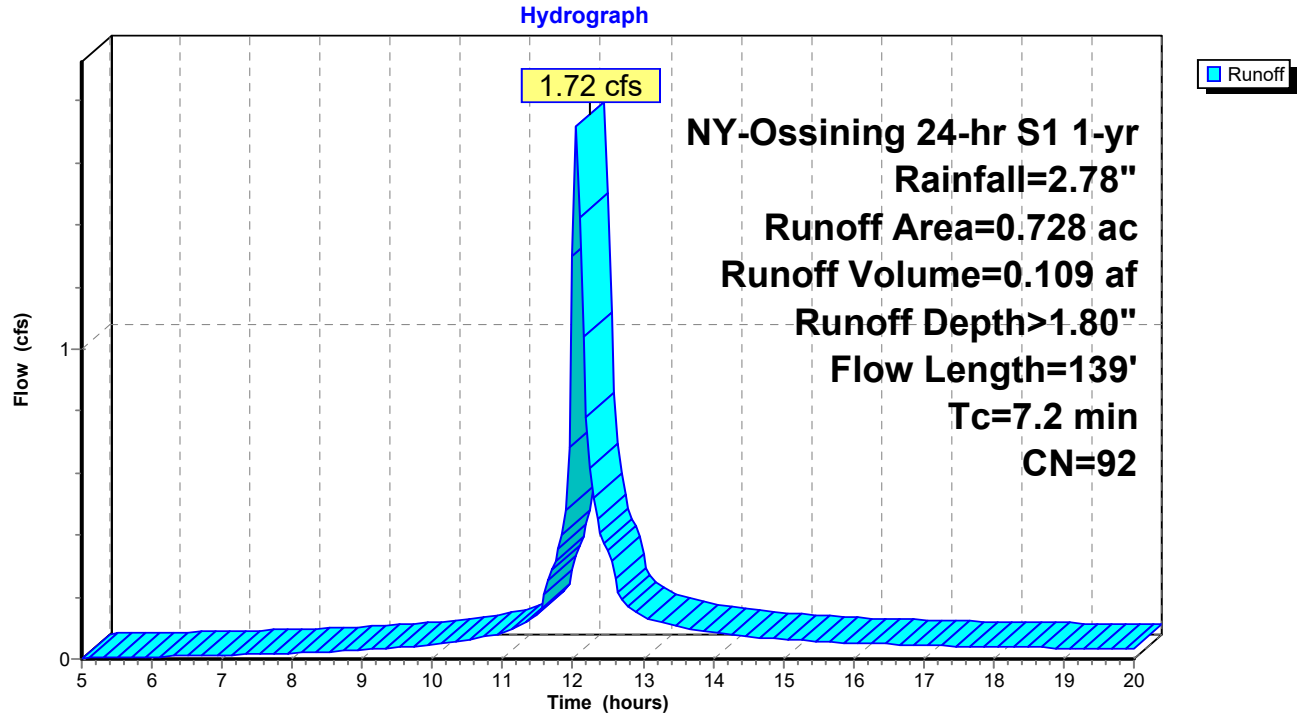
Runoff = 1.72 cfs @ 12.05 hrs, Volume= 0.109 af, Depth> 1.80"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr Rainfall=2.78"

Area (ac)	CN	Description
0.103	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.593	98	Paved parking, HSG B
0.728	92	Weighted Average
0.135		18.54% Pervious Area
0.593		81.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.3	27	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	139	Total			

Subcatchment DA-2: DA-2



Summary for Subcatchment DA-3: DA-3

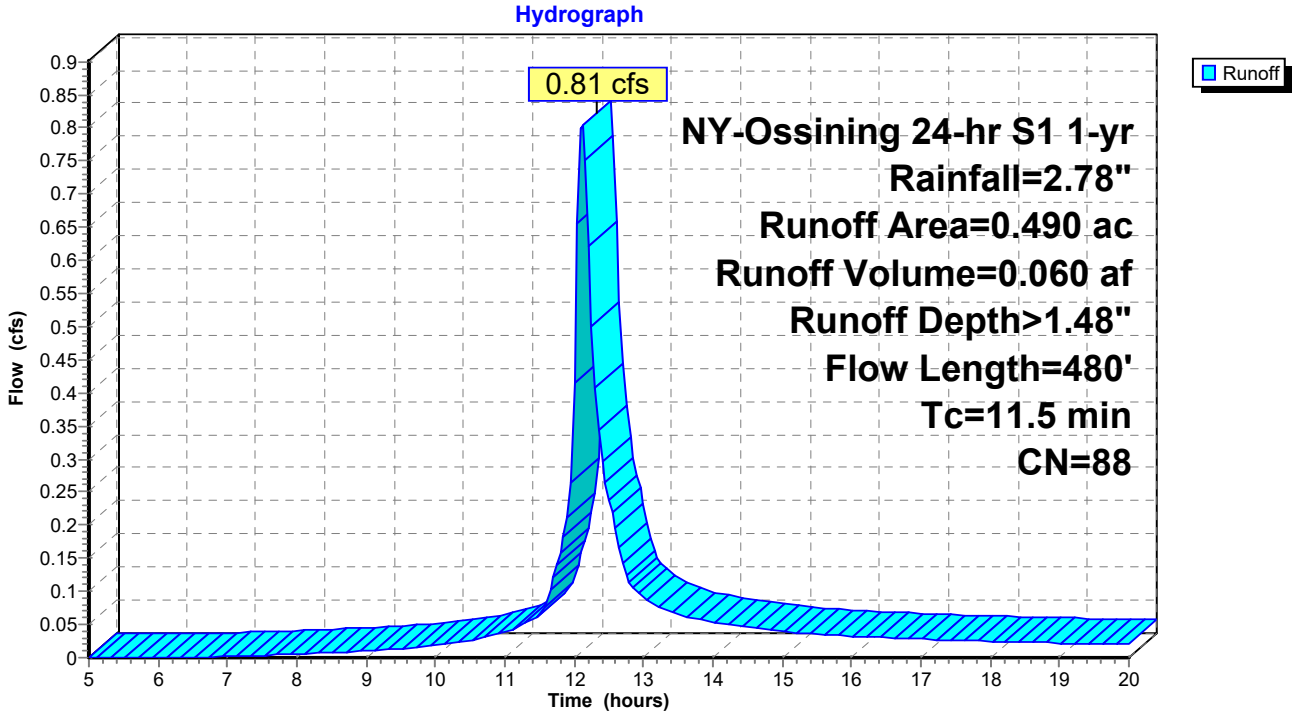
Runoff = 0.81 cfs @ 12.11 hrs, Volume= 0.060 af, Depth> 1.48"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr Rainfall=2.78"

Area (ac)	CN	Description
0.138	61	>75% Grass cover, Good, HSG B
0.352	98	Paved parking, HSG B
0.490	88	Weighted Average
0.138		28.16% Pervious Area
0.352		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.9	380	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
11.5	480	Total			

Subcatchment DA-3: DA-3

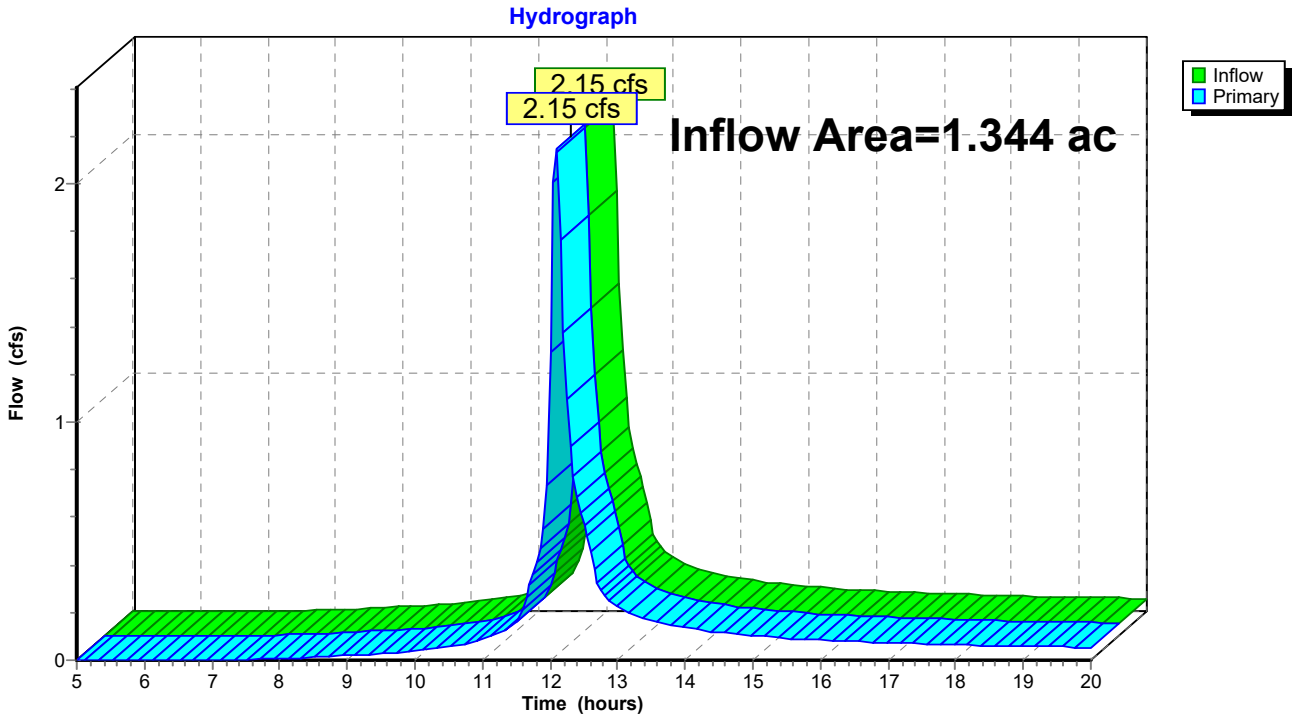


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.344 ac, 67.34% Impervious, Inflow Depth > 1.33" for 1-yr event
Inflow = 2.15 cfs @ 12.09 hrs, Volume= 0.149 af
Primary = 2.15 cfs @ 12.09 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

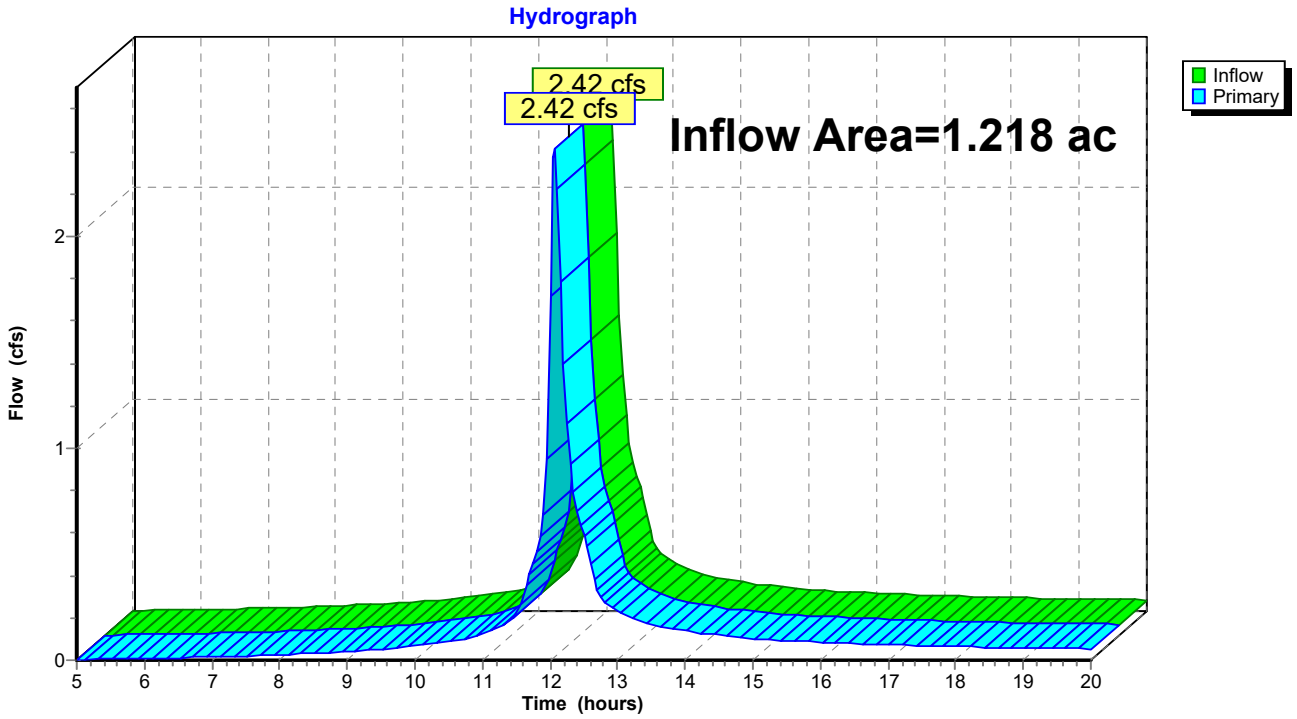


Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.218 ac, 77.59% Impervious, Inflow Depth > 1.67" for 1-yr event
Inflow = 2.42 cfs @ 12.07 hrs, Volume= 0.169 af
Primary = 2.42 cfs @ 12.07 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.344 ac 67.34% Impervious Runoff Depth>3.30"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=5.18 cfs 0.369 af

Subcatchment DA-2: DA-2 Runoff Area=0.728 ac 81.46% Impervious Runoff Depth>3.87"
Flow Length=139' Tc=7.2 min CN=92 Runoff=3.60 cfs 0.235 af

Subcatchment DA-3: DA-3 Runoff Area=0.490 ac 71.84% Impervious Runoff Depth>3.49"
Flow Length=480' Tc=11.5 min CN=88 Runoff=1.85 cfs 0.142 af

Link PA-1: Point of Analysis 1 Inflow=5.18 cfs 0.369 af
Primary=5.18 cfs 0.369 af

Link PA-2: Point of Analysis 2 Inflow=5.21 cfs 0.377 af
Primary=5.21 cfs 0.377 af

Total Runoff Area = 2.562 ac Runoff Volume = 0.746 af Average Runoff Depth = 3.50"
27.79% Pervious = 0.712 ac 72.21% Impervious = 1.850 ac

Summary for Subcatchment DA-1: DA-1

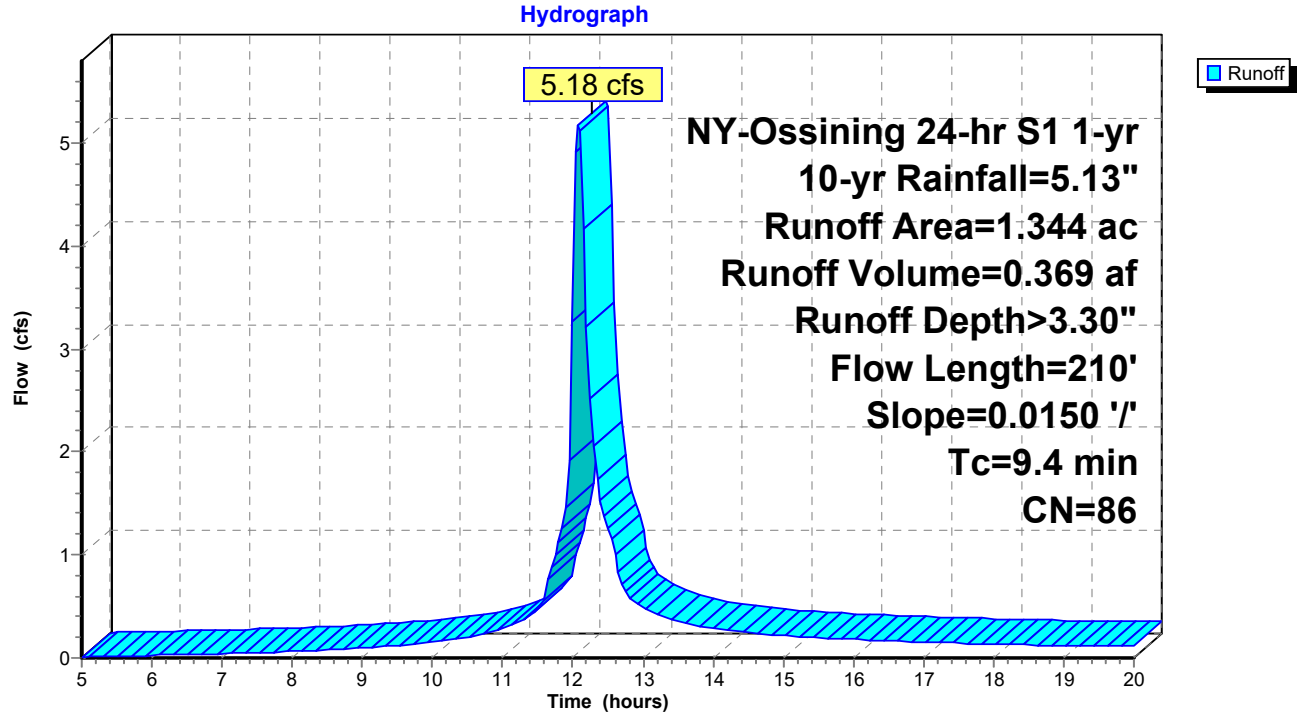
Runoff = 5.18 cfs @ 12.08 hrs, Volume= 0.369 af, Depth> 3.30"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 10-yr Rainfall=5.13"

Area (ac)	CN	Description
0.439	61	>75% Grass cover, Good, HSG B
0.905	98	Paved parking, HSG B
1.344	86	Weighted Average
0.439		32.66% Pervious Area
0.905		67.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

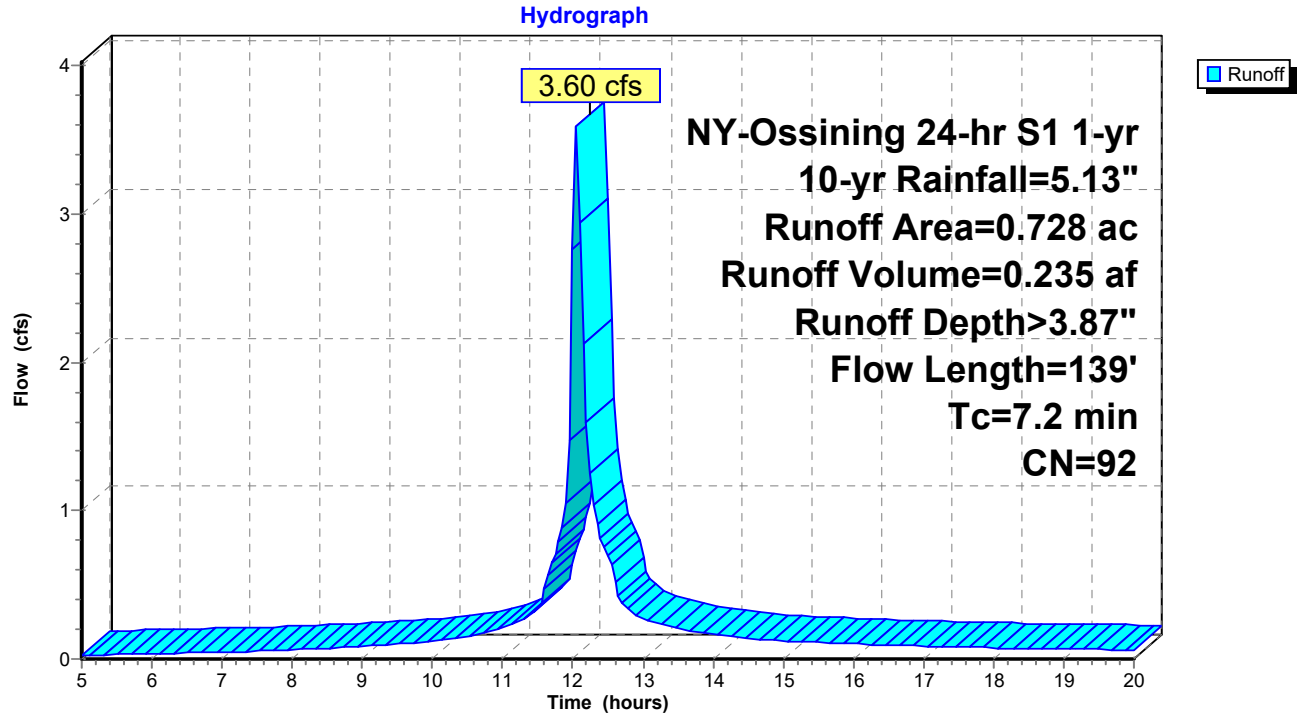
Runoff = 3.60 cfs @ 12.05 hrs, Volume= 0.235 af, Depth> 3.87"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 10-yr Rainfall=5.13"

Area (ac)	CN	Description
0.103	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.593	98	Paved parking, HSG B
0.728	92	Weighted Average
0.135		18.54% Pervious Area
0.593		81.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.3	27	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	139	Total			

Subcatchment DA-2: DA-2



Summary for Subcatchment DA-3: DA-3

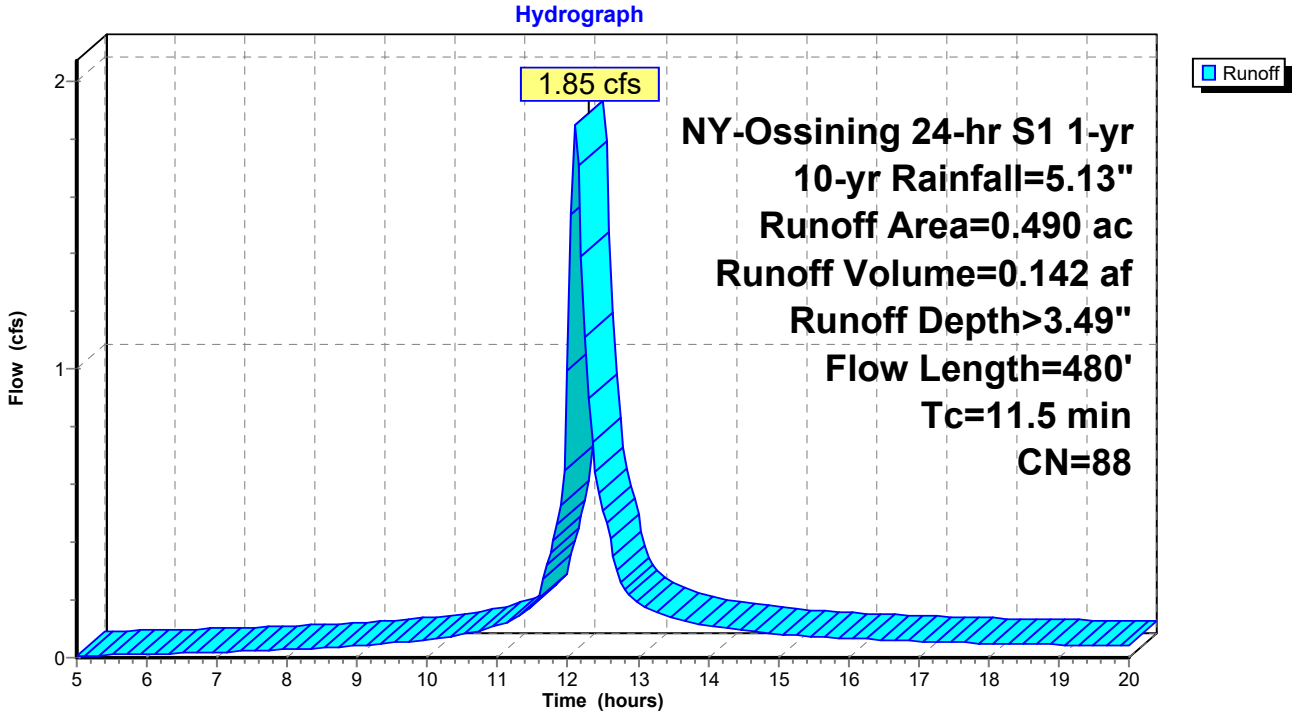
Runoff = 1.85 cfs @ 12.11 hrs, Volume= 0.142 af, Depth> 3.49"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 10-yr Rainfall=5.13"

Area (ac)	CN	Description
0.138	61	>75% Grass cover, Good, HSG B
0.352	98	Paved parking, HSG B
0.490	88	Weighted Average
0.138		28.16% Pervious Area
0.352		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.9	380	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
11.5	480	Total			

Subcatchment DA-3: DA-3

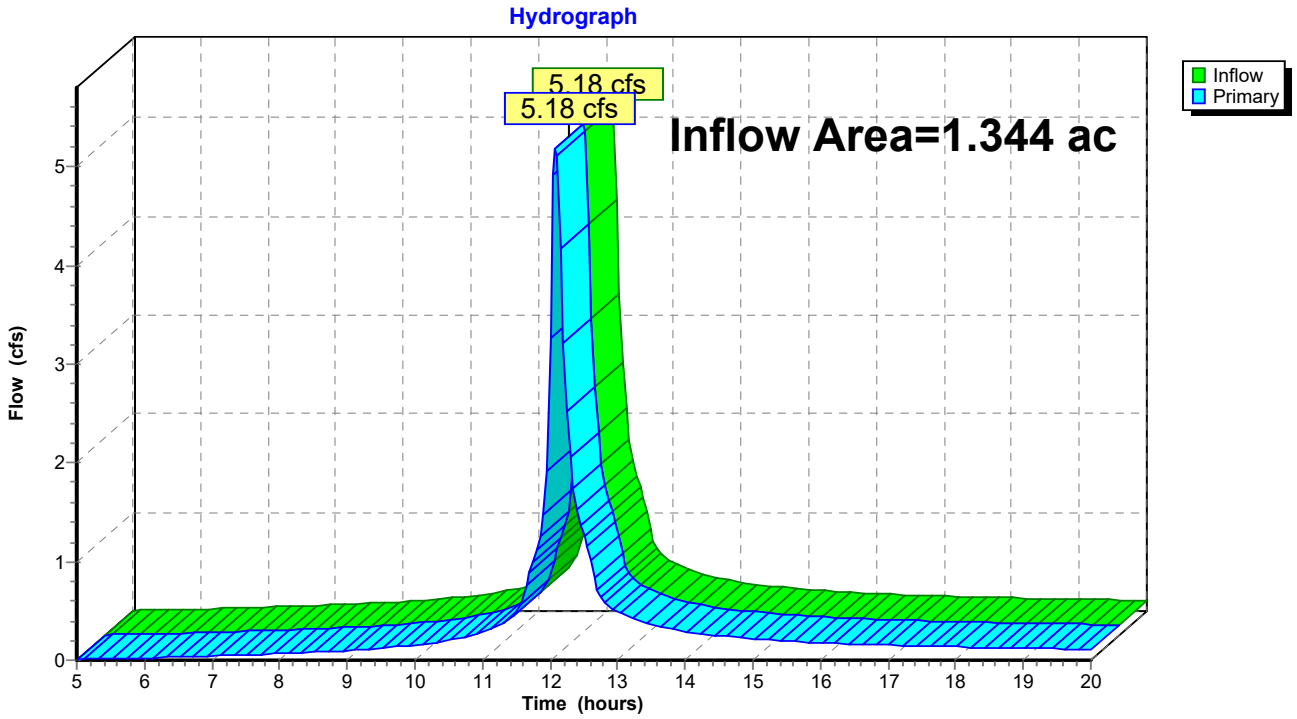


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.344 ac, 67.34% Impervious, Inflow Depth > 3.30" for 10-yr event
Inflow = 5.18 cfs @ 12.08 hrs, Volume= 0.369 af
Primary = 5.18 cfs @ 12.08 hrs, Volume= 0.369 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

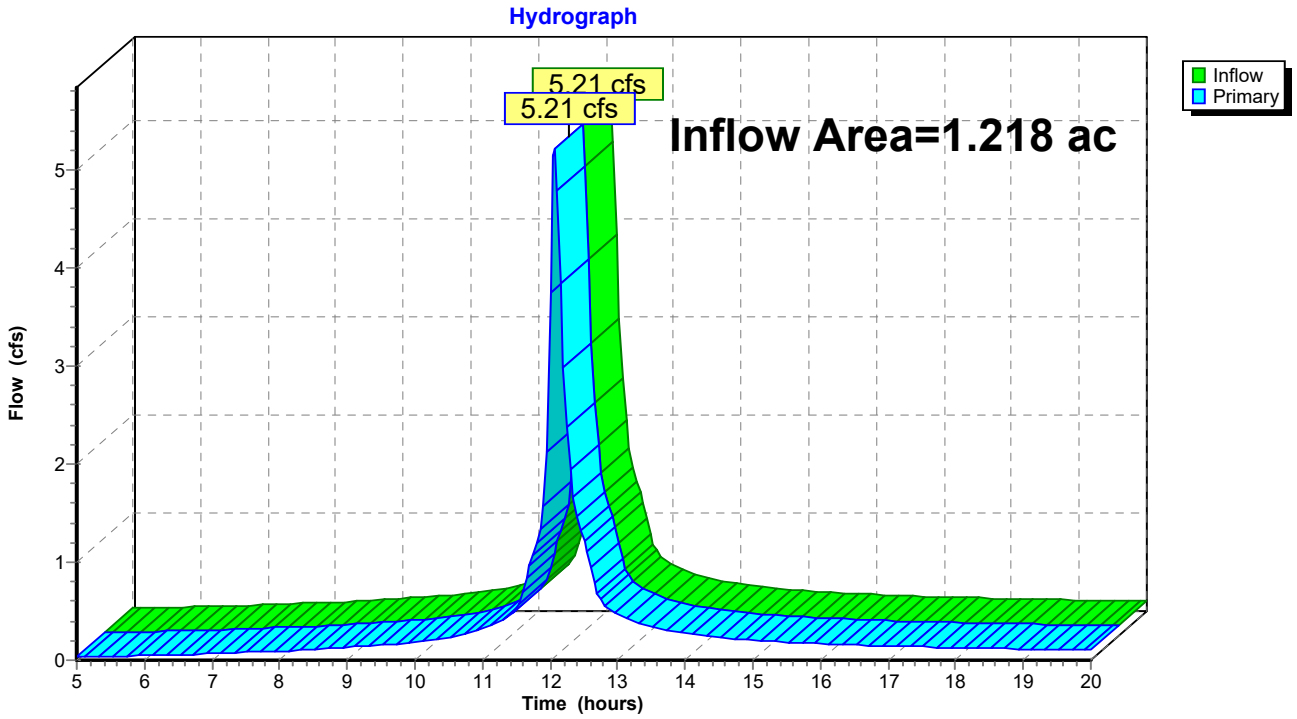


Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.218 ac, 77.59% Impervious, Inflow Depth > 3.72" for 10-yr event
Inflow = 5.21 cfs @ 12.06 hrs, Volume= 0.377 af
Primary = 5.21 cfs @ 12.06 hrs, Volume= 0.377 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment DA-1: DA-1 Runoff Area=1.344 ac 67.34% Impervious Runoff Depth>6.96"
Flow Length=210' Slope=0.0150 '/' Tc=9.4 min CN=86 Runoff=10.59 cfs 0.780 af

Subcatchment DA-2: DA-2 Runoff Area=0.728 ac 81.46% Impervious Runoff Depth>7.56"
Flow Length=139' Tc=7.2 min CN=92 Runoff=6.84 cfs 0.459 af

Subcatchment DA-3: DA-3 Runoff Area=0.490 ac 71.84% Impervious Runoff Depth>7.17"
Flow Length=480' Tc=11.5 min CN=88 Runoff=3.69 cfs 0.293 af

Link PA-1: Point of Analysis 1 Inflow=10.59 cfs 0.780 af
Primary=10.59 cfs 0.780 af

Link PA-2: Point of Analysis 2 Inflow=10.07 cfs 0.752 af
Primary=10.07 cfs 0.752 af

Total Runoff Area = 2.562 ac Runoff Volume = 1.531 af Average Runoff Depth = 7.17"
27.79% Pervious = 0.712 ac 72.21% Impervious = 1.850 ac

Summary for Subcatchment DA-1: DA-1

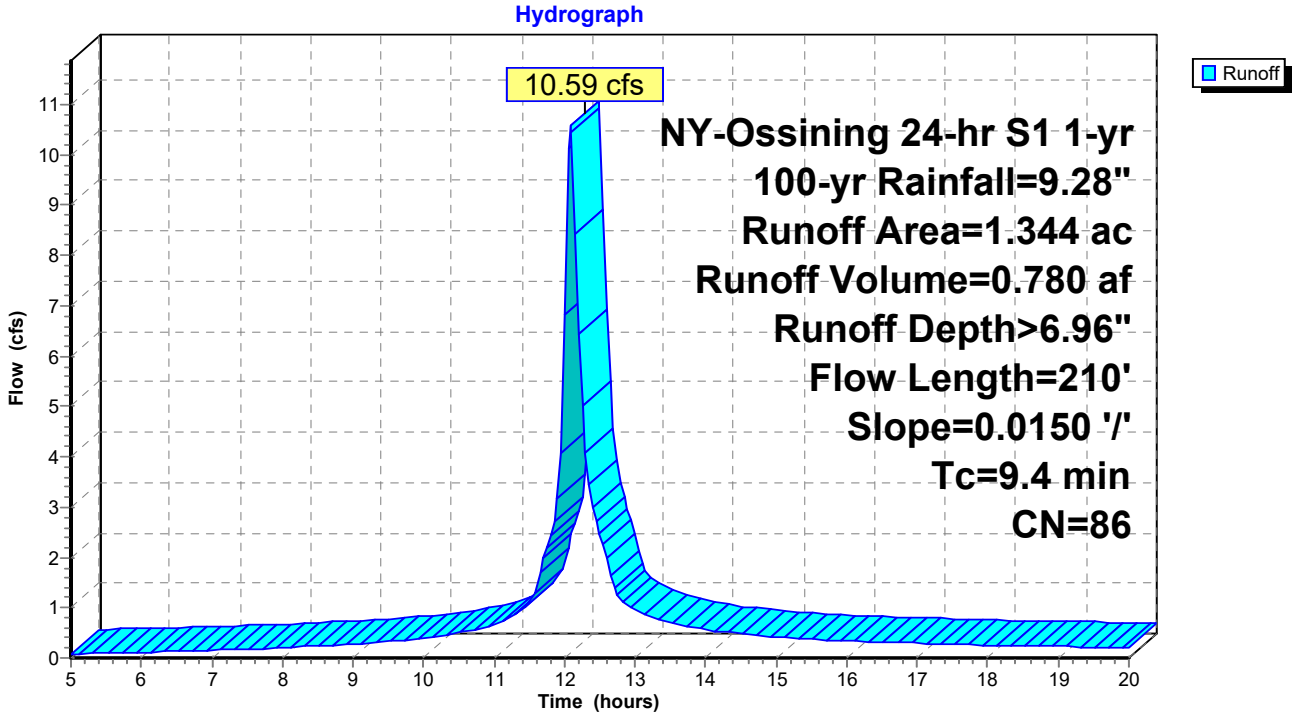
Runoff = 10.59 cfs @ 12.08 hrs, Volume= 0.780 af, Depth> 6.96"
Routed to Link PA-1 : Point of Analysis 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 100-yr Rainfall=9.28"

Area (ac)	CN	Description
0.439	61	>75% Grass cover, Good, HSG B
0.905	98	Paved parking, HSG B
1.344	86	Weighted Average
0.439		32.66% Pervious Area
0.905		67.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.2	72	0.0150	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.5	28	0.0150	0.98		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.41"
0.7	110	0.0150	2.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.4	210	Total			

Subcatchment DA-1: DA-1



Summary for Subcatchment DA-2: DA-2

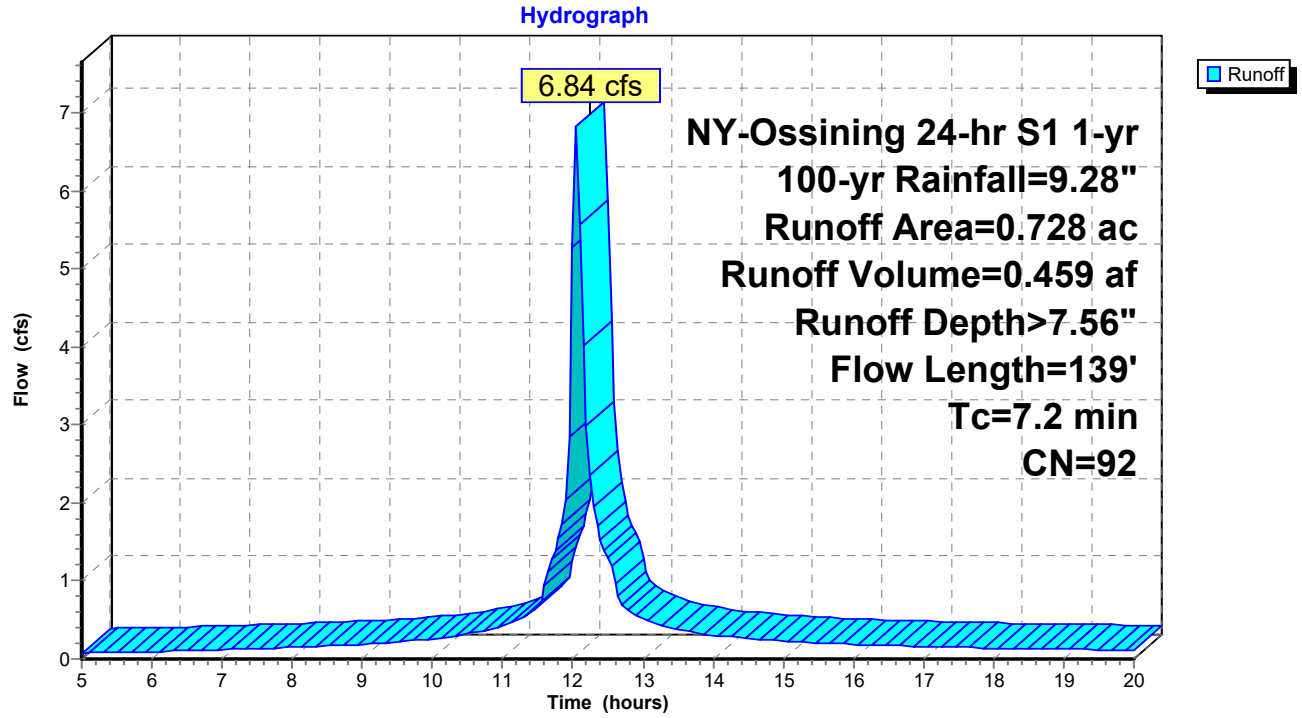
Runoff = 6.84 cfs @ 12.05 hrs, Volume= 0.459 af, Depth> 7.56"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 100-yr Rainfall=9.28"

Area (ac)	CN	Description
0.103	61	>75% Grass cover, Good, HSG B
0.032	80	>75% Grass cover, Good, HSG D
0.593	98	Paved parking, HSG B
0.728	92	Weighted Average
0.135		18.54% Pervious Area
0.593		81.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.0450	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.3	27	0.0450	1.48		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	12	0.0500	10.99	8.63	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Concrete pipe, finished
7.2	139	Total			

Subcatchment DA-2: DA-2



Summary for Subcatchment DA-3: DA-3

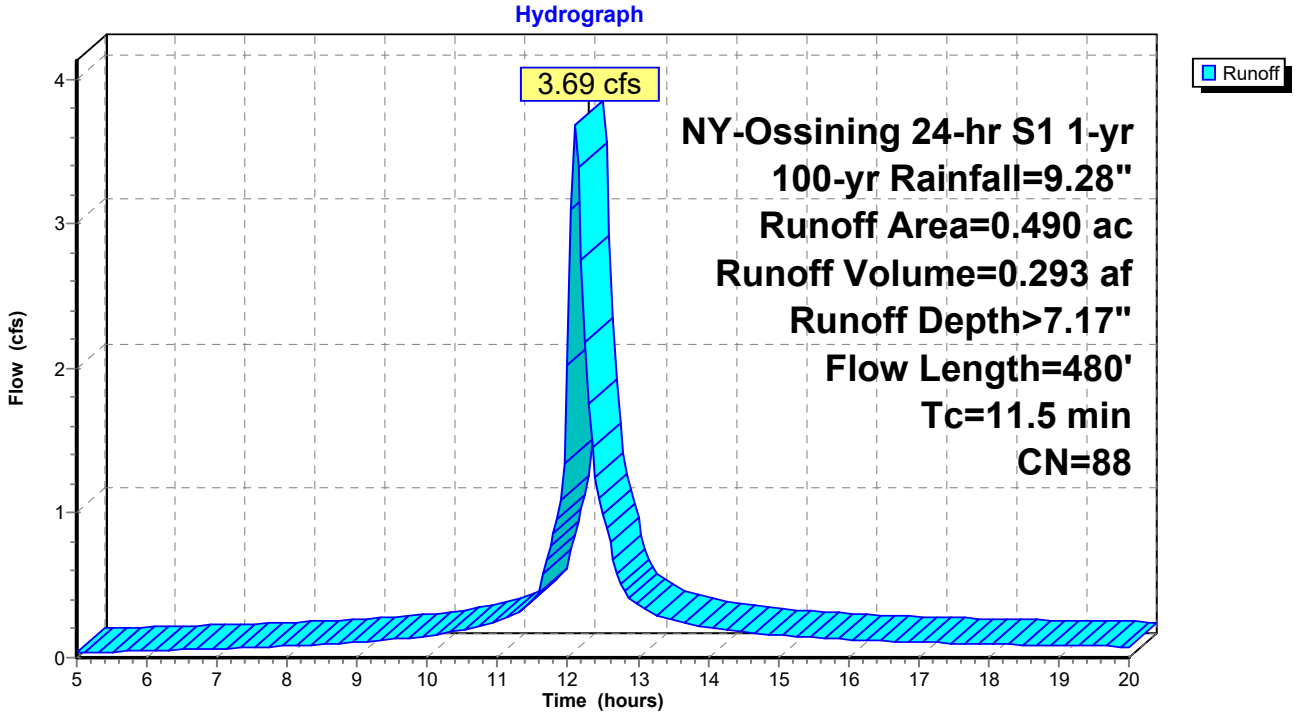
Runoff = 3.69 cfs @ 12.11 hrs, Volume= 0.293 af, Depth> 7.17"
Routed to Link PA-2 : Point of Analysis 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Ossining 24-hr S1 1-yr 100-yr Rainfall=9.28"

Area (ac)	CN	Description
0.138	61	>75% Grass cover, Good, HSG B
0.352	98	Paved parking, HSG B
0.490	88	Weighted Average
0.138		28.16% Pervious Area
0.352		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	100	0.0150	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.41"
0.9	380	0.0200	6.95	5.46	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012 Corrugated PP, smooth interior
11.5	480	Total			

Subcatchment DA-3: DA-3

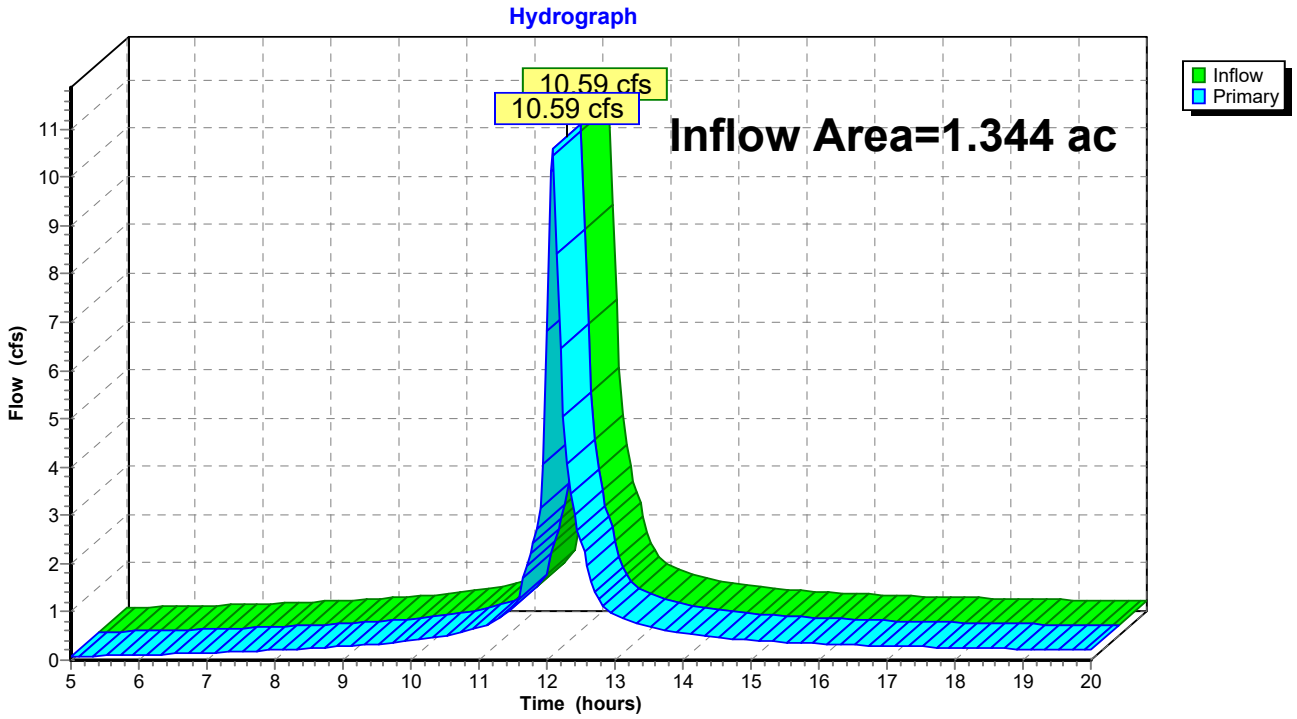


Summary for Link PA-1: Point of Analysis 1

Inflow Area = 1.344 ac, 67.34% Impervious, Inflow Depth > 6.96" for 100-yr event
Inflow = 10.59 cfs @ 12.08 hrs, Volume= 0.780 af
Primary = 10.59 cfs @ 12.08 hrs, Volume= 0.780 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-1: Point of Analysis 1

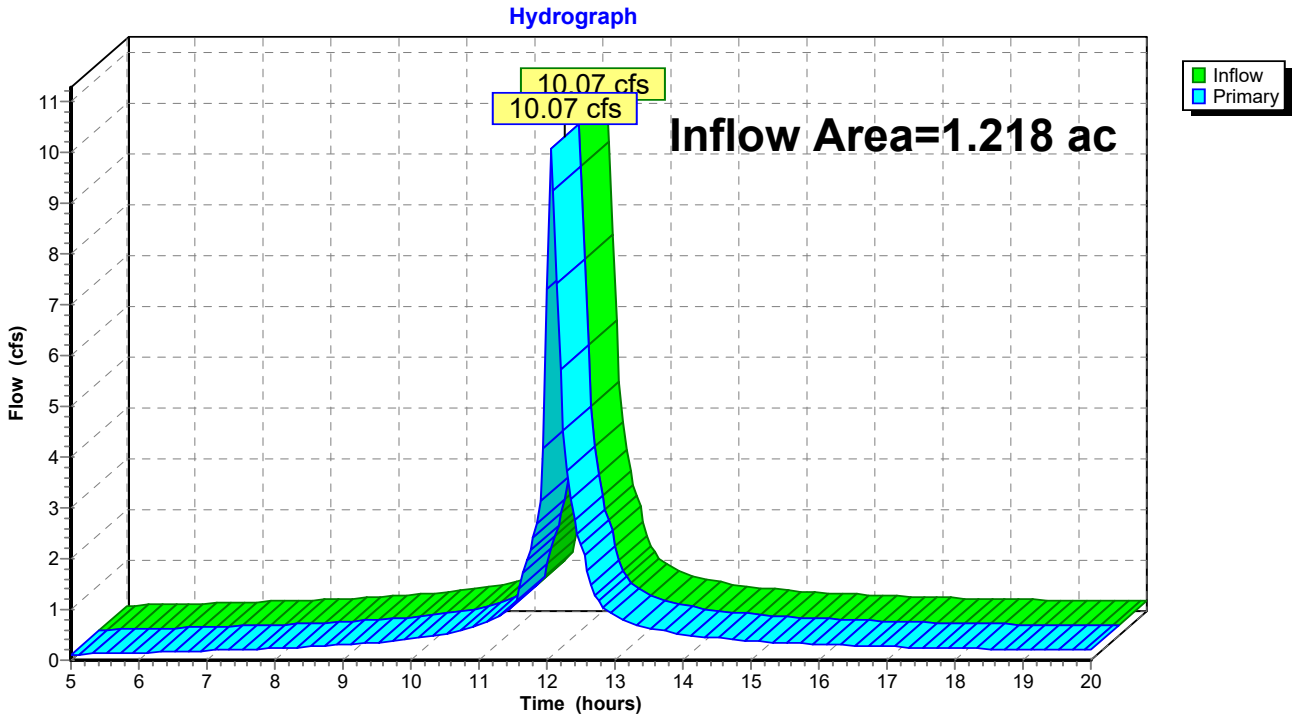


Summary for Link PA-2: Point of Analysis 2

Inflow Area = 1.218 ac, 77.59% Impervious, Inflow Depth > 7.41" for 100-yr event
Inflow = 10.07 cfs @ 12.06 hrs, Volume= 0.752 af
Primary = 10.07 cfs @ 12.06 hrs, Volume= 0.752 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PA-2: Point of Analysis 2



WATER QUALITY VOLUME CALCULATION

Name Ossining 2024 Bond
Number R25.17713.00

DATA:

Overall WQv Calculation

New Impervious, A =	0.03	**ac**	Existing Impervious to be Redeveloped
Existing Impervious, A =	0.69	**ac**	Existing Impervious to be Redeveloped
	0.5475	**ac**	75% of Existing Impervious Disturbance for use of an Alternative SMP (SWDM Ch.9.2.1.A.IV)
Rainfall, P=	1.40	**in**	
Impervious %, I =	100	**%**	

WQv = ((P) * (Rv) *(A)) / 12

WQv = water quality volume (acre-feet)

P = 90% rainfall event number
(See Fig 4.1 in NYS Stomrwater Management Design Manual)

Rv = runoff volume = 0.05 + .009 (I) , where I is the percent impervious cover

Rv = 0.05 + 0.009 (I)

PR-Overall Rv = 0.95

A = Impervious Surface (acres)

WQv = P * Rv * A / 12

WQv = 0.061 acre-feet

Calculated WQv = 2643 CF

WATER QUALITY VOLUME - PEAK FLOW CALCULATION

Name Ossining 2024 Bond
Number R25.17713.00

Qp = qu * 0 * WQv

qu = unit peak discharge (cfs/sq mi/inch)

A = drainage area (sq mi)

WQv = water quality volume (watershed inches)

CN = 1000/(10 + 5P + 10Q - 10(Q^2 + 1.25 QP)^0.5)

CN = adjusted curve number

P = 90% rainfall event (inches) = 1.40 in

Q = runoff volume (inches) = WQv (af) / A (ac) * 12

= 0.061 0.55 * 12

= 1.33 inches

CN = 99

tc = 11 min = 0.18 hrs

(Ia) = 0.041 (from Table 4.1 TR 55)

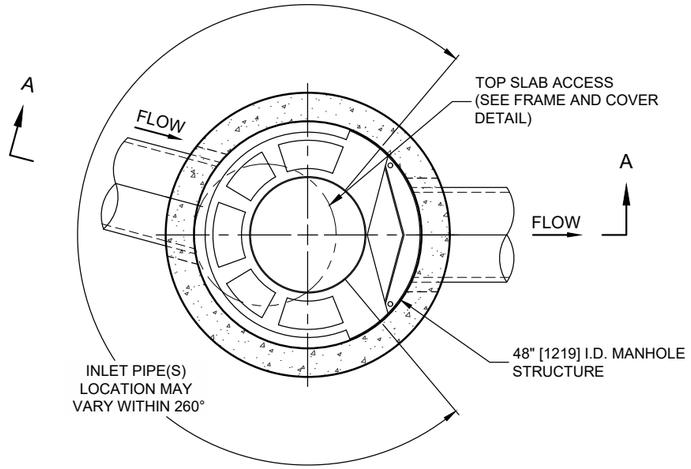
Ia/P = 0.03

qu = 850 (From Exibit 4-II TR 55)

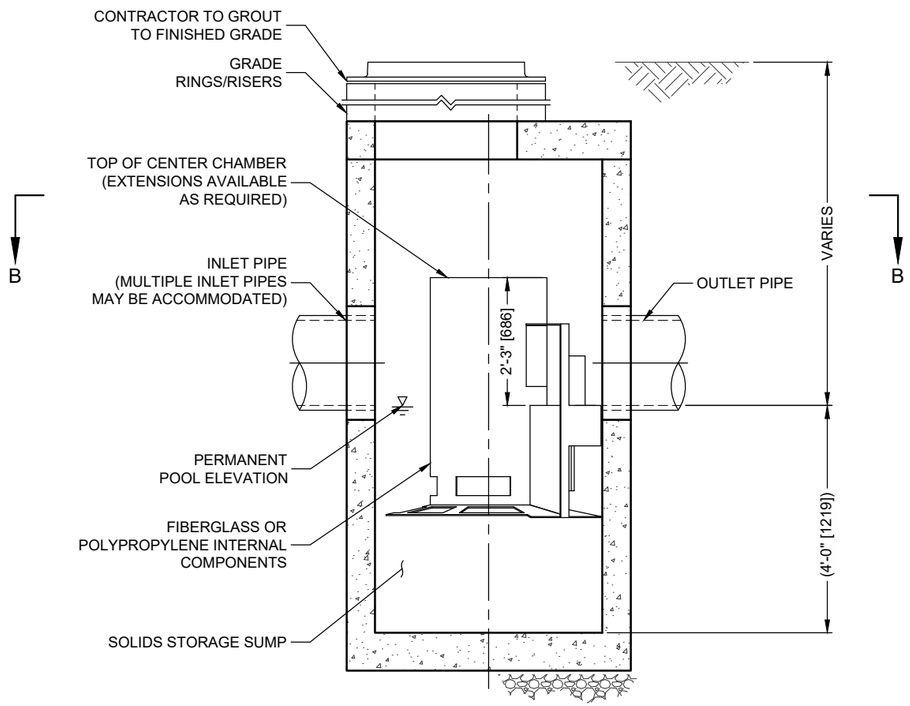
Qp = qu * Ac * Q

Qp = 850 * 0.001 * 1.33

Qp = 0.97 cfs



PLAN VIEW B-B
NOT TO SCALE



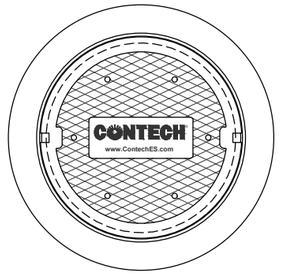
ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-4
CASCADE SEPARATOR
STANDARD DETAIL

I:\COMMON\CAD\TREATMENT\21 CASCADE\40 STANDARD DRAWINGS\DWG\IN PROCESS\CS-4-DTL.DWG 6/26/2023 2:43 PM

Step 4 - Calcuate Minimum RRv Required

Enter the Soils Data for the site		
Hydrologic Soil Group	Acres	S
A		55%
B	0.03	40%
C		30%
D		20%
Total Area	0.03	

Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	0.03	*acres*
Precipitation	1.40	*inches*
Rv	0.95	
Minimum RRv	**0.001**	***af***
	44	cf

Vegetated Swale (RR-5)

Design Point:	

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
1	0.05	0.05	100	0.95	241	1.40	0

Design Criteria		
Select HSG	B	
Is contributing area greater than 5 acres?	No	
Is the contributing area a designated hotspot?	No	

Sizing Criteria				
		Value	Units	Notes
Water Quality Peak Flow Rate	WQf	0.97	cfs	Taken from hydrologic modeling
Enter Bottom Width	b	2.00	ft	
WQv Maximum Flow Depth	d	1.50	ft	Taken from hydrologic modeling
Side Slope	X:1	3.00	:1	
WQv Flow Top Width	Wwqv	11.00	ft	
WQv Flow Wetted Perimeter	Pw	15.50	ft	
Area of the WQv Flow	Awqv	9.75	sf	
WQv Peak Discharge Velocity	V	0.10	fps	
WQv Retention Time		8.00	min	
Required Swale Length	Lr	100.00	ft	
Provided Swale Length	Lp	100.00	ft	
Longitudinal Slope of Channel	SL	0.01	ft/ft	
Enter Check Dam Height	Ch	0.00	ft	
Check Dam Spacing	Cs	0.00	ft	
Number of Check Dams Required	C	#DIV/0!		
10-yr 24-hr Flow Depth	d10	0.50	ft	Taken from hydrologic modeling
10-yr Storm Flow Top Width	W10	5.00	ft	
Area of 10-yr 24-hr Flow	A10	5.25	sf	
10-yr Flow Wetted Perimeter	Pw10	5.50	ft	
Manning's Coefficient	n	0.15		0.03 to 0.15 (Refer to Appendix G)
10-yr Peak Discharge Velocity	V10	0.96	fps	
10-yr Peak Discharge Freeboard		1.00	ft	Taken from hydrologic modeling

Determine Runoff Reduction		
RRv Provided	**48**	***cf***

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Appendix R
Post Construction Stormwater BMP Operations and Maintenance Plan

Post Construction BMP Operations and Maintenance Plan

Introduction

Stormwater Facility Maintenance is important so that the water quality features, incorporated into the project design, continue to function as expected. The scope of this program includes the maintenance and inspection of: the ground surface, where runoff is generated and directed to the stormwater conveyance system; the storm sewer network system; and the stormwater mitigation features. The following guidelines are to be used for keeping the post construction stormwater facilities functional and detecting potential failures in the system. In addition, regularly scheduled maintenance will reduce the pollutants entering the system and improve and preserve the overall performance of the stormwater system.

Parking Lot Maintenance and Inspection

1. Parking lots and drives shall be cleaned or swept on an as needed basis but at a minimum once per year. Sweeping removes dirt and debris that absorbs oils and other liquid discharges from automobiles.

2. Spills that cannot be cleaned by sweeping operations shall be addressed with proper absorbent material and manual sweeping/removal when brought to the attention of the maintenance staff.

3. Annual pavement maintenance includes the inspection of all asphalt and concrete surfaces for cracking, potholes, rutting, etc. at minimum every spring after all snow has melted. Repairs necessary for the proper functioning of the storm sewer system shall be made as soon as practicable and weather permits. Broken curbing from snow removal operations, that impedes the flow of runoff, shall be repaired or replaced as needed.

Landscape and Lawn Areas

1. In the late spring, after lawn areas have recovered from the winter season, inspect lawn areas for loss of adequate ground cover. Disc and reseed areas with less than 80% lawn coverage to protect against erosion. Fertilizers may be applied in order to maintain a healthy lawn and to promote longevity. All fertilizers shall be applied per the manufacturer's recommendations. Planting beds shall be re-mulched annually, as necessary.

2. Canvass the site in spring, summer and fall for trash or other debris that may enter the storm sewer system. Collect and properly dispose of debris.

Storm Sewer Maintenance and Inspection

1. All catch basins and manholes shall be inspected annually and cleaned as necessary. Remove debris from all sumps. Storm inlets should be cleaned after first pavement sweeping in the spring. Liquid and or solids removed from inlets will be disposed of at an approved waste treatment facility or landfill. Any debris remaining on inlet grates after sweeping operations shall be manually removed.

Maintenance Schedule

Storm System Maintenance Schedule	
Inspection Item	**Frequency**
Street/Parking Lot sweeping	Annually in Spring
Spills reported to Facilities Manager	As needed
Pavement and curb condition	Annually in Spring
Lawn and landscaping condition	Annually in Spring
Canvass site for trash and debris	Spring, Summer, Fall
Debris in catch basins and manholes	Annually in Spring
Sumps in catch basins and inlets	Annually in Spring
Debris blocking grates	Annually in Spring
Outfalls	Annually
Bioretention Areas	Semi-Annually in Spring and Fall

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Appendix S
Cultural and Environmental Mapping

Ossining Union Free School District
400 Executive Blvd.
Ossining, New York 10562

CERTIFICATION

STATE OF NEW YORK)
) **SS.:**
COUNTY OF WESTCHESTER)

I, Ileana Ortiz, District Clerk of the Ossining Union Free School District, in the County of Westchester, State of New York, **HEREBY CERTIFY** that the following resolution was adopted by the Board of Education of the Ossining Union Free School District at a meeting duly held on July 24, 2024.

Resolution to Approve SEQRA Negative Declaration for 2024 Bond for Capital Work at Claremont Elementary School, Anne M. Dorner Middle School, and Ossining High School Campus

WHEREAS, the Board of Education of the Ossining Union Free School District (the "BOE") is considering a proposed 2024 Bond for capital work to be undertaken at the Claremont Elementary School, Anne M. Dorner Middle School, and the Ossining High School Campus for the purpose of addressing space, programming, recreational and parking needs, as well routine renovations (the "Proposed Project"); and

WHEREAS, the Proposed Project includes the following work at the Claremont Elementary School, as described more fully in the associated Full Environmental Assessment Form ("FEAF"): (1) two-story, 12,600 square foot classroom addition over an existing asphalt area, (2) addition for elevator, and (3) various interior renovations and reconfigurations; and

WHEREAS, the Proposed Project includes the following work at the Anne M. Dorner Middle School, as described more fully in the associated FEAF: (1) 66,000 square foot (footprint), three-story new building with related site improvements, (2) stormwater facilities, (3) 125-space parking lot, (4) two-story, 12,600 square foot addition to the existing building, and (5) various interior renovations and rehabilitation; and

WHEREAS, the Proposed Project includes the following work at the Ossining High School Campus, including the recently acquired parcels at 1 Emwilton Place and 3 Emwilton Place, as described more fully in the associated FEAF: (1) 19,600 gross square foot, two-story locker room overbuild, (2) 8,200 square foot, one-story overbuild, (3) various interior renovations and reconfigurations, and (4) demolition of the former rectory building and construction of a 18,500 square foot, three-story addition; and

WHEREAS, through the assistance of CPL Architecture, Engineering and Planning, the BOE has completed and reviewed a Full Environmental Assessment Form (Part 1 and Part 2) and obtained and evaluated supplemental information pertaining to the Proposed Project; and

WHEREAS, while separate EAFs have been prepared for work proposed to be funded at each of the three school campuses, review of the Proposed Project included a cumulative look at the totality of the improvements proposed to be funded by the Bond; and

WHEREAS, on June 17, 2024, CPL Architecture, Engineering and Planning on behalf of the Board of Education circulated a Notice of the Board of Education's intent to declare itself Lead Agency to all known Involved and Interested Agencies; and

WHEREAS, thirty (30) days have elapsed since the circulation of the Board of Education's Notice of Intention to Serve as Lead Agency and no objections have been received to the Board of Education's assumption of SEQRA Lead Agency status; and

NOW, THEREFORE, BE IT RESOLVED, that pursuant to SEQRA and its implementing regulations, the Board of Education shall serve as SEQRA lead agency for the coordinated environmental review of the Proposed Project.

BE IT FURTHER RESOLVED, the Proposed Project is a Type I Action under the State Environmental Quality Review Act.

BE IT FURTHER RESOLVED, that the Board of Education, as Lead Agency and in accordance with 6 NYCRR Part 617 and upon taking a hard look at all relevant areas of environmental impact concerning the Proposed Project, including a comprehensive review of the Full Environmental Assessment Form including Parts 1 and 2, and all other materials prepared in connection with the Proposed Project, hereby finds for the reasons set forth in the attachment to Part 3 of the Full Environmental Assessment Form ("FEAF"), that the Proposed Project will not result in any significant adverse environmental impacts and hereby adopts and authorizes the Board President to execute the FEAF Part 3 Determination of Significance of a Negative Declaration for the Proposed Project.

BE IT FURTHER RESOLVED that the Board of Education hereby directs that its staff and/or consultants file, circulate and publish the Negative Declaration in accordance with 6 NYCRR §617.12(b) and (c).

Motion carried: 7-0

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of the Ossining Union Free School District this 10th day of March 2025.

Dated: March 10, 2025

Board Clerk

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

March 1, 2022

Justin Steinbach
Planner
CPL
205 Saint Paul Street
Rochester, NY 14604

Re: SED
Ossining Central School District land purchase and capital improvements
21PR02002

Dear Justin Steinbach:

Thank you for continuing to consult with the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources.

We note that the Church Rectory at 1 Emwilton Avenue, the United Methodist Church, and the Ossining High School at 29 South Highland Avenue all contribute to the Downtown Ossining Historic District, which is listed in the State and National Registers of Historic Places. We have reviewed the memo dated February 4, 2022, the Master Plan dated December 9, 2021, and the linked 3D scan of the interior of the church included in the memo. Based on the memo and Master Plan, we understand the school district plans to provide second and third floor additions to the existing school, build a connecting structure from the school to the adjacent church and former rectory, renovate the church for school purposes, re-use or demolish and build a new structure at the existing church annex, and demolish the former rectory to build a new school-related structure. In order to continue our review of the proposed work, the OPRHP requests the following information:

1. Please provide a detailed description of the proposed scope of work, including all design documents, for the proposed work at the school, the proposed connection from the school to the church and former rectory, the interior renovations for the church, the changes to the annex, demolition plans and all other planned new structures/changes. Existing site plans are needed for comparison purposes.
2. Clear color photographs illustrating all areas to be affected by interior and exterior work. Photos of the general project area should be accompanied by detail images where work is proposed, particularly when a potentially historic feature is planned for replacement or alteration. Locations we still need photographs for: the former rectory, the exterior of the church and annex, as well as portions of the church property and school where work is proposed. All photographs should be labeled and keyed to a site or building plan indicating the location and direction of each image. If submitting a large number of photos, we recommend combining them into a single document (Word or PDF format) before uploading.

3. Please note the existing finishes and volume of the church are significant historic features. Please provide a written description of the proposed work in the church.
4. Please clarify if the church annex will be demolished or renovated.

We note the project proposes demolition of the rectory, which is a listed historic resource. Please note that in accordance with Section 14.09 of the New York State Historic Preservation Act of 1980, demolition of a historic building constitutes an Adverse Impact to the resource. This is an action that can only move forward after all prudent and feasible alternatives to demolition have been considered. At this time, we urge you to consider adaptive reuse of the former rectory.

We are very interested in further discussions on how we can minimize harm to this historic church and rectory, while meeting the needs of the school. We would be happy to have a meeting to review this project with you. Please reach out to us and we can coordinate.

Please submit the requested information via our Cultural Resource Information System (CRIS) at www.nysparks.com/shpo/online-tools/. To submit, log into CRIS as a guest, choose "submit" at the very top of the menu, and then choose "submit new information for an existing project" You will need this project number and your email address.

If you have any questions, please feel free to reach out via email.

Sincerely,

Sara McIvor
Historic Preservation Technical Specialist
E-mail: sara.mcivor@parks.ny.gov

cc: C. Colby – CPL
M. Johnson – CPL
S. Madison - NYSED

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Appendix T
Climate Change Considerations

STORM WATER POLLUTION PREVENTION PLAN
CLIMATE CHANGE CONSIDERATIONS

CONSTRUCTION SITE – OSSINING HIGH SCHOOL – 2024 BOND
1 EMWILTON PLACE
OSSINING, NY 10562

Physical Risk	Project Site Considerations			
	Overall Site Planning	**Location, Elevation and Sizing of Control Measures and Practices**	**Location, Elevation and Sizing of Conveyance System(s)**	**Location, Elevation and Sizing of Detention System(s)**
Increasing Temperature	The project proposes use of subsurface stormwater conveyance to prevent heated runoff from exiting the site.	SMP(s) have been sized for the 90% storm event. The elevation of ponding controls in the practice is limited by the requirements in the design manual.	Conveyance systems have been sized to safely convey the 10-year 24-hour storm event.	System(s) have been designed according to the stormwater management design manual to discharge stormwater at a slower rate than existing conditions do.
Increasing Precipitation	The project proposes no increase in site runoff having no adverse effects on downstream hydrology.	SMP(s) have been sized for the 90% storm event. The elevation of ponding controls in the practice is limited by the requirements in the design manual.	Conveyance systems have been sized to safely convey the 10-year 24-hour storm event.	System(s) have been designed according to the stormwater management design manual to discharge stormwater at a slower rate than existing conditions do.
Increasing Precipitation Variability				
Increasing Frequency and Severity of Flooding				
Rising Sea Level	Due to the site location, the property is not expected to be directly impacted by sea levels rising.	Not applicable	Not applicable	Not applicable
Increasing Storm Surge	Due to the site location, the property is not expected to be directly impacted by storm surge.	Due to the site location, the property is not expected to be directly impacted by storm surge.	Due to the site location, the property is not expected to be directly impacted by storm surge.	Due to the site location, the property is not expected to be directly impacted by storm surge.
Shifting Ecology	The plantings selected for the project consider adaptability.	The SMPs selected will utilize hardy species tolerant to both drought and inundation.	The proposed conveyance system is a closed channel system to reduce the effects on the existing ecology.	A new detention system is not required.

SECTION 004010
FORM OF PROPOSAL – GENERAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
FROM:
BIDDER NAME & ADDRESS

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,
we,_____

1. having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to GENERAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled 2024 Bond: Phase 1- OHS Locker Room & CTE Addition all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

	DOLLARS
($	)
BASE BID	

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.

1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he or she will start work within 10 consecutive calendar days of the notice to proceed and fully complete the work by as indicated in the Contract Documents.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.

1. Allowance No. GC-00; (General Allowance)
   $ (Insert Amount)
2. Allowance No. GC-01; (VAT Flooring)
   $ (Insert Amount)
3. Allowance No. GC-02; (Asbestos Fittings/Insulation)
   $ (Insert Amount)
4. Allowance No. GC-03; (Trench Rock Removal)
   $ (Insert Amount)
5. Allowance No. GC-04; (Unsuitable Soils)
   $ (Insert Amount)

1.06 UNIT PRICES (REFERENCE SPECIFICATION SECTION 012700)

A. Enter in unit prices from spec section 012700. (Unit prices are used in anticipation that there will be additional quantities of materials and labor not expressly indicated on the contract documents.)

1. Unit Price No. GC-01; (VAT Flooring)
   $ per
2. Unit Price No. GC-02; (Asbestos Fittings/Insulation)
   $ per
3. Unit Price No. GC-03; (Trench Rock Removal)
   $ per
4. Unit Price No. GC-04; (Unsuitable Soils)
   $ per

1.07 ALTERNATES (REFERENCE SPECIFICATION SECTION 012300)

A. Enter a whole dollar amount, even if it is zero ($ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do not leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidder will provide that Alternate for no change, neither increase nor decrease, in Contract Price.

1. Alternate No. GC-1; (Vestibule V1):
   ADD/DEDUCT ($)
   DOLLARS
2. Alternate No. GC-2; (Area A Signage and Wall Graphics):
   ADD/DEDUCT ($)

	DOLLARS

3. Alternate No. GC-3; (Stainless Steel Interior Guardrails & Handrails):

ADD/DEDUCT ($	)
	DOLLARS

4. Alternate No. GC-4; (Area B Signage and AWP):

ADD/DEDUCT ($	)
	DOLLARS

5. Alternate No. GC-5; (Flooring Rooms 161, 163, 165):

ADD/DEDUCT ($	)
	DOLLARS

6. Alternate No. GC-6; (VCT Flooring):

ADD/DEDUCT ($	)
	DOLLARS

7. Alternate No. GC-7; (LVT Flooring):

ADD/DEDUCT ($	)
	DOLLARS

1.08 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.09 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.10 CERTIFICATION UNDER EXECUTIVE ORDER NO. 16

A. Contractor to submit with the bid, Certification under Executive Order No. 16 which hereto is made a part of this Form of Proposal and is attachd at the end of this Form of Proposal.

1.11 NEW YORK STATE DEPARTMENT OF LABOR CONTRACTOR REGISTRY

A. Pursuant to New York State Department of Labor requirements, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration along with, Labor Law 220-i Certification Form which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.12 REPRESENTATIONS

A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
   1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.

2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
    a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
    b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
    c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
    d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.13 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
    1. Profit and overhead as permitted in the General Conditions.

1.14 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
    1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
    2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
    3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.15 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.16 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.17 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a (select with circle):
   1. Corporation, Partnership, Individual.
   2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.18 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

1.19 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.20 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.21 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.22 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.23 IRAN DIVESTMENT ACT CERTIFICATION

A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)

Individual or Legal Name of Firm or Corporation:
Mailing Address:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

1.24 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

CERTIFICATION UNDER EXECTUIVE ORDER NO. 16

PROHIBITING STATE AGENCIES AND AUTHORITIES FROM CONTRACTING WITH BUSINESSES CONDUCTING BUSINESS IN RUSSIA

Executive order No. 16 provided that"all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of the Executive Order No. 16 can be found at the following website; https://ogs.ny.gov/EO-16.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from ward becasue of current businees operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Exectuive Order No. 16, an entity conducting business operation in Russia" means an institution or company, wherever located, conducting any cmmerical activity in Russia or transacting business with the Russian Government or with commerical entities headquartered in Russia or with their prinicipal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is vender an entity conducting business operations in Russia, as defined above? Please answer by circling one of the following numbers:

1.	No, Vender does not conduct business operations in Russia within the meaning of Executive Order No. 16
2.a.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion).
2.b.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extend necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being procided or the revelant laws, regulations, etc.).
3.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and behalf.

Vendor Name:
(legal entity) _____
By:
(Signature) _____
Name: _____
Title: _____
Date: _____

LABOR LAW 220-I CERTIFICATION FORM

By submission of this bid, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that :

1. The Bidder is registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Labor Law, and
2. Each of the subcontractors engaged by the Bidder for this Project will be registered before commencing work.

Bidder further represents that;

1. A copy of the Bidder's Certificate of Registration issued by the Commissioner of the Department of Labor is attached to this Bid.
2. All Subcontractors will submit a copy of their Certificate of Registration issued by the Commissioner of the Department of Labor before commencing work.

Project:
Individual or Legal Name of Bidder or Corporation:
Bidder Address:
Signature of Representative of Bidder or Corporation:
Print Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

END OF SECTION

SECTION 004020
FORM OF PROPOSAL – MECHANICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
FROM:
BIDDER NAME & ADDRESS

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,
we,_____

1. having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to MECHANICAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled 2024 Bond: Phase 1- OHS Locker Room & CTE Addition all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

	DOLLARS
($	)
BASE BID	

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.

1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he or she will start work within 10 consecutive calendar days of the notice to proceed and fully complete the work by as indicated in the Contract Documents.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.
   1. Allowance No. MC-00; (General Allowance)

$	(Insert Amount)

1.06 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.07 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.08 CERTIFICATION UNDER EXECUTIVE ORDER NO. 16

A. Contractor to submit with the bid, Certification under Executive Order No. 16 which hereto is made a part of this Form of Proposal and is attachd at the end of this Form of Proposal.

1.09 NEW YORK STATE DEPARTMENT OF LABOR CONTRACTOR REGISTRY

A. Pursuant to New York State Department of Labor requirements, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration along with, Labor Law 220-i Certification Form which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.10 REPRESENTATIONS

A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
   1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
   2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
   3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
   4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.11 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
   1. Profit and overhead as permitted in the General Conditions.

1.12 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
   1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
   2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
   3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.13 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.14 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.15 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a (select with circle):
   1. Corporation, Partnership, Individual.
   2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.16 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

1.17 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.18 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.19 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.20 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.21 IRAN DIVESTMENT ACT CERTIFICATION

A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)

Individual or Legal Name of Firm or Corporation:
Mailing Address:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

1.22 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

CERTIFICATION UNDER EXECTUIVE ORDER NO. 16

PROHIBITING STATE AGENCIES AND AUTHORITIES FROM CONTRACTING WITH BUSINESSES CONDUCTING BUSINESS IN RUSSIA

Executive order No. 16 provided that"all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of the Executive Order No. 16 can be found at the following website; https://ogs.ny.gov/EO-16.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from ward becasue of current businees operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Exectuive Order No. 16, an entity conducting business operation in Russia" means an institution or company, wherever located, conducting any cmmerical activity in Russia or transacting business with the Russian Government or with commerical entities headquartered in Russia or with their prinicipal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is vender an entity conducting business operations in Russia, as defined above? Please answer by circling one of the following numbers:

1.	No, Vender does not conduct business operations in Russia within the meaning of Executive Order No. 16
2.a.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion).
2.b.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extend necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being procided or the revelant laws, regulations, etc.).
3.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and behalf.

Vender Name:
(legal entity) _____
By:
(signature) _____
Name: _____
Title: _____
Date: _____

LABOR LAW 220-I CERTIFICATION FORM

By submission of this bid, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that :

1. The Bidder is registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Labor Law, and
2. Each of the subcontractors engaged by the BIdder for this Project will be registered before commencing work.

Bidder further represents that;

1. A copy of the Bidder's Certificate of Registration issued by the Commissioner of the Department of Labor is attached to this Bid.
2. All Subcontractors will submit a copy of their Certificate of Registration issued by the Commissioner of the Department of Labor before commencing work.

Project:
Individual or Legal Name of Bidder or Corporation:
Bidder Address:
Signature of Representative of Bidder or Corporation:
Print Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

END OF SECTION

SECTION 004030
FORM OF PROPOSAL – ELECTRICAL CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
FROM:
BIDDER NAME & ADDRESS

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,
we,_____

1. having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to ELECTRICAL CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled 2024 Bond: Phase 1- OHS Locker Room & CTE Addition all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

	DOLLARS
($	)
BASE BID	

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.

1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he or she will start work within 10 consecutive calendar days of the notice to proceed and fully complete the work by as indicated in the Contract Documents.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.

1. Allowance No. EC-00; (General Allowance)

$ (Insert Amount)

2. Allowance No. EC-01; (Trench Rock Removal)

$ (Insert Amount)

3. Allowance No. EC-02; (Unsuitable Soils)

$ (Insert Amount)

1.06 UNIT PRICES (REFERENCE SPECIFICATION SECTION 012700)

A. Enter in unit prices from spec section 012700. (Unit prices are used in anticipation that there will be additional quantities of materials and labor not expressly indicated on the contract documents.)

1. Unit Price No. EC-01: (Trench Rock Removal)

$ per

2. Unit Price No. EC-02: (Unsuitable Soils)

$ per

1.07 ALTERNATES (REFERENCE SPECIFICATION SECTION 012300.)

A. Enter a whole dollar amount, even if it is zero ($ 0), for each Alternate. Circle "ADD" or "DEDUCT" for each Alternate Bid. If neither is circled, "DEDUCT" will be assumed. Do not leave any Alternate amount blank. If any amount is blank, it will be assumed the Bidder will provide that Alternate for no change, neither increase nor decrease, in Contract Price.

1. Alternate No. EC-1; (Vestibule V1):

ADD/DEDUCT ($)
DOLLARS

2. Alternate No. EC-2; (Backlit Metal Signage):

ADD/DEDUCT ($)
DOLLARS

3. Alternate No. EC-3; (Solar Panels):

ADD/DEDUCT ($)
DOLLARS

1.08 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.09 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.10 CERTIFICATION UNDER EXECUTIVE ORDER NO. 16

A. Contractor to submit with the bid, Certification under Executive Order No. 16 which hereto is made a part of this Form of Proposal and is attachd at the end of this Form of Proposal.

1.11 NEW YORK STATE DEPARTMENT OF LABOR CONTRACTOR REGISTRY

A. Pursuant to New York State Department of Labor requirements, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration along with, Labor Law 220-i Certification Form which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.12 REPRESENTATIONS

A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
   1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
   2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
   3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
   4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
      a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
      b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
      c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
      d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.13 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
   1. Profit and overhead as permitted in the General Conditions.

1.14 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
   1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
   2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
   3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.15 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.16 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.17 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a (select with circle):
   1. Corporation, Partnership, Individual.
   2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.18 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

1.19 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.20 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.21 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.22 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.23 IRAN DIVESTMENT ACT CERTIFICATION

A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)

Individual or Legal Name of Firm or Corporation:
Mailing Address:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

1.24 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

CERTIFICATION UNDER EXECTUIVE ORDER NO. 16

PROHIBITING STATE AGENCIES AND AUTHORITIES FROM CONTRACTING WITH BUSINESSES CONDUCTING BUSINESS IN RUSSIA

Executive order No. 16 provided that"all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of the Executive Order No. 16 can be found at the following website; https://ogs.ny.gov/EO-16.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from ward becasue of current businees operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Exectuive Order No. 16, an entity conducting business operation in Russia" means an institution or company, wherever located, conducting any cmmerical activity in Russia or transacting business with the Russian Government or with commerical entities headquartered in Russia or with their prinicipal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is vender an entity conducting business operations in Russia, as defined above? Please answer by circling one of the following numbers:

1.	No, Vender does not conduct business operations in Russia within the meaning of Executive Order No. 16
2.a.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion).
2.b.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extend necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being procided or the revelant laws, regulations, etc.).
3.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and behalf.

Vender Name:
(legal entity) _____
By:
(signature) _____
Name: _____
Title: _____
Date: _____

LABOR LAW 220-I CERTIFICATION FORM

By submission of this bid, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that :

1. The Bidder is registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Labor Law, and
2. Each of the subcontractors engaged by the BIdder for this Project will be registered before commencing work.

Bidder further represents that;

1. A copy of the Bidder's Certificate of Registration issued by the Commissioner of the Department of Labor is attached to this Bid.
2. All Subcontractors will submit a copy of their Certificate of Registration issued by the Commissioner of the Department of Labor before commencing work.

Project:
Individual or Legal Name of Bidder or Corporation:
Bidder Address:
Signature of Representative of Bidder or Corporation:
Print Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

END OF SECTION

SECTION 004040
FORM OF PROPOSAL – PLUMBING CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
FROM:
BIDDER NAME & ADDRESS

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,
we,_____

1. having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to PLUMBING CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled 2024 Bond: Phase 1- OHS Locker Room & CTE Addition all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

	DOLLARS
($	)
BASE BID	

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.

1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he or she will start work within 10 consecutive calendar days of the notice to proceed and fully complete the work by as indicated in the Contract Documents.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.
   1. Allowance No. PC-00; (General Allowance)

$	(Insert Amount)

1.06 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.07 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.08 CERTIFICATION UNDER EXECUTIVE ORDER NO. 16

A. Contractor to submit with the bid, Certification under Executive Order No. 16 which hereto is made a part of this Form of Proposal and is attachd at the end of this Form of Proposal.

1.09 NEW YORK STATE DEPARTMENT OF LABOR CONTRACTOR REGISTRY

A. Pursuant to New York State Department of Labor requirements, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration along with, Labor Law 220-i Certification Form which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.10 REPRESENTATIONS

A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
   1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
   2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
   3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
   4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.11 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
   1. Profit and overhead as permitted in the General Conditions.

1.12 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
   1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
   2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
   3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.13 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.14 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.15 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a (select with circle):
   1. Corporation, Partnership, Individual.
   2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.16 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

1.17 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.18 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.19 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.20 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.21 IRAN DIVESTMENT ACT CERTIFICATION

A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)
2.

Individual or Legal Name of Firm or Corporation:
Mailing Address:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

1.22 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

CERTIFICATION UNDER EXECTUIVE ORDER NO. 16

PROHIBITING STATE AGENCIES AND AUTHORITIES FROM CONTRACTING WITH BUSINESSES CONDUCTING BUSINESS IN RUSSIA

Executive order No. 16 provided that"all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of the Executive Order No. 16 can be found at the following website; https://ogs.ny.gov/EO-16.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from ward becasue of current businees operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Exectuive Order No. 16, an entity conducting business operation in Russia" means an institution or company, wherever located, conducting any cmmerical activity in Russia or transacting business with the Russian Government or with commerical entities headquartered in Russia or with their prinicipal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is vender an entity conducting business operations in Russia, as defined above? Please answer by circling one of the following numbers:

1.	No, Vender does not conduct business operations in Russia within the meaning of Executive Order No. 16
2.a.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion).
2.b.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extend necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being procided or the revelant laws, regulations, etc.).
3.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and behalf.

Vender Name:
(legal entity) _____
By:
(signature) _____
Name: _____
Title: _____
Date: _____

LABOR LAW 220-I CERTIFICATION FORM

By submission of this bid, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that :

1. The Bidder is registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Labor Law, and
2. Each of the subcontractors engaged by the BIdder for this Project will be registered before commencing work.

Bidder further represents that;

1. A copy of the Bidder's Certificate of Registration issued by the Commissioner of the Department of Labor is attacehd to this Bid.
2. All Subcontractors will submit a copy of their Certificate of Registration issued by the Commissioner of the Department of Labor before commencing work.

Project:
Individual or Legal Name of Bidder or Corporation:
Bidder Address:
Signature of Representative of Bidder or Corporation:
Print Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

END OF SECTION

SECTION 004050
FORM OF PROPOSAL – FIRE SPRINKLER CONSTRUCTION

PART 1 GENERAL

1.01 SUMMARY

A. Fill in information:

Date:
TO:
OWNER NAME & ADDRESS:
FROM:
BIDDER NAME & ADDRESS

1.02 GENERAL

A. Pursuant to, and in compliance with, the Procurement and Contracting Requirements, Conditions of the Contract, relative thereto and all of the Contract Documents, including any Addenda issued by the Architect and mailed or delivered to the undersigned prior to the opening of Bids, whether received by the undersigned or not,
we,_____

1. having visited the site and being familiar with all conditions and requirements of the Work, hereby propose to furnish all plant, labor, supplies, materials and equipment incidental to FIRE SPRINKLER CONSTRUCTION WORK as required by and in strict accord with the applicable provisions of the Drawings and Specifications entitled 2024 Bond: Phase 1- OHS Locker Room & CTE Addition all to the satisfaction and approval of the Architect and the Owner in accordance with the terms and conditions of the Contract Documents for the following sum:

	DOLLARS
($	)
BASE BID	

1.03 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 45 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid.

1. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.04 TIME OF COMPLETION

A. It is agreed by the undersigned that after receipt of a Notice of Award and a consummation of a Contract Agreement in accord with the terms of the Contract Documents, he or she will start work within 10 consecutive calendar days of the notice to proceed and fully complete the work by as indicated in the Contract Documents.

1.05 ALLOWANCES (REFERENCE SPECIFICATION SECTION 012100)

A. Specified Allowance as indicated in Specification Section 012100. This amount is to be included in the Base Bid above.
   1. Allowance No. FSC-00; (General Allowance)

$	(Insert Amount)

1.06 BID SECURITY

A. Bid Security in the form of a Certified or Cashier's Check or a Bid Bond in the form required by the Contract Documents is attached to and made a part of this Proposal.

1.07 IRAN DIVESTMENT ACT CERTIFICATION

A. Contractor to submit with the bid, Iran Divestment Act Certification which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.08 CERTIFICATION UNDER EXECUTIVE ORDER NO. 16

A. Contractor to submit with the bid, Certification under Executive Order No. 16 which hereto is made a part of this Form of Proposal and is attachd at the end of this Form of Proposal.

1.09 NEW YORK STATE DEPARTMENT OF LABOR CONTRACTOR REGISTRY

A. Pursuant to New York State Department of Labor requirements, Contractor to submit with the bid, a copy of their Contractor Certificate of Registration along with, Labor Law 220-i Certification Form which hereto is made a part of this Form of Proposal and is attached at the end of this Form of Proposal.

1.10 REPRESENTATIONS

A. By submitting this Proposal the Bidder represents and certifies to the Owner and the Architect that
   1. It has examined the Contract Documents, the site of the proposed Work, is familiar with the local conditions at the place where the Work is to be performed and fully comprehends the requirements and intent of the plans and specifications for this Project in accordance with the drawings, specifications and other Contract Documents prepared by CPL the Owners Consultant, for this Project.
   2. It has examined and reviewed, where applicable, all information and data in the Contract Documents related to existing underground facilities at or contiguous to the site. Bidder shall require of the Owner or Architect no further investigations, explorations, tests or reports with respect to such underground facilities in order for the Bidder to perform the Work of the Proposal within the Contract Time and in accordance with the Contract Documents.
   3. It has given notice to the Architect, as required by the Contract Documents of any and all discrepancies it has discovered and accepts the resolution of those discrepancies offered by the Architect.
   4. Pursuant to New York State General Municipal Law section 103-d, by submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:

a. The prices in this bid have been arrived at independently without collusion, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
b. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not be knowingly disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or competitor; and
c. No attempt has been made or will be made by bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
d. The proposal is based upon the materials, equipment and systems required by the Contract Documents, without exception, unless otherwise set forth in this Proposal in detail.

1.11 CHANGE ORDERS

A. We propose and agree that the above lump sum shall be adjusted for changes in the Contract Work not included in unit prices by addition of the following costs:
   1. Profit and overhead as permitted in the General Conditions.

1.12 NON-COLLUSIVE BIDDING CERTIFICATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of knowledge and belief:
   1. The prices in this bid have been arrived at independently without collusion, consultation, communication, or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;
   2. Unless otherwise required by law, the prices which have been quoted in this bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and
   3. No attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

1.13 ACCEPTANCE

A. When this Proposal is accepted, the undersigned agrees to enter into a Contract with the Owner as provided in the Form of Agreement.

1.14 AFFIRMS

A. The undersigned affirms and agrees that this Proposal is a firm one which remains in effect and will be irrevocable for a period of forty-five (45) days after opening of Bids.

1.15 TYPE OF BUSINESS

A. The undersigned hereby represents that it is a (select with circle):
   1. Corporation, Partnership, Individual.
   2. If a Corporation, then the undersigned further represents that it is duly qualified as a Corporation under the laws of New York State and it is authorized to do business in this State.

1.16 PLACE OF BUSINESS

A. The following is the name and address of the person to whom all notices required in connection with this Proposal may be telephoned, mailed, or delivered.

Name of Contact Person:	
Name of Business or Firm:	
Address:	
Address:	
Telephone:	Fax
Email Address:	
FEIN: Federal Employer Identification No.:	

1.17 EXECUTION OF CONTRACT

A. When written Notice of Acceptance of the Proposal is mailed or delivered to the undersigned within forty-five (45) days after the opening of Bids, or anytime thereafter should the Proposal not be withdrawn, the undersigned, within ten (10) days, will execute the Form of Agreement with the Owner.

1.18 ADDENDA

A. Any addenda issued by the Architect and mailed or delivered to the undersigned prior to the Bid opening date shall become part of the Contract Documents. The Bidder shall enter on this list any addenda issued after this Form of Proposal has been received and shall fill in the addenda number and date.

Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:
Addendum #	Dated:

1.19 ASBESTOS

A. The bidder certifies that no asbestos or asbestos-containing materials will be incorporated into the Work of this Contract.

1.20 AUTHORIZED SIGNATURES FOR PROPOSALS

Individual or Legal Name of Firm or Corporation:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
If Corporation – provide Seal:

1.21 IRAN DIVESTMENT ACT CERTIFICATION

A. By submission of this bid, (DL & AV Equip 1315), or by assuming the responsibility of a Contract awarded hereunder, each bidder and each person signing on behalf of any bidders, certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. That each bidder/contractor/assignee is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list created pursuant to paragraph (b) subdivision 3 of section 165-a of the New York State Finance Law and posted on the OGS website at http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List. Additionally, Bidder/Contractor is advised that should it seek to renew or extend a Contract awarded in response to the solicitation, it must provide the same certification at the time the Contract is renewed or extended. (See Article in the Instructions to Bidders.)
2.

Individual or Legal Name of Firm or Corporation:
Mailing Address:
Signature of Representative of Firm or Corporation:
Printed Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

1.22 SEXUAL HARASSMENT POLICY/TRAINING AFFIRMATION

A. By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all its employees.

Name of Contractor:	
Name of Business or Firm:	
Address:	
Telephone:	Fax
Email Address:	
Signature and Title of Contractor:	
Date:	

CERTIFICATION UNDER EXECTUIVE ORDER NO. 16

PROHIBITING STATE AGENCIES AND AUTHORITIES FROM CONTRACTING WITH BUSINESSES CONDUCTING BUSINESS IN RUSSIA

Executive order No. 16 provided that"all Affected State Entities are directed to refrain from entering into any new contract or renewing any existing contract with an entity conducting business operations in Russia." The complete text of the Executive Order No. 16 can be found at the following website; https://ogs.ny.gov/EO-16.

The Executive Order remains in effect while sanctions imposed by the federal government are in effect. Accordingly, vendors who may be excluded from ward becasue of current businees operations in Russia are nevertheless encouraged to respond to solicitations to preserve their contracting opportunities in case the sanctions are lifted during a solicitation or even after award in the case of some solicitations.

As defined in Exectuive Order No. 16, an entity conducting business operation in Russia" means an institution or company, wherever located, conducting any cmmerical activity in Russia or transacting business with the Russian Government or with commerical entities headquartered in Russia or with their prinicipal place of business in Russia in the form of contracting, sales, purchasing, investment, or any business partnership.

Is vender an entity conducting business operations in Russia, as defined above? Please answer by circling one of the following numbers:

1.	No, Vender does not conduct business operations in Russia within the meaning of Executive Order No. 16
2.a.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but has taken steps to wind down business operations in Russia or is in the process of winding down business operations in Russia. (Please provide a detailed description of the wind down process and a schedule for completion).
2.b.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16 but only to the extend necessary to provide vital health and safety services within Russia or to comply with federal law, regulations, executive orders, or directives. (Please provide a detailed description of the services being procided or the revelant laws, regulations, etc.).
3.	Yes, Vendor conducts business operations in Russia within the meaning of Executive Order No. 16.

The undersigned certifies under penalties of perjury that they are knowledgeable about the Vendor's business and operations and that the answer provided herein is true to the best of their knowledge and behalf.

Vender Name:
(legal entity) _____
By:
(signature) _____
Name: _____
Title: _____
Date: _____

LABOR LAW 220-I CERTIFICATION FORM

By submission of this bid, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that :

1. The Bidder is registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Labor Law, and
2. Each of the subcontractors engaged by the BIdder for this Project will be registered before commencing work.

Bidder further represents that;

1. A copy of the Bidder's Certificate of Registration issued by the Commissioner of the Department of Labor is attacehd to this Bid.
2. All Subcontractors will submit a copy of their Certificate of Registration issued by the Commissioner of the Department of Labor before commencing work.

Project:
Individual or Legal Name of Bidder or Corporation:
Bidder Address:
Signature of Representative of Bidder or Corporation:
Print Name and Title:
Date:
SWORN to before me this date:
Notary Public Signature and Stamp:

END OF SECTION

SECTION 004500
QUALIFICATION STATEMENT

PART 1 GENERAL

1.01 SUMMARY

A. Attached is AIA Document A305-2020, Contractor's Qualification Statement with its associated Exhibits A through E attached.
   1. AIA Document A305-2020 is a standard form of Contractor's Qualification Statement. It is used by an owner preparing to request bids or to award a contract for construction project to verify the background, references, and financial stability of any contractor being considered.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

AIA® Document A305® – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:
(Organization name and address.)

SUBMITTED TO:
(Organization name and address.)

TYPE OF WORK TYPICALLY PERFORMED
(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:
(Check all that apply.)

[ ] Exhibit A – General Information
[ ] Exhibit B – Financial and Performance Information
[ ] Exhibit C – Project-Specific Information
[ ] Exhibit D – Past Project Experience
[ ] Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION
The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

_____ _____
Organization's Authorized Representative Signature **Date**

_____
Printed Name and Title

NOTARY
State of:
County of:
Signed and sworn to before me this day of

_____
Notary Signature

My commission expires:

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

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AIA® Document A305® – 2020 Exhibit A

General Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

§ A.1 ORGANIZATION
§ A.1.1 Name and Location
§ A.1.1.1 Identify the full legal name of your organization.

§ A.1.1.2 List all other names under which your organization currently does business and, for each name, identify jurisdictions in which it is registered to do business under that trade name.

§ A.1.1.3 List all prior names under which your organization has operated and, for each name, indicate the date range and jurisdiction in which it was used.

§ A.1.1.4 Identify the address of your organization's principal place of business and list all office locations out of which your organization conducts business. If your organization has multiple offices, you may attach an exhibit or refer to a website.

§ A.1.2 Legal Status
§ A.1.2.1 Identify the legal status under which your organization does business, such as sole proprietorship, partnership, corporation, limited liability corporation, joint venture, or other.

.1 If your organization is a corporation, identify the state in which it is incorporated, the date of incorporation, and its four highest-ranking corporate officers and their titles, as applicable.

.2 If your organization is a partnership, identify its partners and its date of organization.

.3 If your organization is individually owned, identify its owner and date of organization.

ADDITIONS AND DELETIONS:
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.4 If the form of your organization is other than those listed above, describe it and identify its individual leaders:

§ A.1.2.2 Does your organization own, in whole or in part, any other construction-related businesses? If so, identify and describe those businesses and specify percentage of ownership.

§ A.1.3 Other Information

§ A.1.3.1 How many years has your organization been in business?

§ A.1.3.2 How many full-time employees work for your organization?

§ A.1.3.3 List your North American Industry Classification System (NAICS) codes and titles. Specify which is your primary NAICS code.

§ A.1.3.4 Indicate whether your organization is certified as a governmentally recognized special business class, such as a minority business enterprise, woman business enterprise, service disabled veteran owned small business, woman owned small business, small business in a HUBZone, or a small disadvantaged business in the 8(a) Business Development Program. For each, identify the certifying authority and indicate jurisdictions to which such certification applies.

§ A.2 EXPERIENCE

§ A.2.1 Complete Exhibit D to describe up to four projects, either completed or in progress, that are representative of your organization's experience and capabilities.

§ A.2.2 State your organization's total dollar value of work currently under contract.

§ A.2.3 Of the amount stated in Section A.2.2, state the dollar value of work that remains to be completed:

§ A.2.4 State your organization's average annual dollar value of construction work performed during the last five years.

§ A.3 CAPABILITIES

§ A.3.1 List the categories of work that your organization typically self-performs.

§ A.3.2 Identify qualities, accreditations, services, skills, or personnel that you believe differentiate your organization from others.

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§ A.3.3 Does your organization provide design collaboration or pre-construction services? If so, describe those services.

§ A.3.4 Does your organization use building information modeling (BIM)? If so, describe how your organization uses BIM and identify BIM software that your organization regularly uses.

§ A.3.5 Does your organization use a project management information system? If so, identify that system.

§ A.4 REFERENCES

§ A.4.1 Identify three client references:
(Insert name, organization, and contact information)

§ A.4.2 Identify three architect references:
(Insert name, organization, and contact information)

§ A.4.3 Identify one bank reference:
(Insert name, organization, and contact information)

§ A.4.4 Identify three subcontractor or other trade references:
(Insert name, organization, and contact information)

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AIA® Document A305® – 2020 Exhibit B

Financial and Performance Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

ADDITIONS AND DELETIONS:
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§ B.1 FINANCIAL

§ B.1.1 Federal tax identification number:

§ B.1.2 Attach financial statements for the last three years prepared in accordance with Generally Accepted Accounting Principles, including your organization's latest balance sheet and income statement. Also, indicate the name and contact information of the firm that prepared each financial statement.

§ B.1.3 Has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, been the subject of any bankruptcy proceeding within the last ten years?

§ B.1.4 Identify your organization's preferred credit rating agency and identification information.
(Identify rating agency, such as Dun and Bradstreet or Equifax, and insert your organization's identification number or other method of searching your organization's credit rating with such agency.)

§ B.2 DISPUTES AND DISCIPLINARY ACTIONS

§ B.2.1 Are there any pending or outstanding judgments, arbitration proceedings, bond claims, or lawsuits against your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A, Section 1.2, in which the amount in dispute is more than $75,000?
(If the answer is yes, provide an explanation.)

§ B.2.2 In the last five years has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management:
(If the answer to any of the questions below is yes, provide an explanation.)

.1 failed to complete work awarded to it?

.2 been terminated for any reason?

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User Notes: (1802983257)

.3 had any judgments, settlements, or awards pertaining to a construction project in which your organization was responsible for more than $75,000?

.4 filed any lawsuits or requested arbitration regarding a construction project?

.5 not been awarded a contract for which you submitted the lowest bid? If you have answered yes, provide project name, contract description, contact information for project Owner, Architect and/or Construction Manager and reason for not being awarded the contract.

§ B.2.3 In the last five years, has your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management; or any of the individuals listed in Exhibit A Section 1.2:
(If the answer to any of the questions below is yes, provide an explanation.)

.1 been convicted of, or indicted for, a business-related crime?

.2 had any business or professional license subjected to disciplinary action?

.3 been penalized or fined by a state or federal environmental agency?

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AIA® Document A305® – 2020 Exhibit C

Project Specific Information

This Exhibit is part of the Contractor's Qualification Statement, submitted by and dated the day of in the year
(In words, indicate day, month and year.)

PROJECT:
(Name and location or address.)

CONTRACTOR'S PROJECT OFFICE:
(Identify the office out of which the contractor proposes to perform the work for the Project.)

TYPE OF WORK SOUGHT
(Indicate the type of work you are seeking for this Project, such as general contracting, construction manager as constructor, design-build, HVAC subcontracting, electrical subcontracting, plumbing subcontracting, etc.)

CONFLICT OF INTEREST
Describe any conflict of interest your organization, its parent, or a subsidiary, affiliate, or other entity having common ownership or management, or any of the individuals listed in Exhibit A Section 1.2, may have regarding this Project.

§ C.1 PERFORMANCE OF THE WORK
§ C.1.1 When was the Contractor's Project Office established?

§ C.1.2 How many full-time field and office staff are respectively employed at the Contractor's Project Office?

§ C.1.3 List the business license and contractor license or registration numbers for the Contractor's Project Office that pertain to the Project.

§ C.1.4 Identify key personnel from your organization who will be meaningfully involved with work on this Project and indicate (1) their position on the Project team, (2) their office location, (3) their expertise and experience, and (4) projects similar to the Project on which they have worked.

ADDITIONS AND DELETIONS:
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§ C.1.5 Identify portions of work that you intend to self-perform on this Project.

§ C.1.6 To the extent known, list the subcontractors you intend to use for major portions of work on the Project.

§ C.2 EXPERIENCE RELATED TO THE PROJECT

§ C.2.1 Complete Exhibit D to describe up to four projects performed by the Contractor's Project Office, either completed or in progress, that are relevant to this Project, such as projects in a similar geographic area or of similar project type. If you have already completed Exhibit D, but want to provide further examples of projects that are relevant to this Project, you may complete Exhibit E.

§ C.2.2 State the total dollar value of work currently under contract at the Contractor's Project Office:

§ C.2.3 Of the amount stated in Section C.2.2, state the dollar value of work that remains to be completed:

§ C.2.4 State the average annual dollar value of construction work performed by the Contractor's Project Office during the last five years.

§ C.2.5 List the total number of projects the Contractor's Project Office has completed in the last five years and state the dollar value of the largest contract the Contractor's Project Office has completed during that time.

§ C.3 SAFETY PROGRAM AND RECORD

§ C.3.1 Does the Contractor's Project Office have a written safety program?

§ C.3.2 List all safety-related citations and penalties the Contractor's Project Office has received in the last three years.

§ C.3.3 Attach the Contractor's Project Office's OSHA 300a Summary of Work-Related Injuries and Illnesses form for the last three years.

§ C.3.4 Attach a copy of your insurance agent's verification letter for your organization's current workers' compensation experience modification rate and rates for the last three years.

§ C.4 INSURANCE

§ C.4.1 Attach current certificates of insurance for your commercial general liability policy, umbrella insurance policy, and professional liability insurance policy, if any. Identify deductibles or self-insured retentions for your commercial general liability policy.

§ C.4.2 If requested, will your organization be able to provide property insurance for the Project written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis?

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§ C.4.3 Does your commercial general liability policy contain any exclusions or restrictions of coverage that are prohibited in AIA Document A101-2017, Exhibit A, Insurance A.3.2.2.2? If so, identify.

§ C.5 SURETY

§ C.5.1 If requested, will your organization be able to provide a performance and payment bond for this Project?

§ C.5.2 Surety company name:

§ C.5.3 Surety agent name and contact information:

§ C.5.4 Total bonding capacity:

§ C.5.5 Available bonding capacity as of the date of this qualification statement:

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AIA® Document A305® – 2020 Exhibit D

Contractor's Past Project Experience

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work
PROJECT DELIVERY METHOD	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:
SUSTAINABILITY CERTIFICATIONS				

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AIA® Document A305® – 2020 Exhibit E

Contractor's Past Project Experience, Continued

	1	2	3	4
PROJECT NAME				
PROJECT LOCATION				
PROJECT TYPE				
OWNER				
ARCHITECT				
CONTRACTOR'S PROJECT EXECUTIVE				
KEY PERSONNEL (include titles)				
PROJECT DETAILS	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work	Contract Amount Completion Date % Self-Performed Work
PROJECT DELIVERY METHOD	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:	☐ Design-bid-build ☐ Design-build ☐ CM constructor ☐ CM advisor ☐ Other:
SUSTAINABILITY CERTIFICATIONS				

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SECTION 004510
ASBESTOS NOTIFICATION

PART 1 GENERAL

1.01 SUMMARY

A. Attached Asbestos Notification form.
   1. The attached form shall be submitted to the Architect/Engineer by each Contractor in accordance with the Contract Documents prior to performing any work.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

ASBESTOS NOTIFICATION

THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA) REQUIRES SCHOOL DISTRICTS TO INFORM ALL NON-DISTRICT EMPLOYEES (CONTRACTORS, VENDORS, ETC.) WHO PERFORM SHORT TERM WORK IN A SCHOOL BUILDING OF THE LOCATIONS OF ANY KNOWN OR ASSUMED ASBESTOS CONTAINING BUILDING MATERIALS IN THE SCHOOL. EXPOSURE TO ASBESTOS FIBERS CAN BE HAZARDOUS TO ONE'S HEALTH AND TO THE HEALTH OF THE BUILDING OCCUPANTS. *PRECAUTIONS MUST BE TAKEN TO PREVENT THE DISTURBANCE OF ASBESTOS CONTAINING BUILDING MATERIALS*.

THE OWNER HAS AN ASBESTOS MANAGEMENT PLAN THAT INDICATES THE SPECIFIC LOCATIONS WHERE ASBESTOS IS KNOWN TO EXIST.

PLEASE PROCEED WITH CAUTION AND REMEMBER THAT THE OWNER'S BUILDINGS ARE FOR CHILDREN. NO WORK MAY BEGIN, UNTIL THE CONTRACTOR CERTIFIES, BY SIGNATURE BELOW, THAT THEY:

Have contacted the Owner's Facilities Director to inform him/her of the scope of work.

Have been informed by the Owner's Facilities Director of any known asbestos containing materials.

Will take adequate measures to prevent the disturbance of asbestos fibers to the largest extent possible.

Will inform any sub-contractors of the location of any asbestos containing materials and will require these sub-contractors to take adequate measures to prevent the disturbance of asbestos fibers.

Will immediately contact the Owner's Facilities Director if asbestos fibers are disturbed.

NAME OF CONTRACTOR (PRINTED)	
TITLE (PRINTED)	
ADDRESS OF CONTRACTOR (PRINTED)	
ADDRESS OF CONTRACTOR (PRINTED)	
SIGNATURE	**DATE**

SECTION 004970
HOLD HARMLESS AGREEMENT

A. **This form to be submitted with the Bid.**

Contractor will be required to sign the following "Hold Harmless" Agreement with the Ossining Union Free School District. Compliance with the foregoing requirements for insurance shall not relieve the contractor from liability set forth under the Indemnity Agreement.

The _____
(Name of Company)

hereby agrees to defend, indemnify and save harmless the Ossining Union Free School District from and against any and all liability, loss, damages, claims for bodily injury and/or property damages, cost and expense including counsel fees, to the extent permissible by law, arising out of the services provided for the contractor under the contract including but not limited to the transportation of individuals by the _____
(Name of Company)

its employees, agents, servants, and volunteers.

_____
Date

_____
Contractor/Bidder

_____
Seal - Signature of Authorized Officer
of Corporation, Partnership, etc.

SECTION 004980
INSURANCE CERTIFICATION FORM

PROJECT NO.: 66-14-01-03-0-003-047

NAME OF PROJECT: 2024 BOND: PHASE 1- OHS LOCKER ROOM & CTE ADDITION

Your insurance representative must complete the form below in order to be considered for the award of this bid or prohect, and it is important that you complete the Bidder's Acknowledgement section of this form. **Please note that this Insurance Certification form must accompany your bid submission in order for your bid to be considered.**

Insurance Representative's Acknowledgement:

We have reviewed the insurance requirements set forth in the Specification and AIA Document A132-2019 Exhibit A, Insurance and Bonds and are capable of providing such insurance to our insured in accordance with such requirements in the event the contract is awarded to our insured and provided our insured pays the appropriate preminum.

Insurance Representative:

_____

Address:

_____

_____

Are you an agent for the companies providing the coverage? Yes_____ No_____

Date: _____

_____

Insurance Repsentative's Signature

Bidder's Acknowledgement:

I acknowledge that I have received the insurance requirements of this bid and have considered the costs, if any, of procuring the required insurance and will be able to supply the insurance required in accordance with the bid, if it is awarded. I understand that this Insurance Certification form must be submitted with my bid and my inability to provide the required insurances may result in the regection of my bid, and the Ossining Union Free School District may award the contract to the next lowest/responsive bidder.

Firm Name: _____

Address: _____

_____

Date: _____

_____

Bidder's Signature

SECTION 005200
A132 AGREEMENT COVER(CMA)

PART 1 GENERAL

1.01 SUMMARY

A. The following is a “Standard Form of Agreement Between Owner and Contractor – Stipulated Sum, Construction Manager-Adviser Edition,” AIA Document A132 - 2019, is bound with this Section. AIA Document A232 – 2019 is a standard form of agreement between Owner and Contractor for use on projects where the basis of payment is a stipulated sum (fixed price), and where, in addition to the Contractor and the Architect, a Construction Manager assists the Owner in an advisory capacity during design and construction. The document has been prepared for use with A232 – 2019 , General Conditions of the Contract for Construction, Construction Manager-Adviser Edition. This integrated set of documents is for use on projects where the Construction Manager only serves in the capacity of an adviser to the Owner, rather than as constructor.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

DRAFT

AIA® Document A132® – 2019

Standard Form of Agreement Between Owner and Contractor,
Construction Manager as Adviser Edition

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month, and year.)

BETWEEN the Owner:
(Name, legal status, address, and other information)

«Ossining Union Free School District»« »
«400 Executive Boulevard»
«Ossining, NY 10562»
« »

and the Contractor:
(Name, legal status, address, and other information)

«»
« »

for the following Project:
(Name, location, and detailed description)

«OUFSD 2024 Bond – Phase 1_OHS Locker Room & CTE Addition»
«29 S Highland Ave»
«Ossining, NY 10562»

SED No.: 66-14-01-03-0-003-047

CPL Project No.: R24.16761.00

The Construction Manager:
(Name, legal status, address, and other information)

«Arris Contracting Company, Inc.»« »
«189 Smith Street»
«Poughkeepsie, NY 12601 »« »
« »

The Architect:
(Name, legal status, address, and other information)

« CPL Architects, Engineers and Landscape Architect, D.P.C.
d/b/a CPL»« »
«26 IBM Road »
«Poughkeepsie, NY 12601 »
« »

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser. AIA Document A232™–2019 is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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TABLE OF ARTICLES

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2 THE WORK OF THIS CONTRACT

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4 CONTRACT SUM

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7 TERMINATION OR SUSPENSION

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9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than Modifications, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND DATES OF SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[«X»] The date of this Agreement.

[« »] A date set forth in a notice to proceed issued by the Owner.

[« »] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

« »

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Intentionally Omitted.

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§ 3.4 When the Work of this Contract, or any Portion Thereof, is Substantially Complete

§ 3.4.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall substantially complete the entire Work of this Contract:
(Check one of the following boxes and complete the necessary information.)

[« »] Not later than « » (« ») calendar days from the date of commencement of the Work.

[« X »] By the following date: «See Section 01 11 00 »

§ 3.4.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work of this Contract are to be substantially complete prior to when the entire Work of this Contract shall be substantially complete, the Contractor shall substantially complete such portions by the following dates:

Portion of Work	Date to be substantially complete
Not Applicable	

§ 3.4.3 If the Contractor fails to substantially complete the Work of this Contract, or portions thereof, as provided in this Section 3.4, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:
(Check the appropriate box.)

[«X»] Stipulated Sum, in accordance with Section 4.2 below

[« »] Cost of the Work plus the Contractor's Fee, in accordance with Section 4.3 below

[« »] Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 4.4 below

(Based on the selection above, complete Section 4.2, 4.3 or 4.4 below.)

§ 4.2 Stipulated Sum

§ 4.2.1 The Contract Sum shall be « » ($ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2.2 Alternates

§ 4.2.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.2.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.2.4 Unit prices, if any:

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(Identify the item and state the unit price, and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any, to be assessed in accordance with Section 3.4.)

« »See section 8.4 of the AIA Document A232-2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, as revised for this Project.

§ 4.6 Other: Not Applicable
(Insert provisions for bonus, cost savings or other incentives, if any, that might result in a change to the Contract Sum.)

« »

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Construction Manager by the Contractor, and Certificates for Payment issued by the Construction Manager and Architect, the Owner shall make progress payments on account of the Contract Sum, to the Contractor, as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

« »

§ 5.1.3 Provided that an Application for Payment is received by the Construction Manager not later than the «5th» day of a month with all required supporting information and documentation required by the Contract Documents, the Owner shall make payment of the amount certified to the Contractor not later than the «7th» day of the «subsequent» month. If an Application for Payment is received by the Construction Manager after the application date fixed above, the Application for Payment will be deemed late. A late Application for Payment will be considered complete on the « 5th » day of the « subsequent » month and the Owner shall make payment of the amount certified to the Contractor not later than the « 7th » day of the « following » month.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Progress Payments Where the Contract Sum is Based on a Stipulated Sum

§ 5.1.4.1 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Construction Manager and Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.4.2 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.4.3 In accordance with AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, as revised for this Project, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.4.3.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

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.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.4.3.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A232–2019;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A232–2019;

.5 Retainage withheld pursuant to Section 5.1.7;

.6 The sum required by law to be held by the Owner for any lien(s) on public improvement filed against the Contract Sum that has not been released or discharged; and

.7 The sum required to be withheld by order of the NYSDOL or its commissioner or designated hearing officers.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to when the Work of this Contract is substantially complete, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

« **five percent (5%)**»

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

« **Not Applicable** »

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to when the entire Work of this Contract is substantially complete, including modifications for completion of portions of the Work as provided in Section 3.4.2, insert provisions for such modifications.)

« **Not Applicable** »

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, when the Work of this Contract is substantially complete, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The amount of this Application for Payment certified for payment shall not exceed the unpaid contract balance less (a) two times the value of any remaining items to be completed or corrected as determined by the Architect in consultation with the Construction Manager; (b) the sum required by law to be held for any lien(s) on public improvement filed against the Contract Sum of this Contractor that has not been released or discharged; (c) any sum required to be withheld by order or direction of the NYSDOL or its Commissioner or designated Hearing officer(s); and (d) an amount necessary to satisfy any other claims, liens or judgments against the Contractor or the Contract Sum that have not been suitably released or discharged.
(Insert any other conditions for release of retainage when the Work of this Contract is substantially complete, or upon Substantial Completion of the Work of all Contractors on the Project or portions thereof.)

« »

§ 5.2 Final Payment

§ 5.2.1 Final Payment Where the Contract Sum is Based on a Stipulated Sum

§ 5.2.1.1 Final payment, constituting the entire unpaid balance of the Contract Sum less any sum required by law to be withheld due to a lien(s) on public improvement filed with Owner against the Contractor that has not been released or

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discharged and less any sum required to be withheld by order or direction of the NYSDOL or its Commissioner or designated Hearing officer(s), shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A232–2019, and to satisfy other requirements, if any, which extend beyond final payment;

.2 the Contractor has submitted all close-out documents and materials and complied with all close-out requirements; and

.3 a final Certificate for Payment or Project Certificate for Payment has been issued by the Architect.

§ 5.2.1.2 The Owner's final payment to the Contractor less any sum required by law to be withheld due to a lien(s) on public improvement filed with Owner against the Contractor that has not been released or discharged and less any sum required to be withheld by order or direction of the NYSDOL or its Commissioner or designated Hearing officer(s) shall be made no later than 30 days after the issuance of the final Certificate for Payment or Project Certificate for Payment. After final payment, payment of any sums withheld due to a lien against a public improvement filed with the Owner against the Contractor will be made to the Contractor when the lien is discharged or released and payment of any sum withheld by order or direction of NYSDOL shall be paid as ordered or directed by the NYSDOL or its Commissioner or designated Hearing officer(s) or by court order.

« »

§ 5.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

two percent (2%) per annum

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as Initial Decision Maker pursuant to Article 15 of AIA Document A232–2019, as revised for this Project, unless the parties appoint by mutual agreement another individual, not a party to this Agreement, to serve as Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

« »
« »
« »
« »

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A232–2019, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[« »] Arbitration pursuant to Article 15 of AIA Document A232–2019.

[«X»] Litigation in a court of competent jurisdiction in Westchester County, New York.

[« »] Other: *(Specify)*

« »

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

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ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 Where the Contract Sum is a Stipulated Sum

§ 7.1.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A232–2019, as revised for this Project.

§ 7.1.1.1 If the Contract is terminated in whole or in part for the Owner's convenience in accordance with Article 14 of AIA Document A232–2019, as revised for this Project, then the Owner shall pay the Contractor for work executed in compliance with the Contract Documents prior to the date of termination as well as any costs incurred by the Contractor to implement Owner directed work to protect and preserve the Work completed by the Contractor prior to the notice of termination. The Contractor will not be entitled to payment of any other sums. The Contractor will not be entitled to any payment for the terminated portion of the Work and waives and forfeits any claim of damages, overhead and/or loss profits for the terminated portion of the Work.

« »

§ 7.1.2 The Work may be suspended, in whole or in part, by the Owner as provided in Article 14 of AIA Document A232–2019, as revised for this Project.

§ 7.1.3 The Contract may be terminated, in whole or in part, by the Owner for cause in accordance with Article 14 of AIA Document A232-2019, as revised for this Project.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to AIA Document A232-2019, it refers to it, as revised for this Project. Where reference is made in this Agreement to a provision of AIA Document A232–2019 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

«Jared Mance»
«Director of School Facilities, Operations & Maintenance»
«Ossining Union Free School District»
«400 Executive Boulevard»
«Ossining, NY 10562»
« »

§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

« »
« »
« »
« »
« »
« »

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, Exhibit A, Insurance and Bonds, as revised for this Project, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A132™–2019, Exhibit A, as revised for this Project, and elsewhere in the Contract Documents.

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§ 8.6 Notice shall be provided as set forth in section 1.6 of AIA Document A232-2019, as revised for this Project.

« »

§ 8.7 Not used.
§ 8.8 Other provisions:

«Not Applicable »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition, as revised for this Project

.2 AIA Document A132™–2019, Exhibit A, Insurance and Bonds Exhibit, as revised for this Project

.3 AIA Document A232™–2019, General Conditions of the Contract for Construction, Construction Manager as Adviser Edition, as revised for this Project

.4 Not used.

« »

.5 Drawings

Number	Title	Date
Project Manual Section 000115	List of Drawings	

.6 Specifications

Section	Title	Date	Pages
Project Manual Section 000110	Table of Contents		

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[« »] AIA Document A132™–2019, Exhibit B, Determination of the Cost of the Work

[« »] AIA Document E235™–2019, Sustainable Projects Exhibit, Construction Manager as Adviser Edition, dated as indicated below:
(Insert the date of the E235-2019 incorporated into this Agreement.)

« »

[« »] The Sustainability Plan:

Title	Date	Pages

[« »] Supplementary and other Conditions of the Contract:

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Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A232–2019 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

«The Contract Documents also include the Advertisement or Invitation to Bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, portions of Addenda relating to bid requirements, and the Contractor's Payment and Performance bonds.»

This Agreement is entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
« »« »	« »« »
(Printed name and title)	*(Printed name and title)*

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DRAFT AIA® Document A132® – 2019 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the « » day of « » in the year « »
(In words, indicate day, month, and year.)

for the following **PROJECT**:
(Name and location or address)

«OUFSD 2024 Bond – Phase 1_OHS Locker Room & CTE Addition»
«29 S Highland Ave»
Ossining, NY 10562

SED No.: 66-14-01-03-0-003-047

CPL Project No,: R24.16761.00

THE OWNER:
(Name, legal status, and address)

«Ossining Union Free School District»« »
«400 Executive Boulevard»
Ossining, NY 10562

THE CONTRACTOR:
(Name, legal status, and address)

«

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A232™–2019, General Conditions of the Contract for Construction as revised for this Project.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A232™–2019, General Conditions of the Contract for Construction. Article 11 of A232™–2019 contains additional insurance provisions

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§ A.2.2 Liability Insurance
The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

§ A.2.3 Required Property Insurance
§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to false work and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's, Construction Manager's, and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures
If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

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§ A.2.4 Intentionally Omitted.

§ A.2.5 Intentionally Omitted.

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. These certificates and the insurance policies required by this Section shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the Owner. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment. An additional certificate evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates will show the Owner, Architect and Construction Manager as an additional insured on the Contractor's Commercial General Liability, Auto Liability and excess or umbrella liability policy or policies. The certificate of insurance must describe all services provided by the contractor (e.g., roofing, carpentry or plumbing) that are covered by the liability policies. A fully completed New York Construction Certificate of Liability Insurance Addendum (ACORD 855 2014/15) must be included with the certificates of insurance. For any "Yes" answers on Items G through L on this Addendum, additional details must be provided in writing. Policy exclusions may not be accepted. At the Owner's request, the Contractor shall provide a copy of the declaration page of the liability and umbrella/excess policies with a list of endorsements and forms. If requested, the Contractor will provide a copy of the policy endorsements and forms. There will be no coverage restrictions and/or exclusions involving New York State Labor Law statutes or gravity related injuries. No policies containing escape clauses or exclusions contrary to the Owner's interests will be accepted.

§ A.3.1.1.1 Notice of Cancellation or Expiration of Contractor's Required Insurance Within not less than twenty (20) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice directly to the Owner, and separately to the Construction Manager, of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor and indemnify the Owner, Architect and Construction Manager for applicable deductibles and self-insured retentions.

§ A.3.1.3 Additional Insured Obligations. To the fullest extent permitted by law, the Contractor shall cause the commercial general liability coverage to include (1) the Owner, the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner and Construction Manager as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's, Architect's and Construction Manager's general liability, auto liability and umbrella/excess insurance policies and shall apply to both ongoing and completed operations and provide coverage for the Owner, its Board of Education, employees and volunteers, Architect and Construction Manager, including a waiver of subrogation in favor of the Owner, Architect and Construction Manager for all coverages including Workers Compensation. Additional insured status for General Liability coverage shall be provided by standard or other endorsements that extend coverage to the Owner, Architect and Construction Manager for on-going operations (CG 20 38 or equivalent) and products and completed operations (CG 20 37 or equivalent). The decision to accept an endorsement rests solely with the Owner. A completed copy of the endorsements must be attached to the Certificate(s) of Insurance to include General Liability, Auto Liability and Umbrella/Excess coverages. To the extent commercially

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available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 38, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, and the Construction Manager and the Construction Manager's consultants, CG 20 32 07 04. All insurance policies provided by the Contractor are required to include Primary and Non-contributory Additional Insured coverage to the Owner, Architect & Construction Manager, except for OCP, Workers Compensation and New York State Disability. All insurance policies provided by the Contractor are required to include a Waiver of Subrogation in favor of the Owner, Architect & Construction Manager, including Workers Compensation and excepting OCP..

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an A.M. Best A-rated or better insurance company or insurance companies licensed and admitted to conduct business in New York State and to issue insurance in New York State. A New York licensed and admitted insurer is required. The specific insurance requirements shall be written for not less than limits of liability specified by the Owner or required by law, whichever coverage is greater. A New York licensed and admitted insurer is required. Contractor acknowledges that failure to obtain the insurance required herein on behalf of the Owner constitutes a material breach of contract and subjects it to liability for damages, indemnification and all other legal remedies available to the Owner. The Contractor is to provide the Owner with a certificate of insurance, evidencing the requirements herein have been met, prior to the commencement of the Contractor's work. The failure of the Owner to object to the contents of the certificate or the absence of same shall not be deemed a waiver of any rights held by the Owner. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.2.1.2 Subcontractors are subject to the same terms and conditions of insurance as Contractors as stated in this AIA Document A132-2019 Exhibit A and must submit same to the Owner for approval prior to the start of any work.

.1 In the event a Contractor fails to obtain the required certificates of insurance from their Subcontractors and a claim is made or suffered, the Contractor shall indemnify, defend, and hold harmless the Owner, its Board of Education, employees, volunteers, Architect and Construction Manager from any and all claims for which the insurance required of the Subcontractor(s) would have provided coverage. This indemnity obligation is in addition to any other indemnity obligation provided in the Contract.

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than « one million dollars » ($ «1,000,000. ») each occurrence, «2,000,000. » ($ « two million dollars ») general aggregate, and «2,000,000. » ($ « two million dollars ») aggregate for products-completed operations hazard, «one million dollars » ($ «1,000,000. ») personal and advertising injury, «one hundred thousand dollars » ($ «100,000. ») fire damage, «ten thousand dollars » ($ «10,000. ») medical expense, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

.2 personal injury and advertising injury;

.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;

.4 bodily injury or property damage arising out of completed operations; and

.5 the Contractor's indemnity obligations under Section 3.18 of the General Conditions.

.6 the general aggregate shall apply on a per-project basis.

Products and completed operations coverage must remain in effect for three years after Project completion and acceptance of the work performed by the Contractor.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

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.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.
.3 Claims for bodily injury other than to employees of the insured.
.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.
.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.
.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.
.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.
.8 Claims related to roofing, if the Work involves roofing.
.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.
.10 Claims related to earth subsidence or movement, where the Work involves such hazards.
.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, hired, borrowed and non-owned vehicles used, by the Contractor, with combined single policy limits of not less than « one million dollars » ($ «1,000,000. ») per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.4.1 Umbrella Excess Liability:
$5,000,000 each Occurrence and Aggregate for general construction and no work at elevation (1 story or 10 feet) and contract values less than or equal to $1,000,000.
$10,000,000 each Occurrence and Aggregate for construction contract values greater than $1,000,000.
$10,000,000 each Occurrence and Aggregate for high-risk construction, work at elevation (>1 story or 10 feet).
Umbrella/Excess coverage shall be on a follow-form basis or provide broader coverage over the General Liability and Auto Liability coverages.

§ A.3.2.5 Workers' Compensation and NYS Disability Insurance
Statutory Workers' Compensation (C-105.2 or U-26.3); and NYS Disability Insurance (DB-120.1) for all employees. Proof of coverage must be on the approved specific form, as required by the New York State Workers' Compensation Board. ACORD certificates are not acceptable. A person seeking an exemption must file a CE-200 Form with the state. The form can be completed and submitted directly to the WC Board online.

§ A.3.2.6 Employers' Liability with policy limits not less than ($ «1,000,000») per each accident, «and» ($ «1,000,000») each employee.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, see Section A.3.3.2.6.1.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, see Section A.3.3.2.3.

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§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies licensed and admitted to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:

(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

« »

§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.

(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[« »] **§ A.3.3.2.1** If there is only one Contractor performing the Work on the Project, property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:

(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

« »

[« »] **§ A.3.3.2.2 Railroad Protective Liability Insurance**, with policy limits of not less than « » ($ « ») per claim and « » ($ « ») in the aggregate, for Work within fifty (50) feet of railroad property.

[« X »] **§ A.3.3.2.3 Asbestos Abatement/Lead Abatement/Pollution Liability Insurance**, if applicable. Such insurance shall include products and completed operations and coverage for the Contractor's operations including, but not limited to, removal, replacement, enclosure, encapsulation and/or disposal of asbestos, or any other hazardous material, along with any related pollution events, including coverage for third-party liability claims for bodily injury, property damage and clean-up costs. If a retroactive date is used, it shall pre-date the inception of the Contract. The limits applicable shall be the greater of the amounts indicated or the amounts carried by the Contractor:

.1 If covered by the Contractor's umbrella/excess liability policy, two million ($2,000,000) each occurrence and two million ($2,000,000) aggregate

.2 If NOT covered by the Contractor's umbrella/excess liability policy, six million ($6,000,000) each occurrence and six million ($6,000,000) aggregate

.3 If the Contractor is using motor vehicles for transporting hazardous materials, the Contractor shall maintain pollution liability broadened coverage (ISO Endorsement CA 9948 or CA 01 12), as well as proof of MCS 90. Coverage shall fulfill all requirements of these specifications and shall extend for a period of three (3) years following acceptance by the Owner of the Certificate of Completion.

[« »] **§ A.3.3.2.4** Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

[« »] **§ A.3.3.2.5** Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

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[« X »] **§ A.3.3.2.6 Other Insurance**

§ A.3.3.2.6.1 Testing Company Errors and Omission Insurance, if applicable, for the testing and other professional acts of the Contractor performed under the Contract with the Owner.
With policy limits not less than $1,000,000 per occurrence/$2,000,000 aggregate.

[« X »] § A.3.3.2.6.2 Cyber Insurance The Contractor must carry coverage applicable to first- and third-party claims, arising from a cyber incident that could impact the Owner's data that the Contractor may have in their possession. Limits shall be the greater of those carried by the Contractor or $250,000 per incident and $250,000 in the aggregate. If coverage is on a claims-made basis, coverage must have a retroactive date no later than the date of agreement with the Owner and provide coverage for two years following the date of Final Completion of the Project. The Cyber policy must be with a NYS licensed carrier.

[« X »] § A.3.3.2.6.3 Owners Contractors Protective (OCP) Insurance

.1 For projects less than or equal to $1,000,000 and work on 1 story (10 feet) only:
$1,000,000 per occurrence, $2,000,000 aggregate with the Owner as the Named Insured, no Additional Insureds on any OCP Policies.

.2 For projects greater than $1,000,000 or work over 1 story (10 feet):
$2,000,000 per occurrence, $4,000,000 aggregate with the Owner as the Named Insured, no Additional Insureds on any OCP Policies.

.3 The OCP Policy must be with a New York State licensed and admitted carrier.

§ A.3.4 Performance Bond and Payment Bond

§ A.3.4.1 The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located. The Contractor shall furnish a Performance Bond and Labor and Material Payment Bond meeting all statutory requirements of the jurisdiction where the Project is located, in form and substance satisfactory to the Owner and, without limitation, complying with the following specific requirements:

.1 Except as otherwise required by statute, the form and substance of such bonds shall be satisfactory to the Owner in the Owner's sole judgment.

.2 Bonds shall be executed by a responsible surety licensed in the jurisdiction where the Project is located, with a Best's rating of no less than A/XII, and shall remain in effect for a period not less than two (2) years following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer.

.3 The Performance Bond and the Labor and Material Payment Bond shall each be in an amount equal to the Contract Sum and shall be adjusted during the Project to reflect increases in the Contract Sum.

.4 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of his power-of-attorney indicating the monetary limit of such power.

.5 Every Bond provided pursuant to this Subparagraph A3.4.1 must display the Surety's Bond Number and be modified to include the following text or shall incorporate the following text through a Rider attached to each Bond:

(i) The Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Any addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder, and notice to the Surety of such matters is hereby waived.

(ii) The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignee of the Owner.

(iii) Surety further agrees that in event of any default by the Owner in the performance of the Owner's obligations to the Contractor under the Contract, the Contractor or Surety shall cause written notice of such default (specifying said default in detail) to be given to the Owner, and the Owner shall have fourteen (14) days from receipt of such notice within which to cure such default, or such additional reasonable period of time as may be required if the nature of such default is such that it cannot be cured within fourteen (14) days. Such Notice of Default shall be sent by certified or registered U.S. mail, return receipt requested, first class postage prepaid, to the Owner.

.6 Bonds shall be written on the most recent edition of the AIA Document 312, Payment Bond and Performance Bond.

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User Notes: (1481470576)

.7 If the surety on any Bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 11.4.1 Contractor shall within ten days thereafter substitute another Bond and surety, both of which must be acceptable to Owner.

.8 Contractor shall deliver Bonds to the Construction Manager or Architect together with executed Construction Contract (A132-2019) and the Bonds shall be dated the same date as Contract or a date later than the date of the Contract.

§ A.3.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

«N/A»

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SECTION 006000
PROJECT FORMS AND RELATED DOCUMENTS

PART 1 GENERAL

1.01 SUMMARY

A. This Section lists the project forms used for administration of the project as well as documents used for administration and logistics.

1.02 FORMS

A. The following forms are contained within the conditions of the contract section:
   1. FRONT END SUBMISSION LOG
   2. REQUEST FOR INFORMATION (RFI) FORM
   3. SUBCONTRACTOR LIST
   4. ALLOWANCE DISBURSEMENT AUTHORIZTION FORM
   5. SUBSTITUTION REQUEST FORM
   6. SUBMITTAL COVER
   7. INFORMATION BULLETIN
   8. ELECTRONIC DOCUMENT TRANSFER AGREEMENT
   9. AIA FORMS (Forms provided are samples. Original AIA Documents shall be used):
      a. Performance Bond (AIA Document A312-2010).
      b. Payment Bond (AIA Document A312-2010).
      c. Application and Certificate for Payment, Construction Manager as Adviser Edition (AIA G732).
      d. Continuation Sheet (Document G703-1992)
      e. Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706).
      f. Contractor's Affidavit of Release of Liens (AIA Document G706A).
      g. Consent of Surety to Final Payment (AIA Document G707).
      h. Work Changes Proposal Request (AIA Document G709).
      i. Architect's Supplemental Instructions (AIA Document G710).
      j. Change Order, Construction Manager Edition (AIA Document G731-2019)
      k. Construction Change Directive, Construction Manager as Adviser Edition (AIA Document G733-2019)
      l. Certificate of Substantial Completion, Construction Manager as Adviser Edition (AIA Document G734-2019)

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PROCEDURES

A. **Front End Submission Log**: This document is a checklist of the required submissions. Refer to Bidding Requirements, Section entitled “Instructions to Bidders” and Division 1, Specification Section entitled “SUBMITTAL PROCEDURES” for submission procedures.

B. **Request For Information (RFI) Form:** This form is to be used for information requests. The forms are filled out by any party to the contract and sent to the Architect/Engineer. The Architect/Engineer shall number RFI before processing.

C. **Subcontractor List:** This document is to be used identify subcontractors. The forms are filled out by each Prime Contractor for all proposed subcontractors and sent to the Architect/Engineer in accordance with. Division 1, section entitled “SUBMITTAL PROCEDURES”

D. **Allowance Disbursement Authorization Form:** the Architect/Engineer shall issue this document after all parties have agreed to the conditions of change to be charged to the Allowance Amount in accordance with Division 1, section entitled “ALLOWANCES”, if required.

E. **Substitution Request Form:** This document is to be used for a Contractor to propose substitutions. The forms are filled out by each Prime Contractor and sent to the Architect/Engineer in accordance with. Division 1, section entitled “SUBMITTAL PROCEDURES” and “PRODUCT REQUIREMENTS”.

F. **Submittal Cover:** This document is to be used for submittal submissions. The forms are filled out by each Prime Contractor and sent to the Architect/Engineer in accordance with. Division 1, section entitled “SUBMITTAL PROCEDURES”

G. **Information Bulletin:** The Architect/Engineer shall issue this document for 3 actions.
   1. PROPOSAL REQUEST: A quotations for changes in the Contract Sum and / or proposed modifications to the Contract Documents
   2. SUPPLEMENTAL INSTRUCTIONS: Instructions for changes to the Contract Documents without additional cost or time
   3. CONSTRUCTION CHANGE AUTHORIZATION: A directive to immediately proceed with changes to the work of the contract and to submit final cost for inclusion into a Change Order

H. **Electronic Document Transfer Agreement:** This document is used by a Contractor to request the transfer of electronic files, other than PDF's, for purposes including, but not limited to, creating coordination drawings.

END OF SECTION

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FRONT END SUBMISSION LOG

OUFSD_24BD_PH 1 – HS LKR RM & CTE ADDITION: R24.16761.00

Contractor Name: _____

SUBMISSIONS

Submission	Date Submitted	Date Approved	Remarks
Contract:			
Schedule of Values:			
Bonds:			
Insurance:			
Workers Compensation:			
Automobile Insurance:			
Safety Program:			
Schedule:			
Submittal Schedule:			
Emergency Contact:			
Substitution List:			
Subcontractor List:			
Project Manager:			
Superintendent:			

This log is to be used by the contractor to monitor and complete the required front-end submissions.

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Poughkeepsie, NY 12601
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800.274.9000 TEL

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REQUEST FOR INFORMATION	RFI #:
	Date:

OUFSD_24BD_PH 1 – HS LKR RM & CTE Addition: R24.16761.00

Contractor Name: _____

To: _____ Firm: _____

From: _____

WE REQUEST YOUR ATTENTION (OR CONFIRMATION) REGARDING THE FOLLOWING:

Subject: _____

_____

Location: _____

_____

Information is Requested By: _____

MESSAGE: _____

Contractors Name: _____

By: _____ Date: _____

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SUBCONTRACTOR LIST

OUFSD_24BD_PH 1 – HS LKR RM & CTE Addition: R24.16761.00

To: **CPL**
26 IBM Road
Poughkeepsie, NY 12601

From:
(Contractor) _____

_____

Contractors
No.: _____

Contract For: _____

List Subcontractors proposed for use on this Project as required by the Construction Documents. Attach supplemental sheets if necessary.

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: _____ Section Title: _____
Firm
Name: _____ Contact: _____
Address: _____

Section
No.: Section Title:

☐ Attachment(s)

Signed by: _____ Date: _____

Copies: ☐ **Owner** ☐ **Consultants** ☐ File
☐ ☐ ☐

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ALLOWANCE DISBURSEMENT AUTHORIZATION

Owner	
Architect/Engineer	
Contractor	
Field	
Other	
Other	

OUFSD_24BD_PH 1 – HS LKR RM & CTE ADDITION: R24.16761.00

Allowance Disbursement No. _____ Initiation Date: _____

Contract For: _____

_____

To Contractor: _____

_____

Contract Date: _____

Not valid until signed by Owner, Architect/Engineer, [Construction Manager] and Contractor.

The Original Contract Allowance _____

Net Allowance Disbursements previously authorized _____

Charges to Contract Allowance as a result of this authorization

Current Contract Allowance Balance including this authorization _____

Owner:
Ossining Union Free School District

Architect/Engineer:
CPL

Contractor:
<**Contractor's Name**>

Construction Manager:
Arris Contracting Company, Inc.

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Poughkeepsie, NY 12601
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SUBSTITUTION REQUEST FORM

OUFSD_24BD_PH 1 – HS LKR RM & CTE ADDITION: R24.16761.00

To:
CPL
26 IBM Road
Poughkeepsie, NY 12601

From:
(Contractor) _____

Re: _____ Substitution Request Number: _____

Contract For: _____

Specification Title: _____ Description: _____

Section Number: _____ Page: _____ Part/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Installer: Address: Phone:

History: ☐ New product ☐ 2-5 years old ☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

☐ Point-by-point comparative data attached

Reason for not providing specified item: _____

Similar Installation:

Project: _____ Architect/Engineer: _____

Contractor: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work:

☐ No

☐ Yes, explain _____

Savings to Owner for accepting substitution: _____ ($ _____)

Proposed substitution changes Contract Time:

☐ Yes; explain ☐ No ☐ Yes [Add] [Deduct] _____ days

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted By: _____

Signed By: _____

Firm: _____

Address _____

_____

_____

Phone: _____

Attachments: _____

_____

_____

REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 013300.

☐ Substitution approved as noted - Make submittals in accordance with Specification Section 013300.

☐ Substitution rejected - Use specified materials.

☐ Substitution Request received too late - Use specified materials.

Signed By: _____ Date: _____

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ Architect/Engineer ☐ _____

_____

_____

_____

_____

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SUBMITTAL COVER

(Attach to each submittal)

#
Submittal No. Contractor only

Architect Project Number: R24.6761.00
Contractors Number:
Project Name: OUFSD_24BD_PH 1 – HS LKR RM & CTE Addition

Contractor:
Address:
Phone / Fax: ( )

Date returned:

TYPE OF SUBMITTAL
(Check one)

☐ Product Data ☐ Color Selection ☐ O&M Manual
☐ Shop Drawings ☐ Sample ☐ Record Document
☐ Other

SUBSTITUTION ☐ **YES** ☐ **NO**
See General Conditions

DATE OF SUBMITTAL:

RESUBMITTED:

NUMBER OF ATTACHED:

PRODUCT IDENTIFICATION

Specification Section No.:
Contract Dwg. No.:
Product Name:
Part/Paragraph:
Detail Reference:
Manufacturer:

CONTRACTOR APPROVAL

Identify that this submittal has been reviewed and approved by the Contractor in accordance with the General Conditions

By: Date:

Deviation from Contract Documents:

Contractor Comments:

FOR USE BY CPL

SHOP DRAWING

☐ No Exception Taken ☐ Revise & Resubmit
☐ Furnish as Corrected ☐ Rejected

Corrections or comments made on the shop drawings during this review do not relieve the Contractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The Contractor is responsible for: confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe satisfactory manner.

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Date:_____ By: _____

Architect's Comments:

RECEIVED STAMP

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Poughkeepsie, NY 1260
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INFORMATION BULLETIN

PROJECT:	Ossining UFSD 2024 Bond: PH 1 HS LKR RM & CTE Addition	INFORMATION BULLETIN NO.: DATE:	
OWNER:	Ossining Union Free School District	CPL PROJECT NO.:	R24.16761.00
CONTRACTOR:		CONTRACT NO.: CONTRACT DATE:	

DESCRIPTION:

ATTACHMENT(S):

ACTION

☐ 1. *PROPOSAL REQUEST:* Submit an itemized quotation for changes in the Contract Sum and/or time required to implement the above proposed modifications to the Contract Documents. This is not authorization to proceed with the work.

☐ 2. *SUPPLEMENTAL INSTRUCTIONS:* Implement the above instructions without change to the Contract Sum and/or Time. Prior to proceeding, indicate acceptance below and return one copy to the Architect.

☐ 3. *CONSTRUCTION CHANGE AUTHORIZATION:* Proceed with the above described changes to the Contract Documents immediately. Submit final costs and/or change in Contract Time for inclusion in a subsequent Change Order.

Methods: ☐ Lump Sum ☐ Unit Price ☐ Time & Material Not-to-Exceed

Change in Contract Sum of _____

Change in Contract Time of _____ days

ISSUED:	ACCEPTED:	AUTHORIZED:
BY:_____	BY:_____	BY:_____
Architect Date Required for Actions 1,2,3	Owner Date Required for Action 3	Contractor Date Required for Actions 2,3

☐ Owner ☐ Architect ☐ Structural ☐ Civil
☐ Contractor ☐ Field ☐ Mechanical/Electrical ☐ Other (Roofing)

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ELECTRONIC DOCUMENT TRANSFER AGREEMENT

DATE:		**PROJECT #:**	R24.16761.00
PROJECT NAME	Ossining UFSD_24BD_PH 1 – HS LKR RM & CTE Addition	**CLIENT / LOCATION**	Ossining Union Free School District
COMPANY REQUESTING AND RECEIVING FILES:		**PERSON REQUESTING:**	
DESCRIPTION OF FILES:		**REASON FOR FILES:**	

1. The requested electronic file(s) (the "Files") remain the property of and are owned by CPL.
2. The Files are not Contract Documents. The use of the Files to alter or revise the scope of work is not permitted.
3. CPL makes no warranties or guarantees that the Files represent or reflect the complete scope of work and/or as-built condition, and CPL assumes no responsibility for data files supplied in electronic format. Such data is provided as a courtesy only.
4. The Company requesting the Files and users of the Files accept full responsibility for verifying the accuracy and completeness of the Files.
5. Files in Revit/Building Information Model format: Unless express written consent of CPL is given through the implementation of a Project Building Information Modeling Protocol Form (AIA® Document G202™ or similar); the information contained within the Files was compiled for the purposes of creating the contract documents and are graphic representations of approximate locations of materials. Therefore, information contained within these files should not be assumed to be accurate and users of the Files accept full responsibility for verifying the accuracy and completeness of the Files with field conditions and the contract documents.
6. Shop drawings shall not be based on reproduction of the contract documents or standard printed data. This includes reproductions of the Files, unless express written consent is given of CPL through the implementation of a Project Building Information Modeling Protocol Form.
7. The Company requesting the Files agrees to defend, indemnify and hold harmless CPL, its officers, employees, consultants, and agents from any claims or damages arising from the use of the Files.
8. In the event that any of the Files contain electronic copies of drawings with permits or professional seals, the Company requesting the Files shall immediately notify CPL and destroy such Files.
9. No use shall be made of the Files for any purpose other than that for which they were originally intended without the express written consent of CPL.
10. No retransmission of the Files in any form to third parties is permitted unless authorized in writing by CPL.
11. The handling fee for the time and effort it will take CPL Lee to deliver the requested Files is $150.00. Under no circumstances shall delivery of the Files be considered a sale by CPL.

Having read and understood the terms set forth in paragraphs 1-11 above, and in consideration of CPL providing electronic files, the undersigned agrees to be bound by these terms.

_____ _____

Signature of Authorized Representative Date

_____

Print Name and Title

The requested electronic files will only be released upon CPL's receipt of a signed Electronic Document Transfer Agreement by a duly authorized representative of the company requesting and receiving the files. CPL reserves the right to deny any request for copies of electronic files.

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Poughkeepsie, NY 12601
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AIA® Document A312® – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

Sample

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- **.1** have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- **.2** have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

Sample

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§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

Sample

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§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

Sample

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

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AIA® Document A312® – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

Sample

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

Sample

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§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

Sample

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§ 16 Modifications to this bond are as follows:

Sample

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

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AIA® Document G732® – 2019

Application and Certificate for Payment, Construction Manager as Adviser Edition

TO OWNER:

PROJECT:

APPLICATION NO:

DISTRIBUTION TO:

OWNER ☐
CONSTRUCTION MANAGER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

PERIOD TO:

CONTRACT DATE:

PROJECT NOS: / /

FROM CONTRACTOR:

VIA CONSTRUCTION MANAGER:

CONTRACT FOR:

VIA ARCHITECT:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM ..... $

2. NET CHANGES IN THE WORK ..... $

3. CONTRACT SUM TO DATE *(Line 1 ± 2)* ..... $

4. TOTAL COMPLETED AND STORED TO DATE *(Column G on G703)* ..... $

5. RETAINAGE:

a. _____ % of Completed Work
(Column D + E on G703) $

b. _____ % of Stored Material
(Column F on G703) $

Total Retainage *(Lines 5a + 5b, or Total in Column I on G703)* ..... $

6. TOTAL EARNED LESS RETAINAGE ..... $
(Line 4 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT .....
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE ..... $

9. BALANCE TO FINISH, INCLUDING RETAINAGE
(Line 3 minus Line 6) $

SUMMARY OF CHANGES IN THE WORK	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this month, including Construction Change Directives	$	$
TOTALS	$	$
NET CHANGES IN THE WORK	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:
County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires: _____

CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on evaluations of the Work and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

CONSTRUCTION MANAGER:

By: _____ Date: _____

ARCHITECT: *(NOTE: If multiple contractors are responsible for performating portions of the Project, the Architect's Certification is not required.)*

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

Sample

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AIA® Document G703® – 1992

Continuation Sheet

AIA Document G702®, Application and Certificate for Payment, or G732™, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached. Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED		MATERIALS PRESENTLY STORED *(Not in D or E)*	TOTAL COMPLETED AND STORED TO DATE *(D+E+F)*	% *(G ÷ C)*	BALANCE TO FINISH *(C – G)*	RETAINAGE *(If variable rate)*
			FROM PREVIOUS APPLICATION *(D + E)*	THIS PERIOD					
	GRAND TOTAL								

Sample

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AIA® Document G706® – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

TO OWNER: *(Name and address)*

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

STATE OF:

COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707™, Consent of Surety to Final Payment, may be used for this purpose.
   Indicate attachment: ☐ Yes ☐ No

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof
3. Contractor's Affidavit of Release of Liens (AIA Document G706A™)

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

Sample

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AIA® Document G706®A – 1994

Contractor's Affidavit of Release of Liens

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

TO OWNER: *(Name and address)*

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

STATE OF:

COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:

My Commission Expires:

Sample

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AIA® Document G707™ – 1994

Consent of Surety to Final Payment

PROJECT: *(Name and address)*

ARCHITECT'S PROJECT NUMBER:

CONTRACT FOR:

CONTRACT DATED:

OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
SURETY ☐
OTHER ☐

TO OWNER: *(Name and address)*

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

, SURETY,

on bond of
(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

(Surety)

(Signature of authorized representative)

Attest:
(Seal)

(Printed name and title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

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040511 ACD44

Sample

AIA® Document G709™ – 2018

Proposal Request

PROJECT: *(name and address)*:	**CONTRACT INFORMATION:** Contract For: Date:	Architect's Project number: Proposal Request Number: Proposal Request Date:
OWNER: *(name and address):*	**ARCHITECT:** *(name and address):*	**CONTRACTOR:** *(name and address):*

The Owner requests an itemized proposal for changes to the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. The Contractor shall submit this proposal within _____ (___) days or notify the Architect in writing of the anticipated date of submission.

(Insert a detailed description of the proposed modifications to the Contract Documents and, if applicable, attach or reference specific exhibits.)

Sample

THIS IS NOT A CHANGE ORDER, A CONSTRUCTION CHANGE DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS.

REQUESTED BY THE ARCHITECT:

_____

PRINTED NAME AND TITLE

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AIA® Document G710™ – 2017

Architect's Supplemental Instructions

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: Date:	**ASI INFORMATION:** ASI Number: Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

The Contractor shall carry out the Work in accordance with the following supplemental instructions without change in Contract Sum or Contract Time. Proceeding with the Work in accordance with these instructions indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.
(Insert a detailed description of the Architect's supplemental instructions and, if applicable, attach or reference specific exhibits.)

ISSUED BY THE ARCHITECT:

ARCHITECT *(Firm name)*

SIGNATURE

PRINTED NAME AND TITLE

DATE

Sample

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AIA® Document G731™ – 2019

Change Order, Construction Manager as Adviser Edition

PROJECT: *(name and address)*:

CONTRACT INFORMATION:
Contract For:
Date:

CHANGE ORDER INFORMATION:
Change Order Number:
Date:

OWNER: *(name and address):*

ARCHITECT: *(name and address):*

CONSTRUCTION MANAGER: *(name and address):*

CONTRACTOR: *(name and address):*

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original (Contract Sum) (Guaranteed Maximum Price) was	$
Net change by previously authorized Change Orders	$
The (Contract Sum) (Guaranteed Maximum Price) prior to this Change Order was	$
The (Contract Sum) (Guaranteed Maximum Price) will be (increased) (decreased) (unchanged) by this Change Order in the amount of	$
The new Contract Sum including this Change Order will be	$

The Contract Time will be (increased) (decreased) (unchanged) by ( ) days.
The Contractor's Work shall be substantially complete on

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONSTRUCTION MANAGER, CONTRACTOR, AND OWNER.

ARCHITECT *(Firm name)*	**CONSTRUCTION MANAGER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**
CONTRACTOR *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**
DATE:	**DATE:**

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Sample

AIA® Document G733™ – 2019

Construction Change Directive, Construction Manager as Adviser Edition

PROJECT: *(name and address)*:	**CONTRACT INFORMATION:** Contract For: Date:	**CERTIFICATE INFORMATION**: Certificate Number: Date:
OWNER: *(name and address):*	**ARCHITECT:** *(name and address):*	**CONSTRUCTION MANAGER:** *(name and address):*
CONTRACTOR: *(name and address)*		

The Contractor is hereby directed to make the following change(s) in this Contract:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits.)

PROPOSED ADJUSTMENTS

1. The proposed basis of adjustment to the Contract Sum or Guaranteed Maximum Price is:

- ☐ Lump Sum (increase) (decrease) of $
- ☐ Unit Price of $ per
- ☐ Cost, as defined below, plus the following fee:
  (Insert a definition of, or method for determining, cost)
- ☐ as follows:

2. The Contract Time is proposed to (be adjusted) (remain unchanged). The proposed adjustment, if any, is (an increase of days) (a decrease of days).

Signature by the Contractor indicates the Contractor's agreement with the proposed adjustments in Contract Sum and Contract Time set forth in this Construction Change Directive.
CONTRACTOR *(Firm name)*
SIGNATURE
PRINTED NAME AND TITLE
DATE:

NOTE: The Owner, Construction Manager, Architect, and Contractor should execute a Change Order to supersede this Construction Change Directive to the extent they agree upon adjustments to the Contract Sum, Contract Time, or Guaranteed Maximum price for the change(s) described herein.

When signed by the Owner, Construction Manager and Architect and received by the Contractor, this document becomes effective IMMEDIATELY as a Construction Change Directive (CCD), and the Contractor shall proceed with the change(s) described above.

OWNER *(Firm name)*	**CONSTRUCTION MANAGER** *(Firm name)*	**ARCHITECT** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
DATE	**DATE**	**DATE**

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Sample

AIA® Document G734™ – 2019

Certificate of Substantial Completion, Construction Manager as Adviser Edition

PROJECT: *(name and address)*:	**CONTRACT INFORMATION:** Contract For: Date:	**CERTIFICATE INFORMATION**: Certificate Number: Date:
OWNER: *(name and address):*	**ARCHITECT:** *(name and address):*	**CONSTRUCTION MANAGER:** *(name and address):*

CONTRACTOR(S):
(Enter names and addresses for all Contractors)

The Work identified below has been reviewed and found, to the Construction Manager's and Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work of all of the Contractors, or designated portion thereof, is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project, or portion thereof designated below, is the date established by this Certificate
(Identify the Work of all of the Contractors, or portion thereof, that is substantially complete.)

For all Contractors, the date of Substantial Completion of the Project, or portion thereof, is:
(Insert the date of Substantial Completion for all Contractors of the Work described above.)

CONSTRUCTION MANAGER *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**
ARCHITECT *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**

WARRANTIES
The date of Substantial Completion of the Project, or portion designated above, is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:
(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED
A list of items to be completed or corrected by each of the Contractors, including a cost estimate, is attached hereto or transmitted as agreed upon by the parties, and identified as follows:
(Attach a list of items to be completed or corrected by each of the Contractors and provide an identification of each list.)

The failure to include any items on such list does not alter the responsibility of a Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached lists will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. Each Contractor will complete or correct the Work on the appropriate list of items attached hereto within ( ) days from the above date of Substantial Completion.

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Sample

As of the date of Substantial Completion, the Owner shall be responsible for security, maintenance, heat, utilities, damage to the Work, and insurance, except as noted below:
(Identify any responsibilities that are assigned to the Contractors.)

(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**
OWNER *(Firm Name)*	**SIGNATURE**	**PRINTED NAME AND TITLE**	**DATE**

Sample

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SECTION 006005
VILLAGE OF OSSINING DPW PERMIT APPLICATION

PART 1 GENERAL

1.01 SUMMARY

A. This Section with its referenced attachments is part of the Procurement and Contracting Requirements for the Project. They provide Owner's information for Bidders convenience and are intended to supplement rather than serve in lieu of Bidder's own investigations. They are made available for Bidder's convenience and information, but are not a warranty of existing conditions. This Document and its attachements are part of the Contract Documents and are requirements that the Contractor must adhear to.

1.02 FORMS

A. The following permit application is appended to this section:
   1. Village of Ossining DPW Application for Permit to obstruct and/ or do work on and within the Village of Ossining Right of Way area.

B. All aforementioned permits must be posted at the specified location of work prior to mobilization and must be visible at all times.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PROCEDURES

A. Village of Ossining DPW Application for Permit to Obstruct and/ or do work on and within the Village of Ossining Right of Way area: The contractor is required to apply for this permit before commencing any work in/ on Village of Ossining right of way areas. The contractor is required to pay all permit fees and meet all Village of Ossining insurance requirements.

END OF SECTION

VILLAGE OF OSSINING

DEPARTMENT OF PUBLIC WORKS

JOHN-PAUL RODRIGUES OSSINING OPERATION CENTER
P.O. Box 1166
Ossining, N.Y. 10562

Paul Fraioli, P.E.
Village Engineer

Phone (914) 941-4660
Fax (914) 923-3011

Andrew W. Tiess
Superintendent of Water

APPLICATION FOR PERMIT TO OBSTRUCT AND/OR DO WORK ON AND WITHIN THE VILLAGE OF OSSINING RIGHT OF WAY AREA

PERMIT FEE: $ 75.00 DEPOSIT $_____ DATE: _____

HIGHWAY PERMIT # _____ ROAD NAME: _____

Application is hereby made for permission, under Village of Ossining Local Law, to obstruct or to enter upon, construct, or open a road or sidewalk in the Village of Ossining road system as follows:

APPLICANT'S INFORMATION

NAME: _____ TELEPHONE #_____

ADDRESS: _____ CELL #: _____

_____ FAX #: _____

LOCATION AND DESCRIPTION OF WORK SITE

Name of Road_____ Location of Road _____

Tax Map Designation of Property -- Sec _____ Plate_____ Block_____ Lot_____

Size of Opening _____ Depth _____

Work To Be Started _____ Work to Be Completed _____

Is Pavement To Be Disturbed? _____ If Yes, What Type? _____

Sidewalk _____ Shoulder Area _____

PURPOSE OF APPLICATION:

_____

Building Department Signature Needed For:

_____

Sewer Permit ____ _____

Curb Cut ____ _____

Scaffolding ____ _____

Two copies of a sketch showing location of work, size of opening(s), and giving distance to nearest street intersection are required. State Owner for who work is being performed:

_____

OWNER ADDRESS TELEPHONE #

NO WORK SHALL BEGIN UNTIL A SIGNED PERMIT IS RECEIVED BY APPLICANT

ROOLOFFS/DUMPSTERS MUST BE EQUIPPED WITH "TYPE A" WARNING LIGHTS ON ALL SIDES

SEE ATTACHED REQUIREMENTS FOR GENERAL LIABILITY, WORKERS' COMPENSATION AND DISABILITY INSURANCES.

In consideration of granting of the permit, the undersigned hereby accepts the same subject to the restrictions and regulations herein described in the attached Terms/Conditions and Specifications.

Dig Safely. New York
Know what's below.
Call 811 before you dig.

_____
(Signature of Applicant)

_____
(Print Name)

CASE NO: _____

_____
(Date)

TERMS AND CONDITIONS
PERMIT TODO WORK ON AND WITHIN VILLAGE OF OSSINING RIGHT-OF-WAYS

Effective Period of Permit: Permit shall be valid for the effective period shown on the application and shall not exceed 30 consecutive calendar days. The effective period of the Permit may be extended, if so requesting in writing by the Permittee prior to the expiration of the effective period and if said request is approved by the Director or his duly authorized representative(s).

Cash Bond Required: The Permittee shall post a cash bond deposit with his or her Permit Application in order to guarantee all permitted work is completed to Village specifications. The Director or his duly authorized representative(s) shall determine the amount of the deposit.

Additional Cash Bond Required if Work Exceeds Permit Application: When the Permittee exceeds the maximum authorized size of an opening or scope of work specified in his or her Permit, the Permittee shall, before proceeding with the work, pay to the Village such additional amounts of deposit as the director or his duly authorized representative(s) may require. Failure of the Permittee to comply promptly with this requirement will be considered sufficient cause for revocation of the Permit.

Village to Maintain Cash Bond: The Village shall maintain said deposit for the period of maintenance, which is defined as a period of six months after the date of final inspection by the General Foreman or his duly authorized representative(s).

General Foreman to be Notified: The Permittee shall notify the General Foreman, or his duly authorized representative(s), at least 24 hours prior to beginning permitted work and, on each occasion, prior to completing any backfills, pours or final repairs.

Protection of Vehicular and Pedestrian Traffic: The Permittee shall conduct all work and place all obstructions so as to cause a minimum of inconvenience and delay to vehicular and pedestrian traffic. The Permittee shall insure that vehicular and pedestrian traffic is protected from the permitted work and/or obstruction site by suitable warning flags, lights, signs, cones, etc. that represent highest industry standards.

Roll Offs and Dumpsters: All roll offs and dumpsters must be equipped with Type A warning lights on all sides.

Traffic Control Requirements: Where the free flow of traffic is interfered with, the Permittee with, the Permittee shall designate competent persons to direct and expedite traffic by means of lights or flags.

Maintenance of Vehicle Flow Required: Unless otherwise authorized by the Director or his duly authorized representative(s), the Permittee shall maintain vehicular traffic at all times during the progress of the permitted work. The Permittee shall not close any road to traffic without the express approval of the Director or his designated representative(s) at least 48 hours in advance.

Insurance Requirements: The Permittee shall, at all times during the course of permitted work, maintain a current Certificate of his or her Insurance with the Public Works Office. Said Certificate shall show General Liability Insurance, covering both Property Damage and Bodily Injury, in the amount of $1,000,000 each occurrence and, if applicable, $1,000,000 aggregate. The Certificate of Liability Insurance must show the Village of Ossining as Certificate Holder and as Additional Insured for the permitted work. Worker's Compensation Insurance & Disability Insurance also required.

Call Before You Dig: The Permittee must obtain a Code 753 (53) "call before you dig" case number at least 72 hours prior to beginning work by calling 1-800-962-7962. The Permittee shall indicate said case number on the Permit and shall not begin work until all utilities have been marked.

PERMIT TO DO WORK ON AND WITHIN VILLAGE OF OSSINING RIGHT-OF-WAYS

TERMS AND CONDITIONS (ADDENDUM)

REQUIEMENT FOR WORKERS' COMPENSATION AND DISABILITY PROOFS OF INSURANCE

New York State requires contractors seeking permits from municipalities to file proof of Workers' Compensation and Disability insurance coverage or, if not required, an approved affidavit waiver. ACORD forms are not acceptable proof of either workers' compensation or disability benefits insurance coverage.

Acceptable Proof of Workers' Compensation (WC) Coverage:

C-105.2 from insurance carrier OR
U-26.3 from State Insurance Fund OR
SI-12 WC Self-Insurance from Workers' Compensation Board OR
GSI-105.2 Group WC Self-Insurance from Group Self-Insurance Administrator

Acceptable Proof of Disability Benefits (DB) Coverage:

DB-120.1 from insurance carrier OR
DB-820/829 from insurance carrier OR
DB-155 Certificate of DB Self-Insurance from Workers' Compensation Board

Acceptable Affidavits that WC and DB Benefits Coverage is Not Required:

Certificate of Attestation of Exemption from New York State Workers' Compensation and/or Disability Benefits Coverage. (You may apply for this Certificate using Form CE-200APPLY or, to receive a Certificate immediately, apply on-line at www.wcb.state.ny.us).

The CE-200-Apply form must be stamped by the Workers' Compensation Board (WCB) and is valid for one year from the date of receipt by the WCB.

BP-1 Affidavit of Exemption to Show Specific Proof of Workers' Compensation Insurance coverage for a 1, 2, 3 or 4 Family, Owner-Occupied Residence (must meet criteria specified in the affidavit – does not require submittal to Compensation Board – MUST BE SUBMITTED FOR EACH PERMIT)

Except for the BP-1 form, all forms are valid for the coverage period shown, one year from the date of the Workers' Compensation Board stamp or, in the absence of either, one year from the date of the signed document.

Copy of the BP-1 exemption affidavit form is attached for your convenience.

Village office personnel are not permitted to assist you in completing any affidavit.

Affidavit of Exemption to Show Specific Proof of Workers' Compensation Insurance Coverage for a 1, 2, 3 or 4 Family, Owner-occupied Residence

This form cannot be used to waive the workers' compensation rights or obligations of any party.

Under penalty of perjury, I certify that I am the owner of the 1, 2, 3 or 4 family, **owner-occupied** residence (including condominiums) listed on the building permit that I am applying for, and I am not required to show specific proof of workers' compensation insurance coverage for such residence because (please check the appropriate box):

☐ I am performing all the work for which the building permit was issued.

☐ I am not hiring, paying or compensating in any way, the individual(s) that is(are) performing all the work for which the building permit was issued or helping me perform such work.

☐ I have a homeowners insurance policy that is currently in effect and covers the property listed on the attached building permit AND am hiring or paying individuals a total of less than 40 hours per week (aggregate hours for all paid individuals on the jobsite) for which the building permit was issued.

I also agree to either:

- acquire appropriate workers' compensation coverage and provide appropriate proof of that coverage on forms approved by the Chair of the NYS Workers' Compensation Board to the government entity issuing the building permit if I need to hire or pay individuals a total of 40 hours or more per week (aggregate hours for all paid individuals on the jobsite) for work indicated on the building permit, or if appropriate, file a CE-200 exemption form; OR
- have the general contractor, performing the work on the 1, 2, 3 or 4 family, **owner-occupied** residence (including condominiums) listed on the building permit that I am applying for, provide appropriate proof of workers' compensation coverage or proof of exemption from that coverage on forms approved by the Chair of the NYS Workers' Compensation Board to the government entity issuing the building permit if the project takes a total of 40 hours or more per week (aggregate hours for all paid individuals on the jobsite) for work indicated on the building permit.

_____ _____

(Signature of Homeowner) (Date Signed)

_____ Home Telephone Number _____

(Homeowner's Name Printed)

Property Address that requires the building permit:

_____

_____

_____

_____

Sworn to before me this _____ day of

_____, _____.

_____

(County Clerk or Notary Public)

Once notarized, this BP-1 form serves as an exemption for both workers' compensation and disability benefits insurance coverage.

LAWS OF NEW YORK, 1998
CHAPTER 439

The **general municipal law is amended by adding a new section 125** to read as follows:

125. ISSUANCE OF BUILDING PERMITS. NO CITY, TOWN OR VILLAGE SHALL ISSUE A BUILDING PERMIT WITHOUT OBTAINING FROM THE PERMIT APPLICANT EITHER:

1. PROOF DULY SUBSCRIBED THAT WORKERS' COMPENSATION INSURANCE AND DISABILITY BENEFITS COVERAGE ISSUED BY AN INSURANCE CARRIER IN A FORM SATISFACTORY TO THE CHAIR OF THE WORKERS' COMPENSATION BOARD AS PROVIDED FOR IN SECTION FIFTY-SEVEN OF THE WORKERS' COMPENSATION LAW IS EFFECTIVE; OR

2. AN AFFIDAVIT THAT SUCH PERMIT APPLICANT HAS NOT ENGAGED AN EMPLOYER OR ANY EMPLOYEES AS THOSE TERMS ARE DEFINED IN SECTION TWO OF THE WORKERS' COMPENSATION LAW TO PERFORM WORK RELATING TO SUCH BUILDING PERMIT.

Implementing Section 125 of the General Municipal Law

1. General Contractors -- Business Owners and Certain Homeowners

For **businesses and certain homeowners listed as the general contractors on building permits**, proof that they are in compliance with Section 57 of the Workers' Compensation Law (WCL) is **ONE** of the following forms that indicate that they are:

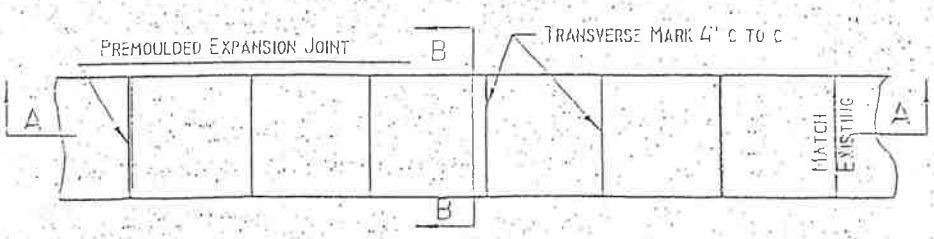
- insured (C-105.2 or U-26.3),
- self-insured (SI-12), or
- are exempt (CE-200),

under the mandatory coverage provisions of the WCL. Any residence that is not a **1, 2, 3 or 4 Family, Owner-occupied Residence** is considered a business (income or potential income property) and must prove compliance by filing one of the above forms.

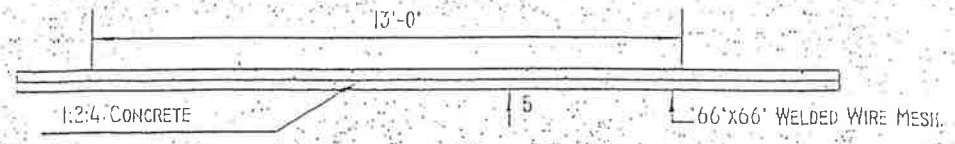
2. Owner-occupied Residences

For homeowners of a **1, 2, 3 or 4 Family, Owner-occupied Residence,** proof of their exemption from the mandatory coverage provisions of the Workers' Compensation Law when applying for a building permit is to file form BP-1.

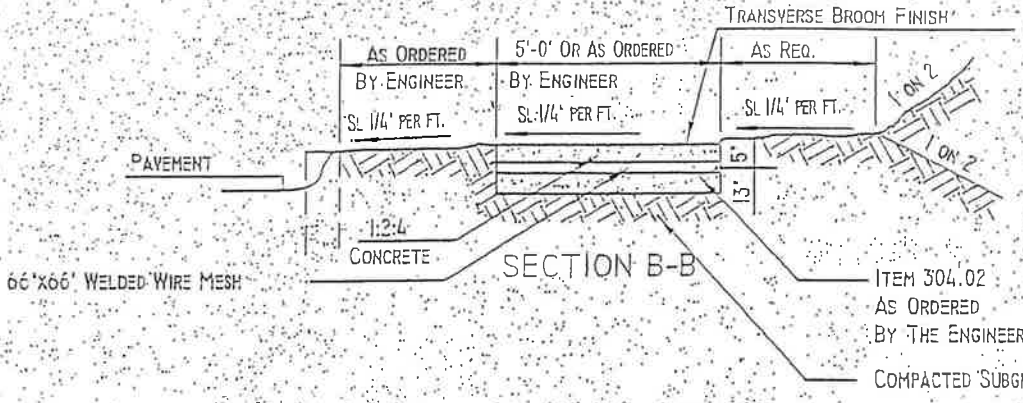
- Form BP-1shall be filed if the homeowner of a **1, 2, 3 or 4 Family, Owner-occupied Residence** is listed as the general contractor on the building permit, and the homeowner:
  - ◊ is performing all the work for which the building permit was issued him/herself,
  - ◊ is not hiring, paying or compensating in any way, the individual(s) that is(are) performing all the work for which the building permit was issued or helping the homeowner perform such work, or
  - ◊ has a homeowner's insurance policy that is currently in effect and covers the property for which the building permit was issued AND the homeowner is hiring or paying individuals a total of less than 40 hours per week (aggregate hours for all paid individuals on the jobsite) for the work for which the building permit was issued.
- If the homeowner of a **1, 2, 3 or 4 Family, Owner-occupied Residence** is hiring or paying individuals a total of **40 hours or MORE** in any week (aggregate hours for all paid individuals on the jobsite) for the work for which the building permit was issued, then the homeowner may not file the "Affidavit of Exemption" form, BP-1(11/04), but shall either:
  - ◊ acquire appropriate workers' compensation coverage and provide appropriate proof of that coverage on forms approved by the Chair of the NYS Workers' Compensation Board to the government entity issuing the building permit (the C-105.2 or U-26.3 form), OR
  - ◊ have the general contractor, (performing the work on the 1, 2, 3 or 4 family, **owner-occupied** residence (including condominiums) listed on the building permit) provide appropriate proof of workers' compensation coverage, or proof of exemption from that coverage on forms approved by the Chair of the NYS Workers' Compensation Board to the government entity issuing the building permit.



PLAN



SECTION A-A



SECTION B-B

NOTES:

1. CONCRETE SHALL BE NYSDOT SPECS CLASS A CONCRETE.
2. SIDEWALKS SHALL BE ~~6~~ 4 INCHES THICK ON A ~~6~~ 4 INCH BASE OF NYSDOT ITEM 304.02, WITH 6"x6" WELDED WIRE MESH.
3. DRIVEWAYS AND APRONS SHALL BE ~~8~~ 6 INCHES THICK, ON A 6 INCH BASE OF NYSDOT ITEM 304.02, WITH 6"x6" WELDED WIRE MESH.

CONCRETE SIDEWALK

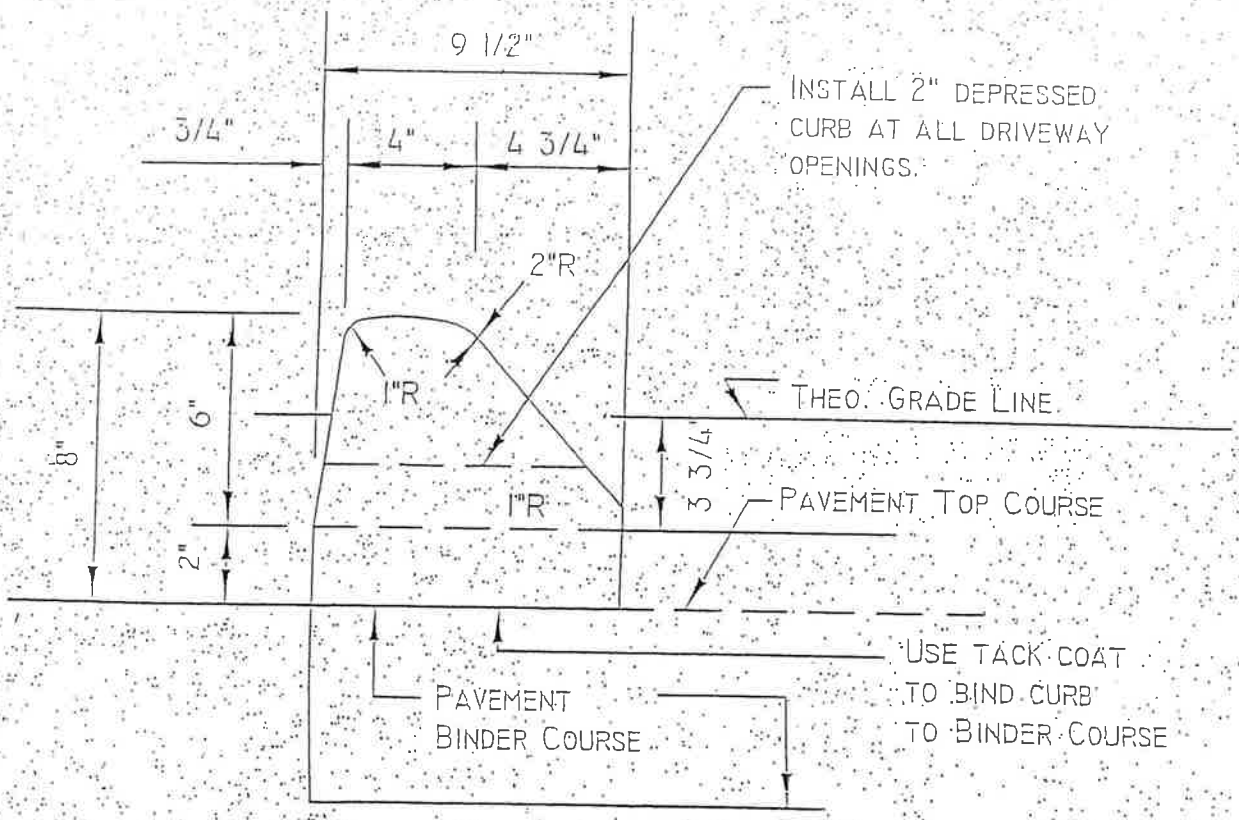
N.T.S.

NOTE:

1. CONCRETE SHALL BE N.Y.S.D.O.T. SPECS CLASS "A" CONCRETE.
2. DROP CURBS FOR DRIVEWAYS SHALL HAVE 1 1/2" REVEAL.

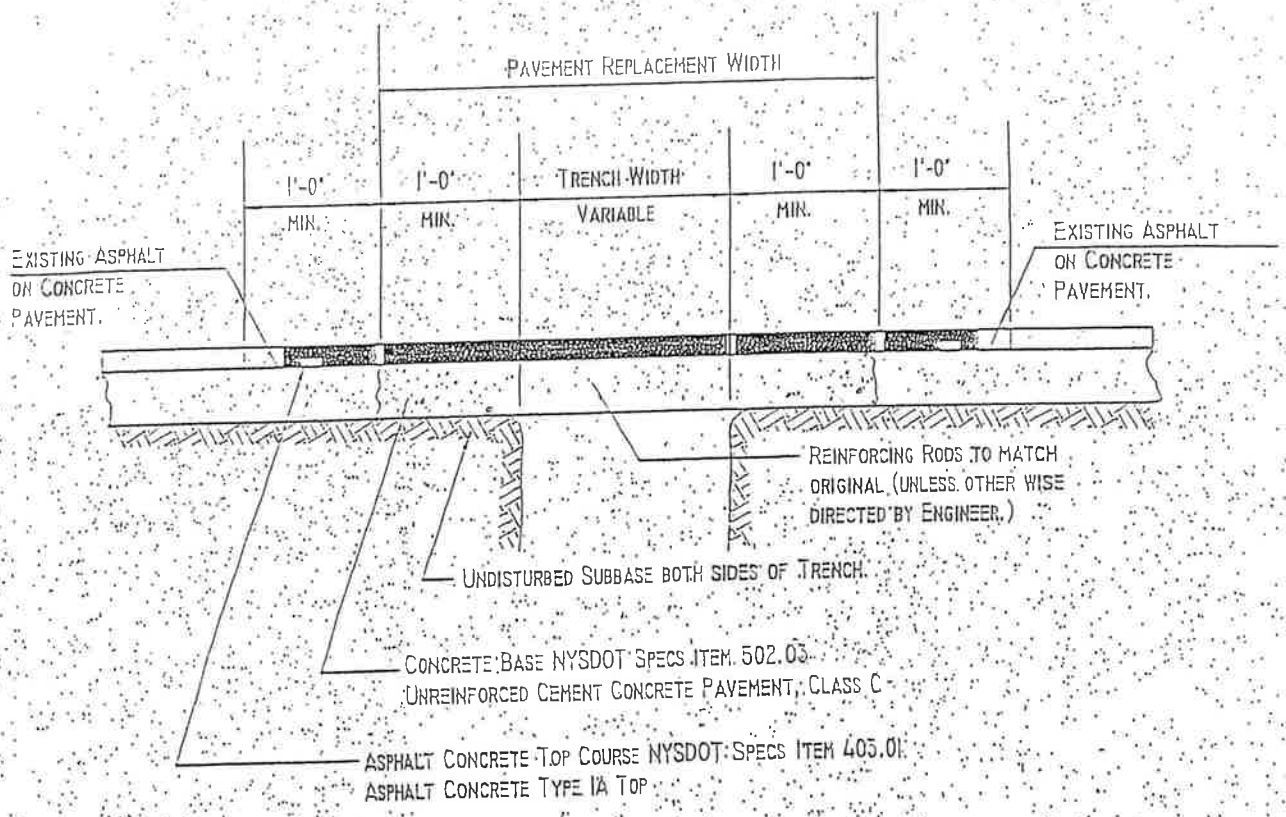
CONCRETE CURB DETAIL

N.T.S.



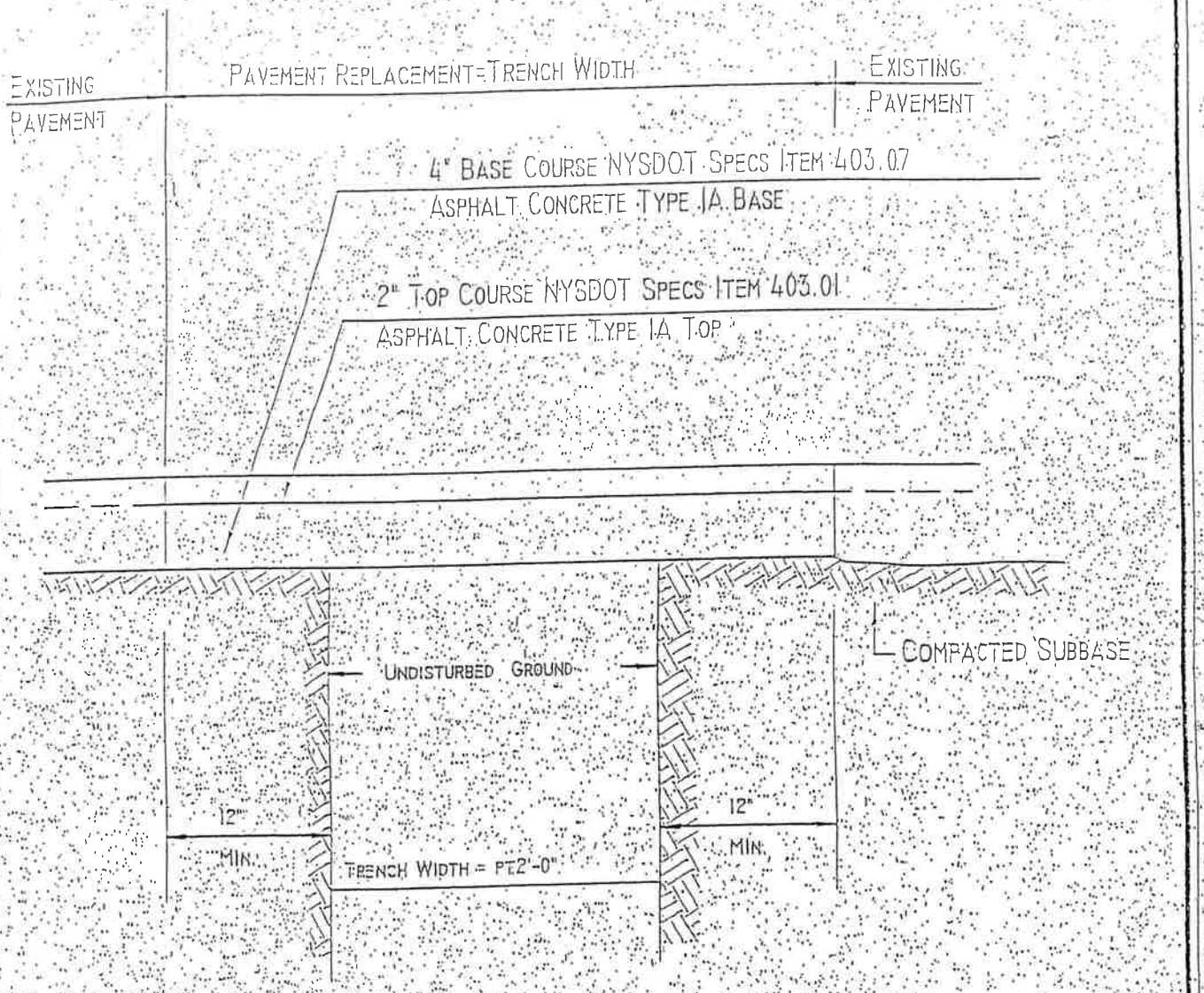
ASPHALT CURB DETAIL

N.T.S.



PAVEMENT REPLACEMENT – CONCRETE

N.T.S.



PAVEMENT REPLACEMENT - ASPHALT

N.T.S.

SECTION 007200
A232 GENERAL CONDITIONS COVER (CMA)

PART 1 - GENERAL

1.01 SUMMARY

A. The following are the “General Conditions of the Contract for Construction, Construction Manager – Advisor Edition”. AIA Document A232-2019, is bound with this Section. AIA Document A232-2019 sets forth the rights, responsibilities, and relationships of the Owner, Contractor, Architect and Construction Manager.

END OF SECTION

AIA® Document A232® – 2019

General Conditions of the Contract for Construction, *Construction Manager as Adviser Edition*

for the following PROJECT:
(Name, and location or address)

OUFSD 2024 Bond – Phase 1_OHS Locker Room & CTE Addition
29 S Highland Ave
Ossining, NY 10562

SED No.: 66-14-01-03-0-003-047

CPL Project No,: R24.16761.00

THE CONSTRUCTION MANAGER:
(Name, legal status, and address)

Arris Contracting Company, Inc.
189 Smith Street
Poughkeepsie, NY 12601

THE OWNER:
(Name, legal status, and address)

Ossining Union Free School District
400 Executive Boulevard
Ossining, NY 10562

THE ARCHITECT:
(Name, legal status, and address)

CPL Architects, Engineers and Landscape Architect, D.P.C.
d/b/a CPL
26 IBM Road
Poughkeepsie, NY 12601

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Documents A132™–2019, Standard Form of Agreement Between Owner and Contractor, Construction Manager as Adviser Edition; B132™–2019, Standard Form of Agreement Between Owner and Architect, Construction Manager as Adviser Edition; and C132™–2019, Standard Form of Agreement Between Owner and Construction Manager as Adviser.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents. The Contract Documents consist of the Agreement between the Owner and Contractor (AIA A132-2019 Standard Form of Agreement as revised for this Project) together with Exhibit A thereto (AIA A132-2019 Exhibit A Insurance and Bonds as revised for this Project) (collectively, hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Instructions to Bidders (AIA A701-2018 as revised for this Project), Supplemental Instructions to Bidders (if any), Addenda issued prior to execution of the Agreement, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, or the Contractor's bid or proposal.

§ 1.1.2 The Contract. The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and the Construction Manager or the Construction Manager's consultants, (3) between the Owner and the Architect or the Architect's consultants, (4) between the Contractor and the Construction Manager or the Construction Manager's consultants, (5) between the Owner and a Subcontractor or Sub-subcontractor (6) between the Construction Manager and the Architect, or (7) between any persons or entities other than the Owner and Contractor. The Construction Manager and Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of their duties.

§ 1.1.3 The Work. The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project. The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by other Contractors (including but not limited to other Prime Contractors), and by the Owner's own forces and Separate Contractors.

§ 1.1.5 Contractors. Contractors are persons or entities, other than Separate Contractors, who perform Work under contracts with the Owner that are administered by the Architect and Construction Manager, including but not limited to other Prime Contractors. The term "Contractor" in this Section shall include the Contractor and the Contractor's officers, directors, owners, employees, agents, suppliers, and sub-contractors of any tier.

§ 1.1.6 Separate Contractors. Separate Contractors are persons or entities who perform construction under separate contracts with the Owner not administered by the Architect and Construction Manager.

§ 1.1.7 The Drawings. The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.8 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

The Specifications may describe (or the Drawings may show) the general placement required of materials or equipment, but the actual required placement may vary depending on the specific material or equipment used by the Contractor or the existing field conditions. The Contractor shall bear all direct and indirect costs associated with such variations.

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User Notes: (1198074700)

Some Specifications may be written in a condensed outline form and omitted words shall be included by interference. If the Specifications identify a task, it shall mean the "Contractor shall furnish, install and complete" the identified task unless otherwise stated.

Reference to standard specifications, manuals or codes shall mean reference to the latest standard specification, manual or code in effect at the time of the execution of the Agreement, unless otherwise stated. When reference is made to a manufacturer, trade association, reference standard or similar source (such as ASTM, ASA, AISC, ACI, etc.) the standards or requirements of such entity shall be incorporated into the Specifications and have the force and effect as though they were set forth expressly. Upon entering into the Agreement, the Contactor acknowledges its familiarity with those references, codes, etc. The date of the referenced standard shall be the latest edition in effect at the time of the execution of the Agreement unless otherwise stated.

§ 1.1.9 Instruments of Service. Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.10 Initial Decision Maker. The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 of these General Conditions. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for the results of interpretations or decisions rendered that are consistent with the Contract Documents.

§ 1.1.11 Provide. When the word "provide" (including derivatives thereof) is used, it shall mean to properly fabricate, complete, transport, deliver, install, erect, construct, test and furnish all labor, materials, equipment, apparatus, appurtenances, and all items and expenses necessary to properly complete in place ready for operation or use under the terms of the Specifications.

§ 1.1.12 Addenda. Addenda are written or graphic instruments issued prior to the execution of the Agreement that modify or interpret the bidding documents, including the Drawings and Specifications, by additions, deletions, clarification, corrections, or supplementary information.

§ 1.1.13 Furnish. "Furnish" shall mean purchasing and/or fabricate and deliver to the job site or other location when so designated.

§ 1.1.14 Install. "Install" shall mean build-in, mount in position, connect or apply the specified object(s) and, where applicable, adjust and start-in operation.

§ 1.1.15 Alternate. "Alternate" shall mean a variation in the requirements of the Contract on which a separate price is to be received by the Owner as part of the bid. If the Alternate is accepted in writing by the Owner, the variation is then a part of the Contract and the amount of money quoted to be added to or deleted from the base bid is taken into account in determining the Contract Sum.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complimentary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In the event of inconsistencies within or between parts of the Contract Documents, the Contractor shall (1) provide a better quality or greater quantity of Work or (2) comply with the more stringent requirements; either or both in accordance with the Architect's interpretation at no additional cost to the Owner. The Contractor shall assume full responsibility and cost for proceeding with such work without obtaining the Architect's interpretations. The terms and conditions of this Subparagraph 1.2.1, however shall not relieve the Contractor of any of the obligations set forth elsewhere in the Contract Documents. All work shall conform to the Contract Documents. No significant change there from shall be made without prior written authorization by the Owner. Where only part of the Work is indicated, similar parts shall be considered repetition. When any detail is shown and the components therefore are fully described, similar details shall be construed and not mentioned in the other shall be of like effect as if shown or mentioned in both. Should the

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Specifications and Drawings fail to particularly describe a product or material shown to be used in any place, the Contractor shall furnish the product that would normally be used in that place.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.1.2 Before ordering any materials or doing any Work, the Contractor and each Subcontractor shall verify measurements at the Project Site and shall be responsible for the correctness of such measurements. No extra charge or compensation shall be allowed on account of differences between actual dimensions and the dimensions indicated on the Drawings. Any difference which may be found shall be submitted to the Architect through the Construction Manager for resolution before proceeding with the Work.

§ 1.2.1.3 If a minor change in the Work is found necessary due to actual field conditions, the Contractor shall submit through the Construction Manager detailed drawings of such departure for approval by the Architect before making the change.

§ 1.2.1.4 All indications or notations on the Drawings which apply in one of a number of similar situations, materials or processes shall be deemed to apply to all such situations, material or processes wherever they appear in the Work, except where a contrary result is clearly indicated by the Contract Documents.

§ 1.2.1.5 The Contractor shall provide all labor, materials, equipment, appliances and services necessary to execute and complete all work as required by the Contract Documents and the applicable Building Codes. Whenever any additional materials and/or workmanship not shown or specified are required to complete the Work of the Contract Documents in accordance with the obvious intent thereof, the Contractor shall provide such materials and workmanship at no additional cost to the Owner.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.2.1 The organization of the Specifications into divisions, sections and articles and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of the Work to be performed by any trade. The organization of the Specifications into divisions, sections and articles and arrangement of Drawings is for the purpose of convenience, and ready reference only. The Contractor will be permitted to allocate the work of Subcontractors at his own discretion regardless of the grouping in the Specifications. It shall be the Contractor's responsibility to settle definitely with each Sub-contractor the portions of the Work, which each will be required to perform. The Contractor represents that the Subcontractors, manufacturers, vendors and suppliers engaged or to be engaged by it are and will be familiar with the requirements for the performance by them of their obligations. The Contractor shall provide each item listed, of quality noted and subject to qualifications noted, and shall perform operations prescribed according to the conditions stated, including specified operations, processes or methods, furnishing therefore all necessary labor, materials, equipment and incidentals required to complete the Work.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 All work mentioned or indicated in the Contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

§ 1.2.4.1 The Contractor and all Subcontractors shall refer to all of the Drawings, including those showing primarily the work of the plumbing, heating, ventilation, air conditioning, electrical, and other specialized trades, and to all of the sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results.

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§ 1.2.4.2 It is intended that all mechanical and electrical systems will be complete and in proper operation and that all construction components will be complete and in compliance with accepted construction practice upon completion of the Work. Even if items are missing from the Drawings and/or Specifications but are normally required for proper operation of mechanical and electrical systems, or to complete otherwise incomplete construction or to meet governing code requirements, they shall be included by the Contractor, unless the Contractor sought and received contradictory interpretation or clarification from the Architect.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

§ 1.4 .1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.4.2 The terms "knowledge," "recognize" and "discover," their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill, and diligence required by the Contract Documents. The expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a contractor familiar with the Project and exercising the care, skill, and diligence required of the Contractor by the Contract Documents.

§ 1.4.3 Wherever required by the context, any gender shall include the other gender, the singular shall include the plural, and the plural shall include the singular. Each term defined in the Contract Documents may be used in its singular or plural form whether or not so defined.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8 of these General Conditions, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2 of these General Conditions, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing by (1) depositing the notice in the United States mail addressed to the authorized representative as specified in the Contract (or if no representative is specified for such party at the address stated in the Contract) of the party to be notified, postpaid and registered or certified with return receipt requested, (2) depositing the notice for overnight delivery (prepaid or billed to the party giving notice) with a nationally recognized overnight delivery service (e.g. Federal Express, USPS, UPS, etc.) addressed to the authorized representative of the party to be notified (or if no representative is specified for such party at the address stated in the Contract) or (3) by delivering the notice in person to the said authorized representative of the party (or if no representative is specified for such party at the address stated in the Contract). Notices may be made by the party giving the notice by the party's counsel, the authorized representative of the party as specified in the Contract, or by an officer of the party that has authority to bind the party. Notices are to be sent to the designated representative stated in this Agreement of the party to whom the notice is addressed at the address stated in the Agreement. Notice deposited in the mail in accordance with this Section 1.6.1 shall be effective unless otherwise stated in the Contract from and after the fourth (4th) day following the date deposited in a U.S. mail receptacle or when

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actually received by the party to whom addressed, whichever is earlier. Notices transmitted by overnight delivery shall be effective the first business day (excluding holidays, Saturdays and Sundays) following the day of deposit with the nationally recognized overnight delivery service or when actually received by the party to whom addressed, whichever is earlier. Notice given by delivery in person shall be effective only if and when received by the party to be notified. By giving the other parties at least seven (7) days written notice thereof, the Contractor, Owner, Construction Manager and Architect have the right to change their respective designee and respective address to any address in the United States of America for receipt of notices.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 of these General Conditions shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form.

§ 1.8 Confidentiality

§ 1.8.1 The Contractor warrants and represents that the Contractor shall not knowingly or negligently communicate or disclose at any time to any person or entity any materials or information with respect to the Work or the Project, including without limitation any promotional or marketing media or other material or information related to the Owner, the Work or the Project, except: (1) with prior written consent of the Owner, (2) information that was in the public domain prior to the date of the Agreement, (3) information which becomes part of the public domain by publication or otherwise not due to any unauthorized act or omission of the Contractor, (4) as may be required by the Contract or any applicable law, or (5) for purposes of coordination with other Contractors. The Contractor hereby agrees to indemnify and hold the Owner, the Construction Manager and Architect and their respective employees, consultants, volunteers and agents harmless from and against any cost, damage, liability, loss or claim arising from violation of the foregoing by the Contractor or the Contractor's officers, directors, employees, Subcontractors, Sub-subcontractors and agents.

§ 1.8.2 Upon request of the Owner, the Contractor shall immediately return and surrender to the Owner all copies of any materials, records, notices, memoranda, recordings, drawings, specifications, and mock-ups and any other documents furnished by the Owner, Construction Manager or the Architect to the Contractor.

§ 1.8.3 The Contractor shall specifically cause all Subcontractors or any other person or entity performing any services or furnishing any materials or equipment of the Work to warrant and represent that they will comply with the requirements forth in this Section 1.8.

§ 1.8.4 The indemnities, representations and warranties contained in this Section 1.8 shall be in addition to any other indemnities, representations and warranties provided in the Contract Documents and shall survive the complete performance of the Work or earlier termination of the Contract.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1 of these General Conditions, the Construction Manager and the Architect do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

(Paragraph deleted)

§ 2.2 Intentionally omitted

(Paragraphs deleted)

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§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Unless otherwise provided within the Contract Documents, the Owner, assisted by the Construction Manager and the Architect, shall secure and pay for the building permit. Unless otherwise provided within the Contract Documents, the Contractor shall comply with and obtain, at its expense, all other licenses and permits required by Federal, State and local laws, rules, and ordinances necessary for the Work.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 The Owner shall retain a construction manager adviser lawfully practicing construction management in the jurisdiction where the Project is located. That person or entity is identified as the Construction Manager in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.4 Intentionally Omitted

§ 2.3.5 The Owner shall furnish surveys upon written request of the Contractor and to the extent same exist, describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.6 The Owner, through the Architect or Construction Manager, shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish, through the Architect or Construction Manager, any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services. "Reasonable promptness" shall be measured from the time of the Owner's receipt of written request for such information or services.

§ 2.3.7 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2 of these General Conditions.

§ 2.3.8 The Owner shall forward all communications to the Contractor through the Construction Manager. Other communication shall be made as set forth in Section 4.2.6 of these General Conditions.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 of these General Conditions or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 2.5 Owner's Right to Carry Out the Work

§ 2.5.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a three-day period after receipt of notice from the Owner, Architect or Construction Manager to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, after such three (3) day period and without prejudice to other remedies the Owner may have, correct such default or neglect at Contractor's expense. The Owner's reasonable cost of correcting such default or neglect shall be deducted from payments due the Contractor by Change Order, Construction Change Directive, back charge or other means. The Construction Manager or Architect may, pursuant to Section 9.5.1 of these General Conditions, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies or neglect. The Owner's reasonable costs shall include the cost of labor and materials to complete the correction of such deficiencies or neglect, the Owner's expenses and compensation for the Construction Manager's and Architect's and their respective consultants' additional services made necessary by such default, neglect, or failure, and the Owner's reasonable attorney's fees arising from the Contractor's default, neglect or failure. If current and future payments due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner, the

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Construction Manager or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

§ 2.5.2 The rights stated in this Article 2 and elsewhere in the Contract Documents are cumulative and not in limitation of any legal or equitable rights of the Owner or Contractor or of any rights provided to the Owner and Contractor in the Contract Documents.

§ 2.5.3 In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences, or procedures or for safety precautions and programs in connection with the Work. The Owner assumes no responsibility for liability for the safety of the Project site. The Contractor shall be solely responsible for providing a safe place for the performance of the Work; provided that the Owner shall be responsible for, and the Contractor shall upon discovery notify the Owner of, any unsafe condition created by the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under the Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents. The Contractor shall refer to all of the Drawings and all sections of the Specifications and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results. See also Sub-Sections of Section 1.2 of these General Conditions.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Construction Manager or Architect in their administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.1.4 The Contractor shall attend progress meetings with the Construction Manager and such other persons the Owner may wish to have present. The progress meetings shall include Contractor designated representative(s) and representatives of the Contractor's Sub-contractors if requested by the Owner, Construction Manager or Architect.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.1.1 The Contractor shall rely on its own knowledge and its review and interpretation of the Contract Documents and data provided in entering into the Contract and not the representations of the Owner or other persons. The Contractor acknowledges that quantities provided in the Contract Documents are estimates only and Contractor shall not seek additional compensation or adjustment in price based on a variation in actual quantities.

§ 3.2.1.2 Prior to execution of the Contract, the Contractor and each Subcontractor shall evaluate and satisfy themselves as to the conditions and limitations under which the Work is to be performed, including, without limitation, (i) the location, condition, layout, and nature of the Project site and surrounding areas, (ii) generally prevailing climatic conditions, (iii) anticipated labor supply and costs, (iv) availability and cost of materials, tools, and equipment, (v) any time restrictions for accessing or working at the Project site, and (6) the storage, handling and trucking of materials to be used on-site.

§ 3.2.1.3 The accuracy of grades, elevations, dimensions or locations given in the Contract Documents or the work installed by other contractors is not guaranteed by the Architect or the Owner. The Contractor shall satisfy itself as to the accuracy of all grades, elevations, dimensions, utilities and locations. Prior to connecting its Work to existing structures or other contractor's work, the Contractor shall verify all dimensions and the suitability of the existing structures or work to receive the Contractor's Work. Any errors due to the Contractor's failure to verify such grades, elevations, dimensions, or locations shall be rectified promptly by the Contractor without any additional cost to the Owner.

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§ 3.2.1.3.1 The locations, depths and data as to underground conditions have been obtained from records, surface indications and data furnished by others. Information furnished is solely for the convenience of the Contractor without any warranty, expressed or implied as to its accuracy or completeness. The Contractor shall verify all existing conditions prior to commencing the Work. The Contractor shall make no claim against the Owner or Architect with respect to the accuracy or completeness of such information if the conditions found after commencement of the Work are different from those as indicated.

§ 3.2.1.4 The Contractor shall be solely responsible for the conditions which develop during construction and in the event any structure is dislocated, or over strained, or damaged so as to affect its usefulness, the Contractor shall correct or repair any dislocations, over strains or damages caused.

§ 3.2.1.5 The Contractor is responsible for restorations and/or repair of utilities, private property, buildings, pavement, walkways, roads, etc. damaged by its activities during the performance of its Work.

§ 3.2.1.6 The Contractor shall be responsible to remove and/or relocate all items that interfere with the new construction at no additional cost to the Owner.

§ 3.2.1.7 The Owner shall not be required to make any adjustment in the Contract Sum or Contract Time in connection with any failure by the Contractor or any Subcontractor to comply with the requirements of this Section 3.2 of these General Conditions and all of its sub-sections.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work and at frequent intervals during the progress of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.5 of these General Conditions, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Construction Manager and Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information submitted to the Construction Manager in such form as the Construction Manager and Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.2.1 The Contractor shall assume full responsibility for accuracy of measurements obtained at the site. No extra compensation will be allowed because of differences between actual measurements and dimensions indicated on the Drawings, nor for Contractor's failure to coordinate work with actual field measurements.

§ 3.2.2.2 Should the Contractor perform any construction activity knowing it involves an error, inconsistency or omission in the Contract Documents without reporting such error, inconsistency or omission in the Contract Documents to the Construction Manager and Architect, the Contractor shall be solely responsible for such performance and shall bear all costs of correction. No unreported error, inconsistency or omission will provide a basis for additional compensation from the Owner to complete the Contractor's Work or a basis to excuse the Contractor from the completion of its Work.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Construction Manager and Architect any nonconformity discovered by or made known to the Contractor as a request for information submitted to Construction Manager in such form as the Construction Manager and Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3 of these General Conditions, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those

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obligations, the Contractor shall not be liable to the Owner, Construction Manager or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, the Construction Manager, and the Architect, and the Contractor shall propose alternative means, methods, techniques, sequences, or procedures that will preserve all applicable warranties, including the Contractor's general warranty. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. The Construction Manager shall review the proposed alternative for sequencing, constructability, and coordination impacts on the other Contractors. Unless the Architect or the Construction Manager objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures. All loss, damage, liability or cost of correcting defective work arising from the employment of specific (including but not limited to alternative) construction means, methods, techniques, sequences or procedures shall be born solely by the Contractor.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of the Project already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.3.3.1 The Contractor shall be responsible for and coordinate any and all inspections required by any governmental body having jurisdiction over the Project. Failure to obtain any permits, licenses or other approvals because of the failure of the Contractor to conform to this requirement shall not extend the Contract time, and the Contractor shall not be entitled to any increase in the contract sum therefore. In addition, any additional costs and/or expenses of any nature incurred by the Owner as a result of the Contractor's failure to conform to this requirement shall constitute a charge against the Contractor's contract.

§ 3.3.4 It is understood and agreed that the relationship between the Contractor and the Owner shall be that of an independent contractor. Nothing contained in or inferable from the Contract Documents shall be deemed or construed to (1) make the Contractor the agent, servant or employee of the Owner or (2) create any partnership, joint venture or other association between the Owner and Contractor. Any direction or instruction by the Owner regarding the Work shall be given solely to relate the results the Owner desires to obtain from the Work and shall not be construed as affecting the Contractor's independent contractor status.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 of these General Conditions or ordered by the Architect in accordance with Section 7.4 of these General Conditions, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect, in consultation with the Construction Manager, and in accordance with a Change Order or Construction Change Directive.

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After the Agreement has been executed, the Owner and Architect will consider requests for the substitution of products in place of those specified only if the Contractor satisfies the procedural requirements set forth in the General Requirements (Division 01) of the Specifications. By making requests for substitutions, the Contractor.

.1 Represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified.

.2 Represents that it will provide the same warranty for the substitution as it would have provided for the product specified;

.3 Certifies that the cost data presented is complete and includes all related costs for the substituted product ad for Work that must be changed as a result of the substitution, except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution that may subsequently be incurred by the Contractor; and

.4 Shall coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.

§ 3.4.2.1 The Owner shall be entitled to reimbursement from the Contractor for amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed upon changes in the Drawings and Specifications resulting from such substitutions. The Owner may seek reimbursement pursuant to the procedures set forth in § 9.5.1.

§ 3.4.2.2 The Contractor shall bear all expenses resulting from substitutions including the cost General Conditions as well as any structural, plumbing, mechanical and electrical trade costs made necessary by the substitution.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. The Owner reserves the right to object to Contractor's use of persons who appear unfit or not skilled in the tasks assigned to them. Should any disorderly, incompetent, unfit or unskilled person be hired or employed by the Contractor, upon or about the premises of the Owner, for any purpose or in any capacity, upon request of the Owner, such person shall be removed from the Project and shall not be reassigned to the Project without the prior written permission of the Owner, through the Construction Manager.

§ 3.4.4 The Contractor shall be responsible for coordinating the work of its own forces and the work of subcontractors engaged by it to perform the Work of the Project on its behalf. The Contractor shall review any specified procedure(s) or installation procedure(s) with its employees and/or subcontractors, including those recommended by any product manufacturer, prior to the commencement of the relevant portion of the Work to be performed.

§ 3.4.5 Each Contractor shall be responsible for complying with applicable union regulations existing under current labor agreements in performing construction work on the Project. The Contractor shall make all necessary arrangements to reconcile, without delay, damage or cost to the Owner and without recourse to the Construction Manager, Architect or the Owner, any conflict between the Contractor's Contract with the Owner and any agreements or regulations of any kind at any time in force among members of a trade union or any councils that regulate the activities of a trade. The existing Construction Manager/Owner Contract is an agency contract and all construction contracts will be made directly with the Owner.

§ 3.4.6 The Contractor is solely responsible for managing labor and labor relations with respect to those engaged by it to perform the Work of the Project, including labor disputes or concerted activity, direct or indirect. No delay in the performance of the Work shall be excused by reason of labor problems affecting the Contractor or any subcontractor. There shall be no strikes, picketing, work stoppages, slowdowns or other disruptive activity at the Project sites for any reason by anyone employed or engaged by the Contractor to perform its portion of the Work.

§ 3.4.6.1 Should it become necessary to create a separate entrance for a Contractor involved in a dispute, all costs associated with creating such entrance shall be borne by the Contractor involved in the dispute. Such costs shall include but not be limited to signage, fencing, temporary roads and security personnel.

§ 3.4.6.2 The Contractor shall be liable to the Owner for all damages and additional costs incurred by the Owner as result of strikes, picketing, work stoppages, slowdowns or other disruptive activity at the Project sites.

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§ 3.4.6.3 In the event of strikes or labor disputes by the Contractor's forces or other prime contractors, or separate contractors performing work for the Owner, the Contractor shall continue with its work and provide all necessary manpower as required to maintain the schedule and completion dates of the Project. The Contractor shall ensure that its Work continues uninterrupted during the pendency of a labor dispute.

§ 3.4.7 All products submitted for use and incorporated into this Project shall be asbestos free. The Contractor is obligated, by executing the Contract with the Owner, to ensure that absolutely no asbestos containing material is used in conjunction with the performance of its Work. It is the Contractor's sole responsibility to ensure that no asbestos containing material is built into the construction, or that any equipment or materials used in the construction contain any asbestos containing material. If asbestos containing material is found, at any time during or after the construction is completed, it shall be the responsibility of the Contractor who installed said material to remove it and replace it with new non-asbestos containing material, in accordance with federal, state and local mandates, and to indemnify all their employees, agents, or servants or any third parties including but not limited to the Owner, the Construction Manager and the Architect, and their respective Boards of Education, contractors, consultants, volunteers or employees for any costs or damages incurred on account of the presence, removal and remediation of such asbestos containing material. This provision will be limited only to the extent required by law, is in addition to the indemnities provided in Section 3.18 of these General Conditions and elsewhere in the Contract Documents and shall survive the termination or expiration of the Contract.

§ 3.4.8 Contractor shall furnish the Construction Manager in writing the names, addresses and telephone numbers of the members of Contractor's organization who can be contacted in the event of an off-hours emergency at the Project site.

§ 3.4.9 Unless otherwise specifically agreed in writing by the Owner for a specific purpose, the Owner shall not be responsible for any overtime charges or shift differential charges incurred by the Contractor during the course of this Project. Any and all costs associated with the Work performed at hours requiring the payment of overtime or shift differentials by the Contractor to its workers shall be the Contractor's responsibility. When the Owner specifically agrees in writing to be responsible for overtime costs incurred by the Contract, the Owner shall reimburse the Contractor or its Subcontractor on the basis of premium payment only, plus the cost of insurance and taxes based on the premium payment period.

§ 3.4.10 Applicable codes and standards for material furnished and work installed shall include all state laws, local ordinances, requirements of governmental agencies having jurisdiction, and requirements of state, federal and industry codes and standards that apply to the Project and its components, including but not limited to:

1. New York State Uniform Fire Prevention and Building Code and amendments thereto.
2. New York State Energy Conservation Construction Code.
3. State Education Department Manual of Planning Standards and 8 N.Y.C.R.R. § 155.5.
4. New York State Department of Transportation, Office of Engineering, Standard Specification, Construction and Materials, dated January 2, 1990, and latest addendum thereto.
5. Life Safety Code – NFPA 101-91.
6. National Electric Code
7. National Board of Fire Underwriters
8. Any other codes or standards referenced in the Specifications and Drawings.

§ 3.4.11 Where specific performance requirements are listed in the Specifications, it is the intent of this specification that all manufacturers, fabricators, suppliers, installers, contractors, subcontractors, specialty and sub-subcontractors will provide services satisfying these requirements whether mentioned by trade or manufacturer's name or submitted for approval as a substitute.

§ 3.4.12 Where no explicit quality or standards for materials or workmanship are established for work, such work shall be of quality consistent with industry standards and of the construction quality established for the Project generally.

§ 3.4.13 Welding. The Contractor shall ensure the safe handling and storage of all welding materials, acetylene and oxygen tanks, and other equipment required for welding and cutting work at the job site. All welding materials and equipment shall be removed promptly from the premises upon completion of the welding and cutting work.

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§ 3.4.13.1 Appropriate fire extinguishing equipment shall be provided where welding or cutting is to be performed. Sprinklers subject to fusing from heat due to welding or cutting shall be temporarily shielded, with valves to remain open. Contractors will be back charged for all fines imposed for false fire alarms.

§ 3.4.13.2 Welding or cutting shall not be performed in or near rooms or locations where flammable gases, liquids or vapors, lint, dust or loose combustible stocks are present unless suitably protected when sparks or hot metal from welding or cutting operations may cause ignition or explosion of such materials.

§ 3.4.13.3 Combustible construction or material shall be wet down or protected by noncombustible shields or covers from possible sparks, hot metal or oxide.

§ 3.4.14 Ventilation During Construction. The General Contractor shall provide ventilation of enclosed areas during construction as may be required to permit proper curing and drying out and to prevent excessive humidity moisture and condensation. Ventilation shall be by natural or artificial means as required by conditions involved.

§ 3.4.15 Broken Glass. Each Prime Contractor shall be responsible for all broken, scratched, or damaged glass, which shall be replaced upon completion of the Work. Said Prime Contractor shall reimburse the General Contractor for replacement costs of all such damaged glass upon completion of the Work. The responsibility for all broken, scratched, or damaged glass, shall terminate upon acceptance of the Work by the Owner, except as provided in the Conditions of Contract (General, Supplementary and Other) and Specifications with respect to defective materials, workmanship, and guarantee/warranty provisions.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner, Construction Manager, and Architect that materials and equipment furnished under the Contract will be of good quality, new and of recent manufacture unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective and shall be removed and replaced at the Contractor's expense unless otherwise agreed to by the Owner. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Construction Manager or Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4 of these General Conditions. If not already in the name of the Owner, the Contractor shall assign to the Owner at the time of Substantial Completion of the Work, unless otherwise provided in the Certificate of Substantial Completion, any and all manufacturer's warranties relating to materials, equipment, fixtures and/or labor incorporated into the Work.

§ 3.5.3 The warranties in this Section 3.5 shall be in force for a minimum duration of one (1) year after the date of Final Completion of the Work or designated portion thereof, or after the date for commencement of warranties established in the Certificate of Substantial Completion or by terms of any applicable special or extended warranty required by the Contract Documents or as set forth in the Project Manual's technical specifications for warranties of equipment, whichever duration is longer. The warranty provided by the Contractor in this Section 3.5 is in addition to any warranty provided by equipment and material manufacturers. Notwithstanding anything to the contrary contained in the Contract Documents, all warranties shall be construed in the manner and duration most favorable to the Owner. The warranties in this Section 3.5 shall survive expiration and/or termination of the Contract.

§ 3.5.4 The Contractor shall perform its Work in such a manner as to preserve all manufacturer's warranties on materials, equipment, fixtures and/or labor incorporated into the Work. The Contractor will exercise its best efforts to service and to enforce for the benefit of the Owner all manufacturer's warranties on materials, equipment, fixtures and/or labor incorporated into the Work.

§ 3.5.5 The Contractor warrants good and legal title to all materials, equipment and fixtures installed or incorporated into the Work.

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§ 3.5.6 All corrections to defective or deficient Work, material or equipment shall be made at the convenience of the Owner.

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§ 3.6 Taxes

§ 3.6.1 Owner is exempt from payment of New York State, and Local Sales and Compensation Use Taxes on all supplies and materials incorporated into and becoming an integral component part of the structures, buildings, or real property pursuant to this Contract. Such taxes are therefore not to be included in the Contractor's bid or Contract Sum. This exemption does not apply to machinery, equipment, tools and other items purchased, leased, rented or otherwise acquired for the Contractor's use in part or entirely in connection with the Work and the Contractor and subcontractors shall be responsible for any and all applicable taxes, including sales and use taxes, on such items. The exemption only applies to materials, machinery and equipment fully incorporated into the Work of the Contractor as accepted by the Architect and the Owner. Upon request, Owner will furnish proof of its exemptions to the Contractor.

§ 3.7 Permits, Fees, Notices, and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Owner, through and with the assistance of the Construction Manager and Architect, shall secure and pay for the building permit. The Contractor shall secure and pay for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

.1 The Contractor shall promptly deliver copies permits, fees, licenses, and inspections it obtains for its Work and/or the Project to the Construction Manager and Owner.

.2 If in connection with the Project, the Owner has obtained certain permits, licenses or agreements for the Project, the Owner will furnish copies of these documents to the Contractor. It is the Contractor's responsibility to comply with any conditions or limitations placed on the Project by these permits. The Contractor shall fully cooperate with the Owner in meeting the permit requirements and accommodations of regulatory inspections / directives.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor fails to give such notices as applicable to the performance of the Work, the Contractor shall be liable for and shall indemnify and hold harmless the Owner against any and all resulting fines, penalties, judgments or damages, including reasonable attorney fees, imposed on or incurred by the parties indemnified, as a result of such failures by the Contractor.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to (or if Contractor should have known it to be contrary to) applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear all costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner, Construction Manager, and the Architect before conditions are disturbed and in no event later than 7 days after first observance of the conditions. The Architect and Construction Manager will promptly investigate such conditions and, if the Architect, in consultation with the Construction Manager, determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect, in consultation with the Construction Manager, determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify in writing the Owner, Construction Manager, and Contractor, stating the reasons. If the Contractor disputes the Architect's determination or recommendation, the Contractor may submit a Claim as provided in Article 15.

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§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner, Construction Manager, and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.7.6 Upon completion of the Work, the Contractor shall deliver to the Architect original copies of all required final certificates of inspection, the Certificate of Occupancy, the other documents evidencing that inspections required by authorities having jurisdiction over the Work have been performed.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents:

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order or, absent agreement, by Construction Change Directive. The amount of the Change Order or Construction Change Directive shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 of these General Conditions and (2) changes in Contractor's costs under Section 3.8.2.2 of these General Conditions.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. Such designation shall be in writing and provided to the Architect, Construction Manager, and Owner. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. To the extent Work is being performed contemporaneously at two different facilities of the Owner, the Contractor shall assign different superintendents to each facility.

The Contractor's superintendent shall not be removed from this Project until the Contractor's punch list has been completed and the Contractor's Work has been accepted by the Owner. Unless approved otherwise by the Owner in advance, the Contractor's superintendent shall be assigned solely to this Project and shall not perform any duties or superintendence on any other Project until completion of the Contractor's Work. The superintendent shall not be employed or used on any other project during the course of the work. The Owner shall have no obligation to direct or monitor the Contractor's employees, Subcontractors, or suppliers.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect, through the Construction Manager, of the name and qualifications of a proposed superintendent. The Contractor will provide a resume of Contractor's proposed superintendent to the Owner, Architect and Construction Manager. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor, stating whether the Owner, the Construction Manager, or the Architect (1) has reasonable objection to the proposed superintendent or (2) require additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner, Construction Manager, or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent, during the

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duration of the Project including the completion of Punch List, unless the superintendent is no longer employed by the Contractor or the prior written consent of the Owner is obtained, which consent shall not unreasonably be withheld or delayed. The superintendent shall be changed upon request of the Owner for good cause shown. In the event of such direction, the Contractor shall, within seven days after notification thereof, replace said individual(s) with an individual satisfactory to Owner.

§ 3.9.4 The Contractor shall coordinate and supervise the work performed by its subcontractors so that the Work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor and all subcontractors shall afford each trade reasonable opportunity for the installation of their work and the storage of their materials.

§ 3.9.5 It is required of any and all supervisory personnel proposed for use by any Contractor that said personnel be versed in the English language or, said Contractor shall furnish a full-time on-site interpreter to facilitate communications between and with all Contractors, all Subcontractors, the Owner, the Construction Manager and the Architect.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, within five (5) business days after being awarded the Contract, shall submit for the Owner's and Architect's information, and the Construction Manager's use in developing the Project schedule, a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The Contractor shall cooperate with the Construction Manager in scheduling and performing the Contractor's Work to avoid conflict with, and as to cause no delay in, the work or activities of other Contractors, or the construction or operations of the Owner's own forces or Separate Contractors.

§ 3.10.1.1 Upon review and acceptance by the Owner and the Construction Manager of the Contractor's construction schedule, including the Milestone Dates therein, the construction schedule shall be deemed part of the Contract Documents. If not accepted by the Owner and the Construction Manager, the construction schedule shall be promptly revised by the Contractor in accordance with the recommendations of the Owner and the Construction Manager and re-submitted for acceptance. Submission of an accepted Construction Schedule shall be a prerequisite to initial payment.

§ 3.10.1.2 The Contractor shall monitor the progress of the Work and shall update Contractor's construction schedule at least once a month or more frequently if requested by the Construction Manager. The Contractor shall promptly advise the Construction Manager and Architect, with a copy to the Owner, of any nonconformance or potential for nonconformance with the construction schedule. The Contractor shall furnish the Owner, the Construction Manager and Architect with sufficient copies of each submitted schedule.

§ 3.10.1.3 In the event that any updated Construction Schedule indicates a projected Substantial Completion date that is more than thirty (30) days after the required Substantial Completion date (as the same may be extended by the Change Order for Excusable Delay), the Owner shall have the right to direct the contractor to take corrective measures necessary to expedite the progress of construction, including, without limitation, (1) working additional shifts or overtime, (2) supplying additional manpower, equipment, facilities, (3) rescheduling activities, and (4) other similar measures (hereinafter referred to collectively as "Recovery Measures"). Such Recovery Measures shall continue until the progress of the Work complies with the state of completion required by the Construction Schedule. The Owner's right to require Recover Measures is solely for the purpose of ensuring the Contractor's compliance with the Construction Schedule.

.1 The Contractor shall not be entitled to see an adjustment in the Contract Sum in connection with Recovery Measures required by the Owner, unless they are incurred by the Contractor as directed in writing by the Owner to mitigate or offset an Excusable Delay.

.2 The Owner may exercise the rights furnished to the Owner under or pursuant to this Subparagraph 3.10.1.3 as frequently as is reasonably necessary to ensure that the Contractor's performance of the Work will comply with any milestone date or completion date set forth in the Construction Schedule.

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.3 The Owner reserves the right to withhold payment until such time as the Contractor submits a schedule showing work to be on schedule again in accord with the Project Schedule and the Work is being performed per revised schedule.

§ 3.10.2 The Contractor, within five (5) business days after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Construction Manager's and Architect's approval. The Architect and Construction Manager's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Construction Manager and Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall participate with other Contractors, the Construction Manager, and the Owner in reviewing and coordinating all schedules for incorporation into the Project schedule that is prepared by the Construction Manager. The Contractor shall make revisions to the construction schedule and submittal schedule as deemed necessary by the Construction Manager to conform to the Project schedule.

§ 3.10.4 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner, Construction Manager, and Architect, and incorporated into the approved Project schedule.

§ 3.10.5 The Owner shall have the right to direct a postponement or rescheduling of any date or time for the performance of any part of the Work that may interfere with the operation of the owner's premises or any tenants or invitee thereof. The Contractor shall, upon the Owner's request, reschedule any portion of the Work affecting operation of the premises to hours when the premises are not in operation. Any postponement, rescheduling or performance of the Work under this Section 3.10.5 may be grounds for an extension of the Contract Time, if permitted under Section 8.3.1 of these General Conditions if: (1) the performance of the Work was properly scheduled by the Contractor in compliance with the requirements of the Contract Documents and (2) such rescheduling or postponement is required for the convenience of the Owner.

§ 3.11 Documents and Samples at the Site

§ 3.11.1 The Contractor shall make available, at the Project site, the Contract Documents, including Drawings, Specifications, Addenda, Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, as well as the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Construction Manager, Architect, Owner and representatives of any governmental agency with authority over the Project, and shall be delivered to the Construction Manager for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.11.2 The Contractor shall maintain at the Project site, and shall make available to Owner, Construction Manager, Architect and representatives of any governmental agency with authority over the Project, one record copy of the Drawings (the "Record Drawings", which are also referred to as "As-built Drawings") in good order and marked to indicate field changes and selections made during construction.

§ 3.11.3 Final payment and any retainage shall not be due and owing to Contractor until the Record Drawings are received in a form satisfactory to the Architect, the Constuction Manager and the Owner (and all other closeout requirements are met).

§ 3.12 Shop Drawings, Product Data, and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

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§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect and Construction Manager is subject to the limitations of Sections 4.2.10 through 4.2.12 of these General Conditions. Informational submittals upon which the Construction Manager and Architect are not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Construction Manager or Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Construction Manager, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the Project submittal schedule approved by the Construction Manager and Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of other Contractors, Separate Contractors, or the Owner's own forces. The Contractor shall cooperate with the Construction Manager in the coordination of the Contractor's Shop Drawings, Product Data, Samples, and similar submittals with related documents submitted by other Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner, Construction Manager, and Architect, that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Contractor represents and warrants that all Shop Drawings shall be prepared by persons and entities possessing knowledge and experience in the trade for which the Shop Drawing is prepared**.** The Contractor shall communicate and supply Shop Drawings to other Contractors to ensure proper coordination.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been reviewed and approved by the Architect. If the Contractor elects to perform work without such approvals, same shall be at the Contractor's own risk and the Contractor will be responsible for all costs of correction.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Construction Manager and Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 Upon the Architect's rejection of the Contractor's Shop Drawings, Product Data, Samples or other similar submittals, the Contractor shall review the rejection and re-submit such Shop Drawing, Product Data, Sample or other similar submittal in accordance with the Architect's instruction. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions which have been made, including revisions not specifically requested by the Construction Manager or Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by a design professional appropriately registered and/or licensed in New York State, whose signature and seal shall appear on all drawings, calculations, specifications,

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certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner, the Architect, and the Construction Manager shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Construction Manager shall review submittals for sequencing, constructability, and coordination impacts on other Contractors.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Construction Manager and Architect at the time and in the form specified by the Architect.

§ 3.12.10.3 When professional certification of performance criteria of materials, systems or equipment is required of the Contractor, the Architect shall be entitled to rely in a reasonable and professional fashion upon the accuracy and completeness of such calculations and certifications, provided, however, if the Architect, in its reasonable and professional judgment considers it advisable, the Architect shall verify the accuracy and completeness of any and all such calculations and/or certifications. In the event any and all such calculations and/or certifications are found to be inaccurate and/or incomplete by the Architect, the Contractor shall assume full responsibility and shall bear all costs attributable or related thereto, including, without limitation, the expense of the Architect's additional services associated with the verification of such calculations and/or certifications and the expense of the Architect's additional services made necessary by the failure of such calculations and/or certifications to be accurate or complete.

§ 3.13 Use of Site

§ 3.13.1 The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

.1 Due to the site constraints, only materials and equipment that are to be used in the Work shall be brought to and stored on the Project site by the Contractor. Only vehicles that are absolutely necessary for performing the Work shall be parked or stored within the work areas. After materials, vehicles and equipment are no longer required for the Work, they shall be promptly removed from the Project site.

.2 Protection of materials, vehicles and equipment stored at the Project site from weather, theft, damage, and all other adversity is solely the responsibility of the Contractor. The Contractor shall provide all barriers and protection as required to safeguard the work, traffic to and from the site, the public and the occupants of the building during construction. The Contractor shall comply with all fire code regulations during construction. While the Owner may have security guards patrolling its properties, this does not release or otherwise mitigate the Contractor's responsibility to protect material, vehicles and equipment stored or the Project site from theft, damage or other adversity or the Contractor's responsibility to ensure the safety and security of the construction areas.

.3 The Contractor shall ensure that the Work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the Work and adjacent areas. The Work shall be performed in such a manner that areas adjacent to the site of the Work shall be free from all debris, building materials and equipment.

.4 The Contractor shall not permit any workers to use existing facilities at the Project site, including, without limitation, lavatories, entrances and parking areas other than those designated and approved by the Owner.

.5 The Contractor shall provide all temporary access walkways, both interior and exterior, temporary partitioning and the like necessary to complete the operations. The Contractor shall maintain in an unobstructed condition all entrances and/or exits from present buildings.

.6 The Contractor shall comply with all rules and regulations promulgated by the Owner in connection with the use and occupancy of the Project site and the Building, as amended from time to time. The Contractor shall immediately notify the Owner in writing if during the performance of the Work, the Contractor finds compliance with any portion of such rules and regulations to be impracticable, setting forth the problems of such compliance and suggesting alternatives through which the same results intended by such portions of the rules and regulations can be achieved. The Owner may, in the

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Owner's sole discretion, adopt such suggestions, develop new alternatives, or require compliance with the existing requirements of the rules and regulations.

§ 3.13.2 The Contractor shall coordinate the Contractor's operations with, and secure the approval of, the Construction Manager before using any portion of the site.

§ 3.13.3 The Contractor shall be required to perform the Work of the Project with no interruption to the Owner's operations. Any work which will interfere with the Owner's operations shall be performed after regular school hours, and/or during weekends, holidays or other times when the Owner's facilities are not in session for students at no additional cost to the Owner. All costs incurred by the Owner to make the facilities available during those times shall be borne by the Contractor, including time charges incurred for the Owner's own forces and additional charges of the Construction Manager. The Owner reserves to itself the right to determine what work will "interfere" with its operations and said determination shall be final.

§ 3.13.4 The Contractor and any entity for which the Contractor is responsible shall not erect any sign on the Project site without the written consent of the Owner provided through the Construction Manager, which may be withheld in the sole discretion of the Owner.

§ 3.13.5 The Contractor shall repair or replace any existing trees, shrubbery or other planting that are to remain after completion of the Project that are damaged by operations and/or workers employed in performance of its Contract.

§ 3.13.7 The Contractor shall provide full and free access for the Architect, Construction Manager, Owner and/or their representatives and consultants, to inspect job materials, equipment, fabrication facilities, and storage locations, at and away from the site of the Work.

§ 3.13.8 Rules of Conduct

1. In accordance with federal and state law, smoking (including electronic cigarettes), vaping, and the use of tobacco products, as well as any nicotine or cannabis products, are prohibited within all buildings of the Owner and on all school property of the Owner and within 100 feet of all entrances, exits and boundaries of elementary and secondary schools at all times
2. No drinking of alcoholic beverages or use of controlled substances are allowed on Owner's property. No reporting to work impaired by alcohol or controlled substances allowed. The Contractor bears the responsibility of ensuring its, and its subcontractors', employees are not impaired in any manner that would jeopardize the safety of the public, the employees of other Contractors and their Subcontractors, the Owner, Architect, and Construction Manager.
3. All Contractors, subcontractors, suppliers and their employees are to refrain from conversing with the Owner's personnel, volunteers, invitees and students. Any construction employees found doing so will be removed from the site. NO COMMUNICATION BETWEEN WORKERS AND STUDENTS WILL BE TOLERATED.
4. All Contractors, subcontractors, suppliers, and their employees are to refrain from using indecent language. All doing so will be removed from the site. Artwork and decoration found on vehicles belonging to Contractor's or Subcontractor's employees parked on or near the Owner's property that contain indecent language or pictures shall either be covered or removed from the location.
5. All construction personnel shall wear photo ID badges. Photo ID badges are to be provided by the Contractor and receive the approval of the Owner, through the Construction Manager.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner, Separate Contractors, or of other Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner, Separate Contractors, or by other Contractors except with written consent of the Construction Manager, Owner, and such other Contractors or Separate Contractors, which consent shall not be unreasonably withheld. The Contractor

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shall not unreasonably withhold, from the Separate Contractors, other Contractors, or the Owner, its consent to cutting or otherwise altering the Work.

§ 3.14.3 All cutting and patching work shall be done by the Contractor (or through the appropriate Subcontractor). Patches in finish surfaces shall match the adjacent surfaces in material, finish, detail, and quality. Patches in fire rated construction or construction required to be smoke tight shall be made in conformance with assemblies designed and tested by agencies recognized by governing codes. Any UL rated fire-safing materials, flanges, or other materials required by Code, the Contract Documents, or manufacturer's installation instructions for devices penetrating the work affected shall be applied and installed by an approved firestop subcontractor or qualified personnel from the applicable trade.

§ 3.14.4 Only trades persons skilled and experienced in cutting and patching shall perform such work.

§ 3.15 Cleaning Up

§ 3.15.1 On a daily basis, the Contractor shall keep the Project site and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. At completion of the Work, the Contractor also shall remove temporary protection and facilities installed for protection of work during construction unless otherwise directed by the Owner, Architect or Construction Manager.

§ 3.15.2 In addition, at the completion of the Work, the Contractor shall perform the following final cleaning:

.1 Remove temporary protection and facilities installed for protection of work during construction unless otherwise directed by the Owner, Architect or Construction Manager
.2 Clean transparent materials including glass in doors and windows.
.3 Replace any damaged glass.
.4 Clean each surface or unit to the condition expected in normal commercial building cleaning in compliance with manufacturer instructions.
.5 Clean exposed finishes to a dust free condition, free of stains, films, fingerprints and similar foreign substances.
.6 Clean floors as recommended by the manufacturers if new, vacuum existing carpeted floors and mop existing wood, ceramic tile and vinyl tile floors.
.7 Wipe surfaces of mechanical and electrical equipment, to remove excess lubrication and other substances.
.8 Clean plumbing fixtures to a sanitary condition.
.9 Clean light fixtures and lamps.

§ 3.15.3 Comply with authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials on Owner's premises. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of them in a lawful manner.

§ 3.15.4 If the Contractor fails to clean up as provided in the Contract Documents, the Owner, or Construction Manager with the Owner's approval, may do so and the Owner shall be entitled to reimbursement from the Contractor(s) who failed to clean. The cost will be divided among each Contractor who has not cleaned their debris and shall include any custodial overtime, Construction Manager's administration fees, etc. If the Owner is not reimbursed for such costs, the Contractor's share of such costs shall be deducted from the next payment to the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner, Construction Manager, and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Construction Manager, and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a

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particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner, Architect, or Construction Manager. However, if an infringement of a copyright or patent is discovered by, is believed to exist by or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect and Owner through the Construction Manager.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner, Owner's Board of Education, Construction Manager, Architect, and each of their respective officers, directors, consultants, agents and employees from and against claims, damages, losses, judgements, fines, penalties, costs and expenses, including but not limited to attorneys' fees, attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property arising out of or resulting from performance of the Work by the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, judgement, fine, penalty, cost or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.1.1 The Owner's right to indemnification shall in no way be diminished, waived or discharged by the exercise of any other remedy provided by the Contract Documents or by law.

§ 3.18.1.2 The Owner may withhold from an offending Contractor's Contract Sum an amount sufficient to cover any damages sustained by person or entity indemnified by the Contractor pursuant to this Section 3.18 and all expenses and costs associated with the damage sustained.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 As an addition to and not a limitation of the indemnity provided in Section 13.18.1 of these General Conditions, to the fullest extent permitted by law, the Contractor's indemnity obligations under this Section 3.18 shall, but not by way of limitation, specifically include all claims, damages, suits, proceedings, actions, fines, penalties, charges and judgments which may be made against the Owner, the Architect, the Construction Manager and their respective consultants, officers, directors, officials, employees, servants and agents under any applicable statute, rule, regulation or ordinance, including the New York State Labor Law, the New York State Occupational Safety and Health Act, the Federal Occupational Safety and Hazardous Act and similar laws of other governmental bodies having jurisdiction over the Owner's property or Project due to the method of execution of the Work of the Contractor or its Subcontractor(s) or their respective officers, directors, employees, contractors, suppliers, servants, agents or any person or firm directly or indirectly engaged by such Contractor or Subcontractor.

§ 3.18.4 As an addition to and not a limitation of the indemnity provided in Section 13.18.1 of these General Conditions, to the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Owner's Board of Education, the Architect and the Construction Manager and their respective consultants, officers, directors, officials, employees, servants and agents (the "Indemnitees") of and from any and all liability for violation of any statute, rule, regulation or ordinance applicable to the Contractor's Work and shall defend any claims, proceedings or actions which may be brought against one or more of the Indemnitees as a result thereof.

§ 3.18.5 As an addition to and not a limitation of the indemnity provided in Section 13.18.1 of these General Conditions, to the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the Owner, Architect and Construction Manager from any and all claims, damages, losses, suits, obligations, fines, penalties, costs, charges, and expenses which may be imposed upon or incurred by or asserted against any of them by reason of act or omission of such Contractor or any person or firm for whose acts such Contractor may be liable, with respect to such Contract or the performance or failure to perform the Work under such Contract.

§ 3.18.6 As an addition to and not a limitation of the indemnity provided in Section 13.18.1 of these General Conditions, to the fullest extent permitted by law, the Contractor also shall defend, indemnify and hold harmless the Owner, the Owner's Board of Education, the Architect and the Construction Manager and their respective consultants,

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officers, directors, officials, employees, servants and agents (the "Indemnitees"), at the Contractor's sole expense, against any actions, lawsuits or proceedings brought against the Indemnitees as a result of any and all public improvement liens filed against the payments due the Contractor as well as any other liens filed against the Owner's property or facilities. The Contractor hereby agrees to indemnify and hold harmless the Indemnities against any liability, claims, damages, losses, obligations, fines, penalties, charges, judgments, costs and expenses, including but not limited to attorneys' fees, suffered or incurred by Indemnities as a result of such liens, claims, actions, lawsuits or proceedings.

§ 3.18.7 Whenever any party to the Contract is required in words or substance to indemnify or hold harmless another party, whether or not the following is expressly included in whole or in part in the paragraph or section with regard to such particular indemnification and hold harmless provision, such indemnification and hold harmless provision shall include, but not be limited to, the payment or reimbursement of all judgments, claims, damages, losses, fees costs and expenses and litigation costs and expenses, including but not limited to, the reasonable fees of its attorneys and witnesses.

§ 3.18.8 Whenever the Contractor is required in this Section 3.18 or any other provision of the Contract Documents to defend the Owner, the Owner's Board of Education, the Architect, or the Construction Manager or their respective consultants, officers, directors, officials, employees, servants and agents (the "Indemnitees") against any claim, action, or proceeding, in the event the Contractor shall fail or refuse to defend any one or more of the Indemnitees, the Contractor shall be liable to such Indemnitee for all costs such Indemnitee incurs in defending such claim, action or proceeding and all costs of such Indemnitee, including attorneys' fees, incurred to recover such defense costs from the Contractor.

§ 3.18.9 The Contractor's obligations under this Section 3.18 are in addition to and in no way limits or abrogates any other indemnity obligation of the Contractor included in any other provision of the Contract Documents. The Contractor's obligations under this Section 3.18 shall survive the expiration and/or termination of the Contract, in whole or in part.

§ 3.19 Daily Records Clause

§ 3.19.1 The Contractor shall prepare and maintain Daily Inspection Records to document the progress of the work on a daily basis. Such daily records shall include a daily accounting of all labor and all equipment on the site for the Contractor and all subcontractors, at any tier. Such daily records will make a clear distinction between work being performed under Change Order, base scope work and/or disputed work. Such daily records shall be copied and provided to the Owner through the Construction Manager at the end of every week.

ARTICLE 4 ARCHITECT AND CONSTRUCTION MANAGER

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 of these General Conditions and identified as such in the Agreement.

§ 4.1.2 The Construction Manager is the person or entity retained by the Owner pursuant to Section 2.3.3 of these General Conditions and identified as such in the Agreement.

(Paragraph deleted)

§ 4.2 Administration of the Contract

§ 4.2.1 The Construction Manager and Architect will provide administration of the Contract as described in the Contract Documents and will be the Owner's representatives during construction until the date the Architect issues the final Certificate for Payment. The Construction Manager and Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of the site visits,

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the Architect will keep the Owner and the Construction Manager reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner and Construction Manager (1) known deviations from the Contract Documents and from the most recent Project schedule prepared by the Construction Manager, and (2) defects and deficiencies observed in the Work. The Architect will recommend to the Owner what actions are needed to remedy the defects and deficiencies observed in the Work.

§ 4.2.2.1 The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for site visits made necessary by the fault of the Contractor to maintain the Project Schedule or for defects and deficiencies in the Work. The Owner may see reimbursement pursuant to the procedures set forth in Section 9.5.1 of these General Conditions.

§ 4.2.3 The Construction Manager shall provide one or more representatives who shall be in attendance at the Project site whenever the Work is being performed. The Construction Manager will determine in general if the Work observed is being performed in accordance with the Contract Documents, will keep the Owner and Architect reasonably informed of the progress of the Work, and will promptly report to the Owner and Architect (1) known deviations from the Contract Documents and from the most recent Project schedule, and (2) defects and deficiencies observed in the Work.

§ 4.2.4 The Construction Manager will schedule and coordinate the activities of the Contractor and other Contractors in accordance with the latest approved Project schedule.

§ 4.2.5 The Construction Manager, except to the extent required by Section 4.2.4 of these General Conditions, and Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, and neither will be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. Neither the Construction Manager nor the Architect will have control over or charge of, or be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or of any other persons or entities performing portions of the Work.

§ 4.2.6 Communications. Except when direct communications have been specifically authorized or emergency circumstances necessitate direct communications, the Owner and Contractor shall endeavor to communicate with each other and the Construction Manager's consultants through the Construction Manager about matters arising out of or relating to the Contract Documents or the Project. The Owner and Construction Manager shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities.. Except when emergency circumstances necessitate direct communications, communications by and with the Architect's consultants shall be through the Architect. Except when emergency circumstances necessitate direct communications, communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with other Contractors shall be through the Construction Manager. Except when emergency circumstances necessitate direct communications, communications by and with the Owner's own forces and Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.7 The Construction Manager and Architect will review and certify all Applications for Payment by the Contractor, in accordance with the provisions of Article 9.

§ 4.2.8 The Architect and Construction Manager have authority to reject Work that does not conform to the Contract Documents, and will notify each other about the rejection. Whenever the Construction Manager or Architect considers it necessary or advisable, the Construction Manager and Architect individually will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3 of these General Conditions, upon written authorization of the Owner, whether or not the Work is fabricated, installed or completed. The foregoing authority of the Construction Manager and Architect will be subject to the provisions of Sections 4.2.18 through 4.2.20 inclusive of these General Conditions, with respect to interpretations and decisions of the Architect. However, neither the Architect's nor the Construction Manager's authority to act under this Section 4.2.8 of these General Conditions nor a decision made by either of them in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or the Construction Manager to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons performing any of the Work.

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§ 4.2.9 Utilizing the submittal schedule provided by the Contractor, the Construction Manager shall prepare, and revise as necessary, a Project submittal schedule incorporating information from other Contractors, the Owner, Owner's consultants, Owner's Separate Contractors and vendors, governmental agencies, and participants in the Project under the management of the Construction Manager. The Project submittal schedule and any revisions shall be submitted to the Architect for approval.

§ 4.2.10 The Construction Manager will receive and promptly review for conformance with the submittal requirements of the Contract Documents, all submittals from the Contractor such as Shop Drawings, Product Data, and Samples. Where there are other Contractors, the Construction Manager will also check and coordinate the information contained within each submittal received from the Contractor and other Contractors, and transmit to the Architect those recommended for approval. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Construction Manager represents to the Owner and Architect that the Construction Manager has reviewed and recommended them for approval. The Construction Manager's actions will be taken in accordance with the Project submittal schedule approved by the Architect or, in the absence of an approved Project submittal schedule, with reasonable promptness while allowing sufficient time to permit adequate review by the Architect.

§ 4.2.11 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Upon the Architect's completed review, the Architect shall transmit its submittal review to the Construction Manager.

§ 4.2.12 Review of the Contractor's submittals by the Construction Manager and Architect is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Construction Manager and Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12 of these General Conditions. The Construction Manager and Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.13 The Construction Manager will prepare Change Orders and Construction Change Directives.

§ 4.2.14 The Construction Manager and the Architect will take appropriate action on Change Orders or Construction Change Directives in accordance with Article 7, and the Architect will have authority to order minor changes in the Work as provided in Section 7.4 of these General Conditions. The Architect, in consultation with the Construction Manager, will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4 of these General Conditions.

§ 4.2.15 Utilizing the documents provided by the Contractor, the Construction Manager will maintain at the site for the Owner one copy of all Contract Documents, approved Shop Drawings, Product Data, Samples, and similar required submittals, in good order and marked currently to record all changes and selections made during construction. These will be available to the Architect and the Contractor, and will be delivered to the Owner upon completion of the Project.

§ 4.2.16 The Construction Manager will assist the Architect in conducting inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion in conjunction with the Architect pursuant to Section 9.8 of these General Conditions; and receive and forward to the Owner written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10 of these General Conditions. The Construction Manager will forward to the Architect a final Application and Certificate for Payment or final Project Application and Project Certificate for Payment upon the Contractor's compliance with the requirements of the Contract Documents.

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§ 4.2.17 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Construction Manager of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.18 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of the Construction Manager, Owner, or Contractor through the Construction Manager. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations or information requested of the Architect shall be furnished in compliance with this Section 4.2 of these General Conditions, then no delay may be claimed by the Contractor based on the failure of the Architect to furnish such interpretations or information if they are provided within 15 days after the Architect's receipt of the request.

§ 4.2.19 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions that are consistent with the Contract Documents. Such interpretations may, at the Architect's option, be issued in the form of additional drawings or instructions or both indicating in greater detail the construction or design of the various parts of the Work; such drawings or instructions may be effected by Construction Change Directive or other notice to the Contractor, and provided such drawings and/or instructions are, in the opinion of the Architect, reasonably consistent with the previously existing Contract Documents, the Work shall be executed in accordance with such additional drawings and/or instructions without additional cost or extensions of Contract Time.

§ 4.2.20 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.21 The Construction Manager will receive and review requests for information from the Contractor, and forward each request for information to the Architect, with the Construction Manager's recommendation. The Architect will review and respond in writing, through the Construction Manager, to requests for information about the Contract Documents. The Construction Manager's recommendation and the Architect's response to each request will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

§ 4.2.22 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

.1 The Contractor's request for information shall be prepared and submitted in accordance with the General Requirements (Division 01 of the Specifications) on the form included therein or as otherwise approved in advance. The Architect will return requests for information that do not conform to requirements of the Contract Documents.

.2 The Architect's response to a request for information (RFI), or issuance of a clarification or interpretation shall be considered an interpretation, clarification, supplemental information or an order for a minor change in the Work not involving an adjustment in Contract Sum or extension of Contract Time and not inconsistent with the intent of the Contract Documents, and shall be binding, unless indicated otherwise in the Architect's response to the RFI.

§ 4.2.23 The Contractor shall maintain a log that lists each request for information. This log shall contain the Drawing reference or Specification section to which the request pertains, the date of the request, to whom the request was made, by whom the request was made, the nature of the request, and the Architect's resolution thereof.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site or to furnish material, equipment, fixtures or other services with respect to a portion of the Work. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a

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Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include other Contractors or Separate Contractors or the subcontractors of other Contractors or Separate Contractors.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Construction Manager, for review by the Owner, Construction Manager and Architect, of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Construction Manager may notify the Contractor whether the Owner, the Construction Manager or the Architect (1) has reasonable objection to any such proposed person or entity or, (2) requires additional time for review. Failure of the Construction Manager to provide notice within the 14-day period shall constitute notice of no reasonable objection.

The listing required by this Section shall be submitted to the Architect no later than 30 days from the date of the Agreement. This list shall include the names of manufacturers, suppliers, and installers proposed for each of the products, equipment, and materials to be incorporated into the Project.

The Contractor shall furnish upon request adequate data on any named entity on the list in order to permit the Architect and the Owner to conduct a proper evaluation. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents and all products furnished by the listed manufacturer must conform to such requirements.

The Contractor shall, prior to any work being performed, obtain and provide to the Owner and Construction Manager, a copy of each Subcontractor's Contractor Certificate of Registration obtained through compliance with Section 220-i of the New York State Labor Law.

§ 5.2.1.1 Subcontractors will not be acceptable unless, when required by the Construction Manager, evidence is furnished that the proposed subcontractor has satisfactorily completed similar subcontracts as contemplated under this prime contract, and has the necessary experience, personnel, equipment, plant, and financial ability to complete the subcontract in accordance with the intent to the Contract Documents.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner, Construction Manager or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner, Construction Manager or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner, Construction Manager or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required. In addition, no increase in the Contract Price or Contract Time shall be allowed where a subcontractor is rejected by the Architect, Construction Manager or Owner who (1) is deemed unqualified to perform the particular work subcontracted by the Contractor, (2) has too many current projects to reasonably be expected to have sufficient personnel to timely perform the subcontracted work, (3) does not have the necessary experience, personnel, equipment, plant and financial ability to complete the subcontract or (4) has a history of poor performance in work of a similar nature.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner, Construction Manager or Architect makes reasonable objection to such substitution.

§ 5.2.5 Notwithstanding any other provision of the Contract Documents, Contractor shall perform at least twenty-five percent (25%) of the field work by its own employees. For the purpose of the preceding sentence, any part of the work performed by supervisory personnel (persons above level of foreman) or by the office personnel shall not be

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considered part of the field work performed by the Contractor's employees. Such items as bonds, certificates of insurance, shop drawings and similar items do not count towards the twenty-five percent (25%) requirement.

§ 5.2.6 All Subcontracts over $10,000 shall be in writing. Fully executed copies of all subcontracts shall be provided to the Owner through the Construction Manager, including but not limited to all addenda, appendices and/or exhibits to such subcontracts, including scope of work sheets before work by such subcontractors commences. Upon request, any Purchase Orders for materials, equipment or supplies related to the performance of the Work shall be furnished to the Owner through the Construction Manager.

§ 5.3 Subcontractual Relations

§ 5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, that the Contractor, by these Contract Documents, assumes toward the Owner, Construction Manager and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner, Construction Manager and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. The agreement between the Contractor and Subcontractor shall not provide, nor shall the Contract Documents be deemed to provide, any rights, remedies or redress by the Subcontractor(s) against the Owner.

§ 5.3.2 The Contractor shall not enter into any subcontract, contract, agreement, purchase order or other arrangement for the furnishings of any portion of the materials, services, equipment or Work with any party or entity if such party or entity is an Affiliated Entity, unless such Arrangement has been approved by the Owner through the Construction Manager, after full disclosure of the relationship and all details relating to the proposed Arrangement. The term "Affiliated Entity" means any entity with respect to which the Contractor has direct or indirect ownership or control, including, without limitation,

.1 Any entity owned in whole or in part by the Contractor;

.2 Any holder of more than ten percent (10%) of the issued and outstanding shares of, or the holder of any interest in, the Contractor; or

.3 Any entity in which any officer, director, employee, partner or shareholder or member of the family of any of the foregoing persons) of the Contractor or any entity owned by the Contractor has a direct or indirect interest, which interest includes, but is not limited to, that of a partner, employee, agent or shareholder.

§ 5.3.3 The Contractor shall promptly notify the Owner, the Construction Manager, and Architect of any material defaults by any Subcontractors and/or whether it has terminated its agreement with any of its Subcontractors for any reason.

§ 5.3.4 The Contractor shall check record drawings of its Subcontractors each month. Written confirmation that the record drawings are "up to date" shall be required by the Construction Manager prior to approval of the Contractor's monthly payment requisition.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 of these General Conditions and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

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.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract, except for sums due and owing by Contractor under the subcontract for work performed or material supplied prior to receipt of Owner's notice of its determination to accept the subcontract. Owner shall only be required to compensate the Subcontractor of an accepted subcontract for compensation accruing to such Subcontractor for Work done or materials delivered after the date on which Owner provided notice of its determination to accept the subcontract. All sums due and owing by Contractor to the Subcontractor of an accepted subcontract shall constitute a debt between the Contractor and Subcontractor.

§ 5.4.2 It is agreed and understood that the contingent assignment of subcontracts is part of the consideration to Owner for entering into the Contract with Contractor and may not be withdrawn prior to Final Completion or Termination of all remaining Work of the Contractor pursuant to Section 14.4 hereof. Contractor shall deliver acknowledgement in form and substance satisfactory to Owner from each Subcontractor of the contingent assignment of subcontracts described herein no later than ten (10) days after the date of execution of each subcontract.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4 of these General Conditions, the Owner may further assign the subcontract to a successor Contractor or other entity. If the Owner assigns the subcontract to a successor Contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor Contractor's obligations under the subcontract.

§ 5.4.4 Each subcontract shall specifically provide that the Owner shall be responsible to the Subcontractor only for those obligations of the Contractor that accrue subsequent to the Owner's exercise of any rights under this conditional assignment.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction with Own Forces and to Award Other Contracts

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors.

§ 6.1.2 When the Owner performs construction or operations with the Owner's own forces or Separate Contractors, the Owner shall provide for coordination of such forces and Separate Contractors with the Work of the Contractor, who shall cooperate with them.

§ 6.1.3 All Contractors, including the Owner's Separate Contractors, shall cooperate with each other in the installation and construction of each contractor's work and in such manner as the Owner and/or Construction Manager may direct. All Contractors shall control and coordinate the work of their subcontractors, if any. The award of more than one Contract for the Project requires sequential or otherwise inter-related contractor operations and may involve inherent delays in the progress of any individual Contractor's work. Accordingly, the Owner and/or Construction Manager cannot guarantee the unimpeded operations of any Contractor. Each Contractor acknowledges these conditions and understands that the Contractor shall bear the risk of all ordinary delays caused by the presence or operations of other contractors engaged upon the Project and ordinary delays attended upon the approved Project Schedule.

§ 6.1.3.1 The Contractor shall not interfere with the erection, installation or storage upon the premises of any work, materials, supplies or equipment not included in the Work, but which is to be performed and furnished by other Contractors, and the Contractor shall properly connect and coordinate the work therewith. The Contractor shall be responsible for the coordination and intermeshing of the work of his various sub-contractors and the work of other Contractors with the Work.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner's own forces, Separate Contractors, Construction Manager and other Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

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§ 6.2.1.1 Should any other contractor, who has or shall have, a contract with the Owner for the performance of Work upon the site, sustain any damage through any act or omission of the Contractor or its Subcontractor(s) or their respective officers, directors, employees, contractors, suppliers, servants, agents or any person or firm directly or indirectly engaged by such Contractor or Subcontractor in the performance of the Contract, the Contractor agrees to reimburse the Owner and/or such other Contractor directly for all such damages and to defend the Owner, at the Contractor's sole expense, against any claim brought against the Owner with respect to such damage.

§ 6.2.1.2 In case of interference between the operations of different Contractors, the Architect or Construction Manager, will be sole judge of the rights of each Contractor and shall have the authority to decide in what order the work may proceed, and in all cases such decision shall be final and binding on all parties.

§ 6.2.1.3 The Contractor, including its subcontractors, shall keep informed of the progress of other contractors and shall notify the Construction Manager immediately of the lack of progress on the part of the other Contractors where such delay will interfere with its own operations. Failure of a Contractor to keep informed of the work progressing on the Project and failure to give notice of lack of progress by others shall be construed as acceptance by the Contractor of the status of the work as being satisfactory for proper coordination with the Contractor's own work.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner's own forces, Separate Contractors or other Contractors, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Construction Manager and Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor or other Contractors that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Construction Manager and the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's or other Contractors' completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractors or other Contractors that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs, including costs that are payable to a Separate Contractors or to other Contractors, because of the Contractor's delays, improperly timed activities or defective construction. Failure to provide such reimbursement shall entitle the Owner to deduct such costs from the payment(s) due the Contractor until the Owner has fully recovered such costs. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of delays, improperly timed activities, damage to the Work or defective construction by the Owner's own forces, Separate Contractors, or other Contractors.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction, or to property of the Owner, Separate Contractors, or other Contractors as provided in Section 10.2.5 of these General Conditions. The Contractor shall promptly correct discrepancies or defects in its Work which have been identified by other contractor(s) as affecting proper execution and results of the Work of such other contractor(s).

§ 6.2.5 The Owner, Separate Contractors, and other Contractors shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14 of these General Conditions.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, other Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Construction Manager, with notice to the Architect, will allocate the cost among those responsible. If the Owner is not reimbursed promptly for such costs, the Contractor's share of such costs shall be deducted from the next payment to the Contractor.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. No course of conduct or dealings between the Contractor and Owner, Construction Manager or Architect, nor express or implied acceptance of alterations or

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additions to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim against the Owner for an increase in the amount due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Construction Manager, Architect and Contractor. A Construction Change Directive requires agreement by the Owner, Construction Manager and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone. No Change Order or Construction Change Directive shall become effective unless and until it is approved by the Owner in writing.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work. A change in the Contract Sum shall be accomplished only by Change Order or, when no agreement can be reached with the Contractor, by a Construction Change Directive. No course of conduct or dealings between the Contractor and Owner, Construction Manager or Architect, nor express or implied acceptance of alterations or additions to the Work, whether or not there is, in fact, any unjust enrichment to the Work, shall be the basis of any claim to an increase the amounts due under the Contract Documents or a change in any time period provided for in the Contract Documents.

§ 7.2 Change Orders

A Change Order is a written instrument prepared by the Construction Manager and signed by the Owner, Construction Manager, Architect, and Contractor, stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.1 Unless otherwise agreed to in writing by the Owner and the Contractor, the combined overhead and profit that shall be included in the total cost (or credit) to the Owner for a Change in the Work shall be based on the following schedule:

.1 For the Contractor, for Work performed by the Contractor's own forces:
  a. 15% on the first $25,000 of the change order direct cost of self-performed work,
  b. 10% on the portion of the change order direct cost of self-performed work between $25,000 and $50,000 and
  c. 7.5% on the portion of the change order direct cost of self-performed work between $50,000 and $200,000 and
  d. 5% on the portion of the change order direct cost of self-performed work greater than $200,000.

.2 For the Contractor, for Work performed by the Contractor's Subcontractor five percent (5%) of the amount due the Subcontractor,

.3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, fifteen percent (15%) of the cost,

.4 For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, five percent (5%) of the amount due the Sub-subcontractor, and

.5 Cost to which overhead and profit is to be applied shall be determined in accordance with Section 7.3.7 of these General Conditions and shall be itemized (including labor costs).

§ 7.2.2 A Change Order, when issued, shall be full compensation, or credit, for the extra Work performed, omitted, or substituted. It shall show on its face, any adjustment in time for completion of the Project as a result of the Change in the Work. Each Change Order shall include all costs related thereto, including all overhead, miscellaneous expenses, and incidentals.

§ 7.2.3 Once a Change Order has been signed by the Contractor, Construction Manager, Architect and Owner, it shall constitute a final settlement of all matters relating to the change in the Work that is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contractor's Contract Sum, Contract Time and the construction schedule.

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§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Construction Manager and signed by the Owner, Construction Manager and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- **.1** Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- **.2** Unit prices stated in the Contract Documents or subsequently agreed upon;
- **.3** Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- **.4** As provided in Section 7.3.4 of these General Conditions.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Construction Manager shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Contract Documents, or if no such amount is set forth in the Contract Documents, a reasonable amount. In such case, and also under Section 7.3.3.3 of these General Conditions, the Contractor shall keep and present, in such form as the Construction Manager may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- **.1** Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Construction Manager and Architect;
- **.2** Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- **.3** Rental costs of machinery and equipment, exclusive of hand tools, rented from others (there shall be no rental payments for the Contractor's own machinery and equipment).
- **.4** Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- **.5** Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15. Failure to timely file any claim in accordance with the requirements set forth therein shall constitute a waiver of such claim.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Construction Manager of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Construction Manager and Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured in accordance with Section 7.1.4 of these General Conditions.

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§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Construction Manager and Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Construction Manager and Architect determine to be reasonably justified. The interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of the Contractor to disagree and assert a Claim in accordance with Article 15 of these General Conditions.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Construction Manager and Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Construction Manager shall prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. The work included in such order shall be performed by the Contractor at no additional cost to the Owner and shall not form the basis for a claim for an extension of the Contractor's time to complete its Work. A signed minor change in the Work is not and does not constitute an approved change order. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Construction Manager and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Construction Manager that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time. The Contractor shall perform the work included in such orders so as to cause no delay to its Work and/or the work of other contractors engaged by the Owner in connection with the Project.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8 of these General Conditions.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.1.5 The Date of Final Completion of the Work is the date all of the Work required under the Contract Documents is completed, all required materials and documents have been delivered to the Owner, and all applicable licenses, permits, certificates, or approvals have been obtained for the Owner's beneficial use of the Project.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to submitting to the Owner, through the Construction Manager, payment and performance bonds compliant with the Contract Documents and proof of having in effect the insurance required to be furnished by the Contractor pursuant to the Contract Documents.

§ 8.2.2.1 Contractor shall not commence work on the site until certificates of insurance as described in Exhibit A (Insurance and Bonds) to AIA Document A132–2019, attesting that the required coverage is in force, have been received and accepted by the Owner.

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§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.2.4 The Contractor may request access to the site during times beyond the work hours permitted. Approval of such a request is solely at the discretion of the Owner. If approval is given, the Contractor is responsible for paying all additional costs incurred by the Owner for providing Project sites to the Contractor during the additional time periods, including but not limited to any costs incurred for the Owner's staff to be present or provide access and additional fees the Owner incurs for services of the Architect and Construction Manager.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, Architect, Construction Manager, or an employee of any of them, or of the Owner's own forces, Separate Contractors, or other Contractors; (2) by changes ordered in the Work; (3) by fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2 of these General Conditions, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts and the Architect determines justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

In the event that the Owner, the Contractor or the Architect is delayed or hindered in or prevented from the performance of any act required by the Contract Documents by reason of a fire, failure of power, unusual delay in deliveries, adverse weather conditions not reasonably anticipatable, unavoidable casualties or other causes of a like nature beyond the Owner's, the Contractor's or the Architect's control, the Contractor (or its Subcontractors) shall not be entitled to any additional compensation by Change Order to the extent such delay will prevent the Contractor from achieving Substantial Completion within the Contract Time and if performance of the Work is not, was not or would not have been delayed by any other cause for which the Contractor is not entitled to an extension in the Contract Time. No extension of time will be granted for changes in the Work for labor disputes, picketing, hand billing, refusal to deliver, work stoppages not authorized or directed by the Owner.

§ 8.3.1.1 An extension of time may be granted in accordance with this Article 8, but only after written application is made by the Contractor for the extension. All claims for additional time shall be supported by documentation which demonstrates to the Architect and the Owner's satisfaction that the critical path of the Work has been significantly altered by the delays to the activities in question, and that the schedule cannot be maintained by re-ordering other activities within the Project at no cost.

§ 8.3.1.2 An extension of time shall be only for the number of days of delay which the Architect may determine to be due solely to the causes set forth in the application for extension of time. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently, but if at all, only the actual period of delay as determined by the Architect. For each day of delay determined by the Architect, the Contractor shall be allowed to add one day to the time limitation specified for completion of the Work in the Contract Documents.

§ 8.3.1.3 The Contractor further acknowledges and agrees that adjustments in the Contract Time will be permitted for a delay only to the extent such delay (i) is not caused, or could not have been anticipated, by the Contractor, (ii) could not be limited or avoided by the Contractor's timely notice to the Owner of the delay, (iii) is of a duration not less than one (1) day and (iv) the Contractor has made all reasonable effort to recover the alleged lost time. No extension of time will be granted for changes in work for labor disputes, picketing, hand billing, refusal to deliver, work stoppages due to material procurement delays or other stoppages not authorized by the Owner.

§ 8.3.2 Claims relating to time shall be made in accordance with this Section 8.3 and applicable provisions of Article 15; however, the Contractor's Claims, if any, for any increase in Contract Time must be made in accordance with the time requirements of this Section. Claims for an increase in Contract Time must be made in writing to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims must be initiated within seven (7) days after the Contractor has notice of the delay (initial notice). Thereafter, the Contractor must provide full details and support documentation with regard to the cause of the delay within twenty-one (21) days of the initial notice of the delay. If either the initial notice or the supporting documentation is not submitted to the Initial Decision Maker with a copy to the Architect, if the Architect is not the Initial Decision Maker, in writing within the time periods prescribed in this Section, the Claim for an increase in Contract Time shall be waived. If the cause for the delay is a continuing one, then only one Claim is necessary. The Contractor's supporting

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documentation to the Initial Decision Maker and/or Architect shall include an estimate of cost, if any, and of the probable effect of the delay on the progress of the Work and the Project Schedule.

§ 8.3.2.1 The Architect will ascertain the facts and extent of the delay and extend the time for completing the Work when in the Architect's judgment the findings of fact justify such an extension. The Architect's determination will be final and binding in any litigation commenced by the Contractor against the Owner that arises out of the denial of an extension of time to the Contractor. Any approval of an extension of the Contractor's time to complete its Work shall be effectuated through a Change Order or, in the absence of an agreement, a Construction Change Directive.

§ 8.3.3 Absent (a) uncontemplated acts of God, war, or terrorism, (b) fires or (c) acts or omissions of the Owner, Construction Manager or Architect that constitute fraud or active interference with the Contractor's performance of the Work that continues after the Contractor furnishes the Owner with three (3) days' written notice of such interference, the Contractor agrees the Owner shall not be liable to the Contractor and/or any subcontractor for claims or damages of any nature caused by or arising out of delays. Absent those circumstances, the sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the claims procedure set forth herein. Except to the extent, if any, expressly prohibited by law, the Contractor expressly agrees not to make and hereby waives any claim for damages for delay, including, but not limited to, those resulting from increased labor or material costs; directions given or not given by the Owner, Construction Manager or Architect, including scheduling and coordination of the Work; or the Architect's preparation of drawings and specifications or review of shop drawings and requests for instruction(s). The Contractor agrees that its sole right and remedy therefor shall be an extension of time, if appropriate.

§ 8.3.3.1 The Owner's exercise of any of its rights or remedies under the Contract Documents (including, but not limited to, agreeing to change orders, issuance of Construction Change Directives, or directing Extraordinary Measures, or directing correction of the Work), regardless of the extent or frequency of the Owner's exercise of such rights or remedies, shall not be construed as active interference with the Contractor's performance of the Work.

§ 8.3.4 When the Contract Time has been extended, as provided under this Section 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs of other similar reasons.

§ 8.4 Liquidated Damages

§ 8.4.1 Contractor realizes that time is of the essence on this Contract and the Construction Schedule shall be submitted per Section 3.10.1. In the event the Contractor fails to submit a Construction Schedule by said schedule date, the sum per calendar day, of Three Hundred Dollars ($300.00) will be subtracted from the Payment due the Contractor or, if the amount due Contractor as Payment is insufficient, any deficiency shall be paid by the Contractor to the Owner.

§ 8.4.2 Contractor realizes that time is of the essence on this Contract and the completion date (including any applicable Milestone Dates) for any work and the date of Substantial Completion shall be no later than the dates for same indicated in the Contract Documents as modified by any extensions of time effected through a Change Order or Construction Change Directive. The Contractor understands that substantial disruption of the Owner's educational operations will occur if the Project is not completed by the date of Substantial Completion and if any portion of the Project is not completed by the applicable Milestone Date. In the event the Contractor fails to complete any work or substantially complete the work under the Contract by said schedule date, the sum listed below per calendar day will be subtracted from the Payment due the Contractor until final completion (or, if the amount due Contractor as Payment is insufficient, any deficiency shall be paid by the Contractor to the Owner.

Liquidated damages will be assessed in the amount of $1500.00 per day for each and every calendar day AFTER such time allowed for a milestone or substantial completion date.

The said sum per calendar day shall constitute the Liquidated Damages incurred by the Owner for each day of delay beyond the agreed upon milestone dates and date of Substantial Completion. Such Liquidated Damages shall be in addition to any other damages (other than by reason of delay) Owner may incur as a result of Contractor's breach of Contract.

In addition to Liquidated Damages, the Contractor shall be liable for all additional costs incurred by the Owner after the Substantial Completion Date (as well as Milestone Dates) stated in the Contract Documents for its own employees

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to make the Owner's property and facilities accessible to the Contractor and incurred by the Owner for Construction Manager services and Architect services performed for the Project due to the Contractor's failure to complete its work by the Substantial Completion Date (and Milestone Date) stated in the Contract Documents, including but not limited to the additional costs incurred for extending the duration of their services and for performing additional inspections.

All such costs incurred by the Owner as well as the cost of additional inspections, at the hourly rate of each consultant of the Owner (including the Architect and Construction Manager and their respective consultants) times the hours spent per inspection, will be subtracted from payment due the Contractor. If the amount due the Contractor for payment is insufficient, any deficiency shall be paid by the Contractor to the Owner

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.1.3 Each Application for Payment shall include such documentation, information, instruments, evidence, and materials as Owner, Construction Manager and Architect may deem necessary to substantiate the value of completed work for which payment is sought, including, without limitation, such requisition forms, disbursements requests, indemnities (including evidence of All Risk physical damage insurance coverage on materials and equipment stored off-site), and undertaking as they may specify and an estimate of the total labor done and materials stored at the site (or other location approved in writing by Owner) or installed in the building, less cost for which payment has been made, and also less retainage. All applications for Payment shall be made on and in compliance with a form acceptable to Owner and Architect.

§ 9.1.4 Notwithstanding anything to the contrary contained in the Contract Documents, the Owner may withhold any payments, to the Contractor if and for so long as the Contractor fails to perform any of its obligations or otherwise is in default under any of the Contract Documents; provided, however, that any such hold back shall be limited to an amount sufficient in the reasonable opinion of the Owner to cure any such default or failure of performance by the Contractor.

§ 9.1.5 If the Owner is entitled to reimbursement or payment from the Contractor under or pursuant to the Contract Documents, such payment shall be made promptly upon demand by the Owner. Notwithstanding anything contained in the Contract Documents to the contrary, if the Contractor fails to promptly make any payment due the Owner, or the Owner incurs any costs and expenses to cure any default of the Contractor or to correct defective Work of the Contractor, the Owner shall have an absolute right to offset such amount against the Contract Sum and may, in the Owner's sole discretion, elect either to: (1) deduct an amount equal to that to which the Owner is entitled from any payment then or thereafter due the Contractor from the Owner or (2) issue through the Construction Manager a written notice to the Contractor reducing the Contract Sum by an amount equal to that which the Owner is entitled.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Construction Manager, before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Construction Manager and the Architect. This schedule, unless objected to by the Construction Manager or Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. The Construction Manager shall forward to the Architect the Contractor's schedule of values. Any changes to the schedule of values shall be submitted to the Construction Manager and supported by such data to substantiate its accuracy as the Construction Manager and the Architect may require, and unless objected to by the Construction Manager or the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.2.1 The Contractor and each Subcontractor shall prepare a trade payment breakdown for the work for which it is responsible, such breakdown being submitted on a uniform standardized form reasonably approved by the Architect

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and Owner (AIA G703). The form shall be divided in detail sufficient to exhibit area, floors, and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the Architect as necessary to reflect (1) description of Work (listing labor and material separately), (2) total value, (3) percent of the Work completed to date, (4) value of the work completed to date, (5) percent of previous amount billed, (6) previous amount billed, (7) current percent completed, and (8) value of Work completed to date. Any trade breakdown that unreasonably fails to include sufficient funds shall be withheld from future Applications for Payment to ensure an adequate reserve (including of normal retainage) to complete the Work.

§ 9.3 Applications for Payment

§ 9.3.1 At least fifteen days before the date established for each progress payment, the Contractor shall submit to the Construction Manager an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2 of these General Conditions, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner, Construction Manager or Architect require, such as copies of requisitions, and releases of waivers of lien from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents. Each item listed in the Application for Payment shall have a separate amount for labor and a separate amount for material and other costs.

The form Application for Payment, duly notarized, shall be the most recent authorized edition of AIA Document G702, Application and Certificate for Payment, supported by the most recent authorized edition of AIA Document G703, Continuation Sheet.

§ 9.3.1.1 As provided in Section 7.3.9 of these General Conditions, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Construction Manager and Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 Each Application for Payment shall be submitted electronically and in four (4) hard copies and shall be accompanied by the following, in all form and substance reasonably satisfactory to the Owner, (1) a current conditional Contractor's waiver of claims and liens, and duly executed an acknowledged sworn statement showing all Subcontractors and material suppliers with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any Subcontractor and material supplier in the requested progress payment, and the amount to be paid to the Contractor from such progress payment together with similar sworn statements from all such subcontractors and material suppliers; (2) duly executed unconditional waivers of claims and liens from all Subcontractors and, when appropriate, from material suppliers and lower tier Subcontractors establishing payment or satisfaction of payment of all amounts requested by the Contractor on behalf of such entities or information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner or the Architect or required by the Owner's title insurer.

§ 9.3.1.4 Unless otherwise agreed to in writing, until Substantial Completion, the Owner shall pay the Contractor ninety-five (95%) of the amount due the Contractor.

§ 9.3.1.5 Applications for Payment must be accompanied by any and all releases of liens for previous applications from Contractor and his subcontractors and a sworn and notarized statement that all subcontractors have been paid to at least ninety-five percent (95%) of previously requisitioned sums.

§ 9.3.1.6 Contractors must submit separate Applications for Payment for each facility or per State Education Department Project Number. Only one Application for Payment per State Education Department Project Number may be submitted for payment for each month.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials

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and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site. Such payment by the Owner for materials, equipment, fixtures and supplies stored on or off the Site shall not relieve the Contractor of its responsibility to provide reasonable protection of said materials, equipment, fixtures and supplies until their incorporation into the Work.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials and equipment relating to the Work.

§ 9.3.3.1 The Contractor shall save and keep the Contract Sum and the Owner's property free from all liens and claims, legal or equitable, arising out of Contractor's work under the Contract Documents. In the event any such lien is filed by anyone claiming by, through or under the Contractor, the Contractor shall remove and discharge same within ten (10) days of the filing thereof. The Contractor further expressly undertakes to defend the Owner, the Architect and the Construction Manager and their respective consultants, officers, directors, officials, employees, servants and agents (the "Indemnitees") at the Contractor's sole expense against any actions, lawsuits or proceedings brought against Indemnitees as a result of liens filed against the Contract Sum, the Work, the site of any of the Work, the Project site and any improvements thereon, payments due the Contractor or any portion of the property of any of the Indemnitees referred to collectively as liens in this Section 9.3.3.1. The Contractor hereby agrees to indemnify and hold Indemnitees harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings.

§ 9.3.3.2 The Owner shall release any payments withheld due to lien or claim of lien if the Contractor obtains security acceptable to the Owner or a lien discharge bond that is (1) issued by a surety acceptable to the Owner; (2) in form and substance satisfactory to the Owner, and (3) in an amount required by law to release such lien claim. By posting a lien discharge bond or other acceptable security, however, the Contractor shall not be relieved of any responsibilities or obligations under Section 9.3.3.1 of these General Conditions including without limitation, the duty to defend and indemnify the Owner. The cost of any premiums incurred in connection with such bonds and security shall be the responsibility of the Contractor and shall not be part of, or cause any adjustment to, the Contract Sum.

§ 9.3.4 Each Application for Payment shall be accompanied by the following, all in form and substance satisfactory to the Owner, Construction Manager and Architect.

§ 9.3.4.1 A current Contractor's lien waiver and duly executed and acknowledged sworn statement showing all Subcontractors and material men with whom the Contractor has entered into subcontracts, the amount of each such subcontract, the amount requested for any Subcontractor and material men in the requested progress payment and the amount to be paid to the Contractor for all such Subcontractors and material men.

§ 9.3.4.2 Duly executed waivers of mechanic's and material men's liens from all Subcontractors and, when appropriate, from material men and lower tier Subcontractors establishing payment or satisfaction of payment of all amounts requested by the Contractor on behalf of such entities or persons in any previous Application for Payment.

§ 9.3.4.3 All information and materials required to comply with the requirements of the Contract Documents or reasonably requested by the Owner, Construction Manager or the Architect. If required by the Owner's title insurer, if any, the Contractor shall execute a personal gap undertaking in form and substance satisfactory to such title insurer.

§ 9.3.4.4 All Applications for Payment must be accompanied with certified payrolls for all Contract Work performed. In addition, each Contractor and sub-contractor shall submit to the Owner within thirty days after issuance of its first payroll, and every thirty days thereafter, a transcript of the original payroll record, subscribed and affirmed as true under penalties of perjury. The Owner shall be required to receive and maintain such payroll records. The original payrolls or transcripts shall be preserved for three years from the completion of the Work on the awarded project. An out of state contractor must post a wage rate schedule at the job site.

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§ 9.3.5 Applications for Payment that, when received, are missing information or required documentation will be rejected by the Construction Manager or Architect and will not be considered for payment by the Owner, Architect or Construction Manager until resubmitted with all required information and documents.

§ 9.4 Certificates for Payment

§ 9.4.1 The Construction Manager will, within seven days after the Construction Manager's receipt of the Contractor's Application for Payment, review the Application, certify the amount the Construction Manager determines is due the Contractor, and forward the Contractor's Application and Certificate for Payment to the Architect. Within seven days after the Architect receives the Contractor's Application for Payment from the Construction Manager, the Architect will either (1) issue to the Owner a Certificate for Payment, in the full amount of the Application for Payment, with a copy to the Construction Manager; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Construction Manager and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1 of these General Conditions; or (3) withhold certification of the entire Application for Payment, and notify the Construction Manager and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1. The Construction Manager will promptly forward to the Contractor the Architect's notice of withholding certification.

§ 9.4.2 Intentionally Omitted.

§ 9.4.2.1 Intentionally Omitted.

§ 9.4.3 The Construction Manager's certification of an Application for Payment shall be based upon the Construction Manager's evaluation of the Work and the data in the Application or Applications for Payment. The Construction Manager's certification will constitute a representation that, to the best of the Construction Manager's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.4 The Architect's issuance of a Certificate for Payment shall be based upon the Architect's evaluation of the Work, the recommendation of the Construction Manager, and data in the Application for Payment or Project Application for Payment. The Architect's certification will constitute a representation that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified.

§ 9.4.5 The representations made pursuant to Sections 9.4.3 and 9.4.4 of these General Conditions are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Construction Manager or Architect.

§ 9.4.6 The issuance of a Certificate for Payment will not be a representation that the Construction Manager or Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Construction Manager or Architect may withhold a Certificate for Payment for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Construction Manager's or Architect's opinion the representations to the Owner required by Section 9.4.3 and 9.4.4 of these General Conditions cannot be made. If the Construction Manager or Architect is unable to certify payment in the amount of the Application, the Construction Manager will notify the Contractor and Owner as provided in Section 9.4.1 and 9.4.2 of these General Conditions. If the Contractor, Construction Manager and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Construction Manager or Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Construction Manager's or Architect's opinion to protect the Owner from loss

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for which the Contractor is responsible, including loss resulting from the acts and omissions described in Section 3.3.2 of these General Conditions because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor or other Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
.7 failure to carry out the Work in accordance with the Contract Documents, or
.8 any other reasonable grounds for objection or withholding as provided in the agreement or as permitted by law.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld. The Owner shall not be deemed in default by reason of withholding payment while any conditions described in 9.5.1 remain.

§ 9.5.3 If the Architect or Construction Manager withholds certification for payment under Section 9.5.1 of these General Conditions, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Construction Manager, and both will reflect such payment on the next Certificate for Payment.

(Paragraph deleted)

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment or Project Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Construction Manager and Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.2.1 The Contractor shall indemnify and hold the Owner harmless from laborers, mechanics and materialmen liens upon the Owner's Project funds, properties or the premises upon which the work is located, arising out of the work performed or materials furnished by the Contractor or any of its Subcontractors or any material suppliers under the Contract.

§ 9.6.3 The Construction Manager will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner, Construction Manager and Architect on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner through the Construction Manager or directly has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner, Construction Manager nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4 of these General Conditions for payments to Subcontractors.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

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§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. Pursuant to applicable law or court order, when required, the Contractor may substitute a surety bond for the property or Project funds against which the lien or other claim for payment has been asserted.

§ 9.7 Intentionally Deleted

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the date certified by the Architect when the completed Work is code compliant and when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use; provided, however that as a condition precedent to Substantial Completion, the Owner has received all Certificates of Occupancy and any permits, approvals, licenses, and other documents from any governmental authority having jurisdiction thereof necessary for the beneficial occupancy of the Project.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall notify the Construction Manager, and the Contractor and Construction Manager shall jointly prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the list, the Architect, assisted by the Construction Manager, will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect, assisted by the Construction Manager, to determine Substantial Completion.

.1 The Architect will perform two (2) inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents at no additional cost to the Owner. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections pursuant to Section 9.5.1 of these General Conditions.

§ 9.8.4 When the Architect, assisted by the Construction Manager, determines that the Work of all of the Contractors, or designated portion thereof, is substantially complete, the Construction Manager will prepare, and the Construction Manager and Architect shall execute, a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any,

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the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers an occupied portion to be substantially complete, the Contractor and Construction Manager shall jointly prepare and submit a list to the Architect as provided under Section 9.8.2 of these General Conditions. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect after consultation with the Construction Manager.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Construction Manager, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents, nor does it waive the Owner's right to liquidated damages. Further, such occupancy alone shall not determine when Substantial Completion has been reached.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon completion of the Work, the Contractor shall forward to the Construction Manager a notice that the Work is ready for final inspection and acceptance, and shall also forward to the Construction Manager a final Contractor's Application for Payment. Upon receipt, the Construction Manager shall perform an inspection to confirm the completion of Work of the Contractor. The Construction Manager shall make recommendations to the Architect when the Work of all of the Contractors is ready for final inspection, and shall then forward the Contractors' notices and Application for Payment, to the Architect, who will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Construction Manager and Architect will promptly issue a final Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Construction Manager's and Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 of these General Conditions as precedent to the Contractor's being entitled to final payment have been fulfilled. All warranties and guarantees required under the Contract Documents shall be assembled and delivered by the Contractor to the Architect through the Construction Manager as part of the final Application, no final payment will be issued until all warranties and guarantees have been received and accepted by the Owner.

§ 9.10.1.1 The Architect will perform two (2) inspections whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents at no additional cost to the Owner. If the Architect and/or Construction Manager are required to perform additional final inspections because the Work fails to comply with the certifications of the Contractor, the amount of compensation paid to the Architect and/or the Construction Manager by the Owner for additional services for such additional inspections shall be deducted from the final payment to the Contractor.

§ 9.10.1.2 The final payment of retained amount due the Contractor on account of the Contract shall not become due until the Contractor has furnished the Owner, through the Architect, completion documents as enumerated below, or as otherwise required in the Contract Documents.

- **.1** One (1) hard copy and one (1) electronic Record Set of Drawings showing actual construction of all portions of the Work and incorporating all changes and amendments thereto, as redlined against the 100% Construction Drawings.
- **.2** Guarantees and Warranties required by specific Sections of the Specifications.

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.3 Release and Waiver of Claims, conditioned upon Final Payment, by the General Contractor, Subcontractors, Sub-subcontractors and material suppliers.

.4 All mechanical and electrical installation, operating and maintenance manuals called for under the Specifications.

.5 All test reports and certifications required under the mechanical and electrical specifications.

.6 All forms required to be completed by the Contractor by regulatory governmental agencies with two copies delivered to the Architect.

.7 Shop Drawing submittals in accordance with Article 3.

.8 A copy of the unconditional Occupancy Permit or Certificate of Compliance issued by the local Building Inspection Department having Jurisdiction, unless such is not issued for any reason that is not the responsibility of the Contractor under the Contract Documents or is caused by circumstances beyond the Contractor's control.

.9 Manufacturer's current detailed installation instructions for fire dampers, ceiling radiation dampers, smoke dampers, and duct smoke detectors as applicable to the Project.

.10 One (1) copy of the equipment operational and maintenance manuals.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect through the Construction Manager (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment (5) documentation and assignment of all warranties, including any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) all required procedures manuals, operation and maintenance manuals and spare parts, (7) Contractor Affidavit of Release of Liens, (8) complete set of Record Documents, including but not limited to all Shop Drawings and As-built Drawings, (9) separate release or waivers of liens for each subcontractor, material and/or equipment supplier, and others performing a portion of work and, (10) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Construction Manager and Architect so confirm, the Owner shall, upon application by the Contractor and certification by the Construction Manager and Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect through the Construction Manager prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;

.2 failure of the Work to comply with the requirements of the Contract Documents;

.3 terms of special warranties required by the Contract Documents;

.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment; or

.5 faulty or defective work appearing after Substantial Completion.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

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ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall submit the Contractor's safety program to the Construction Manager for review and coordination with the safety programs of other Contractors. The Construction Manager's responsibilities for review and coordination of safety programs shall not extend to direct control over or charge of the acts or omissions of the Contractors, Subcontractors, agents or employees of the Contractors or Subcontractors, or any other persons performing portions of the Work and not directly employed by the Construction Manager.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall provide for the safety and protection of the Project sites, all persons who come in contact with the Work and all real and personnel property located at or adjacent to the Project sites. Without limitation to the foregoing, the Contractor, at its sole cost and expense shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor;

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction; and

.4 construction or operations by the Owner, Separate Contractors, or other Contractors.

Prior to commencement of the Work, the Contractor shall document existing conditions and record existing damage to construction or property that is to remain at the site and notify the Construction Manager and Architect of same in writing.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss. The Contractor agrees in working on the Owner's premises to comply with Regulation 155.5 of the NYS Commissioner of Education, the Occupational Safety and Health Act of 1970 (OSHA) as amended, and the Construction Safety Act of 1969 as amended including all standards and regulations that have been since or shall be promulgated by the governmental authorities having jurisdiction over the Project or the Owner's premises, all applicable building and fire codes and any applicable federal, state and/or local laws, rules, regulations and/or executive orders regarding COVID-19.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 of these General Conditions caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2, 10.2.1.3 and 10.2.1.4 of these General Conditions. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner, Construction Manager or Architect or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18 of these General Conditions.

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§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner, Construction Manager and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property
If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

When all or a portion of the Work is suspended for any reason, the Contractor shall securely fasten down all coverings and protect the Work, as necessary, from injury by any cause.

§ 10.3 Hazardous Materials
§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a hazardous material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify in writing the Owner, Construction Manager and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor, Construction Manager and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. When the material or substance has been rendered harmless, Work in the affected area shall resume. By Change Order, the Contract Time shall be extended appropriately.

§ 10.3.3 Intentionally omitted.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and/or negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1 of these General Conditions, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 Intentionally omitted.

§ 10.4 Emergencies
In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7 of these General Conditions.

ARTICLE 11 INSURANCE AND BONDS
§ 11.1 Contractor's Insurance and Bonds
§ 11.1.1 Insurance, Refer to AIA Document A132™–2019, Exhibit A, Insurance and Bonds, as revised for this Project.

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§ 11.1.2 Performance Bond and Payment Bond, Refer to AIA Document A132™–2019, Exhibit A, Insurance and Bonds, as revised for this Project.

(Paragraphs deleted)

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability that the Owner usually maintains in the course of its operations as a public school district.

§ 11.2.2 Intentionally omitted.

§ 11.2.3 Intentionally omitted.

§ 11.3 Waivers of Subrogation

§ 11.3.1 To the extent permitted by their respective insurance companies the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Construction Manager and Construction Manager's consultants; (3) the Architect and Architect's consultants; (4) other Contractors and any of their subcontractors, sub-subcontractors, agents, and employees; and (5) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Construction Manager, Construction Manager's consultants, Architect, Architect's consultants, other Contractors, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 of these General Conditions for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2 of these General Conditions. The Owner shall pay the Construction Manager, Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Construction Manager, Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the

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Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Construction Manager's, Architect's or any governmental authority's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by any of them, be uncovered for their examination and be replaced at the Contractor's expense without change in the Contract Time or Contract Sum.

§ 12.1.2 If a portion of the Work has been covered that the Construction Manager, Architect or governmental authority has not specifically requested to examine prior to its being covered, the Construction Manager, Architect or governmental authority may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Construction Manager, Architect for failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion, and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, shall be at the Contractor's expense. If the Contractor or its Subcontractor(s) or their respective officers, directors, employees, contractors, suppliers, servants, agents or any person or firm directly or indirectly engaged by such Contractor or Subcontractor in the performance of the Contract uses or damages any portion of the Work, including, without limitation, mechanical, electrical, plumbing and other building systems, machinery, equipment or other mechanical device(s), the Contractor shall cause such item to be restored to "like new" condition at no expense to the Owner

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5 of these General Conditions, if, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties established under Section 9.9.1 of these General Conditions, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. In the judgment of the Owner should any material, equipment or systems require corrective work because of defects in material or workmanship within the one-year warranty period, or extended warranty periods, the Contractor shall complete all required corrective work within thirty (30) days of notice. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, Construction Manager or Architect, the Owner may correct it in accordance with Section 2.5 of these General Conditions and recover the costs incurred to do so from the Contractor or offset the costs incurred against any sums the Owner owes the Contractor or the Owner may notify the bonding company to have such work and/or obligations performed at no additional cost to the Owner.

§ 12.2.2.2 For any portion of the Work for which the warranty is to be effective upon Substantial Completion, the one-year period for correction of Work shall be extended with respect to portions of Work first performed after

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Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner, Separate Contractors, or other Contractors, whether completed or partially completed, caused by the Contractor's Work that is not in accordance with the requirements of the Contract Documents and by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 of these General Conditions shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 of these General Conditions relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located excluding that jurisdiction's choice of law rules.

§ 13.1.1 In all operations under the Contract, the Contractor agrees that it will comply with all Federal, State and Local Laws, rules and regulations and all policies, rules, regulations and protocols of the Owner, in any manner affecting the Work and all such orders as exist at present and those which may be enacted in the future, by bodies or tribunals having jurisdiction or authority over the Work, including but not limited to OSHA, Sections 220, 220-d, 220-e of the Labor Law. The Contractor shall indemnify and save harmless the Owner and its Board of Education, employees, officers, agents, or servants against any claim or liability arising from, or based on, a violation of any such law, ordinances, regulation, order or decree by the Contractor or the Contractor's officers, directors, employees, Subcontractors and suppliers.

§ 13.1.2 Historical lack of enforcement of any law, rule or regulation local or otherwise, shall not constitute a waiver of Contractor's responsibility for compliance with such law, rule or regulation in a manner consistent with the Contract Document unless and until the Contractor has received written consent for the waiver of such compliance from the Owner and the Agency responsible for enforcement of the law, rule or regulation.

§ 13.1.3 The parties expressly agree that any claim, dispute, or other controversy of any nature arising out of the contract or performance of the Work shall be commenced and maintained in New York State Supreme Court located in Westchester County.

§ 13.1.4 The Contractor and each of its Subcontractors shall comply with Prevailing Wage Rates as issued by the State of New York Department of Labor for the location and duration of this Project and shall comply with all requirements governing its payments to its employees as set forth in Labor Law, Section 220 et seq of the New York State Labor Law.

§ 13.1.5 The Contractor shall comply with all the provisions of the Immigration Reform and Control Act of 1986 and regulations promulgated pursuant thereto and shall require its Subcontractors to comply with same. The Contractor shall and does hereby agree to fully indemnify, protect, defend, and hold harmless the Owner, Owner's Board of

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Education, agents and employees from and against any penalties, fees, costs, liabilities, suits, claims, or expenses of any kind or nature, including reasonable attorney's fees, arising out of or resulting from any violation or alleged violation of the provisions of said laws by Contractor or its Subcontractor(s) in connection with the Work of the Contract Documents.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2 of these General Conditions, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract. The Contractor shall not assign any monies due or to become due to him under the Contract without the previous consent of the Owner.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law or in equity, and such rights and remedies shall survive acceptance of the Work and/or termination of the Contract Documents.

§ 13.3.2 No action or failure to act by the Owner, Construction Manager, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities or utilities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority or utility, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Construction Manager and Architect timely notice of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Construction Manager, Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1 of these General Conditions, the Construction Manager and Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Construction Manager and Architect of when and where tests and inspections are to be made so that the Construction Manager and Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3 of these General Conditions, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 of these General Conditions reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Construction Manager's and Architect's services and expenses, shall be at the Contractor's expense. The Contractor agrees that the cost of testing services required for the convenience of the Contractor in his scheduling and performance of the Work, and the cost of testing services relating to remedial operations performed to correct deficiencies in the Work shall be borne by the Contractor.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Construction Manager for transmittal to the Architect.

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§ 13.4.5 If the Construction Manager or Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Construction Manager or Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.4.7 Upon request the Contractor shall deliver test samples of any of the materials specified in the Specifications to an independent testing agency. The Owner shall pay for the test of samples, which are found to conform to the Specifications. The Contractor shall pay for the tests of samples, which do not conform to the Specifications. This shall not relieve the Contractor of his obligations to perform specific tests described elsewhere in the Specifications.

§ 13.4.8 Where the Specifications require part of the Work to be specially tested and approved, it shall not be covered up before testing without timely notice thereof or consent thereto. Should any part of the work be covered up without notice, approval or consent, such part of the Work shall be uncovered for examination at the Contractor's expense if the Owner, Architect, Construction Manager or governmental authority with jurisdiction over the Contractor, the Work or the Project shall so require.

§ 13.4.9 Should defects appear, they shall be corrected by the Contractor and the test repeated until the installation is acceptable.

§ 13.4.10 When notice of tests is to be given to the Architect, it shall also be given to the Construction Manager.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rateset forth in the Agreement.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped; or
- **.3** Because the Construction Manager has not certified or the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4 of these General Conditions, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3 of these General Conditions, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 of these General Conditions exists, the Contractor may, upon seven days' written notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred directly as a result of such termination. The Owner shall not be liable for loss of anticipated profits for work not performed on account of any termination described in Sections 14.1.1 and 14.1.4 hereof.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees, or any other persons performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with

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respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, Construction Manager and Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3 of these General Conditions.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract for cause if the Contractor

- **.1** refuses or fails to supply enough properly skilled workers or proper materials or equipment;
- **.2** fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** disregards the instructions of the Architect, the Construction Manager or the Owner, when such instructions are based on the requirements of the Contract Documents;
- **.5** breaches any warranty made by the Contractor under or pursuant to the Contract Documents;
- **.6** fails to furnish the Owner with assurances satisfactory to the Owner evidencing the Contractor's ability to complete the Work in compliance with all of the requirements of the Contract Documents;
- **.7** fails after commencement of the Work to proceed continuously with the construction and completion;
- **.8** fails to keep the Project free from strikes, work stoppages, slowdowns, lockouts or other disruptive activity as required by Section 3.4.3 hereof;
- **.9** fails or neglects to prosecute the Work in such a manner to reasonably assure completion within the Contract Time; or
- **.10** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 of these General Conditions exist, after consultation with the Construction Manager, and the Architect, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4 of these General Conditions; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1 of these General Conditions, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Construction Manager's and Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall, upon application, be certified by the Initial Decision Maker after consultation with the Construction Manager, and this obligation for payment shall survive termination of the Contract.

§ 14.2.4.1 The costs of finishing the Work include, without limitation, all reasonable attorney's fees, additional title costs, insurance, additional interest because of any delay in completing the Work, and all other direct and indirect and consequential damages incurred by the Owner by reason of the termination of the Contractor as stated herein.

§ 14.2.5 The Owner shall not be responsible for damages or loss of anticipated profits on Work not performed on account of any termination described in Article 14.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine by giving seven (7) day's prior written notice to Contractor, specifying the part of the Work or subcontract to be suspended, delayed, or interrupted, and the effective date of such suspension, delay, or interruption, as the case may be. Contractor shall continue to prosecute the part of the Work not suspended, delayed, or interrupted, and shall properly protect and secure the part of the Work so

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suspended, delayed, or interrupted, so far as is necessary in Owner's reasonable opinion. For the Work that has not been suspended, delayed or interrupted, the Contract Documents shall remain in full force and effect.

§ 14.3.2 The Contract Sum and the Contract Time shall be adjusted for reasonable increases in the cost and time of the Work caused by suspension, delay, or interruption under Section 14.3.1 of these General Conditions. Adjustment of the Contract Sum shall not include profit. No adjustment shall be made to the extent:

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of this Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract, in whole or in part, for the Owner's convenience and without cause by giving seven (7) days' notice to Contractor, specifying the part of the Work or subcontract to be terminated and the effective date of termination. Contractor shall continue to prosecute the part of the Work not terminated. This right may be exercised by the Owner in its complete and absolute discretion. If the Work or any subcontract is so terminated, Owner shall incur no liability to Contractor by reason of such termination except as set forth in Section 14.4.3 of these General Conditions. For the remainder of the Work that is not terminated, the Contract Documents shall remain in full force and effect. Contractor shall be entitled to no payment for the terminated portion of the Work and waives and forfeits any claim for damages and/or lost profits. Contractor shall be entitled to no payment for the terminated portion of the Work and waives and forfeits any claim for damages and/or lost profits.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work;

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders for the portion of the Work that has been terminated; and

.4 proceed to complete the performance of the Work not terminated.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed prior to the date of termination as well as any costs incurred by the Contractor to implement Owner directed work to protect and preserve the work completed by the Contractor prior to the notice of termination less the credits due the Owner and less the sums required by law to be held by the Owner due to any liens on public improvement filed against the Contract Sum that have not been discharged (which sums withheld due to such liens will be paid when such liens are discharged or released). The Contractor shall not be entitled to payment of any other sums. The Contractor shall not be entitled to any payment for the terminated portion of the Work and waives and forfeits any claim for damages, overhead and/or lost profits for the terminated portion of the Work.

§ 14.4.4 The Contractor shall include in each of its subcontracts a clause, similar in effect to the provisions in Paragraph 14.4, allowing the Contractor to terminate the subcontract for its sole convenience, subject only to the payment obligations set forth in Paragraph 14.4.3 of these General Conditions.

§ 14.4.5 Contractor agrees and acknowledges that payments for the work have been obtained through obligations or bonds which have been sold after public referendum. In the event the work is suspended or cancelled as a result of the order of any court, department entity or individual having jurisdiction, or in the event the work is suspended or cancelled due to the fact that a court, agency, department, entity or individual having jurisdiction has issued an order, the result of which is the aforesaid obligations or bond are no longer available for payment for the work, Contractor expressly agrees that it shall be solely entitled to pay for work accomplished until a notice of suspension or cancellation is served upon Contractor. The Contractor expressly waives any and all rights to institute an action, claim, cause of action or similar for any damages it may suffer as a result of the suspension or cancellation of the Work and/or its Contract pursuant to this section.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition. A Claim is a demand or assertion by the Contractor seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The responsibility to substantiate a Claim shall rest with the Contractor. This Section 15.1.1 does not require the Owner to file its claims

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against the Contractor, including but not limited to a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims
The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law.

§ 15.1.3 Notice of Claims
§ 15.1.3.1 Claims by the Contractor shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Construction Manager and Architect, if the Architect is not serving as the Initial Decision Maker. Such Claims shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later.

(Paragraph deleted)
§ 15.1.3.2 Should any Contractor wish to reserve its rights regarding filing of claims as set forth above, written notice of any event that may give rise to a claim must be given within 21 days of said event, whether or not any impact in time or money has been determined.

§ 15.1.4 Continuing Contract Performance
§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision. The Architect will prepare Change Orders and/or Construction Change Directives and will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost. If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 of these General Conditions shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4 of these General Conditions. No claim will be permitted for additional costs or time as provided in this Section 15.1, should damages arise from the Contactor's failure to have adequately reviewed the Contract Documents and failure to have reported an error or inconsistency in an expeditious time and manner.

§ 15.1.5.1 If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Architect, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension of the Work or (7) other reasonable grounds, a claim shall be filed in accordance with this Section 15.1 or such claim for additional costs shall be waived.

§ 15.1.6 Claims for Additional Time
§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 of these General Conditions shall be given. The Contractor's Claim shall articulate the reason additional time is requested, articulate the amount of additional time requested and include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. The Contractor shall accompany the Claim with a written analysis with a proposed revision to the Schedule illustrating the claimed influence of the basis for delay on the critical path of the Work and the applicable deadlines that may be impacted. Contractor will exercise reasonable efforts to mitigate the potential impact of any delay.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction. The time for performance of this Contract, as set forth in the Construction Schedule, shall include an allowance for delays due to reasonably anticipated adverse weather for the area where the Work is located. For the purpose of establishing that abnormal adverse weather conditions have caused a delay, and determining the extent of delay attributed to such weather conditions, the

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Contractor shall furnish with its claim, National Oceanic and Atmospheric Administration (NOAA) National Weather Service records of climatic conditions during the same time interval for the previous five (5) years for the locality of the Work; the Contractor's daily job site logs/daily construction reports showing weather, job activities, and the effect of weather on the progress of the Work; and an impact schedule showing the effects of the weather event on the critical path of the Contractor's Construction Schedule. Time extension for weather delays and related impact do not entitle the Contractor to extended overhead recovery or to any other monetary compensation associated with that claim unless approved in writing by the Owner.

§ 15.1.6.3 The Contractor shall not be entitled to a separate increase in the Contract Time for each one of the number of causes of delay which have concurrent or interrelated effects on the progress of the Work.

§ 15.1.7
(Paragraphs deleted)
Waiver of Claims.
§ 15.1.7.1 The timelines provided herein for the making of claims shall be a condition precedent to any payment for such claims or the granting of any extension of time. Failure of the Contractor to comply with the time and notice provisions of this Article shall be an absolute bar to making any payment to or extending the time of the Contractor for such claim. All claims of any type seeking any monies, or an extension of time shall be accompanied by full documentation. A claim submittal without full documentation shall be rejected by the Architect and, if not timely resubmitted within the original claim period, as set forth above, shall be waived.

§ 15.1.7.2 The Owner shall not be responsible for damages or for loss of anticipated profits on Work not performed on account of any termination of the Contractor by the Owner or by virtue of the Owner's exercise of its right to take over the Contractor's Work pursuant to the Contract Documents.

§ 15.1.7.3 The Contractor hereby expressly waives any rights it may have in law or in equity to lost bonding capacity as a result of any of the actions of the Owner, Construction Manager or the Architect taken in connection with the Contractor's Work on the Project.

§ 15.2 Initial Decision
§ 15.2.1 Claims by the Contractor, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. An initial decision shall be required as a condition precedent to binding dispute resolution of the Contractor's Claim(s). If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation or binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten (10) business days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

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§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties, the Construction Manager, and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, file for mediation.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4 and 9.10.5 of these General Conditions, may be subject to mediation upon mutual agreement of the parties.

§ 15.3.2 A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, file for binding dispute resolution.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

(Paragraphs deleted)

ARTICLE 16 ADDITIONAL CONDITIONS

§ 16.1.1 Contractor agrees and acknowledges that payments for the Work have been obtained through obligations or bonds which have been sold after public referendum. In the event the Work is suspended or canceled as a result of the order of any court, agency, department entity or individual having jurisdiction, or in the event the Work is suspended or canceled due to the fact that a court, agency, department, entity or individual having jurisdiction has issued an order, the result of which is that the afore said obligations or bonds are no longer available for payment for the Work, Contractor expressly agrees that it shall be solely entitled to payment for Work accomplished until a notice of suspension or cancellation is served upon Contractor. Contractor expressly waives any and all rights to institute an action, claim, cause of action or similar for any damages it may suffer as a result of the suspension or cancellation of the Work and /or its contract pursuant to this Section 16.1.

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SECTION 007343
WAGE RATE REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Wage rates shall apply as shown in the Prevailing Wage Schedule prepared by the New York State Department of labor for this project (the Prevailing Wage Case Number (PRC#) assigned to this project is PRC# 2025013943 - PH1: OHS LKR RM & CTE Addition). The Schedule can be viewed at the following website:

https://apps.labor.ny.gov/wpp/publicViewProject.do?method=showIt&id=1599429

B. The Contractor shall be responsible for completing one copy of Notice of Contract Award (Form PW-16). Upon completion of the form, the Contractor shall submit the form to the Architect. Architect will forward a copy to the New York State Department of Labor.

PART 2 PRODUCTS

PART 3 EXECUTION

SECTION 011000 – SUMMARY OF MULTIPLE CONTRACTS

PART 1 - GENERAL

1.1. PROJECT INFORMATION

A. Project: Ossining High School; Locker Room & CTE Addition
B. Project Location: 29 S Highland Ave, Ossining, NY 10562
C. Owner: Ossining Union Free School District
D. Architect: CPL
E. Construction Manager: ACCI: Arris Contracting Company Inc.
F. The overall scope of work includes:
    1. Renovation of the existing locker rooms, two story addition over the existing locker rooms, and CTE Addition.
G. Contracts:
    1. The project will be construction under a multiple-prime contract arrangement.
    2. Prime contracts are separate contracts between the Owner and separate contractors, representing significant construction activities. Each prime contract is performed concurrently with and closely coordinated with construction activities performed on the Project under prime contracts. Prime contracts for this Project include:
        a. General Work Contract (GC or GWC)
        b. Mechanical Work Contract (MC, HVAC, or HC)
        c. Electrical Work Contract (EWC, EC)
        d. Plumbing Work Contract (PWC, PC)
        e. Fire Sprinkler Work Contract (FSWC, FSC)

1.2. DIVISION OF WORK

Each contract shall include all labor materials, plans, tools, equipment and supervision which are required for or incidental to the proper completion of the work as indicated on all drawings and described in the following specifications sections.

1.3. GENERAL REQUIREMENTS – ALL CONTRACTS

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

All Sections

DIVISION 01 – GENERAL REQUIREMENTS

All Sections

Special Notes: All Contracts

1. Work hours M-F 7:30AM – 4:30PM. Contractor will appropriately provide labor for the project to avoid Saturday and Overtime hours which result in Owner, Construction Manager and Architect additional costs.
2. Delivery black out times- No Contractor trucks/deliveries are allowed during school bus times as indicated by Owner approx. 7:00am-8:30am or 2:00pm -3:30pm.
3. Contractor is to carry insurance coverages per the Owner's Insurance Requirements which are located in the DIV 00 specification.
4. Contractor is specifically reminded about their responsibilities for clean-up as per section 017423. Maintaining a clean jobsite is considered a safety issue and will be strictly enforced. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction. This includes completely cleaning any surfaces/equipment/furniture which has been dusted by the construction work. If the Contractor does not properly perform this function when directed by the Owner/CM, the Owner will perform the work with others and deduct the cost from the Contractor.
5. Each Contractor shall provide suitable rubbish containers device(s) for their own use (both demolition and construction debris), properly maintained and serviced, replaced as required and protected from access by the public fencing as may be specified herein or approved by the Architect or Construction Manager.
6. Roof Penetrations work is assigned as follows:
    a. Addition New Roofs
        i. All new blocking, flashing, pipe portals, boots and roofing shall be by the General Work Contractor. The Contractor requiring a penetration shall provide all layout required, cutting of deck as well as temporary weather protection. Roof curbs required for equipment shall be supplied by the Contractor requiring same, assembled as needed, located adjacent to the final location and shall be installed by the General Work Contractor.

b. Renovation area Temporary Roofs

i. All temporary blocking, flashing, pipe portals, boots and roofing shall be by the General Work Contractor.

ii. The Contractor requiring a penetration shall provide all layout required.

iii. Cutting of deck, as well as temporary weather protection is by the General Work Contractor.

7. ~~Existing building space may not be used for storage unless approved by Owner.~~

8. Trenching, excavation, and backfill for the Work of each Contract shall be provided by each Contract for its own Work, unless noted otherwise.

1.4. GENERAL WORK CONTRACT

In addition to Division 00 & Division 1, included in this bid package contractor shall provide for proper completion of work as indicated on all drawings and in accordance with the terms and conditions described in the following specifications sections (see 000110 Table of Contents):

DIVISION 02 Existing Conditions-All Spec. Sections

DIVISION 03 Concrete-All Spec Sections

DIVISION 04 Masonry-All Spec Sections

DIVISION 05 Metals-All Spec Sections

DIVISION 06 Woods, Plastics, and Composites-All Spec Sections

DIVISION 07 Thermal and Moisture Protection-All Spec Sections

DIVISION 08 Openings-All Spec Sections

DIVISION 09 Finishes-All Spec Sections

DIVISION 10 Specialties-All Spec Sections

DIVISION 11 Equipment-All Spec Sections

DIVISION 12 Furnishings- All Spec Sections

DIVISION 13 Special Construction-NOT USED

DIVISION 14 Conveying Equipment-All Spec Sections

DIVISION 31 Earthwork-All Spec Sections

DIVISION 32 Exterior Improvements-All Spec Sections

DIVISION 33 Utilities-All Spec Sections

DIVISION 34 Transportation-All Spec Sections

Special Notes: General Work Contractor:

1. All abatement work is by the General Work Contractor
2. A temporary ballasted 45 Mil roof will be placed over the existing locker room concrete roof once roof abatement is completed and be modified and/or repaired as needed during all construction phases until the addition over the existing lockers rooms is watertight. A minimum of four 4" temporary roof drains, including all required piping & supports/hangers to the exterior of the building and down to grade. Complete temporary roof system to be maintained throughout the overall duration of the project.
3. Access doors furnished by trade requiring access; installation by General Work Contractor.
4. Roof drain & associated storm water piping up to 5' from building.
5. New water line work up to five feet outside building line(s).
6. GWC to supply and install Fume Hoods and the MWC to duct from Fume Hood to final exhaust location.
7. All new roof rails, curbs and pipe portals to be supplied, assembled and placed on roof by the prime contractor requiring the work. GWC will install wood blocking, install rails/portals, provide structural steel supports, cut opening, flash in curb and provide temporary watertight/plywood secure of opening until rooftop HVAC unit is set.
8. GWC is specifically reminded that there may be miscellaneous asbestos pipe insulation/fittings above some ceiling and inside wall areas. Contractor will investigate above the ceiling and walls prior to demolition and carefully perform the removal where necessary to not disturb any insulation/fittings.
9. GWC will install metal studs, plywood sheathing, plastic, for weather tight and secure assembly at window and door areas, until permanent windows and doors are installed.
10. GWC is notified that schedule will require multiple mobilizations and multiple crews of certain subcontractors.
11. All temporary partitions, doors, openings, ceilings, entrances as outlined in 015000 and staging plans are by the GWC. Removals of temporary egress once addition is completed.
12. GWC will paint all existing frames scheduled for new doors/hardware on door schedule. Frame to be painted on all sides.
13. GWC is to provide all safety barricades, and temporary fencing to protect pedestrians and to protect the work in addition to what is shown within the drawings, specs, logistics plans, or phasing plans.
14. GWC is to provide Scaffolding Protection at Egress Pathways and Egress Pathways as per the provided staging plan and/or phasing plan for the minimum timeline as noted on the milestone schedule.
15. GWC is specifically notified that at the completion of the project the staging area created by

others is to be remain.

16. GWC is responsible for all Scaffolding, Egress Bridging, Egress Canopies and Protections as per Sketches found in 01 5000. Existing windows adjacent to the new locker room addition (that will be encompassed by the Locker Room Addition) shall be covered with ¾" plywood (and associated framing and fasteners) to protect the windows (and people) until permanent construction finish is achieved.
17. GWC is specifically notified that access to any tunnel crawl space areas is confined work environment and all workers must have appropriate OSHA certifications and training.
18. GWC is specifically reminded about their responsibilities for clean-up as per section 017423. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction

1.5. MECHANICAL WORK CONTRACT

In addition to Division 00 & Division 1, included in this bid package contractor shall provide for proper completion of work as indicated on all drawings and in accordance with the terms and conditions described in the following specifications sections (see 000110 Table of Contents):

DIVISION 02- Spec Section 024119 Selective Structure Demolition-as it pertains to cutting & capping, water supplies. & Spec Section 028300 in its entirety.

DIVISION 06-Spec Section 061053 Misc.Rough Carpentry- as it pertains to any backer-boards required for panels or other equipment.

DIVISION 07-Spec Section 078400 Firestopping as it pertains to penetrations made by your work & Spec Section 079200 Joint Sealants as it pertains to your work.

DIVISION 11-Spec Section 115313 Laboratory Fume Hoods and Related Products- as it pertains to the ducting from the fume hood to its final exhaust point.

DIVISION 23-Heating, Ventilating, and Air Conditioning (HVAC)-All Spec Sections

DIVISION 26-Electrical- Spec Section 260519 Low-Voltage Electrical Power Conductors and Cables as it pertains to Control Wiring. (Control wiring by MWC)

Special Notes: Mechanical Work Contractor:

1. Access doors are furnished by Mechanical Contractor and installed by GWC Contractor.
2. All new roof rails, curbs and pipe portals to be supplied, assembled and placed on roof by MWC. GWC will install wood blocking, install rails/portals, provide structural steel supports, cut opening, flash in curb and provide temporary watertight/plywood secure of opening until rooftop HVAC unit is set.
3. MWC is responsible for making their own through wall and through floor duct and piping penetrations and associated patching/firestopping.

4. GWC to supply and install Fume Hoods and the MWC to duct from Fume Hood to final exhaust location.
5. Disconnects, starters, etc. supplied by MC installed by EC, unless noted otherwise.
6. Supply and Install of Control Wiring, programming, and related software by MWC.
7. Contractor is specifically reminded about their responsibilities for clean-up as per section 017423. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction. This includes completely cleaning any surfaces/equipment/furniture which has been dusted by the construction work. If the contractor does not properly perform this function when directed by the Owner/CM, the owner will perform the work with others and deduct the cost from the contractor.

1.6. ELECTRICAL WORK CONTRACT

In addition to Division 00 & Division 1, included in this bid package contractor shall provide for proper completion of work as indicated on all drawings and in accordance with the terms and conditions described in the following specifications sections (see 000110 Table of Contents):

DIVISION 02- Spec Section 024119 Selective Structure Demolition-as it pertains to cutting & capping, electrical supplies & Spec Section 028300 in its entirety.

DIVISION 03-Spec Section 033000 Cast in Place Concrete as it pertains to light pole bases, light bollards, or conduits encased in concrete.

DIVISION 06-Spec Section 061053 Misc.Rough Carpentry- as it pertains to any backer-boards required for panels or other equipment.

DIVISION 07-Spec Section 078400 Firestopping as it pertains to penetrations made by your work & Spec Section 079200 Joint Sealants as it pertains to your work.

DIVISION 26-Electrical-All Spec Sections

DIVISION 27-Communications-All Spec Sections

DIVISION 28-Electronic Safety and Security-All Spec Sections

DIVISION 31-Earthwork-Spec Sections 312316 Excavation, 312316.13 Trenching, 312316.26 Rock Removal, 312319 Dewatering, 312323 Fill, 315000 Excavation Support and Protection: as these sections pertain to excavation for any site electrical work. For example: Buried conduit, light bollards, and pole bases. (Paving by GWC, but electrical underground must be done to accommodate paving)

Special Notes: Electrical Work Contractor:

1. Access doors are furnished by EC and installed by GC.
2. EC is specifically notified that access tunnels / crawl spaces are confined work environments all workers must have appropriate OSHA certification & training.
3. VFD's, disconnects, motor starters which are supplied by MC will be installed by EC, unless noted otherwise.
4. Contractor is specifically reminded about their responsibilities for clean-up as per section 017423. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction. This includes completely cleaning any surfaces/equipment/furniture which has been dusted by the construction work. If the contractor does not properly perform this function when directed by the Owner/CM, the owner will perform the work with others and deduct the cost from the contractor.

1.7. PLUMBING WORK CONTRACT

In addition to Division 00 & Division 1, included in this bid package contractor shall provide for proper completion of work as indicated on all drawings and in accordance with the terms and conditions described in the following specifications sections (see 000110 Table of Contents):

DIVISION 02-Spec Sections 024119 Selective Structure Demolition & 028300 Lead Safe Work Practices: as these section pertain to cutting and capping all water supplies to accommodate the GWC demolition.

DIVISION 07-Spec Section 078400 Firestopping as it pertains to penetrations made by your work & Spec Section 079200 Joint Sealants as it pertains to your work.

Division 22-All Spec Sections

DIVISION 31-Earthwork-Spec Sections 312316 Excavation, 312316.13 Trenching: as these sections pertain to excavation for any plumbing work. For example: Under-slab plumbing rough in.

Special Notes: Plumbing Work Contractor:

1. All Excavation/Backfill (structural fill under slab areas) and compaction for plumbing piping is by the PWC.
2. Access doors are furnished by PWC and installed by GWC
3. PWC is responsible for making their own through wall and through floor duct and piping penetrations and associated patching/firestopping.
4. PWC to cut and cap all water supplies as needed for demolition and will remove plumbing fixtures slated to be removed.
5. Roof drain & associated storm water piping installed to 5' outside of building.
6. New water line work installed five feet outside building line(s).

7. Contractor is specifically reminded about their responsibilities for clean-up as per section 017423. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction. This includes completely cleaning any surfaces/equipment/furniture which has been dusted by the construction work. If the contractor does not properly perform this function when directed by the Owner/CM, the owner will perform the work with others and deduct the cost from the contractor.

1.8. FIRE SPRINKLER WORK CONTRACT

In addition to Division 00 & Division 1, included in this bid package contractor shall provide for proper completion of work as indicated on all drawings and in accordance with the terms and conditions described in the following specifications sections (see 000110 Table of Contents):

DIVISION 07-Spec Section 078400 Firestopping as it pertains to penetrations made by your work & Spec Section 079200 Joint Sealants as it pertains to your work.

DIVISION 21-All Spec Sections

Special Notes: Fire Sprinkler Work Contractor:

1. Fire Sprinkler Contractor takes the fire service from 5' outside the building, brings it into the building and supplies/installs the sprinkler backflow preventor assembly as indicated on drawings.
2. Access doors are furnished by FSWC and installed by GWC.
3. FSWC is responsible for making their own through wall and through floor duct and piping penetrations and associated patching/firestopping.
4. Contractor is specifically reminded about their responsibilities for clean-up as per section 017423. In addition to daily cleaning, the contractor is required to hire a professional cleaning company to final clean all areas impacted by the construction. This includes completely cleaning any surfaces/equipment/furniture which has been dusted by the construction work. If the contractor does not properly perform this function when directed by the Owner/CM, the owner will perform the work with others and deduct the cost from the contractor.

1.9. PRIME CONTRACTOR'S USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated. Confine operations areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the work is indicated.

B. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to the Owner, the Owner employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

C. Owner's representative(s) will cover the project for the standard Monday – Friday shift. If a Contractor requests additional hours to make up schedule time or weekends, he will need to reimburse Owner for additional coverage or costs (e.g. – Architect, Construction Manager, etc.) at their contractual rate.
D. General: Limitations on site usage as well as specific requirements that impact utilization are indicated on the drawings and by other contract documents. In addition to these limitations and requirements, the Contractor shall administer allocation of available space equitably among the separate sub-contractors and other entities needing access and space, so as to produce the best overall efficiency in performance of the total work of the project. The Contractor shall schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
E. After the equipment is no longer required for the work, it shall be promptly removed from the project site. Protection of construction materials and equipment stored at the project site from weather, theft, damage and all other adversities are solely the responsibility of the Contractors.
F. Do not unreasonably encumber the site with materials or equipment. Confine stockpiling of materials and location of storage sheds to the areas indicated. If additional storage is necessary, obtain and pay for such storage off-site.
G. The Contractor(s) and any entity for which the Contractor is responsible shall not erect any sign of the Project site without the prior written consent from the Owner, which may be withheld in the sole discretion of the Owner.
H. The Contractor(s) shall ensure that the work, at all times, is performed in a manner that affords reasonable access, both vehicular and pedestrian, to the site of the work and all adjacent areas. The work shall be performed, to the fullest extent reasonably possible, in such a manner that public areas adjacent to the site of the work shall be free from all debris, building materials, and equipment likely to cause hazardous conditions. Without limitation of any other provision of the Contract Documents, Contractor shall use their best efforts to minimize any interference with the occupancy or beneficial use of: Any areas and building adjacent to the site of the work or the building in the event of partial occupancy.
I. Maintain the building in a safe and weathertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building during the construction period.
J. Each Prime Contractor is responsible for maintaining a safe jobsite. This includes actively reviewing their work areas to ensure that they are in compliance with all required OSHA regulations. It is a contract requirement that each Contractor conducts weekly tool-box safety meetings to ensure that their employees are properly educated and utilizing safe work practices. (Copies of these weekly meetings and a list of the attendees will be forwarded to the CM Site Superintendent on a weekly basis). Contractors will comply with all requirements outlined in the General Conditions including providing their employees with

PPE (personal protective equipment) such as masks, hand sanitizer, hard hats, proper work boots, safety harness, safety glasses, etc.

K. Smoking, drinking alcoholic beverages or open fires are prohibited on the project site.

L. Utility Outages and Shutdown:
   1. Limit the disruption of utility services to hours the building is unoccupied, weekends or holidays at no additional cost.
   2. Do not disrupt or shut down line safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days' notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.
   4. All costs for manning of temporary shutdowns and utility crossovers, including 24-hour fire watch if necessary, are included in the Contractor's bid regardless of weekend, holiday, etc.

1.10. OCCUPANCY REQUIREMENTS

A. Partial Owner Occupancy: The Owner reserves the right to occupy the place and install equipment in completed areas of the work prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work, such as placement of equipment and partial occupancy shall not constitute acceptance of the Total Work.

B. The Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner occupancy.

C. Obtain a Certificate of Occupancy from local building officials prior to Owner occupancy.

D. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions of the building.

E. Upon occupancy, the Owner will assume responsibility for maintenance and custodial service for occupied portions of the building.

1.11. DEFINITIONS

A. Definitions as applied to "Contractors" involved with the work of this Project:
   1. "The Contractor" or "Contractor" meaning that Respective Prime Contractor normally responsible for that work referenced.
   2. "Respective Prime Contractor" meaning either the – General Contractor, Plumbing, HVAC, Electrical, Sitework, Fire Protection Contractors normally responsible for the referenced work.
   3. "Trade Contractor" meaning that Respective Prime Contractor as above; and such other terms relating to Contractors to be taken in context with respect to the referenced work.

4. Further, wherein said Division 0 and 1 and respective Sections therein, any reference is made to “General Contractor”, same shall be construed to mean “Contractor for the General Construction, or General Work Contractor”.

B. The Owner cannot guarantee the correctness of the existing conditions shown and assumes no responsibility therefore, it shall be the responsibility of the Contractor to visit the site and verify all existing conditions prior to bid.

C. The Owner will purchase certain items required for the overall operation of this facility through outside vendors.

D. The Contractor(s) will cooperate with said vendors as may be necessary to permit the work to be accomplished.
   1. The cooperation may extend to the receiving, unloading and placement of said equipment if directed by the Owner.
   2. Each Contractor is advised that the Owner may enter into separate contracts as may be in their best interest.
   3. Each Contractor is further advised that there will be a full on-site Project Representative / Construction Manager, whose duties will be defined at the pre-construction meeting.

1.12. ADDITIONAL SECURITY PROVISIONS

A. All Contractor’s employees shall use a single means of access and egress, except in the case of emergency, to be designated by the Construction Manager.

B. Each Contractor and each Subcontractor shall require his employees, while on the job site, to wear, in a conspicuous location, a photo I.D. button bearing the name of the employee and the Contractor. The buttons of each Contractor shall be numbered consecutively. An up-to-date list of all I.D. buttons, indicating the name and number for each employee, shall be furnished to the Construction Manager.

1.13. ASBESTOS AND LEAD PAINT AWARENESS REQUIREMENTS

A. Contractor agrees not to use or permit the use of any asbestos containing material in or on any property belonging to the Owner.

B. For purposes of this requirement, asbestos free shall mean free from all forms of asbestos, including actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite, both in friable and non-friable states and without regard to the purposes for which such material is used.

1.14. CONSTRUCTION TIME AND PHASING REQUIREMENTS

A. Each Contractor is advised the "time is of the essence" of the Contract as defined in the "General Conditions" for the completion of the construction of the facility. It is understood that the work is to be carried through to completion with the utmost speed consistent with good workmanship.
B. Time of Completion shall be as established in the Milestone Schedules (Section 011100).
C. The Contractor shall maintain fences and barricades at all times and shall repair/restore and/or pay for any temporary fence damaged by their work.
D. Maintain all exits and walkways at all times.
E. Where the barricade is removed for work, the Contractor performing such work shall provide adequate safety personnel to prevent unauthorized persons from approaching the work area.
F. Construction Phasing: The phasing and/or milestone schedule contained in Section 011100 has been established for the overall construction of the project.
G. Electrical and mechanical services to the functioning spaces shall be maintained at all times.
H. Swing-overs to new facilities shall be made so as to cause the least interruption to the facilities' operations.
I. The Contractor shall provide and maintain all required separations between old and new construction to prevent:
    1. Unauthorized entrance to construction areas by others than Architect, Construction Manager, or Owner.
    2. Heat loss from existing building, water (rain or ground) infiltration into existing building.
J. Exterior alteration and restoration, as required, may proceed outside of phasing schedule at the Contractor's option with concurrence from the Architect, Construction Manager and Owner.
K. Site development work shall proceed in such a manner to cause the least amount of disruption to the ongoing operations as possible.

1.15. PROOF OF ORDERS, DELIVERY DATES AND SUPPLY CHAIN TRACKING

[Coordinate with Sections 01 32 16 and 01 33 00.]

A. Within 2 weeks after the approval of shop drawings, samples, product data and the like, the Contractor shall provide copies of purchase orders for all equipment and materials which are not available in local stock. The Contractor shall submit written statements from suppliers confirming the orders and stating promised delivery dates. Failure to provide this critical information will result in Owner holding monthly requisition payments until received.

B. Due to potential disruption of material supply-chains, the Contractor(s) are required to obtain all materials for the project and store them onsite in their individual Conex boxes. This includes general material items typically readily available (piping, conduits, wire, metal studs, etc.) The Owner will pay for these stored items delivered to the jobsite in accordance with Section 01 29 00.
C. This information shall be incorporated within the progress schedules so required as part of Section 01 32 16 and 01 33 00 and shall be monitored so as to ensure compliance with promised dates.

1.16. FIELD MEASUREMENTS

Each Respective Contractor shall take all necessary field measurements prior to fabrication, release and installation of work and shall assume complete responsibility for accuracy of same.

1.17. INITIAL SUBMITTAL REQUIREMENTS

As outlined in Division 01, each Contractor shall provide items noted including – bonds, insurance, emergency telephone numbers, progress scheduling, schedules of submittals, subcontractor listings and the like prior to the start of any work. The Owner will not issue contracts until all bonds and insurance information is received from the Contractor and verified correct.

1.18. SCHEDULES

The milestone schedule presented in the documents is for bidding and general purposes. Due to the nature of the work, it is the intention of the Construction Manager to negotiate actual work periods for the project among various Prime Contractors involved with this bidding process, as well as separate contractors involved with other phases of the work solicited under separate proposals. Each Contractor shall, under terms of the General Conditions, mutually cooperate in the rescheduling of work to permit an uninterrupted use of the facilities by the Owner, without additional cost to the Owner.

General:

A. The objective of this project is to complete the overall work in the shortest period of time and to protect the building and occupants from damages caused by weather and construction during the progress of the work.
B. To meet these objectives, the Contractor shall plan the work, obtain materials, and execute the construction in the most expeditious manner possible in accordance with the requirements listed below.
C. If the Contractor fails to expedite and pursue any part of the work, the Owner may terminate the contract or may carry out the work with others per the General Conditions.

D. The Contractor shall work in coordination with work of other Contractors and Owner.
E. All Contractors are required to comply with proper sequencing of work and provide other Prime Contractors sufficient time to install their work (e.g. – HVAC Contractor provide preassembled roof curbs on roof in time for the GC roofing work.) If Contractor "boxes out" another Prime Contractor, they will be directed to stop work and open if necessary, to enable other trades to complete their work. No compensation for lost time due to stop-work will be provided.

1.19. ADDITIONAL REQUIREMENTS

The following are additional general and special requirements which will govern the work of the projects covered by these documents:

A. If it appears that some of the work cannot be completed by the scheduled date, the Contractor shall increase the work force or increase the hours of work, including evenings and weekends as necessary, and cover any additional costs to the Owner, Architect and Construction Manager.
B. If the work is complete but the area has not been cleaned or debris and equipment remain, the Owner and/or Construction Manager will notify the Contractor of the deficiencies. The Contractor will have up to four hours to clean the specified area(s) to the satisfaction of the Owner and/or Construction Manager. If the Contractor fails to do so, the Owner reserves the right to prepare the area for occupancy using their own resources and deduct the associated costs from the Contract amount.
C. Contractor must plan, provide and maintain his own access, ramping and egress as required into and out of the site, staging of trailer(s), materials, machinery, and equipment in agreement with the Construction Manager's Superintendent. Maintain free and safe access on the jobsite for other related project personnel. Maintain safe pedestrian or vehicular traffic must be regulated by a flagman. Trucking and delivery operation should be coordinated with Construction Manager's Superintendent and all other trades.
D. Contractor is responsible to maintain existing site fencing in its existing condition. Modifications of the fence to better accommodate the contract work can be discussed with the Construction Manager. These changes shall than be handled by this Contractor at his expense and in accordance with the Construction Manager's Superintendent's direction. Any cost incurred as a result of damages shall be changed to this Contractor.
E. Contractor's personnel will not be permitted to use Owner's facilities (including toilet, telephone, food services, etc.) for their own benefit. Contractor's Superintendent must explain this to all their field forces.
F. Contractor shall limit their operations including storage of materials and prefabrication to areas within the Contract Limit Lines.

G. Contractor shall coordinate the use of premises with the Owner and Construction Manager and shall move at their own expense any stored products under Contractor's control, including excavated material, which interfere with operations of the Owner or separate Contractors.
H. Contractor shall obtain and pay for off-site storage as needed to maintain the Owner's use of their premises. The costs of any required storage shall not be an additional expense to the Owner.
I. Contractor shall assume full responsibility for the protection and safekeeping of products under this Contract stored on the site and shall cooperate with the Construction Manager to ensure security for the Owner's Property.
J. The intention of the work is to follow a logical sequence; however, the Contractor may be required by Construction Manger to temporarily omit or leave out any section of their work or perform their work out of sequence. All such out of sequence work and come back time to these areas shall be performed at no additional cost.
K. Contractor shall submit a three-week (man-loaded work activity and area) to Construction Manager each week. Contractor's representative shall attend a weekly meeting with all contractors, chaired by Construction Manager, for the purpose of job coordination and sequencing.
L. Contractor is responsible to coordinate the job with other trades and Construction Manager, and to cooperate with other trades in pursuit of the overall project's coordination drawings and actively participate in resolving discrepancies, conflicts, interferences, etc.
M. The Contractor shall take special care in verifying that his equipment matches the characteristics of the power being supplied.
N. Any Contractor personnel including Project Managers, Supervisors, etc. who engage in any personal attacks, belligerent or threatening speech/texts, etc., to the Owner, or any of its agents, will be removed from working on the project.
O. Unsafe practices, horseplay, abusive behavior or language, wanton destruction of property, use of drugs or alcohol, possession of firearms, and solicitation shall not be tolerated. There will be no warnings, and Contractor shall designate a responsible on-site Supervisor to handle any situations that may arise, including termination.
P. Each Contractor is responsible to supply and install all blocking/bracing necessary to properly secure their work. This responsibility includes coordinating the installation in concealed areas without delaying other trades.
Q. Union business shall not be conducted on site. Any Union representative that visits the site must declare what Contractor's personnel they represent, and must be escorted by that Contractor's Union steward at all times. No visitors, sales representatives or non-working personnel shall be permitted on site without prior consent of the Construction Manager. No photographs shall be taken without the Construction Manager's prior approval.

R. Contractor shall provide protection from damage to adjacent and adjoining work and/or structures. Contractor shall clean, repair and/or replace any damage for which this Contractor is responsible.
S. Contractor shall submit hourly rate sheets that would apply to time and material work for all pertinent trades upon Award of Contract.
T. Contractor shall examine surfaces and conditions prior to start of work. Report unacceptable conditions to the Construction Manager. Do not proceed until unacceptable conditions are corrected and acceptable. Starting work implies acceptance of existing conditions.
U. Each Prime Contractor shall include general housekeeping of light debris. All debris from each Prime Contractor will be collected daily and disposed of into their dumpsters. In addition to daily general housekeeping, the General Work Contractor shall provide a weekly broom sweep and damp mop of all areas for the entire duration of the project. The broom sweep shall include debris from all trades working on site.
V. Sleeves and Sleeve Layout – It is the responsibility of the Prime Contractor requiring a sleeve to provide the sleeve and a layout sketch to the Prime Contractor performing the construction activity that the sleeve goes in.
W. Limited site space is available in areas as designated by the Construction Manager. Construction trade parking is not permitted in Owner's employee parking lot.
X. Prior to commencing the work, each Contractor shall provide written acceptance of grades, structures, substrates, and/or systems installed by other Contractors as suitable for installation of his work. Failure to provide this verification prior to commencing work shall constitute acceptance of the existing conditions.
Y. Each Contractor shall coordinate with the Construction Manager for lay down areas, staging areas, and overall use of project site.
Z. All Contractors and their employees, subcontractors and supplier are expressly prohibited from entering the occupied areas of the school building during school hours without prior written permission of the Construction Manager and for using any of its facilities (i.e. restrooms, cafeteria, etc.).
AA. No recycled import fill materials are permitted.

PART 2 – PRODUCTS (NOT APPLICABLE)

PART 3 – EXECUTION (NOT APPLICABLE)

END OF SECTION 011000

SECTION 011100 – MILESTONE SCHEDULE

PART 1 - GENERAL

1.1. MILESTONE

The following milestone schedule serves as basis for bidding. A Final Construction Schedule will be developed at a general meeting within 20 days of Letter of Intent to Award the Contracts. Contractor will coordinate activities, forward submittals, deliver materials and provide the necessary workforce to meet the milestones listed below.

1.2. MILESTONE SCHEDULE

	High School Locker Room & CTE Addition	**Start**	**Finish**
	Mobilization, Staging & Protections (see plan included in 015000)	6/29/26	7/02/26
	Installation of Temporary Staging Area (see plan included in 015000) **BY OTHERS**	6/29/26	7/10/26
	Relocation of Locker Rooms to Rooms 122 & 123 **BY OTHERS**	6/29/26	8/14/26
	Relocation of Locker Rooms to allow for Owner Occupancy **BY OTHERS**	---	8/14/26
	Installation of Temporary Egress Scaffold (overhead protection) at Entrance Vestibule 1 (V1) (to remain in place until Summer 2027)	6/29/26	8/14/26
	Locker Room Renovation and Addition		
	Pre-Abatement Demolition	6/29/26	7/2/26
	Asbestos Abatement (includes final air clearances and temporary critical barriers) Multiple Crews, double shift as necessary, for full air clearance by 7/17/25	7/6/26	7/17/26
	Major Demolition and Protections	---	8/28/26
	Shell (Permanent) Enclosure-see below **Locker Room 2nd and 3rd Floor Addition**	---	12/31/26
	Locker Room Completion to allow for Owner Occupancy	---	6/4/27
	Locker Room 2nd and 3rd Floor Addition		
	Shell (Permanent) Enclosure and Completion to Allow for Temporary Heating	---	12/31/26
	Temporary Heating	12/31/26	4/16/27
	Substantial Completion	---	5/05/28

	Locker Room 2nd and 3rd Floor Addition to allow for Owner Occupancy	---	5/19/28
	CTE Addition		
	Concrete Footings, Foundations & Backfill Complete	---	4/14/27
	Shell (Permanent) Enclosure and Completion to Allow for Temporary Heating	---	8/27/27
	Temporary Heating	10/15/27	4/14/28
	Substantial Completion	---	5/05/28
	CTE Addition to allow for Owner Occupancy	---	5/19/28
	Closeout		
	Contractor Closeout (review the specifications) 30 days past substantial completion	---	6/05/28

1. All Work required by any of the Owner's representatives and consultants, including the Construction Manager, Architect, Architect's consultants, Owner's Attorneys, etc., to execute final the contract beyond Milestone dates, or to execute final closeout after 30 days past substantial completion, if determined to be caused by Contractor, shall result in payment(s) to the Owner for additional services to the Construction Manager, Architect, Architect's consultants, Owner's Attorneys, etc. These costs will then be issued in the form of a Deduct Change Order to the Contractor's contract at the Owner consultant's contractual rate.
2. Due to space limitations at the jobsite, all Prime Contractors are specifically notified that jobsite material lay-down areas will need to be relocated as necessary. All Contractors are required to comply with Construction Managers direction and sequencing.
3. Any additional costs incurred by the Owner's representatives, including the Construction Manager, Architect, Owner's staff, Owner's consultants and any related costs, due to schedule overruns beyond the milestone dates, if determined to be the contractor's responsibility, will result in a deduct change order at the contractual rate established by the Owner or their representatives.
4. Sufficient manpower shall be provided at all times to maintain progress of the job. A shortage of labor in the industry shall not be accepted as an excuse for not properly manning the job.
5. The objective of this project is to complete the overall work in the shortest period of time. Thus, if access is provided to a work area sooner than originally scheduled, each Contractor will likewise mobilize their forces earlier to maintain the reduction in overall schedule time.
6. Each Contractor is advised that "Time is of the essence" as per the General Conditions of the contract and they will work with multiple crews of sufficient size as necessary to carry out the work with the utmost speed with good workmanship. If the Contractor fails to expedite and

pursue any part of the work, the Owner may order the contractor to take “Extraordinary Measures”, or hire others to complete the work and adjust their contract amount accordingly as per the General Conditions.

7. Contractors are specifically notified that they must properly staff the project with a competent field superintendent and a sufficient supply of workers to maintain progress and flow of the work as required by the schedule, and to coordinate/install in a timely manner to facilitate the work of other trades.
8. All trades are hereby informed that construction will proceed in phases, requiring temporary disconnection, reconnection, and maintenance of utilities and services as needed. It is imperative to ensure uninterrupted use of essential services (such as mechanical, electrical, fire alarm, and public address systems) to all occupied areas throughout the project

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 011100

SECTION 012100
ALLOWANCES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.
   1. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:
   1. Contingency allowances.

1.02 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.03 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.04 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.05 COORDINATION

A. Coordinate allowance items with other portions of the Work.

1.06 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes.

B. **The Contractor's overhead and profit, including costs for bonds and insurances, supervision, delivery, equipment rental and similar costs, for these allowances shall be included in the values of the general requirements of the base bid contract sum and are not chargeable under allowance disbursement.**

C. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.07 ALLOWANCE DISBURSEMENT "REQUEST FOR PROPOSALS"

A. Submit proposals for changes in the scope in the form of the "Request for Proposal" as described in Division 01, Section "CONTRACT MODIFICATION PROCEDURES".

B. Once all parties have agreed to the terms and methods of the change, a Change Order will be issued.

1.08 UNUSED MATERIALS

A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
   1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

B. All allowances shall be carried as part of the Base Bid.

3.03 CONTRACT 1 GENERAL CONSTRUCTION SCHEDULE OF ALLOWANCES

A. Allowance GC-00, General Allowance:**CONTRACT 1** shall include a contingency allowance totaling **$375,000** for use according to the Owner's instructions.

B. Allowance GC-01, VAT Flooring:**CONTRACT 1** in addition to the base bid abatement work identified on abatement drawings the contracot shall include in their base bid an allowance of 100 SF for abatement of VAT flooring if encountered.

C. Allowance GC-02, Asbestos Fittings / Insulation: **CONTRACT 1** in addition to the base bid abatement work indentified on abatement drawings the contractor shall include in their base bid an allowance of 100 LF fittings/insulation (figure individual glove bag removal) for abatement of additional asbestos fittings/insulation if encountered.

D. Allowance GC-03, Trench Rock Removal:**CONTRACT 1** shall include in their base bid an allowance of 50 CY of removal of rock and replacement with imported compacted structural fill if encountered.

E. Allowance GC-04, Unsuitable Soils:**CONTRACT 1** shall include in their base bid an allowance of 50 CY of removal of unsuitable soil and replacement with imported compacted structural fill if encountered.

3.04 CONTRACT 2 MECHANICAL WORK CONTRACTOR - SCHEDULE OF ALLOWANCES

A. Allowance MC-00, General Allowance: **CONTRACT 2** shall include a contingency allowance totaling **$75,000** for use according to the Owner's instructions.

3.05 CONTRACT 3 ELECTRICAL WORK CONTRACTOR - SCHEDULE OF ALLOWANCES

A. Allowance EC-00, General Allowance:**CONTRACT 3** shall include a contingency allowance totaling **$75,000** for use according to the Owner's instructions.

B. Allowance EC-01, Trench Rock Removal:**CONTRACT 3** shall include in their base bid an allowance of 15 CY of removal of rock and replacement with imported compacted structural fill if encountered.

C. Allowance EC-02, Unsuitable Soils:**CONTRACT 3** shall include in their base bid an allowance of 15 CY of removal of unsuitable soil and replacement with imported compacted structural fill if encountered.

3.06 CONTRACT 4 PLUMBING WORK CONTRACTOR - SCHEDULE OF ALLOWANCES

A. Allowance PC-00, General Allowance:**CONTRACT 4** shall include a contingency allowance totaling **$50,000** for use according to the Owner's instructions.

3.07 CONTRACT 5 FIRE SPRINKLER WORK CONTRACTOR - SCHEDULE OF ALLOWANCES

A. Allowance FSC-00, General Allowance: **CONTRACT 5** shall include a contingency allowance totaling **$20,000** for use according to the Owner's instructions.

END OF SECTION

SECTION 012200
UNIT PRICES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

1.02 DEFINITIONS

A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.03 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: Unit prices, if any, are included on the Form of Proposal.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

3.01 SCHEDULE OF UNIT PRICES

A. GENERAL CONSTRUCTION

1. **Unit Price GC No. 01: VAT Flooring**
   a. Description: Supply & install all material and labor for abatement of VAT flooring to be used as an add or deduct from base bid quantities.
   b. Unit of Measurement: per square foot of flooring.
2. **Unit Price GC No. 02: Abatement of ACM Fittings/Insulation**
   a. Description: Supply & install all material and labor for abatement of ACM fittings (individual glove bag) or insulation to be used as an add or deduct from base bid quantities.
   b. Unit of Measurement: per linear foot of elbow or insulation.
3. **Unit Price GC No. 03: Trench Rock Removal**
   a. Description: Provide all labor, materials and equipment to remove rock and replace with compacted structural fill, to be used as an add or deduct from base bid quantities and/or allocation of bid allowance.
   b. Unit of Measurement: per cubic yard of trench rock measured in place.
4. **Unit Price GC No. 04: Unsuitable Soils**
   a. Description: (Unit price costs): Removal of unsuitable material under unclassified excavation and disposal and Installation of suitable backfill material placed andcompacted to replace unsuitable material to be used as an add or deduct from base bid quantities and/or allocation of bid allowance.
   b. Unit of Measurement: per cubic yard in place.

B. ELECTRICAL CONSTRUCTION

1. **Unit Price EC No. 01: Trench Rock Removal**
   a. Description: Provide all labor, materials and equipment to remove rock and replace with compacted structural fill, to be used as an add or deduct from base bid quantities and/or allocation of bid allowance.
   b. Unit of Measurement: per cubic yard of trench rock measured in place.
2. **Unit Price EC No. 02: Unsuitable Soils**
   a. Description: (Unit price costs): Removal of unsuitable material under unclassified excavation and disposal and Installation of suitable backfill material placed andcompacted to replace unsuitable material to be used as an add or deduct from base bid quantities and/or allocation of bid allowance.
   b. Unit of Measurement: per cubic yard in place.

END OF SECTION

SECTION 012300
ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.02 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
   2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.03 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 SCHEDULE OF ALTERNATES

A. GENERAL CONSTRUCTION
   1. Alternate No. GC-1: Vestibule V1
      a. Base Bid: Scope per documents with the exception of additional work indicated on sheet A201.2
      b. Alternate: All general construction work associated with the replacement of the exterior doors and the installation of new interior wall partition and new interior doors at Vestibule V1 shall be included as an add alternate.
   2. Alternate No. GC-2: Area A Signage and Wall Graphics
      a. Base Bid: Scope per documents.
      b. Alternate: OMIT metal signage DS-7 and DS-8, Wall Graphics DWG-1, DWG-2 and DWG-3. Paint walls EPT-2 at DWG-2 and DWG-3 locations.
   3. Alternate No. GC-3: Stainless Steel Interior Guardrails and Handrails

a. Base Bid: All interior guardrails and handrails to be standard steel pipe, painted.
b. Alternate: All interior guardrails and handrails shall be stainless steel in lieu of standard steel pipe, painted.

4. Alternate No. GC-4: Area B Signage and AWP
   a. Base Bid: Scope per documents.
   b. Alternate: OMIT DS-1, DS-2 and DS-3. OMIT all instances of AWP-1 and AWP-2.
5. Alternate No. GC-5: Flooring Rooms 161, 163, 165
   a. Base Bid: Epoxy Resin Flooring per documents
   b. Alternate: Provide Sealed Concrete Flooring and RB-1 in lieu of Epoxy Resin Flooring in rooms 161, 163 and 165.
6. Alternate No. GC-6: VCT Flooring
   a. Base Bid: Flooring scope per documents.
   b. Alternate: Provide VCT flooring throughout project in lieu of Rubber Tile Flooring .
7. Alternate No. GC-7: LVT Flooring
   a. Base Bid: Flooring scope per documents.
   b. Alternate: Provide LVT flooring throughout project in lieu of Rubber Tile Flooring .

B. ELECTRICAL CONSTRUCTION
1. Alternate No. EC- 1: Vestibule V1
   a. Base Bid: All electrical work associated with relocating existing ADA door operator push button station at existing exterior door.
   b. Alternate: All electrical work associated with the replacement of the exterior doors and the installation of new interior wall partition and new interiors doors at Vestibule V1 shall be included as an add alternate.
2. Alternate No. EC- 2: Backlit Metal Signage
   a. Base Bid: Scope per documents.
   b. Alternate: OMIT all electrical work associated with backlighting metal signs DS-7 and DS-8.
3. Alternate No. EC-3: Solar Panels
   a. Base Bid: Scope per documents.
   b. Alternate: OMIT all electrical work associated with the installation of solar panels.

END OF SECTION

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 GENERAL

A. Should the Contractor desire to substitute other articles, materials, apparatus, products or processes than those specified or approved as equal, the Contractor shall apply to the Architect in writing for approval of such substitution. It should be noted that the bid shall not be based on a substituted article, material, apparatus, product or process. With the application shall be furnished such information as required by the Architect to demonstrate that the article, material, apparatus, product or process he wishes to use is the equivalent of that specified in quality, finish, design, efficiency and durability and has been elsewhere demonstrated to be equally serviceable for the purpose for which it is intended. The Contractor shall set forth the reasons for desiring to make the substitution and shall further state what difference, if any, will be made in the construction schedule and the contract price for such substitution should it be accepted; it being the intent hereunder that any savings shall accrue to the benefit of the Owner.

B. The Architect shall reject any such desired substitution as not being specifically named in the contract, or if he shall determine that the adjustment in price in favor of the Owner is insufficient, the Contractor shall immediately proceed to furnish the designated article, material, apparatus, product or process.

C. Request for substitutes shall conform to the requirements of this Article.

D. Requests for substitutions shall, include full information concerning differences in cost, and any savings in cost resulting from such substitutions shall be passed on to the Owner.

E. Requests for utilization of substitutes will be reviewed during the course of the project. The impact on the project and the timeliness of submission will be of key consideration.

F. The approval of utilization of a substitute is subject to the sole and final discretion of the Architect.

1.02 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Sections:
   1. Division 01 Section "Allowances" for products selected under an allowance.
   2. Division 01 Section "Alternates" for products selected under an alternate.
   3. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
   4. Division 01 Section “Submittals” for submittal procedures.
   5. Divisions 02 through 49 Sections for specific requirements and limitations for substitutions.

1.03 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
   1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

B. Substitute Items (Or Equal): If in Architect/Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item it will be considered a proposed substitute item.

1.04 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Use form provided in Project Manual.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication, or installation cannot be provided, if applicable.
      b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
      g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
      h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      i. Research reports evidencing compliance with building code in effect for Project, from Building Code of New York State.
      j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
      k. Cost information, including a proposal of change, if any, in the Contract Sum.
      l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
      m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
      n. See additional requirements in Article 2.3 DETAILED SUBSTITUTION PROCEDURES

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within (5) five days of receipt of a request for substitution. Construction Manager will notify Contractor of acceptance or rejection of proposed substitution within (10) ten days of receipt of request, or (5) days of receipt of additional information or documentation, whichever is later.
   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.05 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage qualified testing agency to perform compatibility tests recommended by manufacturers.

PART 2 PRODUCTS

2.01 SUBSTITUTION PROCEDURES (GENERAL)

A. Conditions: After the 'Notice of Award" and prior to the Contractor entering into a Formal Contract with the Owner, the Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
   1. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   2. Substitution results in substantial cost savings to the Owner or substantial performance improvements.
   3. Substitution request is fully documented and properly submitted.
   4. Requested substitution will not adversely affect Contractor's construction schedule.
   5. Requested substitution has received necessary approvals of authorities having jurisdiction.
   6. Requested substitution is compatible with other portions of the Work.
   7. Requested substitution has been coordinated with other portions of the Work.
   8. Requested substitution provides specified warranty.
   9. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
   10. The substation is submitted in compliance with Article 2.3 DETAILED SUBSTITUTION PROCEDURES

B. If the Contractor does not present 'Substitutions" in the time frame noted above any future requests to substitute products will not be considered, unless the substitution is for cause.

C. Coordination: Modify or adjust affected work as necessary to integrate work of the approved substitutions.

2.02 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than (20) twenty days prior to time required for preparation and review of related submittals.
   1. Architect will consider Contractor's request for substitution when the following conditions are present.
      a. The specified product is not available

b. The specified product cannot be delivered in the time frame required under the Project Schedule.

2. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Substitution request is fully documented and properly submitted.
   c. Requested substitution will not adversely affect Contractor's construction schedule.
   d. Requested substitution has received necessary approvals of authorities having jurisdiction.
   e. Requested substitution is compatible with other portions of the Work.
   f. Requested substitution has been coordinated with other portions of the Work.
   g. Requested substitution provides specified warranty.
   h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received prior to award of contract and based on the following
   1. The proposed product substitution will result in a significant cost savings to the Owner.
   2. The proposed product has substantial performance improvements.
   3. The proposed product can be provided much earlier in the schedule enhancing the project completion date.
   4. The proposed product warranty is superior to the specified item.

2.03 DETAILED SUBSTITUTION REVIEW PROCEDURES

A. The Architect in addition to the requirements listed above will require compliance with the following requirements and procedures.
   1. Requests for approval of substitutions will be received and considered from Prime Contractors only and not from manufacturers, suppliers, Subcontractors, or other third parties.
   2. If the materials and equipment submitted are offered as substitutions to the Contract Documents or approved equal, the Contractor shall advise the Owner and the Architect of the requested substitutions and comply with the requirements hereinafter specified in this Article.
   3. Where the acceptability of substitution is conditioned upon a record of and the proposed substitution does not fulfill this requirement, the Architect, at the Architect’s sole discretion, may accept the substitution if the Contractor provides a bond or cash deposit which guarantees replacement at no cost to the Owner for any failure occurring within a specified time. The substitution item must meet all other technical requirements contained in the Specification.
   4. The Contractor shall furnish such information as required by the Architect to demonstrate that the equal article, material, apparatus, product or process is the equivalent of that specified in quality, finish, design, efficiency and durability and has been elsewhere demonstrated to be equally serviceable for the purpose for which it is intended and/or that it offers substantial benefits to the Owner in saving of time and/or cost. The Contractor shall set forth the reasons for desiring to make this substitution.
   5. Contractor shall submit:

a. For each proposed request for approved substitute sufficient details, complete descriptive literature and performance data together with samples of the materials, where feasible, to enable the Architect to determine if the proposed request for approval should be granted, including manufacturer's brand or trade names, model numbers, description of specification of item, performance data, test reports, samples, history of service, and other data as applicable.
b. Certified tests, where applicable, by an independent laboratory attesting to the performance of the substitute.
c. A list of installations where the proposed substitute equipment or materials is performing under similar conditions as specified.
d. A list of installations where the proposed substitute equipment or materials is performing under similar conditions as specified.

6. Where the approval of a substitute requires revision or redesign of any part of Work, including that of other Contracts, all such revision and redesign, and all new drawings and details required therefore, shall be provided by the Contractor at its own cost and expense, and shall be subject to the approval of the Architect.
7. In the event that the Architect is required to provide additional services, then the Architect's charges for such additional services shall be paid by the Contractor to the Owner.
8. Any modifications in the Work required under other contracts to accommodate the changed design will be incorporated in the appropriate contracts and any resulting increases in contract prices will be charged to the Contractor by the Owner who initiated the changed design.
9. In all cases, the Architect shall be the judge as to whether a proposed substitute is to be approved. The Contractor shall be bound by the Architect’s decision. No substitute items shall be used in the Work without written approval of the Architect.
10. In making request for approval of substitute, Contractor represents that:
    a. Contractor has investigated proposed substitute and determined that it is equal to or superior in all respects to the product, manufacturer or method specified or offers other specified advantages to the Owner.
    b. Contractor will provide the same or better warranties or bonds for proposed substitute as for product, manufacturer or method specified.
    c. Contractor waives all claims for additional costs or extension of time related to proposed substitute that subsequently may become apparent.
    d. Contractor shall have and make no claim for an extension of time or for damages by reason of the time taken by the Architect in considering a substitute proposed by the Contractor or by reason of failure of the Architect to approve a substitute proposed by the Contractor. Any delays arising out of consideration, approval, or utilization of a substitute shall be the sole responsibility of the Contractor requesting the substitute and it shall arrange its operations to make up the time lost.
11. Proposed substitute will not be accepted if:
    a. Acceptance will require substantial revision of Contract Documents.
    b. Acceptance will substantially change design concepts or Technical Specifications.
    c. Acceptance will delay completion of the Work, or the Work of other Contractors.
    d. If the Substitute item is not accompanied by formal request for approval of substitute from Contractor.

12. The Architect reserves the right to disapprove, for aesthetic reasons, any material or equipment on the basis of design or color considerations alone, without prejudice to the quality of the material or equipment, if the manufacturer cannot meet the required colors or design.
13. All requests for approval of substitutes of materials or other changes from the contract requirements shall be accompanied by an itemized list of all other items affected by such substitution or change. The Architect shall have the right, if such is not done, to rescind any approvals for substitutions and to order such Work removed and replaced with Work conforming to the specified requirements of the contract, all at the Contractor's expense, or to assess all additional costs resulting from the substitution to the Contractor.
14. Approval of a substitute will not relieve Contractor from the requirement to submit Shop Drawings or any of the provisions of the Contract Documents.
15. In the event that the Architect is required to provide additional services as a result of a request for approval of a substitute results in changes by the Contractor in dimension, weight, power requirements, etc., of the equipment and accessories furnished, or as a result of Contractor's errors, omissions or failure to conform to the requirements of the Contract Documents or if the Architect is required to examine and evaluate any changes proposed by the Contractor solely for the convenience of the Contractor, or for evaluation of deviations from Contract Documents, then the Architect's charges in connection with such additional services shall be paid by the Contractor.
16. Structural design shown on the Drawings is based upon the configuration of and maximum loading for major items of equipment as indicated on the Drawings and as specified. If the substituted equipment furnished differs from said features, the Contractor shall pay to the Owner all costs of redesign and for any construction changes required to accommodate the equipment furnished, including the Architect's charges in connection therewith.

B. The Contractor shall respond to required submittals with complete information and with a degree of accuracy to achieve approvals within two (2) submissions. All costs to the Architect involved with subsequent submissions of Shop Drawings, Samples or other items requiring approval, will be paid by the Contractor to the Owner, by deducting such costs from payments due for Work completed. In the event an approved item is requested by the Contractor to be changed or substituted for, all costs involved in the reviewing and approval process will likewise be back charged to the Contractor unless determined by the Architect that the need for such substitution and/or deviation from Contract Documents is beyond the control of the Contractor.

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 012519
EQUIVALENTS

PART 1 GENERAL

1.01 SUMMARY:

A. Requirements set forth herein pertain to products specified in divisions included in project manual.

1.02 DEFINITIONS:

A. For the purpose of this contract, the words "similar", "equal to", "or equal", "equivalent" and such other words of similar content and meaning, shall be deemed to mean similar and equal to one of named products.

B. For the purpose of bidding documents, the word "products" shall be deemed to include the words "articles", "materials", "items", "equipment" and "methods". Whenever in contract documents one or more products are specified, words "similar, equivalent, and equal to" shall be deemed inserted.

1.03 EQUIVALENTS:

A. Where, in these specifications or on drawings, certain kinds, types, brands, or manufacturers of materials are named, they shall be regarded as required standard of quality. Where two or more are named these are presumed to be equal, and Contractor may select one of those items.

B. If Contractor desires to use any kind, type, brand, or manufacturer of material other than those named in specification, he may submit the request for approval to the Architect well in advance of the bid date.

C. Requests for approval of proposed equivalents will be received by Architect only from the Contractor.

D. If the Architect approves a proposed equivalent prior to receipt of Bids, such approval will be set forth in an Addendum.

E. After the bid opening the apparent low bidder or bidders will be notified by the Architect or Owner and shall submit to the Architect in writing, within ten (10) calendar days what equivalent kind, type, brand, or manufacture is included in bid in lieu of specified items. No equivalents will be considered after this submission.

F. Contractor shall have burden of proving, at Contractor’s own cost and expense, to satisfaction of Owner/Architect, that proposed product is similar and equal to named product. In making such determination Owner/Architect will be sole judge of objective and appearance criteria that proposed product must meet in order for it to be approved.
   1. Supporting data on equivalency is responsibility of bidder. For each equivalent to base specification, included in products list, submit information describing in specific detail -
      a. Wherein it differs from quality and performance required by base specification.
      b. Changes required in other elements of work because of equivalent.
      c. Effect on construction schedule.
      d. Any required license fees or royalties.
      e. Availability of maintenance service, and source of replacement materials.
      f. Such other information as may be required by Owner.

G. Owner, through Architect, shall be judge of acceptability of proposed equivalents. Risk of whether bid equivalents will be accepted is borne by Contractor.

1.04 CONTRACTOR'S REPRESENTATION:

A. Submission of an equivalent product and/or material constitutes a representation that Contractor:
   1. Has investigated proposed product and determined it is equal to or superior in all respects to that specified.
   2. Will provide same warranties or bonds for equivalent as for product specified.
   3. Will coordinate installation of an accepted equivalent into work and make such other changes as may be required to make work complete in all respects.
   4. Waives all claims for additional costs, under his responsibility, which may subsequently become apparent.
   5. Will provide, at own cost and expense, any different quantity and/or arrangement of ductwork, piping, wiring, conduit or any part of work from that specified, detailed or indicated in Contract Documents if required for proper installation of an approved equivalent.
   6. Will provide, at own cost and expense, all such revision and redesign and all new drawings and details required by Architect for approval if proposed equivalent product requires a revision or redesign of any part of work covered by this contract.
   7. Provide complete documentation on both the product specified and the proposed substitute, including the following information as appropriate:
      a. Point-by-point comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
      b. Copies of current, independent third-party test data of salient product or system characteristics.
      c. Samples where applicable or when requested by Architect.
      d. Detailed comparison of significant qualities of the proposed substitute with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      e. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
      f. Research reports, where applicable, evidencing compliance with building code in effect for Project, from the Building Code of New York State.
      g. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, which will become necessary to accommodate the proposed substitute.
   8. Provide certification by manufacturer that the substitute proposed is equal to or superior to that required by the Procurement and Contracting Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated.
   9. Bidder, in submitting the Procurement Substitution Request, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the Procurement Substitution Request.

1.05 EQUIVALENT CERTIFICATION:

A. Contractor must sign the “Equivalent Certification” following this specification section and deliver it to the Architect along with a complete list of proposed equivalents within ten (10) calendar days after notification from the Architect or Owner. This is mandatory and must be done prior to award of contracts.

EQUIVALENT CERTIFICATION

Project Name:
Project Address:
Project No.:

REVIEWED MATERIAL:

AIA A701-2018 Instructions to Bidders
AIA A201-2017 or A232(CMa) General Conditions of the Contract
Specification Section: 012519 - Equivalents
Specification Section: 012500 - Substitution Procedures
Specification Section: 016000 - Product Requirements

CHECK THE FOLLOWING THAT APPLIES:

	No equivalents are proposed.
	Proposed equivalents are attached with supporting data as per Section 012519.

ALL EQUIVALENTS ARE HEREBY PRESENTED TO ARCHITECT AND OWNER FOR APPROVAL. NO FUTURE EQUIVALENTS WILL BE CONSIDERED.

Contractor Signature:
Printed Name of Contractor:
Date:

Signature of Reviewer:
Printed Name of Reviewer:
Approved as Noted Date:

END OF SECTION

SECTION 012600 – CONTRACT MODIFCATION

PART 1 – PROCEDURES - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
   1. Provisions of this Section apply to the work of each Prime Contractor.
B. Related Sections: the following Sections contain requirements that relate to this Section:
   1. Division 1 Section “Submittals” for requirements for the Contractor’s Construction Schedule.
   2. Division 1 Section “Applications for Payment” for administrative procedures governing Applications for Payment.
   3. Division 1 Section “Substitutions” for administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 MINOR CHANGES IN THE WORK

A. The Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on AIA Form G710, Architect’s Supplemental Instructions.

1.4 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or reviewed Drawings and Specifications.
   1. Proposal requests issued by the Architect are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
   2. Within 7 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect for the Owner’s review.
      a. Include an itemized list of quantities of products required and unit costs, with the total amount of purchases to be made. Furnish survey data and backup invoices, quotes paperwork to substantiate.
      b. Separate labor hours by trade and indicate labor rate. (Submit attached labor rate worksheet notarized for each trade / classification.)
      c. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

d. Include an updated Contractors Construction Schedule that indicates the effect of the change, including but not limited to; changes in activity duration, start and finish times, and activity relationship. Use available float before requesting an extension of contract time.

B. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.
   1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
   2. Include an itemized list of quantities of products required and unit costs, with the total amount if purchases to be made. Furnish survey data to substantiate quantities. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts. Include labor rate breakdown sheets for each trade.
   3. Comply with requirements in Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.
   4. Include an updated Contractors Construction Schedule that indicates the effect of the change, including but not limited to; changes in activity duration, start and finish times, and activity relationship. Use available float before requesting an extension of contract time.

C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests.

1.5 ALLOWANCES

A. Allowance Adjustment: For allowance-cost adjustment, base each Change Order Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
   1. Include installation costs in the purchase amount only were indicated as part of the allowance.
   2. When requested, prepare explanations and documentation to substantiate the margins claimed.
   3. Submit substantiation of a change in scope of work claimed in the Change Orders related to unit-cost allowances.

      Separate labor hours by trade and indicate labor rate. (Submit attached labor rate worksheet notarized for each trade / classification.)

   4. The Owner reserves the right to establish the actual quantity of work-in-place by independent quantity survey, measure, or count.
   5. **Contractor's overhead and profit, including all supervision, costs for bonds & insurances, for these allowances shall be included in the values of the general requirements of contract sum and are not chargeable under allowance disbursement.**

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or the Contractor's handling, labor, installation, overhead, and profit. Submit claims within 15 days of receipt of the Change Order or Construction Change Directive authorizing work to proceed. The Owner will reject claims submitted later than 15 days.
   1. Do not include the Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in Contract Documents.
   2. No change to the Contractor's indirect expense is permitted for selection of higher or lower-priced materials or systems of the same scope and nature as originally indicated.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Architect may issue a Construction Change Directive on AIA Form G714/CMa. The Construction Change Directive instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.7 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Proposal Request, the Architect or Construction Manager will issue a Change Order for signatures of the Owner, Architect, Construction Manager, and the Contractor on AIA Form G701.

B. Contractor cannot requisition for any allowance or change order work until the paperwork has been fully executed by the Contractor, CM, Architect and Owner.

C. Requests for changes in bond fees, if any, will be analyzed at the conclusion of the project. Contractors bonding company to submit substantiation letter. (Bond amount based on total adjusted contract value)

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

Arris Contracting Company, Inc.
189 Smith Street
Poughkeepsie, NY 12601

LABOR RATE WORKSHEET

Project No. _____

Contractor Name: _____ County: _____ Date: _____
Address: _____
Telephone Number: _____

Trade: _____
(Provide separate sheet for each trade, foreman/journeyman, etc.)

	*	% per hour	$ per hour	REGULAR BASE RATE	PREMIUM TIME BASE RATE
A. WAGE RATE PER HOUR					
BENEFITS (* Identifies benefits paid directly to the Employee.)					
Vacation and Holiday					
Health and Welfare					
Pension					
Annuity					
Education / Apprentice Training					
Supplemental Unemployment					
Security Fund					
Industry Advancement					
UBC-Appr., Health, Safety, Educ.					
Labor Management Fund					
B. TOTAL BENEFITS PER HOUR					
PAYROLL TAXES AND INSURANCE					
F.I.C.A. / Social Security (up to the maximum required by law)			%		
Medicare			%		
Federal Unemployment (up to a maximum of $56.00 per employee per year)			%		
State Unemployment (up to 1st $8,500 of base salary paid per employee per year)			%		
Workers' Compensation Code: _____			%		
Disability			%		
C. TOTAL TAXES AND INSURANCE PER HOUR					
All Benefits are paid directly to Employee. _____ x _____ % =					
Only benefits identified by * are paid directly to Employee.					
D. TOTAL LABOR RATE (A + B + C) =					

E. DOCUMENTATION
For General Liability and Workers Compensation, provide policy renewal page from insurance carrier (with contractor name, address, and insurance agent) for substatiation purposes.

F. CONTRACTOR'S CERTIFICATION
I certify that the labor rates, insurance enumerations, labor fringe enumerations and expenses are correct and in accordance with actual and true cost incurred.

_____
Signature

_____
Print Name of Authorized Representative

_____
Print Title

Sworn before me this _____ day
of _____, 20 _____.

_____
Notary Public

END OF SECTION 012600

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This section specifies administrative and procedural requirements governing each Prime Contractor's Applications for Payment.
   1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
B. Related Sections: The following Sections contain requirements that relate to this Section.
   1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 1 Section "Submittals."

1.3 SCHEDULE OF VALUES

A. Coordination: Contractor shall coordinate preparation of its Schedule of Values for the Work with preparation of the Contractors' Construction Schedule.
   1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
      a. Contractor's Construction Schedule
      b. Application for Payment forms, including Continuation Sheets
      c. List of Subcontractors
      d. Schedule of Allowances
      e. Schedule of Alternates
      f. Schedule of Submittals
   2. Submit the Schedule of Values (SOV) to the Construction Manager within 10 days of receipt of the Letter of Intent but no later than 10 days before the date scheduled for submittal of the initial Applications for Payment. (SOV's received after the 15th of the month, will not be allowed to requisition until the following month, due to input time for CM & Owner into their computer systems).
B. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
   1. Identification: Include the following Project identification on the Schedule of Values:
      a. Project name and location.
      b. Name of the Architect.
      c. Project SED number.
      d. Contractor's name and address.
      e. Date of Submittal

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    a. Related Specification Section or Division.
    b. Description of Work.
    c. Name of Subcontractor.
    d. Name of Manufacturer or Fabricator.
    e. Name of Supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value.
        1. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items as requested by the Construction Manager. Multiple line items will be provided for amounts in excess of five percent of the contract sum, broken out into subcomponents equaling not greater than five percent each. Separate all line items by material & labor.
    a. Breakdown shall be separated between additions, renovations and sitework with subtotals for each with its own stand-alone front-end sections as outlined in item 4 below. Each will have their own subtotal, so that the owner can easily see the value to date without needing to add columns.
    b. Breakdown will be separated by school (and SED number) each with its own stand-alone front-end sections as outlined in item 4 below. Each will have their own subtotal, so that the owner can easily see the value to date without needing to add columns.
4. In addition to the breakdown of specification sections, separate line items will be required for the following front-end line items:
    a. Bonds & OCP insurances shall be listed as separate line items. (Substantiation letters required from bonding & insurance company for any amount higher than industry standard of 2.0% of contract sum). Only OCP insurance is allowed for insurance line item. All other insurance costs must be distributed by contractor evenly throughout the various sections.
    b. Supervision – include a minimum of 1% of contract sum.
    c. Project Administration – include a minimum of 1% of Contract Sum.
    d. Project Meetings (appropriate value for weekly attendance for entire duration of project – see Section 01 31 19 Project Meetings for amount)
    e. Punchlist – include a minimum of 2.5% of Contract Sum
    f. Closeout: separate lines for demobilization, Operation & Maintenance Manuals, closeout paperwork, demonstration & training (total for closeout minimum 2% percent of contract value)

g. Continuous Clean-up and Final Clean-up values each at minimum of 2% of contract sum.
h. General Contractor to add line item for Broom sweep/damp mopping at minimum of .5% of contract sum.

5. Round amounts to the nearest whole dollar; the total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
    a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing.
7. Provide separate line items on the Schedule of Values for the initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the work.
8. Unit-Cost Allowances: Show the line-item value of unit-cost allowances, as a product of the unit cost, multiplied by the measured quantity. Estimate quantities from the best indication in the Contract Documents. Allowances to be listed at the end of the Schedule of Values.
9. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.
    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.
10. Schedule of Values Updating: Update and resubmit the Schedule of Values with the next Applications for Payment when Approved Change Orders or Executed Construction Change Directives and Approved Allowance Disbursements.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
    1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
B. Payment Application Times: Each progress-payment date is indicated in the Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
C. Payment-Application Times:
    1. Submit the initial Payment Application to the Construction Manager and the Architect by the 25thof the month for that month. The Construction Manager and the Architect will provide final comments within 3 days of receipt on the 25th of the month. If submitted later than the 25th of the month, review times may be as long as 5 days from receipt.
    2. All required documents, including the final version of the Application for Payment, based on the comments provided by the Construction Manager and the Architect, must be received

by the Construction Manager no later than the first business day of the month following the twenty fifth due date. This will allow for final review by the Construction Manager for accuracy and completeness of submitted documents. If comments are provided to the Contractor, the Contractor must submit a new complete package including all required corrections/updates.

3. All final, complete, Payment Applications will be paid in accordance with the terms of the Standard Form of Agreement Between Owner and Contractor.
4. If a complete package is submitted late to the Construction Manager, the Contractor will be paid as per the terms of the Standard Form of Agreement Between Owner and Contractor.

D. Payment-Application Forms: Use AIA Document G732/CMA (provide a line for the Construction Manager's signature) and Continuation Sheets G703 as the form for Applications for Payment.

1. Separate Continuation Sheets shall be provided for work which takes place on each building and per NYSED project number indicated on drawings and specifications, which will detail that portion of the contract which is attributable to the specific building and NYSED project number indicated on drawings and specifications.

E. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Construction Manager will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions are made.
2. Include amounts of Change Orders and Allowances issued prior to the last day of the construction period covered by the application. (No Change Order or Allowance requisitions can be made or listed on the requisition, unless the formal CO/AD paperwork has been fully executed by Contractor, Construction Manager, Architect, and Owner).
3. Provide digital copies of payrolls which are signed and notarized (Blue Ink) documenting compliance with prevailing wage laws. Payroll for Contractors is required from the 25th of the previous month to the 24th of the current month. Payroll for subcontractors is required from the 15th of the previous month to the 14th of the current month.
4. Provide copies of lien waivers for the previous payment (or anticipated payment.) Include certificate of monthly payment for subcontractors for the previous month.
5. Provide OSHA 10 certificates for all workers on site.
6. Payment for stored materials (whether onsite but not installed, or offsite in a secure warehouse) will require a bill of lading showing the exact value and photographs. In no case shall more than 90% be approved for uninstalled stored materials. An insurance certificate must be provided, specifically to the materials stored with the appropriate dollar value (for onsite or offsite materials).

F. Transmittal: Submit 1 signed and notarized digital copy (blue ink signature) of each Application for Payment to the Construction Manager by a method ensuring receipt within 24 hours. The digital copy shall be complete and attached as a single file to include all waivers of lien, certified payrolls and similar attachments.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect and Construction Manager.

G. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
   1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
   2. When an application shows completion of an item, submit final or full waivers.
   3. The owner reserves the right to designate which entities involved in the Work must submit waivers.
      a. Submit final Applications for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
   4. Waivers Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following. The initial payment application will not be processed until all of these actions and submittals have been received by the Construction Manager. When preliminary submissions are received with the initial application (items 4 and 7), the final submission for these items must be received and approved by the Construction Manager prior to submission of the second application for payment.
   1. List of subcontractors.
   2. List of principal suppliers and fabricators
   3. Schedule of Values.
   4. Contractor's Construction Schedule (preliminary if not final).
   5. Schedule of principal products.
   6. Schedule of unit prices.
   7. Submittal Schedule (preliminary if not final).
   8. List of Contractor's staff assignments.
   9. Certificates of insurance and insurance policies.
   10. Performance and payment bonds.
   11. Data needed to acquire the Owner's insurance.
   12. Initial settlement survey and damage report, if required.

I. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
   1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the work.
   2. Administrative actions and submittals that shall precede or coincide with this application include:

a. Occupancy permits and similar approvals.
b. Warranties (guarantees) and maintenance agreements.
c. Test/adjust/balance records.
d. Maintenance instructions.
e. Meter readings.
f. Startup performance reports.
g. Changeover information related to Owner's occupancy, use, operation, and maintenance.
h. Final cleaning.
i. Application for reduction of retainage and consent of surety.
j. Advice on shifting insurance coverages.
k. Final progress photographs.
l. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Transmittal of required Project construction records to the Owner.
4. Removal of temporary facilities and services.
5. Removal of surplus materials, rubbish, and similar elements.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 No retainage release will be approved by owner until all closeout documents (Closeout paperwork, as-builts, O&M manuals, AIA release forms, warranties, material turnover receipts, etc.) are received and verified complete.

END OF SECTION 01 29 00

Section 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 – GENERAL

1.1. Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2. Summary

A. This Section includes administrative and supervisory requirements necessary for coordinating construction operations including, but not necessarily limited to, the following:
- **1.** General project coordination procedures.
- **2.** Conservation.
- **3.** Coordination Drawings.
- **4.** Administrative and supervisory personnel.
- **5.** Cleaning and protection.

B. Related Sections: The following Sections: the following Sections contain requirements that relate to this Section:
- **1.** Division 1 Section “Project Meetings” for progress meetings, coordination meetings, and pre-installation conferences.
- **2.** Division 1 Section “Construction Progress Schedule” for preparing and submitting the Contractor’s Construction Schedule.
- **3.** Division 1 Section “Material and Equipment” for coordinating general installation.
- **4.** Division 1 Section “Execution and Closeout Requirements” for coordinating contract closeout.

1.3. Coordination

A. Coordinate construction operations included in various Sections of these Specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different Sections that depend on each other for proper installation, connection and operation.
- **1.** Schedule construction operations in the sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation.
- **2.** Coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.
- **3.** Make provisions to accommodate items scheduled for later installation.
- **4.** Contractor is required to coordinate with their subcontractors, other Prime Contractors and the Construction Manager, sufficiently ahead of the work progressing.

B. Where necessary, prepare memoranda for distribution to each party involved, outlining specials procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate contractors where coordination of their work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and assure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules.
2. Installation and removal of temporary facilities.
3. Processing of submittals and photocopying/delivery to affected Contractors.
4. Progress meetings
5. Project closeout activities.

D. Conservation: Coordinate construction operations to assure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the work.

1.4. Submittals

A. Coordination Drawings: Prepare coordination drawings where careful coordination is needed for installation of products and materials fabricated by separate entities. Prepare coordination drawings where limited space availability necessitates maximum utilization of space for efficient installation of different components. (e.g. - subslab piping, ceiling spaces, etc.)

1. Show the relationship of components shown on separate Shop Drawings.
2. Indicate required installation sequences.
3. Comply with requirements contained in Section “Submittals.”
4. HVAC Contractor will begin coordination drawing process within 15 calendar days of award of Contract by providing ¼” scale drawings indicating locations of all ductwork layout, piping layout, bottom of duct etc. Electronic copies will then be submitted to Electrical Contractor for lighting fixtures, main feeders and clearances. Finally, to the General Contractor for ceiling information (Each Contractor shall complete their review and mark-ups within 5 days)
5. A coordination meeting with all Contractors and subcontractors to review completed coordination drawings will be held within 45 days of Contract award.

B. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. Electronic CAD Files of Project Base Plan Drawings; May only be used to expedite production of Shop Drawings for the Project. Use for other Projects or purposes is not allowed.
2. Electronic CAD Files of Project Drawings: Distributed only under the following conditions:
   a. Use of files is solely at receiver’s risk. Architect/Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities

for measurements, dimensions, and quantities set forth in Contract Document. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Architect/Engineer of discrepancy and use information in hard-copy Contract Drawings and Specifications. CAD Files do not necessarily represent the latest Contract Documents, existing conditions and as-builts conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.

b. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.

c. Receiver shall not be hold Architect/ Engineer responsible for data or file clean- up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.

d. Receiver shall understand that even through Architect/Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.

1. Receiver shall not hold Architect/Engineer responsible for such viruses or their consequences, and shall hold Architect/Engineer harmless against costs, losses or damage caused by presence of computer virus in file or media.

3. Upon request to the Architect, and at the Architect's sole discretion, Base Plan Drawings only may be provided to the Prime Contractor in electronic format (for example, AutoCAD format) by the Architect at charge rate to cover the architect's cost for producing.

4. Prior to the Architect's dispensing of documents in electronic format, the Contractor shall execute and deliver an "Electronic Media Release Agreement," provided upon request by Architect, along with said payment.

C. Staff Names: Within 15 days of commencement of construction operations, submit a list of the Contractor's principal staff assignments, including the superintendent and other personnel in attendance at the Project Site. Identify individuals and their duties and responsibilities. List their addresses and telephone numbers.

1. Post copies of the list in the Project meeting room, the temporary field office, and each temporary telephone.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1. General Coordination Provisions

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

3.2. Cleaning and Protection

A. Prime Contractor is to clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

B. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Limiting Exposures: Supervise Construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. High-speed operation.
20. Improper lubrication.
21. Unusual wear or other misuse.
22. Contact between incompatible materials.
23. Destructive testing.
24. Misalignment.

25. Excessive weathering.
26. Unprotected storage.
27. Improper shipping or handling.
28. Theft or vandalism.

3.3. Requests for Interpretation (RFIs)

A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI and forward to the Construction Manager via the internet web-based service.

B. RFI'S shall originate with Contractor. RFI's submitted by entities other than Contractor will be returned with no response.

1. Coordinate and submit RFI's in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

C. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:

1. Project Name.
2. Date.
3. Name of Contractor.
4. Name of Architect and Construction Manager.
5. RFI number, numbered sequentially. Use prefix based on Contract (i.e. MC, EC).
6. Specification Section number and title and related paragraphs, as appropriate.
7. Drawing number and detail references, as appropriate.
8. Field dimensions and conditions, as appropriate.
9. Contractor's suggested solution(s). If Contractor solution(s) impact the Contract Time or the Contract Sum, Contractor shall state the impact in the RFI.
10. Contractors Signature.
11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings and other information necessary to fully describe items needing interpretation.

a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies and attachments.

D. Architect's Action: Architect will review each RFI, determine action required, and return it.

1. The following RFIs will be returned without action:

a. Requests for approval substitutions.
b. Requests for coordination information already indicated in the Contract Documents.
c. Requests for adjustments in the Contract Time or the Contract Sum.
d. Requests for interpretation of Architect's actions on submittal.
e. Incomplete RFIs or RFIs with numerous errors.

2. Architect's action may include a request for additional information.

3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 1 Section "Contract Modification Procedures."

a. If Contractors believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.

E. On receipt of Architect's and Construction Manager's action, immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.

3.4. Deficiency Reports

A. If the Owner, Architect, or Construction Manager notes a deficiency in an installation, material, etc., they will issue a deficiency report via the internet web-based service to the appropriate Contractor. The Contractor has the designated time listed to correct the deficiency and upon completion must respond back in the internet web-based service. The A/E will then perform a follow-up inspection to confirm that the deficiency was adequately corrected.

3.5. Department of Labor Overtime Request

A. The DOL overtime request form shall be filled out and forwarded by each contractor to the Construction Manager prior to the start of any onsite work. Contractors will not be allowed to work Weekends or after hours unless the DOL has been properly notified.

END OF SECTION 013100

SECTION 013119 – PROJECT MEETINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:

1. Preconstruction conferences.
2. Preinstallation conferences.
3. Progress meetings.
4. Coordination meetings.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section “Coordination” for procedures for coordinating project meetings with other construction activities.
2. Division 1 Section “Submittals” for submitting Contractor’s Construction Schedule.

1.3 PRECONSTRUCTION CONFERENCE

A. A preconstruction conference will be scheduled before starting construction, at a time convenient to the Owner, Construction Manager and the Architect, but no later than 15 days after issuance of the Letter of Intent. The conference will be held at the Project Site or another convenient location.

B. Attendees: Authorized representatives of the Construction Manager, Owner, Architect, and their consultants; the Contractor and its superintendent; major subcontractors; manufacturers; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the work.

C. Agenda: Discuss items of significance that could affect progress, including the following:
1. Tentative construction schedule.
2. Critical work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.

5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data, and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Parking availability.
11. Office, work, and storage areas.
12. Equipment deliveries and priorities.
13. Safety procedures.
14. First aid.
15. Security.
16. Housekeeping.
17. Working hours.

D. Reporting: Construction Manager shall prepare and issue minutes to attendees and interested parties.

1.4 PREINSTALLATION CONFERENCES

A. Conduct a pre-installation conference at the Project Site before each construction activity that requires coordination with other construction.

B. Attendees: The Installer and representatives of the Prime Contractor, manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Construction Manager and Architect of scheduled meeting dates.
   1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for the following:
      a. Contract Documents.
      b. Options.
      c. Related Change Orders.
      d. Purchases.
      e. Deliveries.
      f. Shop Drawings, Product Data, and quality-control samples.
      g. Review of markups.
      h. Possible conflicts.
      i. Compatibility problems.
      j. Time schedules.
      k. Weather limitations.
      l. Manufacturer’s recommendations.
      m. Warranty requirements.

n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities.
q. Space and access limitations.
r. Governing regulations.
s. Safety.
t. Inspecting and testing requirements.
u. Required performance results.
v. Recording requirements.
w. Protection.

2. Record significant discussion and agreements and disagreements of each conference and the approved schedule. Promptly distribute the record of the meeting to everyone concerned, including the Owner and the Architect.
3. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.
4. Reporting: Prime Contractor or Installer shall issue minutes to attendees, CM, Owner and Architect.

1.5 PROGRESS MEETINGS

A. Progress meetings will be held at the Project Site at regular intervals (typically weekly) as determined by the Construction Manager.

B. Attendees: In addition to representatives of the Owner, Construction Manager, and the Architect, each Prime Contractor shall be represented at these meetings. Attendance is mandatory at meetings and contractor will include in their bid a sum of $250.00 per meeting (figure 35 meetings) to have an authorized individual in attendance capable of making decisions and providing direction. This amount will be listed as a separate line item on the contractor's Schedule of Values. If the contractor misses a meeting without prior written authorization from the Construction Manager, they will be issued a deduct change order in the amount of $250.00 per occurrence. Subcontractors, suppliers, or other entities will be invited at the discretion of the Owner, Construction Manager, and the Architect. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time

or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including the following:
   a. Interface requirements.
   b. Time.
   c. Sequences.
   d. Status of submittals
   e. Deliveries.
   f. Off-site fabrication problems.
   g. Access.
   h. Site utilization.
   i. Temporary facilities and services.
   j. Hours of work.
   k. Hazards and risks.
   l. Housekeeping.
   m. Quality and work standards.
   n. Change Orders.
   o. Documentation of information for payment requests.

D. Reporting: Approximately 5 days after each meeting, CM will prepare and distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1.6 COORDINATION MEETINGS

A. Conduct project coordination meetings at regular intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

D. The CM's Field Manager will conduct daily meetings with the prime contractors and major subcontractors' foremen. The purpose of the meetings is to provide the opportunity for each contractor to communicate to the Field Manager any items relating to their respective

construction activity for that day (request for shutdown, deliveries, etc.) The meetings will commence from 7:00 o'clock am until 7:30 o'clock am. These meetings are generally informal. The CM's Field Manager will keep minutes of these meetings when appropriate and will be available upon request.

1.7 SAFETY MEETINGS

A. Each Contractor will be responsible to conduct their own safety meetings on a regular basis (but not less than four times during any thirty-day period.)

B. Minutes of the Safety Meeting must be maintained by each Contractor onsite and must be made available upon request. Failure to conduct and submit meeting minutes will be grounds to reject the Prime Contractor's progress payment.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 013119

SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Start-up construction schedule.
   2. Contractor's construction schedule.
   3. Daily construction reports.
   4. Field condition reports.
   5. Special reports.

B. Related Sections:
   1. Division 01 Section "Multiple Contract Summary" for preparing a combined Contractor's Construction Schedule.
   2. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
   3. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.02 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format[s]:
   1. Electronic PDF files.

B. Start-up construction schedule.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

D. Daily Construction Reports: Submit at weekly intervals.

E. Field Condition Reports: Submit at time of discovery of differing conditions.

F. Special Reports: Submit at time of unusual event.

1.03 QUALITY ASSURANCE

A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
   1. Review software limitations and content and format for reports.
   2. Verify availability of qualified personnel needed to develop and update schedule.
   3. Discuss phasing.
   4. Review delivery dates for Owner-furnished products.
   5. Review schedule for work of Owner's separate contracts.
   6. Review time required for review of submittals and resubmittals.
   7. Review requirements for tests and inspections by independent testing and inspecting agencies.
   8. Review time required for completion and startup procedures.
   9. Review and finalize list of construction activities to be included in schedule.
   10. Review submittal requirements and procedures.

11. Review procedures for updating schedule.

1.04 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
   1. Secure time commitments for performing critical elements of the Work from entities involved.
   2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 PRODUCTS

2.01 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of Substantial Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
   1. Activity Duration: Define activities and days
   2. Procurement Activities: Include procurement process activities for long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
   3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
   4. Startup and Testing Time: Include not less than 15 days for startup and testing.
   5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Architect's and Construction Manager's administrative procedures necessary for certification of Substantial Completion.
   6. Punch List and Final Completion: Include not more than 30 days for punch list and final completion.

C. Schedule Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule and show how the sequence of the Work is affected.
   1. Phasing: Arrange list of activities on schedule by phase.
   2. Work under More Than One Contract: Include a separate activity for each contract.
   3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
   4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
   5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
   6. Work Restrictions: Show the effect of the following items on the schedule:
      a. Coordination with existing construction.
      b. Limitations of continued occupancies.

c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.
g. Seasonal variations.
h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
   a. Submittals.
   b. Purchases.
   c. Mockups.
   d. Sample testing.
   e. Deliveries.
   f. Installation.
   g. Tests and inspections.
   h. Adjusting.
   i. Startup and placement into final use and operation.
8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
   a. Structural completion.
   b. Permanent space enclosure.
   c. Completion of mechanical installation.
   d. Completion of electrical installation.
   e. Substantial Completion.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed and Substantial Completion.

E. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
2. Unanswered RFIs.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.

F. Recovery Schedule: When periodic update indicates the Work is (14) fourteen or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.

G. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.02 START-UP CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit start-up horizontal bar-chart-type construction schedule within seven days of date established for approval. Schedule to start from the Notice of Award.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.03 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: From the approved Bar Chart Schedule submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's construction schedule within [30] [or insert number] days Base schedule on the approved startup construction schedule and additional information received since the start of Project.

2.04 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
   1. List of Prime contractors at Project site.
   2. List of subcontractors at Project site.
   3. Approximate count of personnel at Project site.
   4. Equipment at Project site.
   5. Material deliveries.
   6. High and low temperatures and general weather conditions, including presence of rain or snow.
   7. Accidents.
   8. Meetings and significant decisions.
   9. Unusual events (refer to special reports).
   10. Stoppages, delays, shortages, and losses.
   11. Meter readings and similar recordings.
   12. Emergency procedures.
   13. Orders and requests of authorities having jurisdiction.
   14. Change Orders received and implemented.
   15. Construction Change Directives received and implemented.
   16. Services connected and disconnected.
   17. Equipment or system tests and startups.
   18. Partial completions and occupancies.
   19. Substantial Completions authorized.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.05 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within (1) one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 EXECUTION

3.01 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
   1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
   2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
   3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to A**rchitect, Construction Manager,** Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION

SECTION 013216 – CONSTRUCTION PROGRESS SCHEDULE

1.1. DESCRIPTION

A. Each Contractor shall develop a full schedule, in sufficient detail and clarity of form and technique so that the contractor can plan and control his work properly and the Construction Manager/Owner can readily monitor and follow the progress for all portions of the work. The Contractor shall complete the detailed schedule and submit to the CM within 20 days after contract award.

B. The schedule shall comply with the various limits imposed by the scope of work and by any contractually intermediate milestone and completion dates included in the contract.

C. The activities identified in the schedule shall be analyzed in detail to determine activity time durations in units of whole working days. All durations shall be the results of definitive manpower and resource planning by the Contractor. The Contractor will provide specific manpower loading information/crew size to support the duration proposed. (e.g. – 4-man crew get 1,000 sf/day project has 11,000 sf: thus, duration was identified as 11 days).

D. The activity data shall include Activity Codes to facilitate selection, sorting and preparation of summary reports and graphic. Activity Codes shall be developed for:
   1. Area: Subdivision of the site into logical modules or blocks and levels.
   2. Responsibility: contractor or subcontractor responsible for the work.
   3. Specifications: 33 Division CSI format
   4. System: Division of the work into building systems or summary purposes.
   5. Milestone: Work associated with completion of interim completion dates or milestones.
   6. Pay Item: Work identified with a pay item on the Schedule of Values.

1.2. REPORTS

A. For initial submittal and each update, the Contractor shall prepare the following standard report:
   1. Tabular Schedule Report sorted by Activity Code and Early Start.

1.3. GRAPHICS

A. For initial submittal the contractor shall prepare the following graphic:
   1. Pure logic diagram (Precedence Format) of entire data, not time scaled, grouped by Activity Code
   2. Detailed bar chart sorted by Activity Code with Early Start and Early Finish
   3. Summary bar chart summarizing by Activity Code with Early Start and Early Finish.

B. For each update the contractor shall prepare the following graphic:
   1. Bar Chart showing work activities with Early Start in the next 40 work days sorted by Activity Code and Early Start.
   2. Summary Bar Chart summarizing by Activity Code showing progress with Early Start and Early Finish.

C. For each Change Order involving adjustment in the contract time for performance the contractor shall prepare a pure logic diagram showing the changed work with all predecessor and successor activities (Fragnet).

1.4. SUBMITTALS

A. In no case shall first application for payment be approved prior to submission of acceptable preliminary schedule, detailed submittal schedule, and schedule of values.
B. Monthly updates, required schedules and graphics shall be submitted to the Construction Manager/ Owner within five working days following the end of the preceding month. Monthly updates, schedules and graphics shall be submitted electronically.
C. If any of the required submissions are returned to the Contractor (10) calendar days after the return date. Resubmittals shall be in the same quantities as noted above. Review and response by the Construction Manager/ Owner will be given within (10) calendar days after resubmission.

1.5. PAYMENT WITHHELD

A. If the Contractor fails to submit the required schedule information as indicated in this section within the time prescribed or revision thereof within the requested time, the Construction Manager/ Owner may withhold approval of Progress Payment Estimates until such time as the Contractor submits the required information.

1.6. UPDATES

A. Updates of the Schedule shall be made every two (2) weeks reflecting actual or reasonably anticipated progress as of the last working day of the month. Monthly updates of the Detailed Schedule will be made each month until all work is substantially complete.
B. The Contractor will meet with the Construction Manager/ Owner at the end of the updated period to review information in draft form before preparation of the required schedules and graphics. The Contractors will present data, prepared in advance, for review and approval of the Construction Manager/ Owner including:
    1. Actual Start Dates
    2. Actual Completion Date
    3. Activity percent complete and /or Remaining Duration
    4. Revised logic, changes in activity duration’s or resource assignments.
    5. Narrative report discussing progress through the update period; changes delay or other circumstance affecting progress; status of the project with respect to completion schedule; any efforts by the Contractor to improve progress.
C. The update meeting will establish the values to be submitted for payment and will be directly related to the schedules of values in the application for payment.
D. The Contractor shall prepare a report of the meeting and make all changes, additions or corrections to the data resulting from the review. The Contractor shall promptly prepare the monthly submittal following the update meeting.

1.7. CHANGES, DELAYS AND EXTENSIONS OF TIME

A. When changes or delays are experienced, the Contractor shall submit to the Construction Manager/Owner a Time Impact Analysis illustrating the influence of each change or delay on the current Contract scheduled completion date. Each time analysis shall include a Fragnet (network analysis) demonstrating how the Contractor proposed to incorporate the change or delay into the Detailed Schedule. Additionally, the analysis shall demonstrate the time impact based on the date the change was given to the Contractor, the status of construction at the point in time, and activity duration of all effected activities. The activity duration used in this analysis shall be those included in the latest update of the Detailed Schedule, closest to the time of delay or as adjusted by mutual agreement.

B. Each Time Impact Analysis shall be submitted within ten (10) calendar days after a delay occurs or a notice of change order is given to the Contractor. In cases where the Contractor does not submit a Time Impact Analysis for a specific change or delay with a specified period of time, it shall be mutually agreed that no time extension is required. Final evaluation of each Time Impact Analysis by the Construction Manager/ Owner shall be made within fourteen (14) calendar days after receipt unless subsequent meetings and negotiations are necessary. Adjustments in the Contract time for performance shall be made only by written change order approved by the Owner. Upon approval of the Owner, Fragnets illustrating the influence of changes and delays shall be incorporated into the Detailed Schedule by the Contractor during the first update after agreement is reached.

C. The time difference between the Early Finish date and the Late Finish date is defined as “float.” The “float” belongs to the Project and may be used by the Construction Manager/ Owner to benefit the Project. Changes or delays that influence activities in the network with “float” and do not extend the Critical Path (the network of activities with zero days “float”) shall not be justification for an adjustment in Contract time for performance.

END OF SECTION 013216

SECTION 013300
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. This specification describes the procedures for submission of submittals and shop drawings.
   1. The Contractor will be required to use the Construction Manager's file exchange application (Sage Project Center) for the transfer of Submittals, Shop Drawings and RFI's. There will be **no exceptions** to this requirement. The contractor will be given a login and password free of charge. For more information follow the procedure below.
      a. Information and instructions for use are available for review by the contractor by contacting the Construction Manager. The Contractor is to provide an email address for the file to be sent. A PDF file will be emailed to requesting contractor.

C. Related Requirements:
   1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
   2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list.
   3. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
   4. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
   5. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
   6. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.03 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
   1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

2. Delegated Design must be done by qualified professional, licensed to practice in the State of New York.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
   1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.04 SUBMITTAL GENERAL ADMINISTRATIVE REQUIREMENTS

A. The Contractor shall prepare a Submittal Log containing the information required to be submitted under the Submittal article from each respective Specification Section. With each item listed the Contractor shall provide anticipated dates for submission to the Architect. The Architect will review and accept or request that corrections be made for subsequent acceptance. This acceptance will constitute an approval for the submittal, shop drawings and sample submissions to commence. **No Submittals or Shop Drawings will be reviewed by the Architect until an approved Submittal Schedule is in place.**

B. The contractor shall prepare expected submittals in Sage Project Center that correspond to all submittals listed on the submittal schedule at the time of submission of the submittal log. These expected submittals are to follow the naming conventions laid out in section “1.5 Submittal Schedule” and “1.6 Submittal Identification”

C. The Contractor is responsible for all costs for creating electronic files for the submittal process. The Architect will not provide this service.
   1. The Submittal Cover Sheet located in Specification Section 006000 Project Forms shall be used for all Submittals.
      a. An electronic form of the submittal cover is available from the Architect.
   2. The Submittal Cover sheet when scanned to a .PDF shall be the first page viewed in the individual file.
      a. Each product submitted within a specification section shall have a Submittal Cover sheet attached. Combined submittals with one cover page will not be accepted
      b. Each Submittal Cover sheet shall be filled in completely. **Files that are sent with the Submittal Cover Sheet missing or not filled in correctly will not be reviewed**. The Architect will send a notice that the submittal is missing information. If the Contractor fails to correct or provide the proper submittal within (15) fifteen days, notice will be provided, and the submittal will be REJECTED.
   3. The Contractor(s) will be provided with a link to upload files to the Sage Project Center. The site address and a “log in” will be provided to the Contractor(s) free of charge.
   4. A read only Record Submittal Log and RFI Log will be available from the Sage Project Center for the Contractors reference in checking the status of the submittals and shop drawings.

D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.

3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittals of different types of submittals from related section for parts of the work so processing will not be delayed because of need to review submittals concurrently for coordination.
    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received. Delays associated with the above are the not the Architects responsibility and rests solely with the Contractor.

E. Architect's Digital Data Files: For Projects where Project Building Information Modeling Protocol is NOT executed. Provide digital PDF's only.
1. Architect will not furnish Contractor with digital drawings for the preparation of shop drawings.
2. The Architect will provide digital PDF's of Contract Drawings for the purpose of producing project record drawings**.**
    a. Contract documents are graphic representations of approximate locations of materials. Therefore, information contained within these files should not be assumed to be accurate and users of the Files accept full responsibility for verifying the accuracy and completeness of the Files with field conditions and the contract documents.
3. Document Transfer Agreement - For Projects where Architect's work files are not a deliverable: The Contractor shall execute an Electronic Document Transfer Agreement for all electronic transfers of files, other than PDFs. The contractor must provide acknowledgement, accept the information regarding drawings, ownership and Limitations of Liability. Agreement is found with Project Forms.
    a. The following plot files will by furnished for each appropriate discipline:
        1) Floor plans.
        2) Reflected ceiling plans.

1.05 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Submit a preliminary if not final Submittal Schedule for approval a minimum of (15) fifteen days after award of contract. Failure to submit a submittal schedule within the required time frame will result in the refusal by the Architect to review any submittals. Delays associated with failure to receive the Submittal Schedule are the not the Architects responsibly and rest solely with the Contractor.

B. The information is required to be submitted under the Submittal article from each respective Specification Section. With each item listed the Contractor shall provide anticipated dates for submission to the Architect. The Architect will review and accept or request that corrections be made for subsequent acceptance. This acceptance will constitute a review for the submittal, shop drawings and sample submissions may commence. No Submittals or Shop Drawings will be reviewed by the Architect until an approved Submittal Schedule is in place.
1. The Submittal Schedule shall be coordinated with the overall Project Schedule to ensure that submittals are submitted and reviewed so as not to delay the Project Schedule.

2. The Architect will not be responsible for ensuring that all required Shop Drawings, Product Data, Samples or similar submittals that are required to be submitted and reviewed under the Contract Documents are submitted by the Contractor. Submissions of Shop Drawings, Product Data, Samples or similar submittals are the Contractor's sole responsibility. Delays associated with the contractor's failure to provide the required submittals are the Contractors responsibility.
3. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
4. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 30 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
5. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
6. Format: Arrange the following information in a tabular format:
    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.

1.06 SUBMITTAL IDENTIFICATION

A. Submittal Cover Sheet: Attach one cover sheet for each product, shop drawing or sample. **DO NOT** combine submittals together with one cover sheet for multiple items. They will not be reviewed.

B. Submittal Information: Include the following information in each submittal. Use the submittal cover form found in specification section 006000 Project Forms. An electronic form can be sent to the contractor upon request
    1. Contractor, Address, Phone/fax and or Email
    2. Contractors Submittal Number.
    3. Architects Project Number.
    4. Project Name (if not filled in by the Architect)
    5. Type of submittal being sent (select box)
    6. Product Identification including the following: Provide one submittal cover sheet for each product within a specification section
        a. Specification Section Number
        b. Contract Drawing Number
        c. Product Name
        d. Specification Reference: Part/Paragraph
        e. Detail Reference
        f. Manufacturer

7. Contractors Approval: The contractor must acknowledge that they have reviewed the submittal for conformance with the Contract Documents and must sign and date the approval.
8. Deviation from the Contract Documents: Where the submittal may not meet all of the requirements of the specified item. The contractor must indicate how the submitted item differs from the specified item.
9. Contractor Comments: Any additional comments by the contractor should be indicated in this space. (Provide an attachment sheet for any other information required that will not fit on the cover sheet.)

C. Deviations and Additional Information: On each individual submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information, revisions, line by line comparison and other information requested by Architect. Indicate by highlighting on each submittal or noting on attached separate sheet. Identify options requiring selection by Architect.

D. File Naming (for uploading): Each submittal or shop drawing file uploaded to the project on the Sage Project Center, shall have in the file name, the specification section number followed by the submittal number, the submittal abbreviation and the specification section name. For re-submissions an R1 would be added following submittal number. The file name must include the following information:

Example:

Spec Section	Submittal No.	Submittal Abbr	Specification Name
081416	001	PD	Flush Wood Doors

File to Read: 081416-001 PD - Flush Wood Doors

Re-submission to Read:081416-001-R1-Flush Wood Doors

Submittal Abbr. required to be used in the file name on submittals are as follows:

CD - Coordination Drawings

CERT - Certification(s)

CLC - Calculations

DD - Design Data

EJ - Engineer’s Judgement

LEED - LEED or PD/LEED

O&M - Operations and Maintenance Manuals

PD - Product Data

PHOTO - Photo

QD - Qualification Data

RPT - Report

SAMP - Sample

SCH - Schedule

SEL - Make A Selection

SD - Shop Drawing(s)

STDY - Study

TR - Test Results

WAR - Warranty

E. When uploading submittals or RFI's to the Sage Project Center, complete the online transmittal. The information required is derived from the contractor's submittal cover sheet or RFI. Instructions using the Sage Project Center are available from the Construction Manager. These instructions can be emailed to the contractor.

1.07 SUBMITTAL DATA AND TESTING REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. Each product within a specification section shall have a separate submittal cover.
   1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable. Send full submittals for each product. Partial submittals will not be reviewed until all required submittal information is received. The architect will not be responsible for project delays due to the contractor's failure to submit the required submittal information in a complete package.
   3. Include the following information, as applicable:
      a. Manufacturer's catalog cuts.
      b. Manufacturer's product specifications.
      c. Standard color charts.
      d. Statement of compliance with specified referenced standards.
      e. Testing by recognized testing agency.
      f. Application of testing agency labels and seals.
      g. Notation of coordination requirements.
      h. Availability and delivery time information.
   4. For equipment, include the following in addition to the above, as applicable:
      a. Wiring diagrams that show factory-installed wiring.
      b. Printed performance curves.
      c. Operational range diagrams.
      d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
   5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare project-specific information for each shop drawing. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted].
   1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
      a. Identification of products.
      b. Schedules.
      c. Compliance with specified standards.
      d. Notation of coordination requirements.

e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Description any conflicts with other trades.
h. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package. If samples are delivered with product data, only the samples will be reviewed. The Product Data must be uploaded to the Sage Project Center. A duplicate submittal cover sheet is to be uploaded to the Sage Project Center as a record of sample delivery.
a. The Product Data is to be loaded concurrent with the delivery of samples. Samples may be delivered/given to the Architect. In the remarks column of the transmittal place “given to the Architect”
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.
g. In addition to all hard copy and physical samples submitted, duplicate digital submittal is to be produced for review, record and tracking purposes through Sage Project Center. Include same information as above as well as a high resolution, color, digital image of all samples with labeled information clearly visible for each physical sample.
3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit (1) one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit (3) three sets of Samples. Architect will retain (2) two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.
   1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least (3) three sets of paired units that show approximate limits of variations.

D. Information requirements for each submittal: Where submittal is requiring Schedules, Product Data, Qualification Data, Design Data, Certificates and Tests use the following protocol.
   1. Schedules: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
   2. Product Data. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
      a. Manufacturer and product name, and model number if applicable.
      b. Number and name of room or space.
      c. Location within room or space.
   3. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
   4. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
   5. Certificates:
      a. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
      b. Insert definition of Contractor certificates here if required by individual Specification Sections. See the Evaluations.
      c. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
      d. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
      e. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
      f. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
      g. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

h. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
i. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
j. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
k. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

6. Test and Research Reports:
   a. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
   b. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
   c. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
   d. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
   e. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
   f. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
      1) Name of evaluation organization.
      2) Date of evaluation.
      3) Time period when report is in effect.
      4) Product and manufacturers' names.
      5) Description of product.
      6) Test procedures and results.
      7) Limitations of use.

E. Submit the following submittals: Within 15 days of contract award.
   1. Submittal Schedule including dates of anticipated review and approval.
      a. No submittals will be reviewed without an approved Submittal Schedule in place.
   2. Subcontractor List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
      a. Name, address, telephone number and email address of entities performing subcontract or supplying products.

b. Number and title of related Specification Section(s) covered by subcontract.

3. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."
4. Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

F. Submit with in the first 30 days after Contract Award
1. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014329 "Special Inspections."
2. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
3. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

G. Submit Field Test Reports during construction within 15 days of the testing date and as follows:
1. Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

H. Submit a minimum 30 days prior to Project Closeout:
1. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
2. Maintenance Data: Comply with requirements specified in Division 01 Section 017823 "Operation and Maintenance Data."

1.08 SUBMITTAL PROCESSING

A. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

B. The architect will not be responsible for project delays due to the contractor’s failure to submit the required submittal information in time to allow for review based on the stipulated review time and to meet the project schedule.

C. Initial Review: Allow 10 Calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.

D. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.

E. Re-submittal Review: Allow 10 Calendar days for review of each re-submittal.

F. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 Calendar days for initial review of each submittal.

G. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 Calendar days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

H. Where submittal are required to be approved that are part of an assembly or for items such as finishes where color selections are required. The submittal will be retained until all of the information related to these systems and color selections is provided and accepted.

I. Products with multiple submittals may be held until all necessary information has been submitted for architect to make a complete review. Submittals dependent on coordinating information from related or dependent products; or products with critical interface with other products may be held until all information is submitted for architect to make a complete review and coordinate all required information. (example door frames will not be reviewed without door hardware)

J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked with reviewed notation from Architect's action stamp.

K. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

1.09 SUBMITTAL PROCEDURES

A. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

B. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

C. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

D. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

E. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

F. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

G. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

H. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

I. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
   1. Name of evaluation organization.
   2. Date of evaluation.
   3. Time period when report is in effect.
   4. Product and manufacturers' names.
   5. Description of product.
   6. Test procedures and results.
   7. Limitations of use.

J. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

K. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

L. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

M. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

N. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

O. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

1.10 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractors Approval: Provide Contractor's approval signature and date on the Submittal Cover sheet certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1.11 ARCHITECT'S ACTION

A. Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will respond to each submittal indicating one of the following actions required:
   1. No Exceptions Taken: Architect takes no exception to the submittal. This part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. Furnish as Corrected: No exceptions taken except what is identified by the Architect. The part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance. Furnish any additional related information as requested.
3. Revise and Re-Submit: Revise the submittal based on the Architects comments and resubmit the submittal. Do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
    a. Do not permit submittals marked “Revise and Resubmit” to be used at the Project Site, or elsewhere where Work is in progress.
4. Rejected: The submittal is rejected. See Architects comments on why submittal was rejected.
    a. Submittal has not been reviewed by the Contractor and so noted.
    b. Submittal has been prepared without due regard for information called for or logically implied by the Contract Documents.
    c. Information is not sufficiently complete or accurate to verify that work represented is in accordance with the Contract Documents.
    d. Do not permit submittals marked “Rejected” to be used at the Project Site, or elsewhere where Work is in progress.
5. No Action Taken: The submittal is not required and will not be reviewed.

B. Submittals by Sage Project Center: Architect and Construction Manager will indicate, on Sage Project Center, the appropriate action.

C. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. The Architects action will be noted in the Sage Project Center.

D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect. The Architects action will be noted in the Sage Project Center and noted as a partial review until a full submittal can be received.

E. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for re-submittal without review.

F. Submittals not required by the Contract Documents will not be reviewed and will receive no action.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 014119
REGULATORY REQUIREMENTS - NYS EDUCATION DEPARTMENT

PART 1 GENERAL

1.01 SUMMARY

A. Section includes:
   1. “Uniform Safety Standards for School Construction and Maintenance Projects” for maintaining a Certificate of Occupancy during construction.

1.02 REFERENCES

A. Section 155.5 of the Regulations of the New York State Commissioner of Education “Uniform Safety Standards for School Construction and Maintenance Projects”.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL REQUIREMENT

A. The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.

3.02 HAZARDOUS BUILDING MATERIALS

A. Surfaces that will be disturbed during renovation or demolition have been tested for lead and asbestos. Results of the testing are available, upon request, from the Owner.

3.03 GENERAL SAFETY AND SECURITY STANDARDS FOR CONSTRUCTION

A. General safety and security standards for construction projects include the following:
   1. All construction materials shall be stored in a safe and secure manner.
   2. Fences around construction supplies or debris shall be maintained.
   3. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
   4. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
   5. Workers shall be required to wear photo-identification badges at all times for identification and security purposes while working at occupied sites.

3.04 SEPARATION OF CONSTRUCTION AREAS FROM OCCUPIED AREAS

A. Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.
   1. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.

2. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.
3. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session."

3.05 MAINTAINING EXITING DURING CONSTRUCTION

A. The Contractor will prepare a plan detailing how exiting required by the applicable building code will be maintained during construction. The plan shall indicate temporary construction required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period. Temporary construction details shall meet code-required fire ratings for separation and corridor enclosure. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.

3.06 MAINTAINING VENTILATION DURING CONSTRUCTION

A. The Contractor will prepare a plan detailing how adequate ventilation will be maintained during construction. The plan shall indicate ductwork that must be rerouted, disconnected, or capped in order to prevent contaminants from the construction area from entering the occupied areas of the building. The plan shall also indicate how required ventilation to occupied spaces affected by the construction will be maintained during the project.

3.07 NOISE ABATEMENT DURING CONSTRUCTION

A. Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken

B. Noise level measurements (dba) shall be taken with a type 2 sound level meter in the occupied space in a location closest to the source of noise.

C. Each prime contractor shall have a type 2 sound level meter available on the project site at all times for use by the architect/engineer for the entire duration of the construction project.

3.08 CONTROL OF CHEMICAL FUMES, GASES AND OTHER CONTAMINANTS DURING CONSTRUCTION

A. The contractor shall be responsible for the control of chemical fumes, gases, and other contaminates produced by, including but not limited to, welding, gasoline or diesel engines, roofing, paving, or painting, to ensure they do not enter occupied portions of the building or air intakes.
   1. Contractors shall provide a plan indicating how and where welding, gasoline engine, roofing, paving, painting or other fumes will be exhausted from the work site. Contractors shall provide all temporary means to assure that fresh air intakes do not draw in such fumes.
   2. If any portion of the work will generate toxic gases that cannot be contained in an isolated area, the work shall be done when school classes and programs are not in session. The contractor shall include costs associated with this requirement in his bid. The building shall be properly ventilated and, the material shall be given proper time, as recommended by the manufacturer, to cure “off-gas” before re-occupancy.

3. The contractor shall maintain all manufacturers' Material Safety Data Sheets (MSDS) at the site for all products used in the project. Copies of the MSDS sheets shall be given to the Architect and to the School District. MSDS sheets shall be provided to anyone who requests them.

3.09 CONTROL OF OFF-GASSING DURING CONSTRUCTION

A. The contractor shall be responsible to ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured or ventilated in accordance with manufacturers recommendations before a space can be occupied.
   1. Contractor shall provide, in their schedules for work of the construction, proper time for "off-gassing" or volatile organic compounds introduced during construction before occupancy is allowed. Specific attention is warranted for activities including glues, adhesives, paint, furniture, carpeting, wall coverings, and drapery. Manufacturers shall be contacted to obtain information regarding appropriate temperatures and times needed to cure or ventilate the product during use and before safe occupancy of the space can be assured. The contractor shall include the above-mentioned information and shall clearly highlight the information, as part of the shop drawing submittal.
   2. Building materials or furnishings which "off-gas" chemical fumes, gases, or other contaminants shall be aired out in a well ventilated heated warehouse before it is brought to the project for installation or, the manufacturer's recommended "off-gassing" periods must be scheduled between installation and use of the space.
   3. The contractor shall maintain all manufacturers' Material Safety Data Sheets (MSDS) at the site for all products used in the project. Copies of the MSDS sheets shall be given to the Architect and to the School District. MSDS sheets shall be provided to anyone who requests them.

3.10 ASBESTOS-CONTAINING BUILDING MATERIALS

A. Large and small asbestos abatement projects as defined by 12NYCRR56 shall not be performed while the building is occupied. The term "building", as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed noncombustible construction. The isolated portion of the building must contain exits that do not pass through the occupied portion and ventilation systems must be physically separated and sealed at the isolation barrier.

B. Exterior work such as roofing, flashing, siding, or soffit work may be performed on occupied buildings provided proper variances are in place as required, and complete isolation of ventilation systems and at windows is provided. Care must be taken to schedule work so that classes are not disrupted by noise or visual distraction.

C. For clearance sampling, the air sampling technician shall provide aggressive air sampling per Rule 56 and as follows: First direct the exhaust of a leaf blower, against all walls, ceilings, floors, ledges, and other surfaces in the work area. Continue agitation for at least five minutes per every 1,000 sf of floor space. Following this aggressive agitation, the air-sampling technician shall use at least one 20-inch fan per 10,000 cubic feet of work area space for continuous agitation. The fan shall be operated on low speed and pointed toward the ceiling. Sampling pumps shall be started after the fans are started and stopped before the fans are stopped.
   1. Samples shall be logged on a permanently bound logbook at the laboratory. No whiteout will be used to make corrections.

2. All lab counts, data and analysis shall be recorded on a lab summary sheet for each sample.
3. Per the requirements of the New York State Education Department all Final Air Clearance Samples shall be (TEM) Transmission Electron Microscopy methodology.

3.11 LEAD-CONTAINING BUILDING MATERIALS

A. Surfaces that will be disturbed by reconstruction have been tested for the present of lead based paint materials. This information is provided in order that proper measures are taken, to train and protect workers per OSHA regulations. Refer to Division 0 Existing Hazardous Material Information for testing results.

B. Projects which disturb surfaces that contain lead shall have in the specifications a plan prepared by a certified Lead Risk Assessor or Supervisor which details provisions for occupant protection, worksite preparation, work methods, cleaning and clearance testing which are in general accordance with the HUD Guidelines.

END OF SECTION

SECTION 014120
WORK RESTRICTIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
   1. Owner Occupancy: Allow for Owner occupancy of the entire site and building. The Owner's educational programs shall continue throughout the duration of construction.
   2. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Building: Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.03 OCCUPANCY REQUIREMENTS

A. Full Owner Occupancy: Owner will occupy site and existing buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations.

B. Partial Owner Occupancy: Owner reserves the right to occupy and to place and install equipment in completed areas of all buildings, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
   1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
   2. Obtain a Certificate of Occupancy from authorities having jurisdiction before Owner occupancy.
   3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will provide, operate, and maintain mechanical and electrical systems serving occupied portions of building.
   4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 014200
REFERENCES

PART 1 - GENERAL

1.01 KEY DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.02 DEFINITIONS

A. Air Handling Unit: A blower or fan used for the purpose of distributing supply air to a room, space or area.

B. Approved Agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been approved according to the requirements established in this Section and as required by the Code Official having jurisdiction over this project.

C. Architect: Other terms including “Architect/Engineer” and “Engineer” have the same meaning as "Architect".

D. Company Field Adviser: An employee of the Company which lists and markets the primary components of the system under the name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation, and serving of the required products. Personnel involved solely in sales do not qualify.

E. Concealed Location: A location that cannot be accessed without damaging permanent parts of the building structure or finish surface. Spaces above, below or behind readily removable panels or doors shall not be considered as concealed.

F. Concealed Piping: Piping that is located in a concealed location. (See "concealed location".)

G. Connect: A term contraction and unless otherwise specifically noted is to mean " The labor and materials necessary to join or attach equipment, materials or systems to perform the functions intended".

H. Construction Manager: Arris Contracting Company, Inc.

I. Drain: Any pipe that carries wastewater or water-borne wastes in a building drainage system.

J. Drainage Fittings: Type of fitting or fittings utilized in the drainage system. Drainage fittings are similar to cast-iron fittings, except that instead of having a bell and spigot, drainage fittings are recessed and tapped to eliminate ridges on the inside of the installed pipe.

K. Drainage System: Piping within a public or private premise that conveys sewage, rainwater or other liquid wastes to a point of disposal. A drainage system does not include the mains of a public sewer system or a private or public sewage treatment or disposal plant.
   1. Building Gravity: A drainage system that drains by gravity into the building sewer.
   2. Sanitary: A drainage system that carries sewage and excludes storm, surface and ground water.
   3. Storm: A drainage system that carries rainwater, surface water, condensate, cooling water or similar liquid wastes.

L. Duct: A tube or conduit utilized for conveying air. The air passages of self-contained systems are not to be construed as air ducts.

M. Duct System: A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.

N. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

O. Headroom: Minimum clearance between the floor and the underside of the point of lowest installed mechanical construction above. In case of stairways and walkways, the minimum clearance between the step or surface of the walkway and the lowest installed mechanical construction above the stairway or the walkway.

P. Include: When used in any form other than “inclusive”, is non-limiting and is not intended to mean “all-inclusive.”

Q. Indicated: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

R. Inspection Certificate: Identification applied on a product by an approved agency containing the name of the manufacturer, the function and performance characteristics, and the name and identification of an approved agency that indicates that the product or material has been inspected and evaluated by an approved agency.

S. Installer: An installer is the Contractor or another entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, or similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. Trades: Using a term such as "carpentry" does not imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
2. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no option. However, the ultimate responsibility for fulfilling contract requirements remains with the Contractor.
3. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade-union jurisdictional settlements and similar conventions.

T. Label: An identification applied on a product by the manufacturer that contains the name of the manufacturer, the function and performance characteristics of the product or material, and the name and identification of an approved agency and that indicates that the representative sample of the product or material has been tested and evaluated by an approved agency.

U. Location:
1. Damp Location: Partially protected locations under canopies, marquees, roofed open porches and like locations, and interior locations subject to moderate degrees of moisture, such as some basements, some barns and some cold-storage warehouses.
2. Dry Location: A location not normally subject to dampness or wetness. A location classified as dry may be temporarily subject to dampness or wetness, as in the case of a building under construction.
3. Wet Location: Installations underground or in concrete slabs or masonry in direct contact with the earth and locations subject to saturation with water or other liquids, such as vehicle-washing areas, and locations exposed to weather and unprotected.

V. Manufacturer’s Designation: Identification applied on a product by the manufacturer indicating that a product or material complies with a specified standard or set of rules (see also "Inspection Certificate," "Label" and "Mark").

W. Mark: An identification applied on a product by the manufacturer indicating the name of the manufacturer and the function of a product or material (see also "Inspection Certificate," "Label" and "Manufacturer's Designation").

X. Mechanical: Other terms including “HVAC”, “Plumbing”, “Sprinkler”, “Laboratory Equipment”, “Food Service Equipment”, “Laundry Equipment”, and “Refrigeration” have the same meaning as "Mechanical".

Y. Owner: Ossining Union Free School District.

Z. Piping: This term includes pipe, tube and appurtenant fittings, flanges, valves, traps, hangers and supports.

AA. Piping, Concealed: Piping built into construction and not accessible without removal of construction Work such as masonry, plaster or other finish material, and piping installed in floors, furred spaces, suspended ceilings, non-walk-in tunnels, conduits, and behind removable panels and cabinet doors.

Piping, Distribution: Domestic water supply piping, starting with a connection to service piping, and continuing throughout the building to point of connection to equipment and fixture supply piping.

BB. Piping, Exposed: Piping directly accessible by normal accesses without removal of any construction Work or material.

CC. Piping, Service: Underground domestic water supply piping with a connection to a water main or supply as noted, and continuing to and into a building and terminating with the exposed fitting inside the building.

DD. Piping, Tunnel: Piping installed in walk-in or non-walk-in tunnels or conduits up to first shut-off valve inside building.

EE. Plumbing System: Includes the water supply and distribution pipes; plumbing fixtures and traps; water-treating or water-using equipment; soil, waste and vent pipes; and sanitary and storm sewers and building drains, in addition to their respective connections, devices and appurtenances within a structure or premises.

FF. Product: As used includes materials, systems and equipment.

GG. Registered Design Professional: An individual who is a registered architect (RA) in accordance with Article 147 of the New York State Education Law or a licensed professional engineer (PE) in accordance with Article 145 of the New York State Education Law.

HH. Space, Finished: A space which has a finishing material applied to walls or ceilings, such as paint, plaster, ceramic tile, enamel glazing, face brick, vinyl wall covering, etc. to provide a finished appearance or which will have such finishes applied under a related Contract.

II. Space, Unfinished: A space which does not meet the definition of a finished space.

JJ. Special Inspection: Inspection as herein required of the materials, installation, fabrication, erection, or placement of components and connections requiring special expertise to ensure compliance with approved construction documents and referenced standards.

KK. Steam-Heating Boiler: A boiler operated at pressures not exceeding 15 psi for steam.

LL. Supplier: Any person or organization who supplies materials or equipment for the work, including that fabricated to a special design.

MM. Utility: Any gas, steam, water, sanitary sewer, storm sewer, electrical or other such service.

NN. Water Supply System: The water service pipe, water distribution pipes, and the necessary connecting pipes, fittings, control valves and all appurtenances in or adjacent to the structure or premises.

1. Chilled: Water-cooled by refrigeration.
2. Cold: Water with at temperature between 33 degrees F and 80 degrees F and which is neither cooled nor heated mechanically.
3. Domestic: Water for use in buildings, except water used in connection with space heating and space cooling.
4. High Temperature: Water with a supply water temperature above 350 degrees.
5. Hot: Water at a temperature greater than or equal to 110ºF.

1.03 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.
   1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
   1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.04 ABBREVIATIONS AND ACRONYMS

AA	Aluminum Association, Inc. (The)
AABC	Associated Air Balance Council
AAALAC	Association for Assessment and Accreditation of Laboratory Animal Care
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	ACI International (American Concrete Institute)
ACPA	American Concrete Pipe Association
AF&PA	American Forest & Paper Association
AGA	American Gas Association
AGC	Associated General Contractors of America (The)
AHA	American Hardboard Association (part of CPA)
AI	Asphalt Institute
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction

AISI	American Iron and Steel Institute
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
AOSA	Association of Official Seed Analysts, Inc.
APA	Architectural Precast Association
APA	APA - The Engineered Wood Association
ARI	Air-Conditioning & Refrigeration Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International
ASSE	American Society of Sanitary Engineering
ASTM	ASTM International
AWCMA	American Window Covering Manufacturers Association (WCSC)
AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)

CBM	Certified Ballast Manufacturers
CCC	Carpet Cushion Council
CDA	Copper Development Association
CISCA	Ceilings & Interior Systems Construction Association
CISPI	Cast Iron Soil Pipe Institute
CLFMI	Chain Link Fence Manufacturers Institute
CPA	Composite Panel Association
CRI	Carpet & Rug Institute (The)
CRSI	Concrete Reinforcing Steel Institute
CSI	Cast Stone Institute
CSI	Construction Specifications Institute (The)
CTI	Cooling Technology Institute
DHI	Door and Hardware Institute
EIA	Electronic Industries Alliance
EIMA	EIFS Industry Members Association
EJCDC	Engineers Joint Contract Documents Committee
EJMA	Expansion Joint Manufacturers Association, Inc.
ESD	ESD Association
FM Approvals	Factory Mutual Approvals
FSA	Fluid Sealing Association
GA	Gypsum Association

GANA	Glass Association of North America
GSI	Geosynthetic Institute
HI	Hydraulic Institute
HI	Hydronics Institute
HMMA	Hollow Metal Manufacturers Association
HPVA	Hardwood Plywood & Veneer Association
ICEA	Insulated Cable Engineers Association, Inc
ICRI	International Concrete Repair Institute, Inc.
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The)
IESNA	Illuminating Engineering Society of North America
IEST	Institute of Environmental Sciences and Technology
IGCC	Insulating Glass Certification Council
IGMA	Insulating Glass Manufacturers Alliance
ILI	Indiana Limestone Institute of America, Inc.
IPCEA	Insulated Power Cable Engineer Associates
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITU	International Telecommunication Union
KCMA	Kitchen Cabinet Manufacturers Association

LEED	Leadership in Energy and Environmental Design
MBMA	Metal Building Manufacturers Association
MFMA	Maple Flooring Manufacturers Association, Inc.
MFMA	Metal Framing Manufacturers Association, Inc.
MIA	Marble Institute of America
MPI	Master Painters Institute
MSS	Manufacturers Standardization Society of The Valve and Fittings Industry Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NACE	NACE International
NADCA	National Air Duct Cleaners Association
NAIMA	North American Insulation Manufacturers Association
NCMA	National Concrete Masonry Association
NCPI	National Clay Pipe Institute
NCTA	National Cable & Telecommunications Association
NEBB	National Environmental Balancing Bureau
NECA	National Electrical Contractors Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NETA	National Electrical Testing Association
NFHS	National Federation of State High School Associations

NFPA	National Fire Protection Association
NFRC	National Fenestration Rating Council
NGA	National Glass Association
NHLA	National Hardwood Lumber Association
NLGA	National Lumber Grades Authority
NOFMA	NOFMA: The Wood Flooring Manufacturers Association
NRCA	National Roofing Contractors Association
NRMCA	National Ready Mixed Concrete Association
NSF	NSF International (National Sanitation Foundation International)
NSSGA	National Stone, Sand & Gravel Association
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NWWDA	National Wood Window and Door Association (WDMA)
PCI	Precast/Prestressed Concrete Institute
PDCA	Painting & Decorating Contractors of America
PDI	Plumbing & Drainage Institute
PGI	PVC Geomembrane Institute
PTI	Post-Tensioning Institute
RCSC	Research Council on Structural Connections
RFCI	Resilient Floor Covering Institute
SAE	SAE International

SDI	Steel Deck Institute
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers
SGCC	Safety Glazing Certification Council
SIA	Security Industry Association
SIGMA	Sealed Insulating Glass Manufacturers Association
SJI	Steel Joist Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPIB	Southern Pine Inspection Bureau (The)
SPRI	Single Ply Roofing Industry
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
STI	Steel Tank Institute
SWRI	Sealant, Waterproofing, & Restoration Institute
TCA	Tile Council of America, Inc.

1.05 FEDERAL GOVERNMENT AGENCIES:

A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

CE	Army Corps of Engineers

CPSC	Consumer Product Safety Commission
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
FDA	Food and Drug Administration
GSA	General Services Administration
HUD	Department of Housing and Urban Development
NIST	National Institute of Standards and Technology
OSHA	Occupational Safety & Health Administration
PHS	Office of Public Health and Science
SD	State Department
TRB	Transportation Research Board
USDA	Department of Agriculture
USPS	Postal Service

B. Codes, Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list.

ADAAG	Americans with Disabilities Act (ADA) Accessibility Guidelines

BCNYS	Building Code of New York State
CFR	Code of Federal Regulations
DOD	Department of Defense Military Specifications and Standards
FS	Federal Specification
MILSPEC	Military Specification and Standards

1.06 NEW YORK STATE GOVERNMENT AGENCIES:

A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

DASNY	Dormitory Authority of the State of New York
DEC	Department of Environmental Conservation
DHCR	Division of Housing and Community Renewal
DOH	Department of Health
NYSDOL	New York State Department of Labor
DOS	Department of State
DOT	Department of Transportation
NYSPA	New York State Power Authority
OGS	Office of General Services
OCFS	Office of Children and Family Services
OMRD	Office of Mental Retardation and Developmental Disabilities
OPRHP	Office of Parks, Recreation and Historic Preservation

NYSED	New York State Education Department (Department of Education)
SHPO	State Historic Preservation Office
SUCF	State University Construction Fund
SUNY	State University of New York

1.07 NEW YORK STATE CODES

A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BCNYS	Building Code of New York State
9-NYCRR	New York State Dept. of Labor Title 9 State Building Code
10-NYCRR	New York State Dept. of Labor Title 10 State Hospital Code
19-NYCRR	Charter XXXIII, Sub Charter A, Uniform Fire Prevention and Building Code

B. Where references these references are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list.

BCNYS	Building Code of New York State
ECCNYS	Energy Conservation Code of New York State
PCNYS	Plumbing Code of New York State
MCNYS	Mechanical Code of New York State
FGCNYS	Fuel Gas Code of New York State
FCNYS	Fire Code of New York State

1.08 OTHER TERMS OR ACRONYMS:

A. Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name in the following list.

ACM	Asbestos Containing Materials
ACT	Acoustical Tile
ICRA	Infection Control Risk Assessment
RVT	Resilient Vinyl Tile
SAT	Suspended Acoustical Tile
SFRM	Spray on Fire Resistive Materials
TSI	Thermal Systems Insulation
VAT	Vinyl Asbestos Tile
VCT	Vinyl Composition Tile

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION

SECTION 014500 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1. Section Includes

A. Requirements for monitoring the quality of the constructed project.
B. Work of this Section also includes services of an independent testing laboratory for quality assurance testing.

1.2. Related Sections

A. The following Sections contain requirements that relate to this Section:
   1. Division 1 Section “Testing Laboratory Services” specifies requirements for coordination and notification of any owner-tested items.
   2. Division 1 Section “Submittals” specifies requirements for development of a schedule of required tests and inspections.
   3. Division 1 Section “Special Inspections & Structural Testing”

1.3. Quality Assurance- Control of Installation

A. Each Prime Contractor shall continually monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
B. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or workmanship that is more precise
C. Perform work by persons qualified and skilled to produce workmanship of specified quality.
D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
E. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
F. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum. The actual installation may exceed the minimum within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision.
   1. Contractor Responsibilities:
      a. Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum unless specifically identified as provided by others.
      b. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor’s responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Sum.

c. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services.
d. Where individual Sections specifically indicate that certain inspections, tests and other quality-control services are the Owner's responsibility, the Owner will engage the services of a qualified independent testing agency to perform those services. Payment for these services will be made from the Inspection and Testing Allowance, as authorized by Change Orders.

1.4. Mock Up

A. Tests will be performed under provisions identified in this section and identified in this Section and identified in the respective product specification sections**.**
B. Assemble and erect specified mock-ups with specified attachment and anchorage devices, flashing, seals, and finishes.
C. Accepted mock-ups shall be a comparison standard for the remaining work.
D. Where a mock-up has been accepted by the Engineer/Architect and is specified to be removed, then the Contractor shall remove the mock-up and the clear area when directed to do so by the Engineer/Architect.

1.5. Quality Assurance - Testing Laboratory

A. In order to establish compliance with the Contract Documents, materials shall be tested, examined and evaluated before they are incorporated into the work. During and after installations, additional tests, examinations, and evaluations shall be made to determine continued compliance throughout the course of the work.
B. Testing laboratory shall be a reputable, experienced firm that is capable of performing all of the required testing and authorized to operate in the state in which the project is located.
C. Perform all sampling and testing in accordance with specified procedures and use the materials, instruments, apparatus, and equipment required by the codes, regulations and standards. Where specific testing requirements or procedures are not described, perform the testing in accordance with all pertinent codes and regulations and with recognized standards for testing.
D. In the event that samples and test specimens are not properly taken, handled, stored or delivered or if other requirements of this Section are not complied with, Engineer/Architect reserves the right to delegate any or all of this work to others, or to take whatever action deemed necessary to ensure that sampling and testing are properly accomplished, for which all costs shall be borne by Contractor.
E. Construction Manager/Architect reserves the right to disapprove the use of a specific testing laboratory, even after prior approval, if the laboratory fails to meet or comply with the requirements of this Section. If this should occur, immediately discharge the testing laboratory and retain the services of a different laboratory acceptable to Engineer/Architect.
F. The testing laboratory shall meet the following criteria:
    1. Be capable of performing all of the required tests.

2. Be regularly engaged in performing the types of services required.
3. Have adequate facilities, materials, equipment, and personnel to perform the services.
4. Have an adequately trained, experienced and qualified staff.
5. Have at least one (1) registered professional engineer licensed in the state in which the project is located who shall be capable of performing field tests, supervising laboratory testing and interpreting test results. The professional engineer shall be thoroughly knowledgeable in materials, soils, asphalt paving and concrete.
6. Shall be able to be on the Project site within two (2) hours after being notified.
7. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

1.6. Reference Standards

A. Conform to reference standards by the date that the project was last bid.
B. Obtain copies of standards when required by Contract Documents.
C. Should specified reference standards conflict with Contract Documents, request clarification from Engineer/Architect before proceeding.
D. The contractual relationship of the parties of the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.7. Submittals

A. Within fifteen (15) calendar days from the date of the Notice to Proceed, submit documentation from three (3) testing laboratories that clearly indicates experience, location, qualifications of staff, and descriptions of any limitations or restriction of the firm.
B. Certified copies of each test report shall be mailed directly to the Engineer/Architect. The Contractor shall arrange with the laboratory to secure copies.
C. Each report shall be in writing and shall include the testing method used, the test results, the specified results, the exact location of where the test specimens were taken, the date taken, Project identification, Contractor's name and other pertinent information required for a complete and meaningful test report,
D. Each report shall be signed and certified by the responsible officer of the testing laboratory.
E. Mail reports directly to the Engineer/Architect within 24 hours after the sample is taken, except in those instances when tests cannot be immediately performed because of required curing, incubation periods, or lengthy testing procedures.
F. The laboratory shall verbally communicate test results when requested by the Engineer/Architect. This does not eliminate nor replace the requirements for a written report.

1.8. Scheduling- Laboratory Services

A. Except where otherwise specified, the Architect/Construction Manager will determine the number of samples to be taken, the date and time samples will be taken and tests made, the

number and type of tests to be performed, who will collect the samples, how they will be handled and stored and when laboratory personnel are required on site.

B. Architect/Construction Manager will notify Contractor of their decision to take samples and/or have tests made and provide them with the pertinent information. Contractor is responsible for notifying the testing laboratory and for having the testing performed, on schedule.
C. In addition to the above, Contractor shall make their own arrangements for the sampling and testing of materials they propose to incorporate into the work. This shall not be paid for out of cash allowance.
D. Notify Architect/Construction Manager at least 48 hours in advance of the times at which scheduled samples or tests will be conducted.
E. If samples and/or tests cannot be taken or performed when required, delay the work until such time that they can be accomplished. Where possible, any work that has been installed but has not been sampled or tested as required, shall be tested by other means. Upon Architect/Construction Manager request, uncover any work, which has been buried or covered, and perform special tests designated. If the work cannot be tested by other means, Architect/Construction Manager may declare the work unacceptable. All cost associated with noncompliance and for special testing shall be borne by the Contractor and not be paid for out of the cash allowance.
F. Should the testing laboratory be scheduled to take or collect samples or to perform tests, and finds that it is unable to do so as a result of delays in construction, inclement weather, or any other reason, reschedule the tasks for a date acceptable to Architect/Construction Manager. Costs associated with times testing laboratory is unable to perform scheduled services shall be borne by the Contractor and will not be paid for under the allowance.
G. Plan all work and operations to allow for the taking and collection of samples and allow adequate time for the performance of tests. Delay the progress of questionable work until the receipt of the certified test reports.

1.9. Testing Requirements

A. Refer to Special Inspection Specifications

1.10. Testing Schedule

A. Refer to Special Inspections Specifications

1.11. Field Observation of Contractor's Work

A. The Architect/ Construction Manager will provide periodic observation of the Contractor's work in accordance with the General Conditions of the Contract.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1. Examination

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions. Verify that the existing substrate is capable of structural support or attachment of new work being applied or attached. Examine and verify specific conditions described in individual specification sections. Verify that utility services are available, of the correct characteristics, and in the correct locations.

3.2. Preparation

A. Clean substrate surfaces prior to applying next material or substance. Seal cracks or openings of substrate prior to applying next material or substance.
B. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.3. Field Quality Control

A. Allow representative of the testing laboratory access to the work at all time. Provide all equipment, labor, materials and facilities required by the laboratory to properly perform its functions. Cooperate with and assist laboratory personnel during the performance of their work.
B. Test specimens and samples shall be taken by the person (s) designated in other Sections, or as directed by Architect/Construction Manager. Conduct field sampling and testing in the presence of Architect/Construction Manager. Provide all materials, equipment, facilities and labor for securing samples and test specimens and for performing all field-testing.

END OF SECTION 014500

SECTION 014529
ASBESTOS TESTING LABORATORY SERVICES (NYS)

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Air monitoring services for asbestos removal provided by the Owner.
   2. Security expenses incurred by the District when building is unoccupied.

B. Related Sections:
   1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
   2. Division 01 Section "Temporary Facilities and Controls" for general temporary construction and environmental-protection measures for demolition operations.
   3. Division 02 Section “Asbestos Abatement” for air monitoring required by OSHA and other monitoring requirements within work areas.

1.02 PERFORMANCE REQUIREMENTS

A. General: Provide air monitoring for the Owner to verify that the building areas beyond the asbestos abatement work areas and the exterior environment remain uncontaminated.
   1. Upon completion of abatement activities, verify that elevated airborne fiber count encountered during abatement operations have been reduced to an acceptable level.

B. Regulatory Requirements: Comply with the current and applicable portions of the following:
   1. New York State Regulations:
      a. 12NYCRR56, referred to as “Code Rule 56” of the NYS Codes, Rules and Regulations (Statutory Authority: New York State Labor Law Section 906).
         1) Exception: Variances obtained in accordance with Article 30 of the Labor Law.
      b. New York State School Asbestos Safety Act (SASA).
   2. Regulations and Requirements of Federal Agencies:
      a. Occupational Safety and Health Administration (OSHA).
      b. United States Environmental Protection Agency (EPA).
      c. 40 CFR Part 763 Subpart E (AHERA) Appendix A unless permitted otherwise by the N.Y. State Department of Labor, EPA, and the Owner's Representative.

1.03 SUBMITTALS

A. Proposed Materials and Equipment: List by brand name and model number including, but not necessarily limited to, the following:
   1. Sampling pumps.
   2. Sampling stands.
   3. Flow meters.
   4. Sample cassettes.
   5. Sample filters.
   6. Aggressive sampling equipment.
   7. Microscopes.

B. Qualification Data: For qualified testing laboratory, including the following:
   1. Current NYS Asbestos Contractor’s License.
   2. Certificate of the Environmental Laboratory Approval Program (ELAP).

3. List of the names, addresses and telephone numbers of all laboratory technical personnel employed on the project.
4. Current State and Federal licenses and certifications, analyst qualifications, respirator fit tests and medical screenings for all personnel.
5. Lab CIH and field supervisor CIH's, ABIH and/or PIH's Certificate.

C. Sampling Plan: Proposed plan for sampling based on the air monitor's understanding of the project. The plan shall include:
1. Number and type of samples to be collected on each date.
2. Proposed methodologies for collection and analyzing samples.

D. References: Not less than three (3) names and telephone numbers from New York State Public School Districts (K-12) in which asbestos project consultation has been approved.

1.04 QUALITY ASSURANCE

A. Daily Recordkeeping:
1. For all records, each sheet shall include all necessary “who, what, when, how” data by minimally including project, work area, location, dates, times, type, person doing the work, applicable observations, and sample I.D. instruments used.
2. Field sheets shall be kept for each sample during collection. Field sheets shall additionally include start/stop times of pumps, sample I.D. number, air volumes, machine used, filters, calibration data, Owner's Representative sign-off, etc. For exterior samples, include temperature, wind speed and direction, and precipitation data.
3. A chain of custody form shall be initiated for each sample in the field. The form shall be kept with the sample and updated as the sample changes possession.
4. Samples will be logged in at the laboratory, and a separate lab sheet (or combined with field sheet) shall be kept, for all lab data, for each sample, equipment used, count, methodology, calculations and interpretations.
5. Daily field sheets, lab analysis and chain of custody sheets, for each work area set of samples, shall be kept together with a summary cover sheet indicating general data above, specific fiber counts for each sample, plus applicable calculations, status of blanks, and interpretations of "pass" or "failed". Phone notification data shall also be included. These shall all be stapled together at the upper left-hand corner. This shall comprise a "Daily Progress Report" for that work area.
6. This Recordkeeping format shall also apply to samples taken prior to commencement of work and for final air clearance.

B. Documentation:
1. Weekly Air Monitoring Results: At the beginning of each week (Monday) written summary results of the prior week’s air samples shall be submitted to the School District's Environmental Safety Office. Each work area shall have a summary of daily analysis including a listing of counts for each sample with locations indicated and interpretation results.
2. Close-out Documentation: Within two weeks from the completion of the project, the air monitoring contractor shall submit three (3) bound copies of a final report; one (1) copy to the Project Inspector, two (2) copies to the School District's Environmental Safety Office. The final reports shall be broken down by each work area including:

a. Project Executive Summary per work area including an overall project description, a summary "Daily Progress Reports", dates of non-compliance, reasons, actions taken by Asbestos Abatement Contractor to bring into compliance. Final air clearance interpretation.
b. "Daily Progress Reports" includes field logs, calculations, lab logs, counts, interpretations, chain of custody documents. All organized consecutively by days.
c. Final Clearance PCM Sample Results, counts, calculations, and interpretations.
d. Final Clearance TEM Sample Results, counts, calculations, and interpretations.
e. Floor plans for each work area identifying exact sample locations including separate drawings for pre-abatement, during abatement, and final clearance sampling.
f. Certified Industrial Hygienist Certification (Stamp).
g. Air sample pump and rotometer calibration records.
h. A copy of all start of work submittals required in the SUBMITTALS article of this Section.

C. Worker Protection:
1. The air-monitoring contractor shall supply all air-sampling technicians with the proper respiratory protection and training.
2. The air-sampling technicians shall enter and exit the work areas using the protocols established for personal decontamination for asbestos projects.

D. Supervision: Supervise and certify by a CIH or a Professional Industrial Hygienist (PIH) all air monitoring practices and procedures. The PIH's responsibilities shall include:
1. Review and become familiar with the asbestos project specifications.
2. Attend at a minimum the initial pre-abatement meeting.
3. Review and document that preliminary, concurrent, and final air sampling and pump calibration techniques conform to AHERA and New York State asbestos abatement regulations.
4. Visit the project site at a minimum of one time per week, accompanied by School District's Director of Environmental Safety, to document and insure proper sampling techniques, methods and equipment are being utilized and conform to AHERA and New York State requirements.
5. Review and certify (stamp) final reports.

1.05 COORDINATION

A. General: Coordinate the activities of the air-sampling technicians with the abatement contractor and Owner's Representative.

B. Collect air samples, 24 hours a day, seven days a week, as instructed by the Owner's Representative.
1. Present the field sheet to the Owner's Representative to be initialed and dated prior to leaving the site.
2. Unless otherwise instructed by the Owner's Representative, air sampling shall be performed during the abatement contractor's shift.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. General: Provide all necessary and proper materials and equipment, canisters, filters, etc. to obtain and process air samples.

PART 3 EXECUTION

3.01 SAMPLES

A. Air sampling shall occur continuously during all shift hours of the contractors per Code Rule 56. Minimally this shall be assumed as 9 hours per day 7 days a week.

B. The air-sampling technician shall calibrate sampling pumps on site at least once before, once at the midpoint and once after the collection of samples, and record in the field sheets.

C. Where possible, sample locations shall be at least 3 feet from any wall or column and 2 feet above the floor. Sampler shall be supported by a stand.

D. For clearance sampling, the air sampling technician shall provide aggressive air sampling per Rule 56 and as follows:
   1. First direct the exhaust of a leaf blower against all walls, ceilings, floors, ledges, and other surfaces in the work area.
   2. Continue agitation for at least five minutes per every 1,000 sf of floor space. Following this aggressive agitation, the air-sampling technician shall use at least one 20-inch fan per 10,000 cubic feet of work area space for continuous agitation.
   3. The fan shall be operated on low speed and pointed toward the ceiling.
   4. Sampling pumps shall be started after the fans are started and stopped before the fans are stopped.

3.02 ANALYSIS

A. Samples shall be logged on a permanently bound logbook at the laboratory. No whiteout will be used to make corrections.

B. All lab counts, data and analysis shall be recorded on a lab summary sheet for each sample.

C. When both TEM and PCM Clearance samples are collected, PCM samples shall be analyzed first. TEM samples will be analyzed only if PCM samples pass clearance criteria.
   1. If TEM samples are analyzed, they shall be analyzed one at a time until the number of asbestos structures counted total 350, or one more sample is found to have 140 asbestos structures. If, and only if, neither of these cases is found, then all TEM samples will be analyzed.

D. Analytical Methods: The following methods shall be used in analyzing filters used to collect air samples:
   1. Cellulose ester filters (PCM) shall be analyzed using NIOSH 7400. This analysis shall be carried out at a laboratory located off the job site.
   2. Polycarbonate filers (TEM) shall be analyzed using AHERA Counting Protocol analysis per EPA.

E. If blank samples analysis causes that batch of samples to be suspect so as to cause resampling that shall be done at no cost to the Owner.

3.03 INTERPRETATIONS

A. Daily monitoring sample results shall be daily compared to all requirement levels per Rule 56. If they exceed background or .01 fibers per C.C., Air Monitoring Contractor shall fail the daily sample. If all samples are satisfactory, the summary sheet shall so indicate.
   1. Final Clearance Monitoring: Satisfactory levels.

B. For Code Rule 56 PCM Analysis: The clearance air monitoring results shall be considered satisfactory when every sample demonstrates an airborne concentration of asbestos fibers of less than 0.01 fibers per cubic centimeter, or the background level, whichever is greater.

C. For AHERA TEM Analysis: Clearance shall be satisfactory per AHERA protocols including: If the mean average of all the inside samples have asbestos structure concentrations at or below 70 s/mm' and the average airborne asbestos concentrations inside the area is not higher than the average outside calculated by the "Z" Test. All analysis to be per AHERA requirements.

D. Passing of PCM/56 criteria shall satisfy that requirement. Further work by the Asbestos Abatement Contractor, daily monitoring, and clearance retesting need only be done to satisfy the failed TEM method. If PCM/56 sampling fails, TEM samples will be discarded unanalyzed and the clearance has failed. Recleaning and resampling is required for both the PCM and TEM.

3.04 NOTIFICATION

A. Results for pre-abatement and daily abatement sampling shall be reported to the Owner's Representative and the Asbestos Abatement Contractor within 48 hours with the exception that the few final daily sample results must be reported to the Owner's Representative within 24 hours of the clearance sampling. Results for clearance sampling and roofing work area samples shall be reported to the Owner's Representative and the Asbestos Abatement Contractor within 24 hours.

B. If any daily monitoring of clearance sampling fails, the Asbestos Abatement Contractor shall immediately notify the Owner's Representative and the applicable Asbestos Abatement Contractor. The Asbestos Abatement Contractor shall make note of possible reasons for failure, and what corrective actions the Asbestos Abatement Contractor undertakes.

C. All notifications shall occur first by telephone followed by written notices. Telephone notifications shall be recorded indicating who was notified, position, time, date, telephone number, etc. Telephone notification shall only be to acceptable people approved at the beginning of the project.

D. Final air clearance results shall be sent to the Commissioner of Labor per CR-56, minimally by certified mail with copies and certificate to the Owner's Representative.

3.05 SCHEDULE OF AIR SAMPLES

A. Before start of work, verify locations and number of samples, as well as methodology for approval. Submittal shall include pre-abatement, post-abatement and during-abatement phases. Comply with Part 56.

1. Per the requirements of the New York State Education Department all Final Air Clearance Samples shall be (TEM) Transmission Electron Microscopy Methodology.

END OF SECTION

SECTION 014533
CODE-REQUIRED SPECIAL INSPECTIONS AND PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Code-required special inspections.

B. Testing services incidental to special inspections.

C. Submittals.

D. Manufacturers' field services.

E. Fabricators' field services.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 003119 - Existing Condition Information: Soil investigation data.

C. Document 007100 - General Conditions: Inspections and approvals required by public authorities.

D. Section 012100 - DO NOT USE BSD Allowances: Allowance for payment of testing services.

E. Section 013300 Submittal Procedures: Submittal procedures.

F. Section 014000 - BSD Quality Requirements.

G. Section 014200 - Reference Standards.

H. Section 016000 - Product Requirements: Requirements for material and product quality.

1.03 ABBREVIATIONS AND ACRONYMS

A. AHJ: Authority having jurisdiction.

B. IAS: International Accreditation Service, Inc.

C. NIST: National Institute of Standards and Technology.

1.04 DEFINITIONS

A. Code or Building Code: ICC (IBC)-2018, Edition of the International Building Code and specifically, Chapter 17 - Special Inspections and Tests.

B. Authority Having Jurisdiction (AHJ): Agency or individual officially empowered to enforce the building, fire and life safety code requirements of the permitting jurisdiction in which the Project is located.

C. Special Inspection:

1. Special inspections are inspections and testing of materials, installation, fabrication, erection or placement of components and connections mandated by the AHJ that also require special expertise to ensure compliance with the approved Contract Documents and the referenced standards.

2. Special inspections are separate from and independent of tests and inspections conducted by Owner or Contractor for the purposes of quality assurance and contract administration.

1.05 REFERENCE STANDARDS

A. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

B. AISC 341 - Seismic Provisions for Structural Steel Buildings; 2016 (Revised 2018).

C. AISC 360 - Specification for Structural Steel Buildings; 2016.

D. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

E. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2020.

F. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement; 2016.

G. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field; 2019a.

H. ASTM C172/C172M - Standard Practice for Sampling Freshly Mixed Concrete; 2017.

I. ASTM D3740 - Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction; 2023.

J. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection; 2020.

K. ASTM E543 - Standard Specification for Agencies Performing Nondestructive Testing; 2026.

L. ASTM E605/E605M - Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 2019 (Reapproved 2023).

M. ASTM E736/E736M - Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members; 2019 (Reapproved 2023).

N. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestops; 2019.

O. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers; 2010a (Reapproved 2015).

P. ASTM E2570/E2570M - Standard Test Methods for Evaluating Water-Resistive Barrier (WRB) Coatings Used Under Exterior Insulation and Finish Systems (EIFS) or EIFS with Drainage; 2007 (Reapproved 2025).

Q. AWCI 117 - Technical Manual 12-B; Standard Practice for the Testing and Inspection of Field Applied Thin Film Intumescent Fire-Resistive Materials; an Annotated Guide; 2014.

R. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

S. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2018.

T. AWS D1.4/D1.4M - Structural Welding Code - Reinforcing Steel; 2018.

U. IAS AC89 - Accreditation Criteria for Testing Laboratories; 2020.

V. IAS AC291 - Accreditation Criteria for Special Inspection Agencies; 2017.

W. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

X. ICC (IBC)-2009 - International Building Code; 2009.

Y. ICC (IBC)-2012 - International Building Code; 2012.

Z. ICC (IBC)-2015 - International Building Code; 2015.

AA. ICC (IBC)-2018 - International Building Code; 2018.

BB. SDI QA/QC - Standard for Quality Control and Quality Assurance for Installation of Steel Deck; 2022.

CC. SJI 100 - Catalog of Standard Specifications Load Tables and Weight Tables for Steel Joists and Joist Girders; 2011.

DD. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

1.06 SUBMITTALS

A. See Section 013300 Submittal Procedures, for submittal procedures.

B. Special Inspection Agency Qualifications: Prior to the start of work, the Special Inspection Agency is required to:
   1. Submit agency name, address, and telephone number, names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Submit certification that Special Inspection Agency is acceptable to AHJ.
   4. Submit documentation that Special Inspection Agency is accredited by IAS according to IAS AC291.

C. Testing Agency Qualifications: Prior to the start of work, the Testing Agency is required to:
   1. Submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Submit certification that Testing Agency is acceptable to AHJ.
   4. Submit documentation that Testing Agency is accredited by IAS according to IAS AC89.

D. Smoke Control Testing Agency Qualifications: Prior to the start of work, the Testing Agency is required to:
   1. Submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit documentary evidence that agency has appropriate credentials and documented experience in fire protection engineering, mechanical engineering and HVAC air balancing.
   3. Submit certification that Testing Agency is acceptable to AHJ.
   4. Submit documentation that Testing Agency is accredited by IAS according to IAS AC89.

E. Manufacturer's Qualification Statement: Manufacturer is required to submit documentation of manufacturing capability and quality control procedures. Include documentation of AHJ approval.

F. Fabricator's Qualification Statement: Fabricator is required to submit documentation of fabrication facilities and methods as well as quality control procedures. Include documentation of AHJ approval.

G. Special Inspection Reports: After each special inspection, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to the AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of Special Inspector.
      d. Date and time of special inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of special inspection.
      h. Date of special inspection.
      i. Results of special inspection.
      j. Compliance with Contract Documents.
   2. Final Special Inspection Report: Document special inspections and correction of discrepancies prior to the start of the work.

H. Fabricator Special Inspection Reports: After each special inspection of fabricated items at the Fabricator's facility, Special Inspector is required to promptly submit at least two copies of report; one to Architect and one to AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of Special Inspector.
      d. Date and time of special inspection.
      e. Identification of fabricated item and specification section.
      f. Location in the Project.
      g. Results of special inspection.
      h. Verification of fabrication and quality control procedures.
      i. Compliance with Contract Documents.
      j. Compliance with referenced standard(s).

I. Test Reports: After each test or inspection, promptly submit at least two copies of report; one to Architect and one to AHJ.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test or inspection.

h. Date of test or inspection.
i. Results of test or inspection.
j. Compliance with Contract Documents.

J. Certificates: When specified in individual special inspection requirements, Special Inspector shall submit certification by the manufacturer, fabricator, and installation subcontractor to Architect and AHJ, in quantities specified for Product Data.
1. Indicate material or product complies with or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect and AHJ.

K. Manufacturer's Field Reports: Submit reports to Architect and AHJ.
1. Submit report in duplicate within 30 days of observation to Architect for information.
2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in Contract Documents.

L. Fabricator's Field Reports: Submit reports to Architect and AHJ.
1. Submit report in duplicate within 30 days of observation to Architect for information.
2. Submit for information for the limited purpose of assessing compliance with information given and the design concept expressed in Contract Documents.

1.07 SPECIAL INSPECTION AGENCY

A. Owner or Architect will employ services of a Special Inspection Agency to perform inspections and associated testing and sampling in accordance with ASTM E329 and required by the building code.

B. The Special Inspection Agency may employ and pay for services of an independent testing agency to perform testing and sampling associated with special inspections and required by the building code.

C. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.08 TESTING AND INSPECTION AGENCIES

A. Owner or Architect may employ services of an independent testing agency to perform additional testing and sampling associated with special inspections but not required by the building code.

B. Employment of agency in no way relieves Contractor of obligation to perform work in accordance with requirements of Contract Documents.

1.09 QUALITY ASSURANCE

A. Special Inspection Agency Qualifications:
1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC291.

B. Testing Agency Qualifications:

1. Independent firm specializing in performing testing and inspections of the type specified in this section.
2. Accredited by IAS according to IAS AC89.

C. Copies of Documents at Project Site: Maintain at the project site a copy of each referenced document.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 SCHEDULE OF SPECIAL INSPECTIONS, GENERAL

A. Frequency of Special Inspections: Special Inspections are indicated as continuous or periodic.
   1. Continuous Special Inspection: Special Inspection Agency is required to be present in the area where the work is being performed and observe the work at all times the work is in progress.
   2. Periodic Special Inspection: Special Inspection Agency is required to be present in the area where work is being performed and observe the work part-time or intermittently and at the completion of the work.

3.02 SPECIAL INSPECTIONS FOR STEEL CONSTRUCTION

A. Structural Steel: Comply with quality assurance inspection requirements of ICC (IBC)-2018.

B. Cold-Formed Steel Deck: Comply with quality assurance inspection requirements of SDI QA/QC.

C. Open-Web Joists and Joist Girders: Comply with requirements of ICC (IBC)-2018, Table 1705.2.3.
   1. End Connections - Welding or Bolted: Comply with requirements of SJI 100; periodic.
   2. Bridging - Horizontal or Diagonal:
      a. Standard Bridging: Comply with requirements of SJI 100; periodic.
      b. Bridging That Differs From the SJI Specifications: Periodic inspection.

D. Cold-Formed Steel Trusses Spanning 60 feet or Greater: Special Inspector is required to verify that the temporary installation restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.

E. High-Strength Bolt, Nut and Washer Material:
   1. Verify identification markings comply with ASTM standards specified in the approved contract and to AISC 360, Section A3.3; periodic.
   2. Submit manufacturer's certificates of compliance; periodic.

F. High-Strength Bolting Installation: Verify items listed below comply with AISC 360, Section M2.5.
   1. Snug tight joints; periodic.
   2. Pretensioned and slip-critical joints with matchmarking, twist-off bolt or direct tension indicator method of installation; periodic.
   3. Pretensioned and slip-critical joints without matchmarking or calibrated wrench method of installation; continuous.

G. Structural Steel and Cold Formed Steel Deck Material:
   1. Structural Steel: Verify identification markings comply with AISC 360, Section M3.5; periodic.
   2. Other Steel: Verify identification markings comply with ASTM standards specified in the approved Contract Documents; periodic.
   3. Submit manufacturer's certificates of compliance and test reports; periodic.

H. Weld Filler Material:
   1. Verify identification markings comply with AWS standards specified in the approved Contract Documents and to AISC 360, Section A3.5; periodic.
   2. Submit manufacturer's certificates of compliance; periodic.

I. Welding:
   1. Structural Steel and Cold Formed Steel Deck:
      a. Complete and Partial Joint Penetration Groove Welds: Verify compliance with AWS D1.1/D1.1M; continuous.
      b. Multipass Fillet Welds: Verify compliance with AWS D1.1/D1.1M; continuous.
      c. Single Pass Fillet Welds Less than 5/16 inch Wide: Verify compliance with AWS D1.1/D1.1M; periodic.
      d. Plug and Slot Welds: Verify compliance with AWS D1.1/D1.1M; continuous.
      e. Single Pass Fillet Welds 5/16 inch or Greater: Verify compliance with AWS D1.1/D1.1M; continuous.
      f. Floor and Roof Deck Welds: Verify compliance with AWS D1.3/D1.3M; continuous.

J. Steel Frame Joint Details: Verify compliance with approved Contract Documents.
   1. Details, bracing and stiffening; periodic.
   2. Member locations; periodic.
   3. Application of joint details at each connection; periodic.

K. Cold-formed steel trusses spanning 60 feet or more; periodic.

3.03 SPECIAL INSPECTIONS FOR CONCRETE CONSTRUCTION

A. Reinforcement, Including Prestressing Tendons, and Verification of Placement: Verify compliance with ACI 318, Chapters 20, 25.2, 25.3, 26.6.1-26.6.3; periodic.

B. Anchors Cast in Concrete: Verify compliance with ACI 318; periodic.

C. Anchors Post-Installed in Hardened Concrete: Verify compliance with ACI 318.
   1. Adhesive Anchors: Verify horizontally or upwardly-inclined orientation installations resisting sustained tension loads - Section 17.8.2.4; continuous.
   2. Other Mechanical and Adhesive Anchors: Verify as per Chapter 17.8.2; periodic.

D. Design Mix: Verify plastic concrete complies with the design mix in approved Contract Documents and with ACI 318, Chapter 19, 16.4.3, 26.4.4; periodic.

E. Concrete Sampling Concurrent with Strength Test Sampling: Each time fresh concrete is sampled for strength tests, verify compliance with ASTM C172/C172M, ASTM C31/C31M and ACI 318, Chapter 26.5, 26.12, and record the following, continuous:
   1. Slump.
   2. Air content.
   3. Temperature of concrete.

F. Concrete and Shotcrete Placement: Verify application techniques comply with approved Contract Documents and ACI 318, Chapter 26.5; continuous.

G. Specified Curing Temperature and Techniques: Verify compliance with ACI 318, Chapter 26.5.3 through 26.5.5; periodic.

H. Precast Concrete Members: Verify erection techniques and placement comply with approved Contract Documents and ACI 318, Chapter 26.9; periodic.

I. Formwork Shape, Location and Dimensions: Verify compliance with approved Contract Documents and ACI 318, Chapter 26.11.1.2(b); periodic.

J. Materials: If the Contractor cannot provide sufficient data or documentary evidence that concrete materials comply with the quality standards of ACI 318, the AHJ will require testing of materials in accordance with the appropriate standards and criteria in ACI 318, Chapters 19 and 20.

3.04 SPECIAL INSPECTIONS FOR MASONRY CONSTRUCTION

A. Masonry Structures Subject to Special Inspection:
   1. Masonry construction when required by the quality assurance program of TMS 402/602.
   2. Engineered masonry in structures classified as "Standard Hazard" (Category II.)
      a. Perform inspections in accordance with Level B Quality Assurance.

B. Verify each item below complies with approved Contract Documents and the applicable articles of TMS 402/602.
   1. Inspections and Approvals:
      a. Verify compliance with the required inspection provisions of the approved Contract Documents; periodic.
      b. Verify approval of submittals required by Contract Documents; periodic.
   2. Compressive Strength of Masonry: Verify compressive strength of masonry units prior to start of construction unless specifically exempted by code; periodic.
   3. Slump Flow and Visual Stability Index (VSI): Verify compliance as self consolidating grout arrives on site; continuous.
   4. Joints and Accessories: When masonry construction begins, verify:
      a. Proportions of site prepared mortar; periodic.
      b. Construction of mortar joints; periodic.
      c. Location of reinforcement, connectors, prestressing tendons, anchorages, etc; periodic.
      d. Prestressing technique; periodic.
      e. Grade and size of prestressing tendons and anchorages; periodic.
   5. Structural Elements, Joints, Anchors, Protection: During masonry construction, verify:
      a. Size and location of structural elements; periodic.
      b. Type, size and location of anchors, including anchorage of masonry to structural members, frames or other construction; periodic.
      c. Size, grade and type of reinforcement, anchor bolts and prestressing tendons and anchorages; periodic.
      d. Welding of reinforcing bars; continuous.
      e. Preparation, construction and protection of masonry against hot weather above 90 degrees F and cold weather below 40 degrees F; periodic.

f. Application and measurement of prestressing force; continuous.

6. Grouting Preparation: Prior to grouting, verify:
   a. Grout space is clean; periodic.
   b. Correct placement of reinforcing, connectors, prestressing tendons and anchorages; periodic.
   c. Correctly proportioned site prepared grouts and prestressing grout for bonded tendons; periodic.
   d. Correctly constructed mortar joints; periodic.
7. Preparation of Grout Specimens, Mortar Specimens and Prisms: Observe preparation of specimens; periodic.

C. Engineered Masonry in Buildings Designated as "Essential Facilities": Verify compliance of each item below with approved Contract Documents and the applicable articles of TMS 402/602.
   1. Inspections and Approvals:
      a. Perform inspections in accordance with Level C Quality Assurance.
      b. Verify compliance with the required inspection provisions of the approved Contract Documents; periodic.
      c. Verify approval of submittals required by Contract Documents; periodic.
   2. Compressive Strength of Masonry: Verify compressive strength of masonry units prior to start of construction and upon completion of each 5,000 square feet increment of masonry erected during construction; periodic.
   3. Preblended Mortar and Grout: Verify proportions of materials upon delivery to site; periodic.
   4. Slump Flow and Visual Stability Index (VSI): Verify compliance as self consolidating grout arrives on site; continuous.
   5. Engineered Elements, Joints, Anchors, Grouting, Protection: Verify compliance of each item below with approved Contract Documents and referenced standards.
      a. Proportions of site prepared mortar; periodic.
      b. Placement of masonry units and construction of mortar joints; periodic.
      c. Placement of reinforcement, connectors, prestressing tendons, anchorages, etc.; periodic.
      d. Grout space prior to grouting; continuous.
      e. Placement of grout; continuous.
      f. Placement of prestressing grout; continuous.
      g. Size and location of structural elements; periodic.
      h. Type, size and location of anchors, including anchorage of masonry to structural members, frames or other construction; continuous.
      i. Size, grade and type of reinforcement, anchor bolts and prestressing tendons and anchorages; periodic.
      j. Welding of reinforcing bars; continuous.
      k. Preparation, construction and protection of masonry against hot weather above 90 degrees F and cold weather below 40 degrees F; periodic.
      l. Application and measurement of prestressing force; continuous.
   6. Preparation of Grout Specimens, Mortar Specimens and Prisms: Observe preparation of specimens; continuous.

3.05 SPECIAL INSPECTIONS FOR SOILS

A. Materials and Placement: Verify each item below complies with approved construction documents and approved geotechnical report.
   1. Design bearing capacity of material below shallow foundations; periodic.
   2. Design depth of excavations and suitability of material at bottom of excavations; periodic.
   3. Materials, densities, lift thicknesses; placement and compaction of backfill: continuous.
   4. Subgrade, prior to placement of compacted fill verify proper preparation; periodic.

B. Testing: Classify and test excavated material; periodic.

3.06 SPECIAL INSPECTIONS FOR SPRAYED FIRE RESISTANT MATERIALS

A. Sprayed Fire Resistant Materials, General:
   1. Verify compliance of sprayed-fire resistant materials with specific fire-rated assemblies indicated in approved Contract Documents, and with applicable requirements of the building code.
   2. Perform special inspections after rough installation of electrical, mechanical, plumbing, automatic fire sprinkler and suspension systems for ceilings.

B. Physical and visual tests: Verify compliance with fire resistance rating.
   1. Condition of substrates; periodic.
   2. Thickness of sprayed fire resistant material; periodic.
   3. Density of sprayed fire resistant material in pounds per cubic foot; periodic.
   4. Bond strength (adhesion and cohesion); periodic.
   5. Condition of finished application; periodic.

C. Structural member surface conditions:
   1. Inspect structural member surfaces before application of sprayed fire resistant materials; periodic.
   2. Verify preparation of structural member surfaces complies with approved Contract Documents and manufacturer's written instructions; periodic.

D. Application:
   1. Ensure minimum ambient temperature before and after application complies with the manufacturer's written instructions; periodic.
   2. Verify area where sprayed fire resistant material is applied is ventilated as required by the manufacturer's written instructions during and after application; periodic.

E. Thickness: Verify that no more than 10 percent of thickness measurements taken from sprayed fire resistant material are less than thickness required by fire resistance design in approved Contract Documents. In no case shall the thickness of the sprayed fire resistant material be less than the minimum below.
   1. Minimum Allowable Thickness: Tested according to ASTM E605/E605M, periodic.
      a. Design thickness 1 inch or greater: Design thickness minus 1/4 inch.
      b. Design thickness greater than 1 inch: Design thickness minus 25 percent.

2. Floor, Roof and Wall Assemblies: Test thickness according to ASTM E605/E605M with no less than four measurements per 1,000 square feet of sprayed area on each story of the structure or portion thereof; periodic.
    a. Cellular Decks: Measure thickness within a single 12 inch by 12 inch area. Make a minimum of four measurements arranged symmetrically in testing area.
    b. Fluted Decks: Measure thickness within a single 12 inch by 12 inch area. Make a minimum of four measurements arranged symmetrically in testing area and include one example each of valley, crest and sides. Report the average of the four measurements.
3. Structural Members: Test according to ASTM E605/E605M. Test no less than 25 percent of structural members on each story of the structure or portion thereof; periodic.
    a. Beams and girders: Make nine thickness measurements around beam or girder at each end of a 12 inch by 12 inch length.
    b. Joists and trusses: Make seven thickness measurements around joist or truss at each end of a 12 inch by 12 inch length.
    c. Wide flanged columns: Make twelve thickness measurements around column at each end of a 12 inch by 12 inch length.
    d. Hollow structural sections and pipe columns: Make four thickness measurements around hollow structural section or pipe column at each end of a 12 inch by 12 inch length.

F. Density: Verify density of sprayed fire resistant material is no less than density required by the fire resistance design in the approved Contract Documents.
1. Floor, Roof and Wall Assemblies: Test according to ASTM E605/E605M with no less than one sample per 2,500 square feet of sprayed area on each story of the structure or portion thereof; periodic.
2. Beams, Girders, Trusses and Columns: Test according to ASTM E605/E605M with no less than one sample per 2,500 square feet of sprayed area on each story of the structure or portion thereof; periodic.

G. Bond Strength: Verify adhesive and cohesive bond strength of sprayed fire resistant materials is no less than 150 pounds per square foot when in-place samples of the cured material are tested according to ASTM E736/E736M and as described below.
1. Floor, roof and wall assemblies: Test no less than one sample per each 2,500 square feet of sprayed area on each story of the structure or portion thereof; periodic.
2. Structural members: Test no less than one sample from each type of structural member in each 2,500 square feet of each story of the structure or portion thereof; periodic.
3. Primer, paint and encapsulant bond tests: When sprayed fire resistant material is applied to a primed, painted or encapsulated surface for which acceptable material to substrate performance has not been determined, conduct bond test.

3.07 SPECIAL INSPECTIONS FOR MASTIC AND INTUMESCENT FIRE RESISTANT COATINGS

A. Verify mastic and intumescent fire resistant coatings comply with AWCI 117 and the fire resistance rating indicated on approved Contract Documents.

3.08 STRUCTURAL OBSERVATIONS FOR STRUCTURES

A. Provide Observations: For structure where one or more of the following conditions exist:
1. The structure is classified as Risk Category IV.
2. The structure is a high-rise building.

3. Such observation is required by the registered design professional responsible for the structural design.
4. Such observation is specifically required by AHJ.

3.09 SPECIAL INSPECTION AGENCY DUTIES AND RESPONSIBILITIES

A. Special Inspection Agency shall:
   1. Verify samples submitted by Contractor comply with the referenced standards and the approved Contract Documents.
   2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified reference standards.
   4. Ascertain compliance of materials and products with requirements of Contract Documents.
   5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
   6. Perform additional tests and inspections required by Architect.
   7. Attend preconstruction meetings and progress meetings.
   8. Submit reports of all tests or inspections specified.

B. Limits on Special Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the work.

C. Re-testing required because of non-compliance with specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing required because of non-compliance with specified requirements shall be paid for by Contractor.

3.10 TESTING AGENCY DUTIES AND RESPONSIBILITIES

A. Testing Agency Duties:
   1. Test samples submitted by Contractor.
   2. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   3. Perform specified sampling and testing of products in accordance with specified standards.
   4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   5. Promptly notify Architect and Contractor of observed irregularities or non-compliance of work or products.
   6. Perform additional tests and inspections required by Architect.
   7. Attend preconstruction meetings and progress meetings.
   8. Submit reports of all tests or inspections specified.

B. Limits on Testing or Inspection Agency Authority:

1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency may not approve or accept any portion of the work.
3. Agency may not assume any duties of Contractor.
4. Agency has no authority to stop the work.

C. On instructions by Architect, perform re-testing required because of non-compliance with specified requirements, using the same agency.

D. Contractor will pay for re-testing required because of non-compliance with specified requirements.

3.11 CONTRACTOR DUTIES AND RESPONSIBILITIES

A. Contractor Responsibilities, General:
1. Deliver to agency at designated location, adequate samples of materials for special inspections that require material verification.
2. Cooperate with agency and laboratory personnel; provide access to approved documents at project site, to the work, to manufacturers' facilities, and to fabricators' facilities.
3. Provide incidental labor and facilities:
a. To provide access to work to be tested or inspected.
b. To obtain and handle samples at the site or at source of Products to be tested or inspected.
c. To facilitate tests or inspections.
d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing or inspection services.
5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Retain special inspection records.

B. Contractor Responsibilities, Seismic Force-Resisting System, Designated Seismic System, and Seismic Force-Resisting Component: Submit written statement of responsibility for each item listed in the Statement of Special Inspections to AHJ and Owner prior to starting work. Statement of responsibility shall acknowledge awareness of special construction requirements and other requirements listed.

C. Contractor Responsibilities, Wind Force-Resisting System and Wind Force-Resisting Component: Submit written statement of responsibility for each item listed in the Statement of Special Inspections to AHJ and Owner prior to starting work. Statement of responsibility shall acknowledge awareness of special construction requirements and other requirements listed.

3.12 MANUFACTURER'S AND FABRICATOR'S FIELD SERVICES

A. When specified in individual specification sections, require material suppliers, assembly fabricators, or product manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, to test, adjust, and balance equipment and _____ as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Architect 30 days in advance of required observations.

1. Observer subject to approval of Architect.
2. Observer subject to approval of Owner.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.13 STATEMENT OF SPECIAL INSPECTIONS

A. Refer to attached form, “Statement of Special Inspections”, at the end of this section.

B. Refer to attached, “Schedule of Special Inspections”, at the end of this section.

3.14 SPECIAL INSPECTION REPORTS

A. Report Requirement: Special Inspectors shall keep records of inspections. The special inspector shall furnish inspection reports to the code enforcement official, and to the registered design professional in responsible charge.
   1. Reports shall indicate that work inspected was done in conformance to approved construction documents.
   2. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the code enforcement official and to the registered design professional in responsible charge prior to the completion of that phase of the work.

B. Periodic Report: On the first day of each month, the special inspector shall furnish to the Architect five copies of the combined progress reports of the special inspector's observations. These progress reports shall list all special inspections of construction or reviews of testing performed during that month, note all uncorrected deficiencies, and describe the corrections made both to these deficiencies and to previously reported deficiencies.
   1. Each monthly report shall be signed by all special inspectors who performed special inspections of construction or reviewed testing during that month, regardless of whether they reported any deficiencies.
   2. Each monthly report shall be signed by the Contractor.

C. Final Report: At completion of construction, each special inspector shall prepare and sign a final report attesting that all work they inspected and all testing and test reports they reviewed were completed in accordance with the approved construction documents and that deficiencies identified were satisfactorily corrected.
   1. The Special Inspector shall submit a combined final report containing the signed final reports.
   2. The Contractors shall sign the combined final report attesting that all final reports of special inspectors that performed work to comply with these construction documents are contained therein, and that the Contractor has reviewed and approved all of the individual inspector's final reports.
   3. Refer to attached form, “Special Inspections Report”, attached at the end of this section.

STATEMENT OF SPECIAL INSPECTIONS

Name of Project:	
Address or Legal **Description:**	
Owner's Name:	
AUTHORITY HAVING JURISDICTION:	
Signed:	
I , as the structural engineer of record, certify that I have prepared the following special inspections program as required by the **XXXX** Building Code for the construction project located at the site listed above.	
Printed Name:	
	Seal Signature: Date:
List of work requiring special inspections: See following schedule.	

SPECIAL INSPECTIONS REPORT

Report Type: ____Continuous ____Periodic ____Final
Work/Material Inspected:
Project Name:
Address or Legal Description:
Owner's Name:
Phone:
email:
Approved Inspection Agency:
Address:
Phone:
email:
Authority Having Jurisdiction:
Address:
Phone:
email:
Registered Design Professional of Record:
Address:
Phone:
email:
Statement of Conformance:
Discrepancies:
____None
Contractor review:
Contractor signature:
Contractor correction:
Outstanding Discrepancies:
____None
Authority Having Jurisdiction review:
Registered Design Professional review:

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1704.2.5 INSPECTION OF FABRICATORS				
Verify fabrication / quality control procedures	In-plant review		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.1.1 SPECIAL CASES				
1. Work that is unusual in its nature, such as, but not limited to:				
A. Construction materials and systems that are alternatives to materials and systems prescribed by the Building Code	Submittal review, shop[3] and / or field inspection		Y	Periodic
B. Unusual design applications of materials described in the Building Code	Submittal review, shop[3] and / or field inspection		Y	Periodic
C. Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in the Building Code or in standards referenced by the Building Code	Submittal review, shop[3] and / or field inspection		Y	Periodic
2. Inspection of anchors post-installed in solid grouted masonry per research reports including verification of:				
A. Anchor type and dimensions	Field inspection		Y	Periodic
B. Hole dimensions and cleaning procedures	Field inspection		Y	Periodic
C. Anchor spacing and edge distances	Field inspection		Y	Periodic
D. Masonry unit, grout, masonry compressive strength	Field inspection		Y	Periodic
E. Anchor embedment and tightening torque	Field inspection		Y	Periodic

3. Aggregate piers				
A. Prior to construction:				
a. Review of aggregate pier designer's use of soil parameters as presented in the project soils report	Field inspection		N	Periodic
B. During construction:				
a. Verification of aggregate properties	Field inspection		N	Periodic
b. Type and number of lifts of aggregate	Field inspection		N	Periodic
c. Verify compliance of with design results of qualitative tests on production aggregate pier elements such as modulus load testing, uplift pull-out testing, bottom stabilization tests and dynamic cone penetration tests	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.2 STEEL CONSTRUCTION				
1. Fabricator and erector documents	Submittal review	AISC 360, Section N3.2	Y	Each submittal
2. Material verification of structural steel	Shop[3] and field inspection		Y	Periodic
3. Structural steel welding:				
A. Inspection tasks prior to welding:				
Observe, or perform for each welded joint or member in accordance with QA tasks	Shop[3] and field inspection	AISC 360, Table N5.4-1	Y	Observe or Perform as noted[4]
B. Inspection tasks during welding:				
Observe, or perform for each welded joint or member in accordance with QA tasks	Shop[3] and field inspection	AISC 360, Table N5.4-2	Y	Observe[4]
C. Inspection tasks after welding:				
Observe, or perform for each welded joint or member in accordance with QA tasks	Shop[3] and field inspection	AISC 360, Table N5.4-3	Y	Observe or Perform as noted[4]

D. Nondestructive testing (NDT) of welded joints:				
a) Complete penetration groove welds 5/16" or greater in risk category III or IV	Shop[3] or field ultrasonic testing - 100%		Y	Periodic
b) Complete penetration groove welds 5/16" or greater in risk category II	Shop[3] or field ultrasonic testing - 10% of welds minimum		Y	Periodic
c) Welded joints subject to fatigue when required	Shop[3] or field radiographic or Ultrasonic testing	AISC 360, Appendix 3, Table A3.1	Y	Periodic
d) Fabricator's NDT reports when fabricator performs NDT	Verify reports		Y	Periodic
4. Structural steel bolting:	Shop[3] and field inspection			
a. Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks		AISC 360, Table N5.6-1	Y	Observe or Perform as noted[4]
b. Inspection tasks During Bolting in accordance with QA tasks		AISC 360, Table N5.6-2	Y	Observe[4]
1) Pre-tensioned and slip-critical joints:				
a) Turn-of-nut with matching markings			Y	Periodic
b) Direct tension indicator			Y	Periodic
c) Twist-off type tension control bolt			Y	Periodic
d) Turn-of-nut without matching markings			Y	Continuous
e) Calibrated wrench			Y	Continuous
2) Snug-tight joints			Y	Periodic
Inspection tasks After Bolting (Perform tasks for each bolted connection in accordance with QA tasks		AISC 360, Table N5.6-3	Y	Perform[4]
5. Visual inspection of exposed cut surfaces of galvanized structural steel main members and exposed corners of the rectangular HSS for cracks subsequent to galvanizing	Shop[3] or field inspection		Y	Periodic

6. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)	Field inspection		Y	Periodic
7. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents	Field inspection		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.2.2 COLD FORMED STEEL DECK				
1. Manufacturer documents (Verify reports and certificates with Paragraphs 2.1 and 2.2 for compliance with construction documents)		SDI QA/QC Section 2	Y	
2. Material verification of steel deck, mechanical fasteners and welding materials	Shop[3] and field inspection		Y	Periodic
3. Cold-formed steel deck placement:	Shop[3] and field inspection			
a. Inspection tasks Prior to Deck Placement (Perform the QA tasks)		SDI QA/QC, Appendix 1, Table 1.1	Y	Perform[4]
b. Inspection tasks After Deck Placement (Perform the QA tasks)		SDI QA/QC, Appendix 1, Table 1.2	Y	Perform[4]
4. Cold-formed steel deck welding:	Shop[3] and field inspection			
a. Inspection tasks Prior to Welding (Observe the QA tasks)		SDI QA/QC, Appendix 1, Table 1.3	Y	Observe[4]
b. Inspection tasks During Welding (Observe the QA tasks)		SDI QA/QC, Appendix 1, Table 1.4	Y	Observe[4]
c. Inspection tasks After Welding (Perform the QA tasks)		SDI QA/QC, Appendix 1, Table 1.5	Y	Perform[4]

5. Cold-formed steel deck mechanical fastening:	Shop[3] and field inspection			
a. Inspection tasks Prior to Mechanical Fastening (Observe the QA tasks)		SDI QA/QC, Appendix 1, Table 1.6	Y	Observe[4]
b. Inspection tasks During Mechanical Fastening (Observe the QA tasks)		SDI QA/QC, Appendix 1, Table 1.7	Y	Observe[4]
c. Inspection tasks After Mechanical Fastening (Perform the QA tasks)		SDI QA/QC, Appendix 1, Table 1.8	Y	Perform[4]

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.2.3 OPEN-WEB STEEL JOISTS AND JOIST GIRDERS				
1. Installation of open-web steel joists and joist girders.				
a. End connections - welding or bolted.	per SJI CJ or SJI 100		Y	Periodic
b.. Bridging - horizontal or diagonal.				
1) Standard bridging.	per SJI CJ or SJI 100		Y	Periodic
2) Bridging that differs from the specifications listed in SJI CJ or SJI 100.			Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.2.4 COLD-FORMED STEEL TRUSSES SPANNING 60 FEET OR GREATER				
Verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field Inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.3 CONCRETE CONSTRUCTION				
1. Inspect reinforcement, including prestressing tendons, and verify placement.	Shop[3] and field inspection	ACI 318: 20, 25.2, 25.3, 26.6.2-26.6.3	Y	Periodic
2. Reinforcing bar welding:				
a. Verification of weldability of bars other than ASTM A706.		AWS D1.4	N	Periodic
b. Inspection of single-pass fillet welds 5/16 or less in size.		ACI 318: 26.6.4	N	Periodic
c. Inspection of all other welds.			N	Continuous
3. Inspection of anchors cast in concrete.	Shop[3] and field inspection		Y	Periodic
4. Inspection of anchors post-installed in hardened concrete members per research reports, or, if no specific requirements are provided, requirements shall be provided by the registered design professional and approved by the building official, including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque	Field inspection		Y	Periodic or as required by the research report issued by an approved source
a. Adhesive anchors installed in horizontal or upward-inclined orientation that resist sustained tension loads.	Field inspection	ACI 318: 17.8.2.4	Y	Continuous
b. Mechanical and adhesive anchors note defined in 4a.	Field inspection	ACI 318: 17.8.2	Y	Periodic
5. Verify use of approved design mix	Shop[3] and field inspection	ACI 318: 19, 26.4.3, 26.4.4	Y	Periodic
6. a. Prior to placement, fabricate specimens for strength tests, fresh concrete sampling, perform slump or	Shop[3] and field inspection	ASTM C172, ASTM C31, ACI 318: 26.5, 26.12	Y	Continuous

slump flow, and air content density tests, and determine temperature of concrete.				
6. b. Verify that concrete specimens for strength tests are maintained in the required initial curing and laboratory curing environment, and that the maximum and minimum temperatures during the initial curing period are reported.	Shop[3] and field inspection		Y	Continuous
7. Inspection of concrete and shotcrete placement for proper application techniques	Shop[3] and field inspection	ACI 318: 26.5	Y	Continuous
8. Verify maintenance of specified curing temperature and techniques	Shop[3] and field inspection	ACI 318: 26.5.3-26.5.5	Y	Periodic
9. Inspection of prestressed concrete:	Shop[3] and field inspection			
a. Application of prestressing force		ACI 318: 26.10	N	Continuous
b. Grouting of bonded prestressing tendons		ACI 318: 26.10	N	Continuous
10. Inspect erection of precast concrete members		ACI 318: 26.9	Y	Periodic
11. Verification of in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs	Review field testing and laboratory reports	ACI 318: 26.11.2	N	Periodic
12. Inspection of formwork for shape, lines, location and dimensions	Field inspection	ACI 318: 26.11.1.2(b)	Y	Periodic
13. Concrete strength testing and verification of compliance with construction documents	Field testing and review of laboratory reports		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.4 MASONRY CONSTRUCTION				
MINIMUM VERIFICATION REQUIREMENTS				
(A) Level A, B and C Quality Assurance:				

1. Prior to construction, verification of compliance of submittals	Submittal Review	TMS 602: 1.5	Y	Prior to Construction
(B) Level B and C Quality Assurance:				
1. Prior to construction verification of f'm and f'_{AAC} except where specifically exempted by the code	Testing by unit strength method or prism test method	TMS 602: 1.4B	Y	Prior to Construction
2. During construction, verification of proportions of materials as delivered to the project site for premixed or pre-blended mortar, prestressing grout, and grout other than self-consolidating grout.	Testing by unit strength method or prism test method		Y	Periodic
(C) Level C Quality Assurance:				
1. During construction, verification of f'm and f'_{AAC} for every 5,000 SF	Testing by unit strength method or prism test method	TMS 602: 1.4B	Y	Periodic
2. During construction, verification of proportions of materials as delivered to the project site for premixed or pre-blended mortar, prestressing grout, and grout other than self-consolidating grout.	Field inspection		Y	Periodic
MINIMUM SPECIAL INSPECTION REQUIREMENTS				
(D) Levels B and C Quality Assurance:				
1. As masonry construction begins, verify that the following are in compliance:				
a. Proportions of the site-prepared mortar	Field inspection	TMS 602: 2.1, 2.6A	Y	Periodic
b. Grade and size of prestressing tendons and anchorages	Field inspection	TMS 602: 2.4B, 2.4H	Y	Periodic
c. Grade, type, and size of reinforcement, anchor bolts, and prestressing tendons and anchorages	Field inspection		Y	Periodic
d. Prestressing technique	Field inspection	TMS 602: 3.6B	N	Periodic
e. Properties of thin-bed mortar for AAC masonry (b) Required for the first 5,000 square feet (c) Required after the first 5,000 square feet	Field inspection	TMS 602: 2.1C	N	Level B - Continuous[(b)] Level B - Periodic[(c)]
			N	Level C - Continuous
f. Sample panel construction	Field inspection		Y	Level B - Periodic

			Y	Level C - Continuous
2. Prior to grouting, verify that the following are in compliance:				
a. Grout space	Field Inspection	TMS 602: 3.2D, 3.2F	Y	Level B - Periodic
			Y	Level C - Continuous
b. Placement of prestressing tendons and anchorages	Field Inspection		Y	Periodic
c. Placement of reinforcement, connectors, and anchor bolts	Field Inspection		Y	Level B - Periodic
			Y	Level C - Continuous
d. Proportions of site-prepared grout and pre-stresssing grout for bonded tendons	Field Inspection		Y	Periodic
3. Verify compliance of the following during construction:				
a. Materials and procedures with the approved submittals	Field inspection		Y	Periodic
b. Placement of masonry units and mortar joint construction	Field inspection		Y	Periodic
c. Size and location of structural members	Field inspection	TMS 602: 3.3F	Y	Periodic
d. Type, size, location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction	Field inspection	TMS 402: 1.2.1(e), 6.1.4.3, 6.2.1	Y	Level B - Periodic
			Y	Level C - Continuous
e. Welding of reinforcement	Field inspection	TMS 402: 8.1.6.7.2, 9.3.3.4, 11.3.3.4(b)	N	Continuous
f. Preparation, construction, and protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)	Field inspection	TMS 602: 1.8C, 1.8D	Y	Periodic
g. Application and measurement of prestressing force	Field testing	TMS 602: 3.6B	N	Continuous
h. Placement of grout and prestressing grout for bonded tendons is in compliance	Field inspection	TMS 602: 3.5, 3.6C	N	Continuous

i. Placement of AAC masonry units and construction of thin-bed mortar joints (b) Required for the first 5,000 square feet (c) Required after the first 5,000 square feet	Field inspection	TMS 602: 3.3B.9, 3.3F.1.b	Y	Level B - Continuous[b] Level B - Periodic[c]
			Y	Level C - Continuous
4. Observe preparation of grout specimens, mortar specimens, and/or prisms	Field inspection	TMS 602: 1.4B.2.a.3, 1.4B.2.b.3, 1.4B.2.c.3, 1.4B.3, 1.4B.4	Y	Level B - Periodic
			Y	Level C - Continuous

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.5 WOOD CONSTRUCTION				
1. For prefabricated wood structural elements, inspection of the fabrication process and assemblies in accordance with Section 1704.2.5.	In-plant review[3]		Y	Periodic
2. For high-load diaphragms, verify grade and thickness of structural panel sheathing agree with approved building plans.	Field inspection		Y	Periodic
3. For high-load diaphragms, verify nominal size of framing members at adjoining panel edges, nail or staple diameter and length, number of fastener lines, and that spacing between fasteners in each line and at edge margins agree with approved building plans	Field inspection		Y	Periodic
4. Metal-plate-connected wood trusses:				
a. Verification that permanent individual truss member restraint/bracing has been installed in accordance with the approved truss submittal package when the truss height is greater than or equal to 60".	Field inspection		Y	Periodic

b. For trusses spanning 60 feet or greater: verify temporary and permanent restraint/bracing are installed in accordance with the approved truss submittal package	Field inspection		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.5.3 MASS TIMBER CONSTRUCTION				
1. Inspection of anchorage and connection of mass timber construction to timber deep foundation systems.	Field inspection		N	Periodic
2. Inspect erection of mass timber construction.	Field inspection		N	Periodic
3. Inspection of connections where installation methods are required to meet design loads.				
a. Threaded Fasteners				
1) Verify use of proper installation equipment.	Field inspection		N	Periodic
2) Verify use of pre-drilled holes where required.	Field inspection		N	Periodic
3) Inspect screws, including diameter, length, head type, spacing, installation angle, and depth.	Field inspection		N	Periodic
b. Adhesive anchors installed in horizontal or upwardly inclined orientation to resist sustained tension loads.	Field inspection		N	Periodic
c. Other adhesive anchors.	Field inspection		N	Periodic
d. Bolted connections.	Field inspection		N	Periodic
e. Concealed connections	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES	
PROJECT	

MATERIAL / ACTIVITY	SERVICE	REFERENCED STANDARD	APPLICABLE	
			Y/N	FREQUENCY
1705.6 SOILS				
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	Field inspection		Y	Periodic
2. Verify excavations are extended to proper depth and have reached proper material.	Field inspection		Y	Periodic
3. Perform classification and testing of compacted fill materials.	Field inspection		Y	Periodic
4. Verify use of proper materials, densities, and lift thicknesses during placement and compaction of controlled fill	Field inspection		Y	Continuous
5. Prior to placement of controlled fill, inspect subgrade and verify that site has been prepared properly	Field inspection		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.7 DRIVEN DEEP FOUNDATIONS				
1. Verify element materials, sizes and lengths comply with requirements	Field inspection		N	Continuous
2. Determine capacities of test elements and conduct additional load tests, as required	Field inspection		N	Continuous
3. Inspect driving operations and maintain complete and accurate records for each element	Field inspection		N	Continuous
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to foundation element	Field inspection		N	Continuous

5. For steel elements, perform additional inspections per Section 1705.2	See Section 1705.2		N	See Section 1705.2
6. For concrete elements and concrete-filled elements, perform tests and additional inspections per Section 1705.3	See Section 1705.3		N	See Section 1705.3
7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge	Field inspection		N	In accordance with construction documents

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.8 CAST-IN-PLACE DEEP FOUNDATIONS				
1.Inspect drilling operations and maintain complete and accurate records for each element	Field inspection		N	Continuous
2. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes	Field inspection		N	Continuous
3. For concrete elements, perform tests and additional inspections in accordance with Section 1705.3	See Section 1705.3		N	See Section 1705.3

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.9 HELICAL PILE FOUNDATIONS				
Verify installation equipment, pile dimensions, tip elevations, final depth, final installation torque and other	Field inspection		N	Continuous

installation data as required by construction documents.				

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.10 FABRICATED ITEMS				
1. List of fabricated items requiring special inspection during fabrication:	Shop inspection		Y	As noted in each applicable shop activity
Open-web steel joists				
Joist Girders				
Structural steel fabricator				
2. List of fabricated items to be fabricated on the premises of a fabricator approved to perform such work without special inspection (including name of approved agency providing periodic auditing):	Shop inspection		Y	As noted in each applicable shop activity
Open-web joists				
Joist girders				
Structural steel fabricator				

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.11.1 STRUCTURAL WOOD SPECIAL INSPECTIONS FOR WIND RESISTANCE				
1. Inspection of field gluing operations of elements of the main wind force-resisting system	Field inspection		N	Continuous
2. Inspection of nailing, bolting, anchoring and other fastening of components within the main wind force-resisting system, including wood shear walls, wood diaphragms, drag	Shop[(3)] and field inspection		N	Periodic

struts, braces and hold-downs.				

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.11.2 COLD-FORMED STEEL SPECIAL INSPECTIONS FOR WIND RESISTANCE				
1.Inspection during welding operations of elements of the main wind force-resisting system	Shop[3] and field inspection		N	Periodic
2. Inspection of screw attachment, bolting, anchoring and other fastening of components within the main wind force-resisting system, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs.	Shop[3] and field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.11.3 WIND-RESISTING COMPONENTS				
1. Roof covering, roof deck and roof framing connections.	Shop[3] and field inspection		N	Periodic
2. Exterior wall covering and wall connections to roof and floor diaphragms.	Shop[3] and field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.1 STRUCTURAL STEEL SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
1. Seismic force-resisting systems in SDC B, C, D, E, or F.	Shop[3] and field inspection		N	In accordance with AISC 341
2. Structural steel elements in SDC B, C, D, E, or F other than those in Item 1.	Shop[3] and field inspection		N	In accordance with AISC 341

including struts, collectors, chords and foundation elements.				

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.2 STRUCTURAL WOOD SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
1. Field gluing operations of elements of the seismic-force resisting system for SDC C, D, E or F.	Shop[3] and field inspection		N	Continuous
2. Nailing, bolting, anchoring and other fastening of components within the seismic-force-resisting system including wood shear walls, wood diaphragms, drag struts, shear panels and hold-downs for SDC C, D, E or F.	Shop[3] and field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.3 COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
1. During welding operations of elements of the seismic-force-resisting system for SDC C, D, E or F.	Shop[3] and field inspection		N	Periodic
2. Screw attachment, bolting, anchoring and other fastening of components within the seismic-force-resisting system including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs for SDC C, D, E or F.	Shop[3] and field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES			
PROJECT			
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED**	**APPLICABLE**

		STANDARD	Y/N	FREQUENCY
1705.12.4 DESIGNATED SEISMIC SYSTEMS VERIFICATION SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
For SDC C, D, E or F, inspect and verify that that the component label, anchorage or mounting conforms to the certificate of compliance in accordance with ASCE 7 Section 13.2.2.	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.5 ARCHITECTURAL COMPONENTS SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
1. For SDC D, E or F, inspection during the erection and fastening of exterior cladding and interior or exterior veneer more than 30 feet above grade or walking surface and weighing more than 5 psf.	Field inspection		N	Periodic
2. For SDC D, E or F, inspection during the erection and fastening of interior nonloadbearing walls more than 30 feet above grade or walking surface and weighing more than 15 psf.	Field inspection		N	Periodic
3. For SDC D, E or F, inspection during the erection and fastening of exterior nonloadbearing walls more than 30 feet above grade or walking surface.	Field inspection		N	Periodic
4. For SDC D, E or F, inspection during anchorage of access floors	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.6 PLUMBING, MECHANICAL AND ELECTRICAL COMPONENTS SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				

1. Inspection during the anchorage of electrical equipment for emergency or standby power systems in SDC C, D, E or F	Field inspection		N	Periodic
2. Inspection during the anchorage of other electrical equipment in SDC E or F	Field inspection		N	Periodic
3. Inspection during installation and anchorage of piping systems designed to carry hazardous materials, and their associated mechanical units in SDC C, D, E or F	Field inspection		N	Periodic
4. Inspection during the installation and anchorage of HVAC ductwork designed to contain hazardous materials in SDC C, D, E or F	Field inspection		N	Periodic
5. Inspection during the installation and anchorage of vibration isolation systems in SDC C, D, E or F where nominal clearance of 1/4 inch or less is required by the approved construction documents	Field inspection		N	Periodic
6. Inspection during installation of mechanical and electrical equipment, including duct work, piping systems and their structural supports, where automatic fire sprinkler systems are installed in structures assigned to SDC C, D, E, or F to verify one of the following unless flexible sprinkler hose fittings are used:				
a. Minimum required clearances have been provided.	Field inspection	ASCE/SEI 7: 13.2.3	N	Periodic
b. A three inch or greater nominal clearance has been provided between fire protection sprinkler system drops and sprigs and: structural members not used collectively or independently to support the sprinklers; equipment attached to the building structure; and other systems' piping.	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.7 STORAGE RACKS SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE				
Inspection during the anchorage of storage racks 8 feet or greater in height in structures assigned to SDC D, E or F.	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.8 SEISMIC ISOLATION SYSTEMS				
Inspection during the fabrication and installation of isolator units and energy dissipation devices used as part of the seismic isolation system in structures assigned to SDC B, C, D, E or F.	Shop[3] and field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.12.9 COLD-FORMED STEEL SPECIAL BOLTED MOMENT FRAMES				
Inspection of installation of cold-formed steel special bolted moment frames in the seismic force-resisting systems in structures assigned to SDC D, E or F.	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.1 STRUCTURAL STEEL TESTING FOR SEISMIC RESISTANCE				

1. Nondestructive testing of structural steel in the seismic force-resisting systems in accordance with AISC 341 in structures assigned to SDC B, C, D, E or F.	Field test		N	Periodic
2. Nondestructive testing of structural steel elements in the seismic force-resisting systems not covered in 1 above including struts, collectors, chords and foundation elements in accordance with AISC 341 in structures assigned to SDC B, C, D, E or F.	Field test		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.2 SEISMIC CERTIFICATION ON NON-STRUCTURAL COMPONENTS				
Review certificate of compliance for designated seismic system components in structures assigned to SDC B, C, D, E or F.	Certificate of compliance review		N	Each submittal

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.3 SEISMIC CERTIFICATION OF DESIGNATED SEISMIC SYSTEMS				
Review certificate of compliance for designated seismic system components in structures assigned to SDC C, D, E or F	Certificate of compliance review		N	Each submittal

SCHEDULE OF SPECIAL INSPECTION SERVICES			
PROJECT			
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED**	**APPLICABLE**

		STANDARD	Y/N	FREQUENCY
1705.13.4 SEISMIC ISOLATION SYSTEMS				
Test seismic isolation system in structures assigned to SDC B, C, D, E or F.	Prototype testing	ASCE 7: 17.8	N	Per ASCE 7

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.14 SPRAYED FIRE-RESISTANT MATERIALS				
1. Verify surface condition preparation of structural members	Field inspection		N	Periodic
2. Verify minimum thickness of sprayed fire-resistant materials applied to structural members	Field inspection		N	Periodic
3. Verify density of the sprayed fire-resistant material complies with approved fire-resistant design	Field inspection		N	Per Section 1705.14.5
4. Verify the cohesive/adhesive bond strength of the cured sprayed fire-resistant material	Field inspection		N	Per Section 1705.14.6
5. Condition of finished application	Field inspection		N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.15 MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS				
Inspect and test mastic and intumescent fire-resistant coatings applied to structural elements and decks	Field inspection and testing	AWCI 12-B	N	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES			
PROJECT			
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED**	**APPLICABLE**

		STANDARD	Y/N	FREQUENCY
1705.13.16 EXTERIOR INSULATION AND FINISH SYSTEMS (EIFS)				
Inspection of water-resistive barrier over sheathing substrate	Field inspection		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.17 FIRE-RESISTANT PENETRATIONS AND JOINTS				
1. Inspect penetration firestop systems	Field testing		Y	Per ASTM E2174
2. Inspect fire-resistant joint systems	Field testing		Y	Per ASTM E2393

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.18 SMOKE CONTROL SYSTEMS				
1. Leakage testing and recording of device locations prior to concealment	Field testing		Y	Periodic
2. Prior to occupancy and after sufficient completion, pressure difference testing, flow measurements, and detection and control verification	Field testing		Y	Periodic

SCHEDULE OF SPECIAL INSPECTION SERVICES				
PROJECT				
MATERIAL / ACTIVITY	**SERVICE**	**REFERENCED STANDARD**	**APPLICABLE**	
			Y/N	**FREQUENCY**
1705.13.19 SEALING OF MASS TIMBER CONSTRUCTION				
1. Inspect sealants and adhesives to resist passage of air in buildings of Type IV-A, IV-B, and IV-C.	Field testing		N	Periodic
a. At abutting edges and intersections of mass timber building elements	Field testing		N	Periodic

required to be fire-resistance rated.				
b. At abutting intersections of mass timber building elements and building elements of other materials where both are required to be fire-resistance rated.	Field testing		N	

*** INSPECTION AGENTS**

FIRM NO.	**ADDRESS**	**TELEPHONE**
1.		
2.		
3.		
4.		

Notes:
1. The inspection and testing agent(s) shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official prior to commencing work. The qualifications of the Special Inspector(s) and/or testing agencies may be subject to the approval of the Building Official and/or the Design Professional.
2. The list of Special Inspectors may be submitted as a separate document, if noted so above.
3. Shop Inspections of fabricated items are not required where the fabricator is approved in accordance with IBC Section 1704.2.5.1 and listed in activity 1709.2.
4. Observe: Observe on a random basis, operations need not be delayed pending these inspections. Perform: These tasks shall be performed for each welded joint, bolted connection, or steel element.
5. NDT of welds completed in an approved fabricator's shop may be performed by that fabricator when approved by the AHJ. Refer to AISC 360, N6.

Are Special Inspections for Seismic Resistance included in the Statement of Special Inspections? **Yes** **No**

Are Special Inspections for Wind Resistance included in the Statement of Special Inspections? ***Yes*** ***No***

DATE: _ _ _ _ _ _ _ _ _ _

END OF SECTION

SECTION 015000 – TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
B. Temporary utilities include, but are not limited to, the following:
   1. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
   2. Ventilation.
   3. Electric power service.
   4. Lighting.
   5. Temporary Heating.
C. Security and protection facilities include, but are not limited to, the following:
   1. Environmental protection
   2. Tree and plant protection
   3. Site enclosure fence.
   4. Security enclosure and lockup.
   5. Barricades, warning signs, and lights.
   6. Temporary enclosures.
   7. Temporary partitions.
   8. Fire protection.
D. Unless work of this section is indicated to be provided under a specific contract, each Prime Contractor must provide, maintain and remove required temporary facilities necessary to perform their own construction activities.
E. Accessible Temporary Egress: Comply with applicable provisions in ICC/ANSI A117.1

1.2 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
   1. Building code requirements.
   2. Health and safety regulations.
   3. Utility company regulations
   4. Police, fire department and rescue squad rules.
   5. Environmental protection regulations.
   6. NYS SED 155.5
B. Standards: Comply with NFPA 241 “Standard for Safeguarding Construction, Alterations, and Demolition Operations”, ANSI A10 Series standards for “Safety Requirements for

Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities".

1. Electrical Service: Comply with NEMA, NECA, and UL standards and regulations for temporary electric service. Install service in compliance with NFPA 70 "National Electric Code".

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.3 PROJECT CONDITIONS

A. Temporary Utilities: Each Contractor will prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-preventative measures. Do not allow hazardous waste, dangerous, or unsanitary conditions, or public nuisances to develop or persist onsite.

1.4 DIVISION OF RESPONSIBILITIES

A. General: These Specifications assign the Contractor responsibilities:

B. Each Prime Contractor is responsible for the following:

1. Installation, operation, maintenance and removal of each temporary facility considered as its own normal construction activity, as well as the costs and use charges except as listed below.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Their own storage, Conex boxes and fabrication sheds. (Locate/ Move as directed by CM)
4. Hoisting requirements, including hoisting loads in excess of 2 tons, hoisting material or equipment into spaces below grade, and hoisting requirements outside the building enclosure. (Rigging insurance must be provided when contractor is hoisting equipment.)
5. Collection and disposal of its own hazardous, dangerous, unsanitary and all waste material.
6. Secure lock-up of their own tools, material and equipment
7. Construction aids and miscellaneous services and facilities necessary exclusively for their own construction activities.
8. Maintaining temporary facilities provided by Contractor.

SECTION 011100 – MILESTONE SCHEDULE

PART 1 - GENERAL

1.1. MILESTONE

The following milestone schedule serves as basis for bidding. A Final Construction Schedule will be developed at a general meeting within 20 days of Letter of Intent to Award the Contracts. Contractor will coordinate activities, forward submittals, deliver materials and provide the necessary workforce to meet the milestones listed below.

1.2. MILESTONE SCHEDULE

	High School Locker Room & CTE Addition	**Start**	**Finish**
	Mobilization, Staging & Protections (see plan included in 015000)	6/29/26	7/02/26
	Installation of Temporary Staging Area (see plan included in 015000) **BY OTHERS**	6/29/26	7/10/26
	Relocation of Locker Rooms to Rooms 122 & 123 **BY OTHERS**	6/29/26	8/14/26
	Relocation of Locker Rooms to allow for Owner Occupancy **BY OTHERS**	---	8/14/26
	Installation of Temporary Egress Scaffold (overhead protection) at Entrance Vestibule 1 (V1) (to remain in place until Summer 2027)	6/29/26	8/14/26
	Locker Room Renovation and Addition		
	Pre-Abatement Demolition	6/29/26	7/2/26
	Asbestos Abatement (includes final air clearances and temporary critical barriers) Multiple Crews, double shift as necessary, for full air clearance by 7/17/25	7/6/26	7/17/26
	Major Demolition and Protections	---	8/28/26
	Shell (Permanent) Enclosure-see below **Locker Room 2nd and 3rd Floor Addition**	---	12/31/26
	Locker Room Completion to allow for Owner Occupancy	---	6/4/27
	Locker Room 2nd and 3rd Floor Addition		
	Shell (Permanent) Enclosure and Completion to Allow for Temporary Heating	---	12/31/26
	Temporary Heating	12/31/26	4/16/27
	Substantial Completion	---	5/05/28

	Locker Room 2nd and 3rd Floor Addition to allow for Owner Occupancy	---	5/19/28
	CTE Addition		
	Concrete Footings, Foundations & Backfill Complete	---	4/14/27
	Shell (Permanent) Enclosure and Completion to Allow for Temporary Heating	---	8/27/27
	Temporary Heating	10/15/27	4/14/28
	Substantial Completion	---	5/05/28
	CTE Addition to allow for Owner Occupancy	---	5/19/28
	Closeout		
	Contractor Closeout (review the specifications) 30 days past substantial completion	---	6/05/28

1. All Work required by any of the Owner's representatives and consultants, including the Construction Manager, Architect, Architect's consultants, Owner's Attorneys, etc., to execute final the contract beyond Milestone dates, or to execute final closeout after 30 days past substantial completion, if determined to be caused by Contractor, shall result in payment(s) to the Owner for additional services to the Construction Manager, Architect, Architect's consultants, Owner's Attorneys, etc. These costs will then be issued in the form of a Deduct Change Order to the Contractor's contract at the Owner consultant's contractual rate.
2. Due to space limitations at the jobsite, all Prime Contractors are specifically notified that jobsite material lay-down areas will need to be relocated as necessary. All Contractors are required to comply with Construction Managers direction and sequencing.
3. Any additional costs incurred by the Owner's representatives, including the Construction Manager, Architect, Owner's staff, Owner's consultants and any related costs, due to schedule overruns beyond the milestone dates, if determined to be the contractor's responsibility, will result in a deduct change order at the contractual rate established by the Owner or their representatives.
4. Sufficient manpower shall be provided at all times to maintain progress of the job. A shortage of labor in the industry shall not be accepted as an excuse for not properly manning the job.
5. The objective of this project is to complete the overall work in the shortest period of time. Thus, if access is provided to a work area sooner than originally scheduled, each Contractor will likewise mobilize their forces earlier to maintain the reduction in overall schedule time.
6. Each Contractor is advised that "Time is of the essence" as per the General Conditions of the contract and they will work with multiple crews of sufficient size as necessary to carry out the work with the utmost speed with good workmanship. If the Contractor fails to expedite and

pursue any part of the work, the Owner may order the contractor to take “Extraordinary Measures”, or hire others to complete the work and adjust their contract amount accordingly as per the General Conditions.

7. Contractors are specifically notified that they must properly staff the project with a competent field superintendent and a sufficient supply of workers to maintain progress and flow of the work as required by the schedule, and to coordinate/install in a timely manner to facilitate the work of other trades.
8. All trades are hereby informed that construction will proceed in phases, requiring temporary disconnection, reconnection, and maintenance of utilities and services as needed. It is imperative to ensure uninterrupted use of essential services (such as mechanical, electrical, fire alarm, and public address systems) to all occupied areas throughout the project

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 011100

9. Complying with the regulations of the Commissioner of Education- 8 NYCRR 155.5 - Uniform Safety Standards for School Construction and Maintenance Projects specified in Division 1 Section "Uniform Safety Standards for School Construction."
10. Containers for non-hazardous waste and debris generated by their own demolition and construction operations.

1.5 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner, Architect or Construction Manager and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including but not limited to the following:
   1. The Architect and Construction Manager
   2. Other Contractors
   3. Owners' construction forces, including testing agencies
   4. Personnel of Authorities having jurisdiction
B. Water service: Use water from the Owner's existing water system without metering and without payment of use charges. Access to water shall be approved by the Owner.
C. Electric Power Service: Temporary electric power including set up and maintenance is the responsibility of the Electrical Work Contractor. Use charges by Owner.

PART 2 – PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. If acceptable to the Architect / CM the Contractor may use undamaged, previously used material in good condition. Provide materials suitable for use intended.
B. Lumber and Plywood:
   1. For signs and directory boards, provide exterior-type, Grade B-B high density concrete form overlay plywood of sizes and thicknesses indicated
   2. For safety barriers, sidewalk bridges and similar uses, provide minimum ⅝ inch-thick exterior plywood.
C. Paint: Paint surfaces exposed to view from the Owner-occupied areas.
D. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For Temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
E. Temporary Roofing: 45 mil reinforced EPDM membrane.

2.2 EQUIPMENT

A. Water Hoses: Provide ¾ inch, heavy duty, abrasion-resistant, flexible rubber hoses 100 feet long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.

B. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.

PART 3 – EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve to protect adequately and results in minimum interference with performance of the work. Relocate and modify facilities as required.

B. Contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

   1. Arrange with the utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

3.2 CONTRACTOR FIELD OFFICES

A. Contractor may, with permission from the Architect and Construction Manager, establish a field office for their own use. Said office for the individual Prime Contractor, Subcontractors, specialty Contractors and the like shall be of such size and design as approved by the Owner and Architect and shall be located where directed by the Owner/CM. Each representative Contractor will arrange for telephone service and electric service, if required, directly with utility company. (No field offices or storage trailers will be allowed by the buildings.) See logistics plan attached.

B. Maintain, in the Contractor's field office, all articles for First Aid treatment. The Contractor shall also establish standing arrangements for the immediate removal and hospital treatment of any employees and other persons on the job site who may be injured or who may become ill during the course of the work.

3.3 TEMPORARY AND PERMANENT SERVICES, GENERAL

A. The Contractor's use of any permanent system or service of the building or portions thereof shall be subject to the Owner's approval.
B. The Contractor shall be responsible for any and all damage to permanent services used, and shall make good any and all damage to the satisfaction of the Owner, prior to final completion and acceptance.
C. NOTE - In accordance with OSHA and other applicable regulations, the representative Contractors performing erection of "skeleton" type work are solely responsible for the netting, guard rail protection and such other safety device as deemed necessary to protect the workers and public from harm.

3.4 TEMPORARY LIGHT AND POWER

A. Temporary Electric Power Service: Electrical Work Contractor shall provide and pay all costs to provide a weatherproof, grounded electric power service and distribution system of sufficient size, capacity and power characteristics to accommodate performance of work during the construction period, at each building addition site.
    1. Responsibility: All work under this section to be provided by the Electrical Work Contractor.
    2. Applicability: This section applies to all renovation and new construction work areas for this Project.
    3. Electrical Work Contractor shall make arrangements with utility company for temporary and permanent services immediately after award of contract.
    4. Temporary or permanent services for temporarily or permanently installed building equipment such as sump pumps, boilers, cabinet heating and/ or cooling units and fans shall be furnished, installed, operated and maintained so that the said equipment may be operated for drainage and temporary heat when required and/or when so ordered by the Architect/Construction Manager.
    5. Electrical Work Contractor shall maintain all parts of the electrical system (temporary and permanent) active and in-service at all times through the contract duration. All temporary lighting is to be controlled by standard switches per code (outside of power panels.)
    6. Electrical Work Contractor shall provide temporary generator power to maintain power during any electric service switch over. This includes all electric service in the building (power, fire alarm, lighting, communication, information technology, kitchen freezers/coolers, heating units, etc.) Contractor shall assume generator(s) and temporary panels as necessary. Generators shall be located at the building exterior. Provide feeder cables, adequately sized, in accordance with NEC to feed temporary panels or existing sub- panels. Contractor shall include required fuel for operation.

7. Electrical Work Contractor shall maintain power during the hours established by Construction Manager.
8. Temporary Services: Install service and grounding in compliance with the National Electric Code (NFPA 70). Include necessary meters, transformers, overload protected disconnect and main distribution switch gear. Comply with all NECA, NEMA and UL Standards.
9. Provide temporary service with an automatic ground- fault interrupter feature, activated from the circuits of the system.
10. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead. Rise vertically where wiring will be least exposed to damage from construction operations.
11. Provide metal conduit, tubing or armored cable for protection of temporary power wiring, where exposed to possible damage during construction operations. Where permitted by code, wiring of circuits not exceeding 110-120 Volts 20 Amp rating and wiring of lighting circuits may be non-metallic sheathed cable in areas were located overhead and exposed. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors. Provide metal enclosures or boxes for wiring devices.
12. Provide overload- protected disconnect switch as required by code.
13. Maintain all existing systems, including but not limited to power, lighting, fire alarm, intercom, etc. within the existing building operational at all times for Owner occupancy and construction.

B. Temporary Electrical and Telephone Services
1. Temporary Power Source: At each building/renovation area, use the existing electrical power distribution system for temporary power source.
2. Owner's Requirements: Do not disrupt the Owner's needs for continuous power.
3. Electrical Work Contractor shall provide temporary power and lighting facilities for use of all trades. All temporary light and power shall be in accordance with the required Codes and Safety Standards.
4. Electrical Work Contractor will include on their base bid: Construction Manager Trailer hook up at Staging area with: a) power, b) two phone lines, and c) DSL connection within 5 days after notification by CM.
5. All other Contractor trailer use/connection charges for power and telephone are to be paid for by the respective contractor.

C. Receptacle Requirements
1. General Requirements: Provide temporary receptacle outlets as required. Minimum Required: Provide a minimum of one quad 120 Volt receptacle per 2500 square feet of building floor area, with maximum spacing of 50 feet on center for operation of portable tools and appliances during the construction period. For power hand tools and task lighting, provide temporary 4- gang outlets at each floor level, spaced so that a 100-foot extension cord can reach each work area. Provide separate 110-120 Volt, 20 Amp circuit for each 4-gang outlet (4 outlets per circuit).

2. Branch Circuits: All temporary receptacle branch circuits to be rated 20 amps with a maximum of (3) duplex receptacles per circuit. Temporary receptable branch circuits shall be independent of temporary lighting circuits.

D. Lighting Requirements
   1. General Requirements: Electrical Work Contractor shall provide both interior and exterior lighting at areas where existing lighting has been removed and at new construction areas, as required to provide adequate illumination for safe and proper construction operations and Project Site security.
   2. Minimum Requirements: Provide illumination levels adequate for construction operations and safe traffic conditions. As a minimum provide one 200-watt lamp per 400 square feet of building floor area, with maximum spacing of 20 feet. Any rooms in excess of 500 sf will receive one 400-watt metal halide fixture for each 1000 sf of area.
   3. Stairways: Provide one 200-watt lamp per landing at each stairway and covered walkway.
   4. Supplemental Lighting: If required, supplemental lighting beyond minimum requirements shall be provided via suitable portable lighting units with cords and plugs, and shall be paid for by the Contractor or Subcontractor requiring such additional lighting.
   5. Restrictions: Do not use permanent lighting system for temporary construction lighting purposes.

E. Maximum Loads
   1. General: Lighting and power loads connected to the temporary power distribution system shall be limited the following maximum individual loads:
      a. Load type Maximum
      b. 120 volt, 1-phase 1.5 KVA
      c. 208 volt, 1-phase 2.5 KVA
      d. 208 volt, 3-phase 5.0 KVA
   2. General: The temporary power distribution system shall be sufficiently sized to provide temporary power as required within these sections. Meter and Meter connections to be part of Electrical Work Contractor’s base bid.

F. Electrical Welders
   1. Separate Power Sources Required: Power for electric welders and for other loads larger than the maximum allowable sizes shall be taken from portable power sources provided, paid for and operated by the Contractor or Subcontractor requiring the use of such equipment. Remove such power sources when no longer needed.

G. Electrical Energy Costs
   1. Paid by the Owner: Chargers for electrical energy usage for temporary power and lighting will be paid by the Owner, when taken from the Owner’s electrical services. Contractor and Subcontractors shall exercise measures to conserve energy usage. Use of Owner electric for items not specific to project (e.g. heating constructions shanties, etc.) will not be permitted.

3.5 TEMPORARY TOILET FACILITIES

A. Sanitary Facilities: Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with governing regulations including safety and health codes for the type, number, location, operation and maintenance of fixtures and facilities; provide not less than specified requirements. Install in locations which will best serve the project's needs. Existing facilities should not be used.
B. Responsibilities: The General Work Contractor is responsible for temporary sanitary facilities and their maintenance, cleaning and supplies for use by all trades, in sufficient quantity/locations to properly handle the number of workers onsite.
C. Supply and maintain toilet tissue, paper towels, paper cups and other disposable materials as appropriate for each facility, including Owner's Representative's temporary offices for full contract duration. Provide covered waste containers for used material.
D. Provide separate toilet facilities for male and female construction personnel.
E. Provide separate toilet facilities for Construction Manager personnel located at direction of Construction Manager.

3.6 TEMPORARY HEATING

A. The Mechanical Work Contractor will maintain a temperature of 60 degrees F in all areas via temporary or permanent system. See Spec Section 011100 Milestone Schedule for duration of Temp Heating.
B. The Mechanical Work Contractor will submit a detailed plan including sketches indicating their proposed temporary heating system for Owner/Architect and Construction Manager approval within 4 weeks of contract award. The Electrical Work Contractor will provide permanent or temporary power for Mechanical Work Contractor's units for temporary heating. The fuel, equipment, materials, operating personnel and methods used therefore shall be at all times satisfactory to the Owner, Architect and Construction Manager and adequate for the purpose intended. The use of electric heaters is not acceptable. All required fuel is part of the Mechanical Contract.
C. The Contractor shall maintain the critical installation temperatures provided in the technical provisions of the specifications herein for all work in those areas where same is being performed.
D. The maintenance of proper heating, ventilation and adequate drying out of the work is the responsibility of the contractor and any work damaged by dampness, insufficient or abnormal heating, shall be replaced to the satisfaction of the Architect by and at the sole expense of the Contractor.

E. Before and during the placing of the gypsum and the application of other interior finishes, taping, varnishing, painting, etc. and until final acceptance by the Owner of all work covered by the Contract, the Contractor shall, unless otherwise specified in the contract documents, maintain a temperature of 60 degrees F. Coordinate with Division 9 of the Technical Specifications.
F. Use of the permanent system if approved by Engineer and Owner permission granted, shall not shorten, or negate any equipment, or system guarantees required under this contract. (The warranty period starts upon date of substantial completion.) Two (2) additional filter changes are to be provided by Mechanical Work Contractor. A program of use, maintenance and restoration will be submitted with request for use of systems of temporary services.

3.7 TEMPORARY WATER

A. Each Contractor Shall:
   1. Provide all hose and other extensions from connections at the building. Contractor and all labor, materials and supplies required to supply water to their work.
   2. Prevent water damage to the work.

3.8 STORAGE FACILITIES

A. Each Contractor shall provide temporary storage shanties, tool houses and other facilities as required for their own use. Temporary structures shall be located at the Construction Manager's designated staging area, and shall be removed upon completion of the work or when directed.
B. Materials delivered to the site shall be safely stored and adequately protected against loss or damage in watertight, environmentally controlled, lockable, Conex boxes. Particular care shall be taken to protect humidity/temperature sensitive materials (e.g.- wood doors, casework, ceiling tile, etc.) in the proper climate-controlled environment. All costs for properly storing materials is paid for by applicable Contractor in their base bid.
C. Due to limited on site storage space, each Contractor shall coordinate delivery of materials with the Construction Manager who will determine when large deliveries shall be made, and shall designate storage locations on site for delivered materials. All stored materials must be stored in locked, watertight trailers, paid for by applicable Contractor.

3.9 SCAFFOLDING AND STAGING

A. All scaffold, staging and appurtenances thereto shall comply in total to the requirements of Safety and Health Regulations for Construction Chapter XVII of OSHA, Part 1926 and all related amendments.
B. The General Work Contractor is to provide Covered Overhead Protections for the Egress Pathway with a Privacy Screen (Refer to Phasing and Logistics Plan included with this Specification.

3.10 RUBBISH CONTAINER

A. Each Contractor shall provide suitable rubbish container device(s) for their own use (both demolition and construction debris) properly maintained and serviced, replaced as required and protected from access by the public fencing as may be specified herein or approved by the Architect or Construction Manager.
B. Contractor and Subcontractor shall sweep up and gather together daily, all their own rubbish and removed materials and place it in containers.

3.11 CONSTRUCTION FENCING

A. Construction fencing and barriers shall be provided by the General Work Contractor, enclosing all work areas as outlined in staging plans at the end of section an in addition to specified below. Temporary construction fencing shall be of good quality and neat in appearance; 6’ high chain link fencing, 9 ga fabric on stanchions with vision barrier screening fabric securely fastened. (Post driven installation, where approved by CM) Open- Mesh Chain Link Fencing: Provide 0.120-inch thick, galvanized steel posts, and 2.875” dia. Gate posts. Provide lockable gates. (Keys to Owner, Architect and CM) Included Privacy Screening as noted or shown. See logistics plan attached.
B. Site access gates shall be provided as required, complete with all operating hardware and security devices.
C. Should fencing be required to be relocated or modified during the course of the project due to additional access needed by the Contractor. It shall be done at the total expense of the Contractor.

3.12 JANITORIAL SERVICE/DAILY CLEANUP

A. Each Contractor shall furnish daily janitorial services for the project and perform any required maintenance of facilities as deemed necessary by the Architect and Construction

Manager during the entire life of the contract. If any Contractor fails to keep the site safe and broom clean within 4 hours of being notified by CM, either verbally or in writing, the Construction Manager will have the cleanup work performed by the others and the Contractors will be back charged accordingly.

1. In addition to the above, the General Work Contractor shall provide a daily sweep and a weekly damp mop of all work areas.

3.13 BURNING

A. Burning will not be permitted.

3.14 FIRE PREVENTION CONTROL

A. Each Contractor shall comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining of the work and, particularly, in connection with any cutting or welding performed as part of the work.

3.15 TEMPORARY FIRE PROTECTION

A. Each Contractor shall take all possible precautions for the prevention of fires.
   1. Where flame cutting torches, blow torches, or welding tools are required to be used. Their use shall be as approved by the Construction Manager at the site.
   2. When welding tools or torches of any type are in use, have available in the immediate vicinity of the work a fire extinguisher(s). It shall be provided and maintained by the Contractor doing such work.

B. Fuel for cutting and heating torches shall be gas only and shall be contained in Underwriters laboratory approved containers.

C. No volatile liquids shall be used for cleaning agents or as fuels for motorized equipment or tools within a building except with the express approval of the Owner and/or Architect and in accordance with local codes. On-site bulk storage of volatile liquids shall be outside the buildings at locations directed by the Owner, who shall determine the extent of volatile liquid allowed within the building at any given time.

D. Each Contractor shall comply with the following requirements relating to compressed gas:
   1. Where compressed gas of any type is used for any purpose at the site, it shall be contained in cylinders complying with ICC regulations. Gases of different types shall not be stored together except when in use and when such proximity is required.
   2. All persons required to handle gas cylinders or to act as temporary fireman (Fire Watchers) shall be able to read, write and understand the English language; they shall also be required by the Contractor to read Part 3 of Pamphlet P-1 " Safe Handling of

Compressed Gases" published by the Compressed Gas Association, 500 Fifth Avenue, New York, NY 10036.

E. Each Contractor shall comply with the following requirements relating to welding and cutting:
   1. All cutting and/or welding (electric or gas) must be done only by skilled, certified and licensed personnel.
   2. During welding or cutting operations, a Contractor's employee shall act as a fire watcher. The fire watcher shall have proper eye protection and suitable firefighting equipment including fire extinguisher (bearing current inspection Certificate), protective gloves and any other equipment deemed necessary.
   3. Tanks supplying gases for welding or cutting are to be placed in an upright position securely fastened, and close as practical to the operation. Tanks, actives or spares, shall be protected from excess heat and shall not be placed in stairway, hallways or exits. When not in use, protective valve cap shall be screwed on the cylinder.
   4. Adequate fire extinguishing equipment shall be maintained at all welding or cutting operations.

3.16 VENTILATION AND HUMIDITY CONTROL FOR CONSTRUCTION

A. General Work Contractor will provide temporary ventilation as required for protecting the building from any adverse effects of high humidity during abatement and construction activities. Select dehumidification and ventilating equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements and have sufficient quantity of units to produce necessary ambient conditions.
   1. Each Contractor shall be responsible for their own temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity.
   2. Ventilate enclosed area to dissipate humidity, and to prevent accumulation of dust, fumes, vapors or gases.
   3. Provide equipment as necessary for air and fresh exchange for the work area per OSHA Standards.
   4. General Work Contractor will provide negative air machines with filtration of sufficient size/qty to fully ventilate the square footage of work areas and exhaust any dust/fumes through flexible duct hose to exterior top eliminate any odors/smoke.
   5. Any Contractor whom allows water infiltration to building is responsible for cleanup and commercial dehumidifiers of sufficient size/qty to prevent mold growth. Failure to immediately address (4 hour notice) will result in the Owner hiring others and back charging in order to insure a safe environment.

3.17 CONSTRUCTION DUST CONTROL AND INDOOR AIR QUALITY (IAQ) PLAN

A. The General Wok Contractor shall be responsible for Construction Dust Control and the IAQ Plan implementations. See specifications section 015600 Construction Dust Control.

3.18 TEMPORARY ROADS AND PERMANENT PAVED AREAS

A. General Work Contractor shall construct and maintain temporary road areas adequate to support loads and to withstand exposure to traffic during construction period.
   1. Temporary roads/staging areas will consist of one-layer soil separation fabric, 8” of compacted NYS DOT Item 4. Contractor will maintain and field dress with additional material as necessary to prevent ruts and potholes.
   2. This shall include access for delivery through staging area to building work areas and to equipment and storage areas and sheds.
   3. Provide dust control treatment that is non-polluting and non-tracking. Reapply treatment as required to minimize dust.
   4. Road Cleaning: Maintain roads and walkways in an acceptably clean condition. This includes the removal of debris daily, if required, and/or a minimum of once a week due to all project traffic. Road cleaning equipment to be wet/vacuum type. The General Work Contractor will clean roads for debris from building-related activities.
   5. Staging Areas: Temporary parking by construction personnel shall be allowed only in areas so designated.

3.19 DE-WATERING FACILITIES AND DRAINS

A. Each Prime Contractor is directly responsible for de-watering of their excavations. The responsibility of de-watering of the site as to facilitate the work will be responsibility of the General Work Contractor, coordinate with Construction Manager.
B. Comply with requirements in applicable Division 31 Sections for temporary drainage and de-watering facilities and operations not directly associated with construction activities included in individual sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
C. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
D. Remove snow and ice as required to minimize accumulations.

3.20 ROOF PROTECTIONS

A. All Contractors shall provide temporary protection on the roof surface when it is necessary for work to the place on completed sections. (Minimum 2" polyiso insulation and plywood.)
B. Upon such notification as required in subparagraph A, the Contractor shall assume responsibility for damages, if any, to the roofing system caused by the work of other trades, except that financial liability for any and all damages rests with the offending trade.

3.21 TEMPORARY SITE SAFETY AND DIRECTIONAL SIGNS

A. The General Contractor shall provide signs as required below. Install signs where required or indicated to inform public and persons seeking entrance to project. All signage and posts become the property of the Owner at the conclusion of the project.
B. Construct signs in accordance with section 619 of the NYS DOT standard specifications (MUTCD overall sign size, letter size, metal signage). Support on breakaway metal posts or attach to fencing; do not attach signs to buildings or permanent construction.
C. Include relocating temporary site safety and directional signs as many times as required or directed.
D. For construction traffic control/flow at entrances/exits as designated by the Owner (3 required) Large sign 4'x 4' Orange with Black Letters ("Construction Entrance Only")
E. To direct visitors (4 required)
F. For Construction parking (2 required)
G. To direct deliveries (2 required)
H. Emergency egress only - Construction area (4 required)
I. Per OSHA Standards at necessary
J. For "No Smoking" safe work site at multiple locations (10 required)
K. Construction Area - Do Not Enter (15) mount on fence
L. No Trespassing (15) mount on fence
M. A premobilization meeting to establish location and quantities of all signage will be reviewed/approved by the Construction Manager.

3.22 STORMWATER CONTROL

A. The General Work Contractor shall provide earthen embankments, silt fence, haybales, and similar barriers in around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains during sitework activities.

3.23 BARRICADES, WARNING SIGNS AND LIGHT

A. Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard.
   1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch –(16-mm-) thick exterior plywood.

3.24 TEMPORARY ENCLOSURES

A. Mechanical Work Contractor will provide temporary watertight enclosures for protection of Mechanical roof related openings, from exposure, foul weather and safety. Close openings in roof deck with load bearing wood framed construction, ¾" plywood and watertight membrane.
B. General Work Contractor will provide temporary 2" x 4" wood framing, 2" polyiso insulation, ½" plywood, and cover with 6 mil plastic; for any open exterior window removal, wall removal, door entrance locations, etc. created as part of their contract for weather and security protection at the end of each workday.
C. Any other temporary enclosures for specific openings for a Contractor to perform their work are the responsibility of the Contractor creating the opening and shall be installed to protect the building from exterior elements, security issues, odors/noise resulting from construction.

3.25 TEMPORARY PARTITIONS AND FLOOR PROTECTIONS

A. General Work Contractor shall erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate work areas from fumes.
   1. Construct dustproof, floor to underside of structure partitions of not less than 3-5/8" – 20 ga. studs, 16" on center, 1 layer of 6 mil poly sheet inside/outside, sound batt insulation, 5/8" gypsum each side taped and painted (where occupied). Acoustical caulk sealed perimeter to prevent dust migrations. Partition to extend from floor to underside of roof/floor deck or structure above. Equip partitions with dustproof doors and security locks as needed (as shown). Provide sound curtains similar to "Sound Curtains" by Sound Seal G BSC 25, each shall be hung on the Construction Side with overlapping seams by 6".
   2. Cover floor with 2-layer poly and extend up the side 18". Overlap and tape full length joints.
   3. In addition to any temporary partition locations shown on drawings, General Work Contractor will include in their base bid (10) ea. 10' W x 16' H temporary partitions meeting the above criteria for use where directed.

4. Temporary Floor Protections - Shall be “Ram-Board” Heavy Duty with taped joints or equivalent. All Finish Flooring (new or existing to remain) will be fully covered by GWC. Areas of isolated MEP work will be protected with Ram-Board by the individual Prime Contractor.
5. Any unfinished openings (e.g.- windows, doors, fire shutters, etc.) which remain in place by the start of school in September will be completely enclosed with fire-rated AC plywood painted

3.26 AREAS OF SPECIAL PROTECTION

A. In the event of an emergency (designated by the sounding of the fire alarm system) all construction activities must immediately cease. Contractor’s work force will evacuate themselves from work areas and remain outside of work areas until the “all clear” is given. No work is operations will be tolerated during the evacuation of the building or during an emergency.

3.27 SNOW REMOVAL

A. The General Work Contractor shall provide snow/ice removal from the staging area, including the paths and steps to the Construction Manager’s Office Trailer, and general work area including access/egress from the building. Removal of snow/ice offsite will be required due to the space limitations.

3.28 ENVIRONMENTAL PROTECTION

A. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.29 OPERATION, TERMINATION, AND REMOVAL

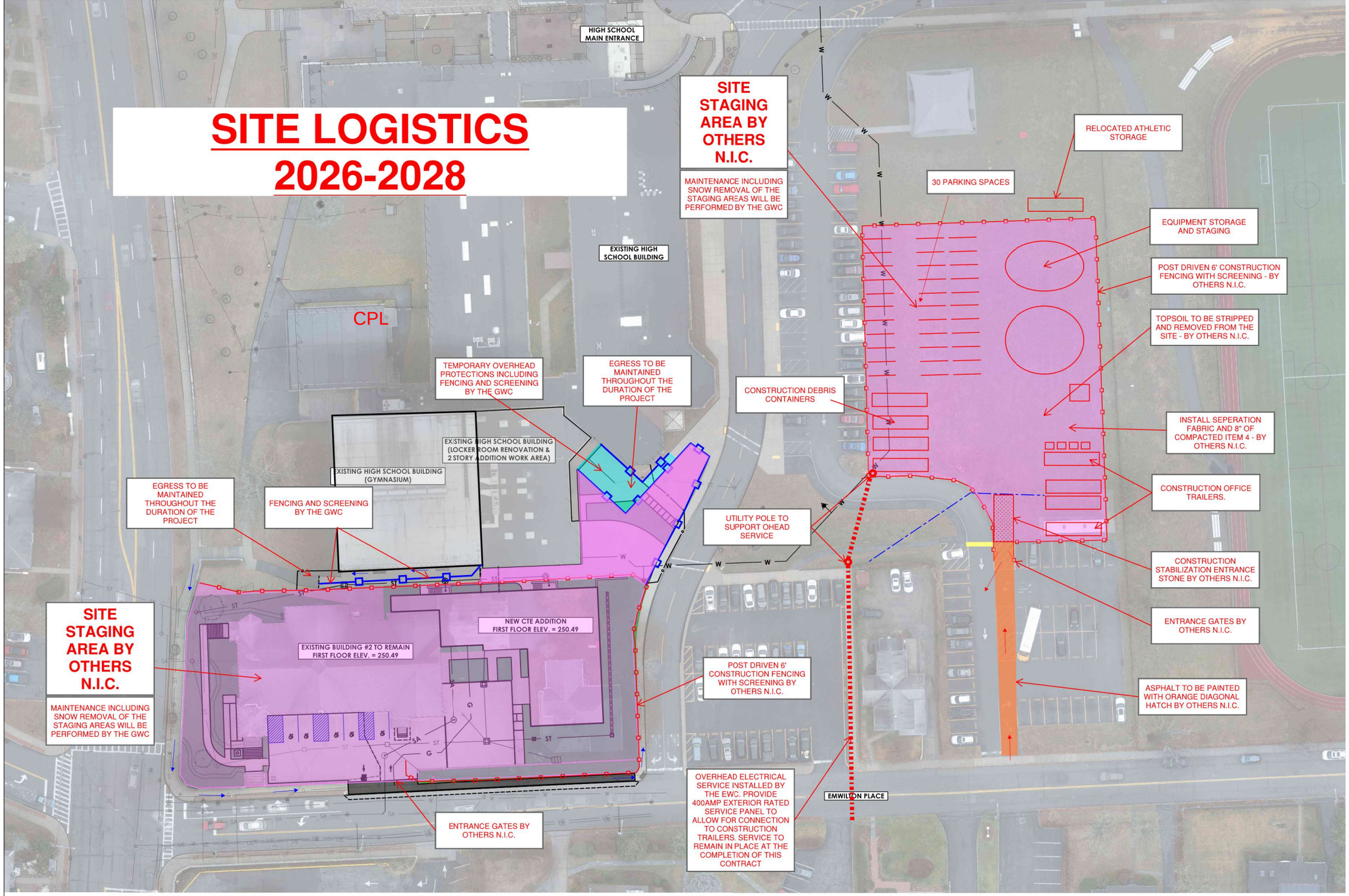
A. Supervisions: Enforced strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended use to minimize waste and abuse.
B. Termination and Removal: Unless the Architect/ Construction Manager requests that it be maintained longer, remove each temporary facility when the need has ended or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been affected because of interference with the temporary facility. Repair damaged

work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the Contractors' property.
2. At Substantial Completion, clean and renovate permanent facilities used during the construction period.

3.30 See attached "Site Logistics"

END OF SECTION 015000



OSSINING HIGH SCHOOL OVERALL SITE PLAN

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Section 01 56 00 CONSTRUCTION DUST CONTROL

PART 1: General - General Work Contractor shall provide Construction Dust Control and IAQ Plan

1.1. Related Documents

A. Drawings, Details of Construction and general provisions of Contract, including General and Supplementary Conditions and Divisions -1 Specification Sections, apply to work specified in this section.

1.2. Summary

A. Section Includes:

1. Airborne construction dust/containment control in:

a. Buildings occupied during remolding

b. Existing building temporarily unoccupied

c. Finished spaces that are unoccupied and construction dust/airborne containments are still being generated (i.e. punch list completion)

B. Related Sections:

1. Division 1 – Cutting and Patching

2. Division 1 – Electronic Submittal Procedures dust/airborne contaminants.

3. Division 1 – Temporary Facilities & Controls

4. Division 2 – Selective Demolition

1.3. Policy

A. Airborne contaminants control is critical in all areas noted in Paragraph 1.2A. Contractor shall limit dissemination of airborne contaminants produced by construction-related activities, including dust, chalk, powders, aerosols, fumes, fibers and other similar materials, in order to provide protection of persons and equipment.

1. Construction activities causing disturbance of existing dust, or other airborne contaminants, must be conducted in tight enclosures cutting any flow particles into occupied areas.

2. Ceilings, walls in project area must be secure at all time.

1.4. Submittals

A. Progress Schedules: Submit work areas and procedure schedules for containment of construction dust/airborne contaminants.

B. Construction Indoor Air Quality Plan (IAQ): Narrative, Drawings and detail of extent of enclosures, construction of necessary temporary dust barriers and negative exhaust fans, and description of procedures to be used to achieve and maintain control of construction-related airborne contaminants.

1.5. General Access Procedures

A. No work is to be performed in occupied areas.

B. Duct Control Preconstruction Meeting: Before any construction on site beings, Contractor and workers are required to attend a mandatory dust control preconstruction orientation session held by Construction Manager/Architect for training and instruction on precautions to be taken.

1. Conditions in construction area may be presumed to be in a condition similar to other existing surfaces or a survey of work area to record pre-existing damage may occur at this time.

C. Notification; Contractor shall notify Construction Manager/Architect a minimum of 48 hours prior to starting construction activity which might be expected to produce excessive construction dust and airborne contaminants in occupied areas so that additional precautions may be taken.

1.6. Testing

A. The Owner may provide the following test and observations:

1. Air Samples: Baseline particles count and conduct periodic air sampling of project areas during construction to monitor effectiveness of containment procedures.

2. Air Pressure: Using visual indicators, the maintenance of negative air pressure in Containment Area relative to project areas will be verified on a daily basis.

1.7. Definitions

A. Containment producing activities include, but are not limited to:

1. Demolition and removal of walls, floors, ceilings and other finish materials.

2. Demolition of plumbing, mechanical and electrical systems and equipment.

3. Finish operations such as saw cutting, shot blasting/grinding, sanding, painting, and application of special surface coatings.

B. Containment Areas: Includes area of construction, adjacent staging and storage areas, and passage, as well as areas connected to construction area by mechanical system air intake, exhaust and ductwork.

C. Project Areas: Includes occupied areas adjacent to project area, either occupied or used for passage as well as areas connected to construction area by mechanical air system air intake, exhaust and ductwork.

PART 2: Products

2.1. Materials

A. Carpet or Mats: Provide carpets or mats at both sides of the containment entrances, vacuumed or change as often as necessary (minimum daily) to prevent accumulation of dust. All vacuuming outside areas not under negative pressure shall be with a certified HEPA-filtered vacuum.

B. Dust Caps: Block off all existing ventilation ducts within the construction area. Method of capping ducts shall be dust tight, withstand airflow and potential damage from construction activities.

C. Portable Enclosure: Whenever work is done outside existing barricaded work areas, provided 4 mil portable polyethylene enclosure capable of sealing off opening fitted tight to ceiling, or provide prefabricated unit.

D. Polyethylene: Polyethylene shall be fire retardant type listed by Fire Underwriter's Laboratories, Griffolyn #T55R WITH Griffolyn fire retardant tape, or equal.

E. Exhaust Fans/Negative Air Fans: Maintain continuous uninterrupted operation. Fans to have standard construction filtration prior to exiting the building. Filters to be maintained, cleaned and or replaced on a daily basis.

PART 3: Execution

3.1. Inspection

A. Before any demolition or construction begins, a complete field review of all project areas (airborne contaminant control areas) and policies will be conducted and work plan revised if required. Initial work plan shall be presented at dust control preconstruction meeting.

3.2. Containment Enclosures and Barriers

A. Air Quality Contaminant Control: Fasten windows shut, ventilate partitioned construction areas by use of fans to the outside of building.

1. Maintain a minimum negative airflow of 3 Air Changes per hour with door fully open at construction entrance by use of negative air fans vented to outside of building.

2. Secure operable exterior windows and doors/windows not required for construction access as required to maintain negative airflow.

3. Provide additional local exhaust during welding.

B. Contractor shall install dustproof enclosures for work as submitted on work plan.

1. Construction must be conducted in tight enclosures cutting off any flow of dust particles into occupied areas.

2. The contractor shall provide additional dustproof enclosures as requested by the Owner when enclosure locations are not adequately containing the dust.

3. Provide all barricades, warning signs, and warning lights to protect the occupants, the existing building, storage areas and materials or equipment.

C. Dust Partitions: See 015000 Temporary Partitions and Floor Protections - Full height, noncombustible construction, with minimum 5/8 inch type x gypsum board both sides with 3-1/2-inch R -11 insulation batts. Seal top, bottom, and all seams to prevent spread of dust to occupied areas, including above ceiling.

1. Doors as shown: 3'-0" minimum width (pair of 3'-0" wide doors as required by plans), solid core wood with metal frame and hardware, panic hardware if within occupied areas requiring such, hold open tied to Fire Alarm Systems, including closer, tightly weather-stripped to prevent flow of dust. Locate as directed and swing out of construction are (unless directed otherwise by fire marshal). Keep barriers locked

outside of working hours. Provide signage at each door "Keep Door Closed." Three keys for emergency access shall be furnished to the Owner.

2. Seal all penetrations, ductwork, piping, conduit, structure and miscellaneous penetrations in enclosure barricades.
3. Materials for barricade shall be precut in unoccupied areas.

D. Enclosure outside of work area (including spaces above ceilings): Whenever work is necessary outside of the construction area the space where work is being done, including ladders, shall be contained within full height enclosure. Contractor may use prefabricated unit.

1. All work performed outside the construction barricade shown on drawings including all work in corridors and lobbies shall be performed outside of normal working hours and shall be schedule in advance with Owner except where specified otherwise.
2. At no time shall any construction equipment or material be stored outside the construction area.

E. Furniture and Equipment Protection:

1. Cover all furniture and equipment remaining in the space with polyethylene. Seal with tape to prevent dust/dirt from reaching the furniture and equipment.

3.3. Procedures

A. General Work Contractor shall provide and maintain the Construction Indoor Air Quality Plan including all barriers, negative air systems, filters, ventilation, walk-off mats and cleaning and removal procedures as detailed in the work plan.

1. Traffic between work areas into occupied areas is not allowed. Instruct workers to refrain from opening windows or doors allowing construction dust/airborne contaminants into adjacent occupied or finished areas. Any dust tracked outside of construction area shall be cleaned up immediately. Contractor shall have the necessary manpower and equipment (HEPA vacuum cleaners, dust and wet mops, brooms, buckets and clean wiping rags) to keep adjacent occupied areas clean at all time. Keep door to such areas closed at all times. Transport materials and refuse into an area from an external site without violating occupied areas by transporting in covered containers.
2. Provide negative pressure in construction area by use of negative air system to the outside of the building. Block supply and return ventilation as to not recirculate air from construction area to air handlers suppling occupied areas. Rebalance air handling equipment to maintain correct airflow to occupied area.
    a. Provide adequate forced ventilation of enclosed areas to cure installed materials, to prevent excessive humidity, and to prevent hazardous accumulations of dust, fumes, vapors, or gases in the building.
    b. Direct exhaust from equipment away from building air intakes and operable windows; assure that filters on building air intakes are operational and protected

from excessive amounts of airborne contaminants. Cover intakes of air handling equipment not in operation in proximity to exhaust locations.

B. Sealing of Openings: Use tape or other impenetrable sealant to seal barrier wall seams, crack around window and door frames, exhaust system ductwork, pipes, floor penetrations, joints and ducts. Seal or filter all open return and exhaust ductwork.

C. Dust Control: The Contractor shall take appropriate steps throughout the term of the Project to prevent airborne dust due to work under this contract. Water shall be applied wherever practical to settle and hold dust to a minimum particularly during demolition and moving of materials. No chemical palliatives shall be used without permission of the Owner's Representative.

1. Spray surfaces with water mist during dust- producing interior demolition activities. Hard surface floors in work area, adjacent hallways and passage areas require vacuuming with HEPA- Filtered vacuum cleaners and frequent wet-mopping during demolition and construction; project adjacent carpeted areas with plastic and plywood and vacuum with HEPA-filtered vacuum cleaners.

2. Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.

D. Whenever access panels are opened in occupied areas, for work above ceilings, provide portable enclosure ladder and sealing off opening, fitted tight to ceilings.

E. Provide thorough cleaning of existing surfaces which become exposed to dust, before start of Owner's occupancy.

3.4. Final Cleaning

A. Removal of construction barriers shall be done carefully, and when necessary, outside of normal work hours. Remove all tape residue from existing/new surfaces. HEPA vacuum and clean all surfaces free of dust after the removal prior to Owner's occupancy.

B. Rebalance existing HVAC systems to restore modified systems back to the original design intent

3.5. Enforcement

A. Failure to maintain containment areas will result in issuance of written warning: if situation is not corrected within four (4) hours of receipt of warning, Owner will have cause to stop the work as provided in the General Conditions of the Contract for Construction. All costs associated with Owner's written order to stop the work and remobilization shall be borne by the Contractor.

CONSTRUCTION INDOOR AIR QUALITY (IAQ) PLAN

The **General Work Contractor** shall complete and submit this plan no later than thirty (30) days after receipt of Notice to Proceed and not less than 15 days from the start of work.

General Work Contractor:

Name:_____ Title: _____

Telephone:_____ Fax:_____

Email:_____

I have read and understood and will implement the following Construction IAQ Plan

Signature: _____Date:_____

I. CONSTRUCTION DUST CONTROL AND VENTILATION

Provide a written narrative and plan associated with the required dust control and ventilation	
Required	• Dust Partitions as per the phasing and logistics plans included with specification section 015000 • Modify and/or Add Partitions as shown withing phasing and logistics plan • Floor Protections as required • Temporary ventilation/Negative Air Environment will be provided during all dust producing activities. See item I Construction Ventilation above. All supply air diffusers and return air grilles will be covered. • Negative Air Ventilation with filtration to provide no less than three air changes per hour. Negative Air Fans and System per floor or Work Area as needed. Ventilation will be continuous for a period no less than 72 hours after completion of installation of any VOC emitting materials.

END OF SECTION 01 56 00

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:
   1. Section 012100 "Allowances" for products selected under an allowance.
   2. Section 012300 "Alternates" for products selected under an alternate.
   3. Section 012500 "Substitution Procedures" for requests for substitutions.
   4. Section 012519 “Equivalents” for equivalent products submitted prior to Contract award.
   5. Section 014200 "References" for applicable industry standards for products specified.

1.02 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.03 ACTION SUBMITTALS

A. Comparable Product Requests, if allowed: After award of contract submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
   2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within (10) ten days of receipt of request, or (7) seven days of receipt of additional information or documentation, whichever is later.
      a. Form of Approval: As specified in Section 013300 "Submittal Procedures."

b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 "Submittal Procedures." Show compliance with requirements.

1.04 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.06 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
   2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 PRODUCTS

2.01 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
   1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
   2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
   3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
   4. Where products are accompanied by the term "as selected," Architect will make selection.
   5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
   6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:
   1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   3. Products:
      a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered**.**
      b. Non-restricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
   4. Manufacturers:

a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
b. Non-restricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.02 EQUIVALENT PRODUCTS

Retain this Article if equivalent products are to be submitted prior to contract award.

A. Conditions for Consideration: Architect will consider Contractor's request for equivalent product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Refer to specification section 012519 Equivalents for additional equivalent product requirements required to be furnished by the contractor prior to execution of the contract.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 017300
EXECUTION

PART 1 GENERAL

1.01 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. Installation of the Work.
   4. Cutting and patching.
   5. Coordination of Owner-installed products.
   6. Progress cleaning.
   7. Starting and adjusting.
   8. Protection of installed construction.

B. Related Requirements:
   1. Division 01 "Summary" for limits on use of Project site.
   2. Division 01 "Submittal Procedures" for submitting surveys.
   3. Division 01 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
   4. Division 02 "Selective Demolition" for demolition and removal of selected portions of the building.
   5. Division 07 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.02 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.03 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor.

B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

C. Cutting and Patching Plan: Submit plan describing procedures at least (10) ten days prior to the time cutting and patching will be performed. Include the following information:
   1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
   2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
   3. Products: List products to be used for patching and firms or entities that will perform patching work.
   4. Dates: Indicate when cutting and patching will be performed.

5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

E. Certified Surveys: Submit (2) two copies signed by land surveyor.

1.04 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
    a. Operational elements include the following:
        1) Primary operational systems and equipment.
        2) Fire separation assemblies.
        3) Air or smoke barriers.
        4) Fire-suppression systems.
        5) Mechanical systems piping and ducts.
        6) Control systems.
        7) Communication systems.
        8) Fire-detection and -alarm systems.
        9) Conveying systems.
        10) Electrical wiring systems.
        11) Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
4. Other construction elements include but are not limited to the following:
        1) Water, moisture, or vapor barriers.
        2) Membranes and flashings.
        3) Exterior curtain-wall construction.
        4) Sprayed fire-resistive material.
        5) Equipment supports.
        6) Piping, ductwork, vessels, and equipment.

7) Noise- and vibration-control elements and systems.

5. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
   1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
   2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   1. Description of the Work.
   2. List of detrimental conditions, including substrates.

3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.02 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.03 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.04 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
   1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect and Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
   2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of (2) two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
   2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
   3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

3.05 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
   4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.
   3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.06 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch extending to an inside or outside corner of a wall. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.07 OWNER-INSTALLED PRODUCTS

A. Site Access: Provide access to Project site for Owner's construction personnel.

B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.08 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
      a. Use containers intended for holding waste materials of type to be stored.
   4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.09 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 017329 – CUTTING & PATCHING

PART 1 - GENERAL

1.1. SUMMARY

A. This section includes procedural requirements for cutting and patching.

B. Related sections include the following:

1. Division 02 through 28 sections for specific requirements and limitations applicable to cutting and patching individual parts of the work.
    a. Requirements in this section also apply to Mechanical and Electrical installations associated with this project.

C. Division of Responsibilities for Cutting and Patching Work: Each Prime Contractor shall perform cutting and patching required for its portion of the work.

1.2. DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other work.

1.3. SUBMITTALS

A. Cutting and Patching Plan: Where approval of procedures for cutting and patching is required before proceeding (see Article 1.4 below), submit a proposed plan describing procedure at least 14 days before the time cutting and patching will be performed requesting approval to proceed. Include the following information, as applicable, in the proposal:

1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
2. Changes to existing construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in buildings appearance and other significant visual elements.
3. Products: List products to be sued and firms or entities that will perform the work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities: List utilities that cutting and patching procedures will disturb or affect. List utilities that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.
6. Structural Elements: Where cutting and patching involved adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architects Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

1.4. QUALITY ASSURANCE

A. Minimize cutting and patching of work by properly coordinating construction sequences with Architect.

B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
   1. Obtain Architect's approval before cutting and patching any structural work that is not indicated on drawings.

C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   1. Obtain Architect's approval before cutting and patching any operational element that is not indicated on drawings.

D. Miscellaneous Elements: Do not cut and patching the following elements or related components, that are not indicated on drawings, in a manner that could change their load-carrying capacity, that results in increased maintenance or decreased operation life or safety.
   1. Water, moisture, or vapor barriers.
   2. Membranes and flashings.
   3. Equipment supports.
   4. Piping, ductwork, vessels, and equipment.
   5. Noise and vibration-control elements and systems.

E. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

PART 2 - PRODUCT

2.1. MATERIALS

A. General: Comply with requirements specified in other sections of these specifications.

B. OSHA approved systems, equipment, scaffolding, PPE, lanyards, rigging, etc.

C. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1. EXAMINATION AND SAFETY

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
   1. Compatibility: Before patching, verify compatibility with and suitability of substrates including compatibility with existing finishes or primers.
   2. Proceed with installation only after unsafe or unsatisfactory conditions are corrected.

3.2. PREPARATION

A. Temporary Support: Provide temporary support of work to be cut.

B. Roof Water Tightness – Contractor must ensure that proper weather, protections, and manpower are present prior to cutting existing roof areas. Contractor is responsible for any interior damages with any direct/indirect costs which accrue if they fail to maintain water tightness.

C. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection for any portions of project that might be damaged/soiled during cutting and patching operations.

3.3. PERFORMANCE

A. General: Each trade shall employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasibly time and complete without delay.
   1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
   2. Related Electrical and Mechanical work will be performed by licensed subcontractors.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Existing Finished Surfaces: Cut or drill from exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
   4. Mechanical and Electrical Services: By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
   5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Each trade shall patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements

specified in other sections of these specifications. Utilize workers who are authorized/skilled in the discipline to be patched (e.g.-mason, carpenter, painter, etc.)

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where portions of walls or partitions that are removed extend on finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch, from wall-to-wall or corner-to-corner. Provide additional coats until patch blend with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang existing ceilings as necessary to provide and even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

3.4. CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely: paint, mortar, oils, putting and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 017329

SECTION 017419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

E. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

A. Section 013000 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. Section 015000 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

C. Section 016000 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

D. Section 017000 - Execution and Closeout Requirements: Trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

1.03 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

PART 3 EXECUTION

2.01 WASTE MANAGEMENT PROCEDURES

A. See Section 013000 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 015000 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 016000 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 017000 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

2.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, and Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Prebid meeting.
   2. Preconstruction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.

3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

SECTION 017423 – CLEANING UP

PART 1 - GENERAL

1.1. DESCRIPTION OF THE WORK

A. The work of this section relates to the following:
   1. Maintain all premises and public properties/roadways free from accumulation of waste, debris, dirt, mud and rubbish caused by operations on a daily basis.
   2. At completion of work, remove waste materials, rubbish tools, equipment, machinery and surplus materials, and clean all sight exposed surfaces; leave project clean and ready for occupancy.
   3. Remove all overspray caused by construction operations from adjacent construction, surfaces and vehicles

B. Related Requirements Specified Elsewhere
   1. Summary of work: Section 011000
   2. Cleaning for Specific Products or Work: the respective sections of the specifications.

1.2. SAFETY REQUIREMENTTS

A. Standards: Maintain project in accord with safety and insurance standards.

B. Hazard Control/Cleaning Products
   1. Store volatile waste in covered metal container and remove from premises daily.
   2. Provide adequate ventilation during use of volatile or noxious substances.

C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
   1. Do not burn or bury rubbish and waste materials on project site.
   2. Do not dispose of volatile waste such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   3. Do not dispose of waste into streams or waterways.

PART 2 - PRODUCTS

2.1. MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

PART 3 – EXECUTION

3.1. REQUIREMENTS DURING CONSTUCTION

A. Execute daily cleaning to ensure that building, grounds, and public properties and roadways are maintained free from accumulations of waste materials, rubbish, dirt, mud and dust.

B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

C. Each day, all Contractors shall adhere to the following:
   1. Areas of intense activity, such as cutting and sawing must be swept clean and reorganized at the end of each day. Utilize dust control methods such as plastic containment, containment hut and/or wetting of surfaces.

2. Areas of moderate activity such as installation of plumbing, ductwork, electrical work must be returned to good order at the end of each day.
3. Debris below scaffolds (and shoring/re-shoring) must at all time, be kept sufficiently consolidated to keep walkways free of tripping hazards. These work areas must also be swept clean immediately upon removal of scaffolds.
4. All swept up debris, waste materials, and packing must be removed and placed in the dumpster by the end of the workday.
5. All stored material must be protected and kept in good order.
6. As portions of the work are completed, all used and excess materials must be removed promptly.
7. Daily clean-up and good housekeeping is the responsibility of each Contractor individually and will be monitored by the Construction Manager. If any Contractor fails to perform cleaning when directed or does not properly clean within 4 hours of being notified by Construction Manager, the Owner will hire others and charge Contractor(s) accordingly.
8. Contractors shall promptly comply with requests to organize scattered materials.

D. Each Contractor is responsible for furnishing all dumpsters or other such containers as required for collection, storage and legal disposal of all debris and rubbish resultant from their construction operations. The Construction Manager shall locate and request to move such containers as necessary and legally dispose of waste as containers are filled. Separate and recycle as required authorities and regulations.
E. Vacuum clean areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until building is ready for Substantial Completion or occupancy
F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
G. Schedule cleaning operations so that dust and other containment resulting from cleaning process will not fall on wet, newly painted surfaces.

3.2. FINAL CLEANING

A. Each Contractor shall:
1. Employ professional cleaners for final cleaning.
2. In preparation for substantial completion or occupancy, conduct final inspection of sign exposed interior and exterior surfaces, and of concealed spaces.
3. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surface so designated to shine finish
4. Maintain cleaning until project, or portion thereof, is occupied by owner.
5. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

6. If the contractor fails to perform final cleaning when directed or does not properly clean within 4 hours of being notified by Construction Manager, the owner will hire others and charge Contractor accordingly.

B. General Contractor shall complete the following restoration operations before requesting inspection for certification of Substantial Completion for entire project or portion of project:
   1. Restoration of any lawn and walk/curb areas disturbed by construction operations. This includes repairs of any ruts/damage created by Heavy Equipment, Lulls, Cranes, etc.
   2. Hire professional cleaning company (not construction tradesmen) to thoroughly clean all surfaces, including glass, floors, carpeting, ceramic tile, doors, windows, casework, etc.
   3. Clean and wax resilient floors using the exact same products/coats as the Owner's custodial staff for compatibility purposes. Vacuum all carpet areas.
   4. Power sweep all asphalt areas using a commercial street sweeper (water method).
   5. Remove any stickers, protective coverings, etc.
   6. Clean all materials & equipment etc. inside and out.

C. Mechanical Contractor shall complete the following cleaning operations before requesting final inspection for certification of Substantial Completion for entire project or portion of project:
   1. Clean all mechanical units, including removal of any stickers, protective covering. Wipe down all of surface.
   2. Vacuum out all ductwork, grills/louvers to insure there is no construction debris or dust.
   3. Replace all air filters at no additional cost immediately prior to owner occupancy.

D. Electrical Contractor shall complete the following cleaning operations before requesting final inspection for certification of Substantial Completion for entire project or portion of project:
   1. Clean surfaces of all electrical equipment from any dust. Remove any labels or protective films.
   2. Replace any burned out or non-functioning bulbs.

3.3. RUBBISH REMOVAL

A. Contractors shall comply with all Local, State and Federal Laws, Codes and Requirements regarding recycling and trash or rubbish removal.

END OF SECTION 017423

SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1. RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections apply to this section.

1.2. SUMMARY

A. This section includes administrative and procedural requirements for contract closeout including but not limited to, the following:
  1. Substantial Completion & Inspection procedures.
  2. Project record documents.
  3. Operation and maintenance manual submittal.
  4. Start-up and adjustments.
  5. Spare Parts.
  6. Demonstration & Training.

B. Closeout requirements for specific construction activities are included in the appropriate Sections.

C. Multiple Prime Contracts: Provisions of this section apply to the construction activities of all Prime Contractors.

1.3. SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for Certification of Substantial Completion, complete the following. List exceptions in the request.
  1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete.
    a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
    b. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
  2. Advise the Owner of pending insurance changeover requirements.
  3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
  4. Obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra stock, and similar items.
7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems and instructions of the Owner's operation and maintenance personnel. Discontinue and remove temporary facilities from the site, along with mockups, construction tools, and similar elements. Startup of existing removed/replaced rooftop HVAC units will include written confirmation from Contractor's mechanical subcontractor that all systems are adjusted and functioning properly.
9. Complete final cleanup requirements, including touch-up painting.
10. Touch up and otherwise repair and restore marred, exposed finishes.

B. Initial Inspection: Conducted between Construction Manager and Contractor, once all incomplete items identified are completed, a request for review by the Architect shall be made.

C. Inspection Procedures: On receipt of a Request for Inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Architect will conduct a re-inspection upon request, provided the work is substantially complete. If multiple inspections are required due to the Contractor's failure to complete the work, the resulting costs will be charged to the Owner and deducted from the Contractor through a change order.
2. Results of the complete inspection will form the basis of requirements for final acceptance.

1.4. FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for Certification of Final Acceptance and Final Payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.

4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion or when the Owner took possession of and assumed responsibility for corresponding elements of the work.
5. Submit consent of surety to final payment.
6. Submit a final liquidated damages settlement statement.
7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
8. All items in the Construction Checklist must be received and approved prior to any retainage reduction.

B. Re-Inspection Procedure: The Architect will re-inspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been complete except for items whose completion is delayed under circumstances acceptable to the Architect.

1. Upon completion of re-inspection, the Architect will prepare a certificate of final acceptance. If the work is incomplete, the Architect will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance. Note that multiple inspection due to Contractor not being complete will result in a charge to the Owner in which the amount shall be deducted from said Contractor via change order.
2. If necessary, re-inspection will be repeated, but may be chargeable to the Owner and back-chargeable to the Contractor in conditions within their control.

END OF SECTION 017700

SECTION 017701 – CHECKLIST FOR PROJECT CLOSEOUT & PROCESSING OF FINAL PAYMENT

PART 1 - GENERAL

1.1. FINAL PAYMENT

Final payment will not be processed until all items indicated are received in accordance with Section 017701 – Checklist for Project Closeout.

1.2. **CLOSE-OUT SUBMITTALS**

One (1) bound, hard cover, 3-ring binder:

[ ] Contractor's Affidavit of Payment of Debts and Claims: AIA G706.
[ ] Contractor's Affidavit of Release of Liens: AIA G706A.
[ ] Separate AIA G706A for subcontractors, suppliers, and others with lien rights against the property of owner, together with a list of those parties.
[ ] Consent of Surety to Final Payment: AIA G707.
[ ] Operation and Maintenance Manuals for all equipment installed on the project.
[ ] As-Built Drawings (1 full-size hard copy).
[ ] Fully executed Certificate of Substantial Completion: AIA G704.
[ ] Contractor's written warranty and extended warranties as required by the Contract.

Two (2) complete electronic copies (thumb drives) of the following:

[ ] All items listed above.
[ ] Typed or printed instructions covering the care and operations of equipment and systems furnished and installed.
[ ] Manufacturers instruction books, diagrams, spare parts lists covering all equipment.
[ ] Instruction of Owner's Representative in care and maintenance of new equipment.
[ ] All approved shop drawings.
[ ] Certificates of compliance and inspection (where applicable – electrical, elevator, etc.).
[ ] Spare parts and Maintenance Materials (receipt signed by ACCI & Owner).
[ ] Evidence of compliance with requirements of governing authorities (Certificates of Inspection, Waste Manifests).
[ ] Certificates of insurance for products and completed operations.
[ ] Notarized statement that only non-asbestos materials were installed on this project.
[ ] Maintenance bond as per the requirements of the Contract.
[ ] Project Record Documents.

NOTE: Retainage reduction are allowed as outlined in the Contract.

END OF SECTION 017701

SECTION 017719 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1. SUMMARY

A. Requirements set forth herein are in addition to and shall be considered as complementary to the General Conditions of the Contract and project specifications.
B. All Contractors, Subcontractors, Sub-Subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2. REQUIREMENTS

A. Project Record Drawings
B. Record Drawing Certification

1.3. PROJECT RECORD DRAWINGS

A. The purpose of the project drawings is to record the actual location of the work in place including but not limited to underground lines, concealed piping within buildings, concealed valves and control equipment, and to record changes in the work.
B. In addition to the above, these drawings shall be "color-coded", by each trade, on a daily basis to indicate progress of the work. Color legend will be assigned by the Architect.
C. In addition to the sets of contract drawings that are required by the Contractor on the site to perform the work, the Contractor shall maintain, at the site, one (1) copy of all drawings, specifications and addenda that are part of the contract as awarded.
D. Each of these documents should be clearly marked "Project Record Copy", maintained in a clean and neat condition available at all times for inspections by the Owner, Construction Manager or the Architect, and shall not be used for any other purpose during the progress of the work.
E. The Construction Manager will be the custodian on the project record documents until the end of the project.
F. Project Record Requirements
  1. The Contractor shall mark-up the "Project Record Copy" to show:
    a. Approved changes in the work.
    b. Location of underground work and completed work.
    c. Details not shown in the original Contract Documents.
    d. Any relocation of work including piping, conduits, ducts and the like.
    e. All changes in dimensions.
    f. All access doors and "tack" location access points in accessible ceilings.
    g. Location of all plumbing, heating, ventilating, air conditioning or electrical assemblies, whether existing to remain or newly installed.

h. Revisions to any electrical circuitry.

2. Such information shall include, but shall not be limited to:

a. Footing depth in relation to finished grade elevations.

b. Any change in floor elevations.

c. Any structural changes.

d. Any substitutions

e. Elevations and locations of all underground utilities, services, or structures referenced to permanent above ground structures and monuments.

f. Designation of all utilities as to the size and use of such utilities.

g. All invert elevations of manholes.

h. The location of all utilities, services and appurtenances concealed in building structures that have been installed differently from that required by the contract.

i. Any approved change order.

j. Other such data as required by the Architect and/or Owner so as to establish a complete record of "As-Constructed" conditions.

G. The Contractor shall keep the project record documents up-to-date from day to day as the work progresses. Appropriate documents are to be updated promptly and accurately; no work is to be permanently concealed until all required information has been recorded.

H. The project record drawings are to be submitted by the Contractor to the Architect through the Construction Manager when all the work is completed and is approved by the Owner and the Architect before the Contractor may request final payment.

I. If the project record drawings as submitted are found to be unacceptable due to incompleteness or inaccurate information, the drawings shall be returned to the offending Contractor for corrective action and resubmitted for approval prior to the release of final payment.

FINAL PAYMENT IS CONTINGENT UPON DELIVERY OF FINAL PROJECT RECORD DRAWINGS TO THE OWNER AND ARCHITECT ON A SET OF FULL-SIZE PLTS AND ELECTRONIC FILES IN .DQG AND .PDF FORMATS.

J. In addition to the drawings required as mentioned above, the Contractor shall submit a list of all approved Shop Drawings of the work as installed.

K. From this list the Architect will select the drawings desired for the permanent records. The Contractor shall furnish these in a bound set to the Owner as part of the closeout requirements.

1.4. RECORD DRAWING CERTIFICATION

A. The record drawings required under the terms and conditions of this section shall be reviewed and processed by each of the Prime Contractors as part of their overall contractual responsibility.

B. This certification may be issued for individual trades as a collective document to cover the entire record drawing requirements of the project.

The format of this certification shall be as follows:

The record drawings prepared by:

_____

for _____ have been reviewed by the undersigned and:

Appears to be an accurate representation of the work incorporated within the project and are accepted as submitted in accordance with the technical documents.

This record document review made by this office is for determination of compliance to the requirements of the Contract Documents.

Firm Name: _____

Review Date: _____ By: _____

END OF SECTION 017719

SECTION 017823 – OPERATION & MAINTENANCE REQUIREMENTS

PART 1 - GENERAL

1.1. SUMMARY

A. Requirements set forth herein are in addition to and shall be considered as complementary to the General Conditions of the Contract and the project specifications.
B. All Contractors, Subcontractors, Sub-Subcontractors, Vendors and the like shall be required to familiarize themselves with said provisions.

1.2. REQUIREMENTS

A. Startup and Demonstration
B. Parts List
C. Operation and Maintenance Data

1.3. STARTUP AND DEMONSTRATION

A. The work required herein consists of starting up and demonstrating all systems and equipment to operating personnel and includes training of said operating personnel.
B. The respective Trade or Subcontractor shall make arrangements, via the Construction Manager and/or the Owner (with notification to the Architect), as to whom the instructions are to be given in the operation of the basic and auxiliary systems and the period of time in which they are to be given.
C. As specified in individual sections, furnish the services of instructors to train designated personnel in adjustment, operation, maintenance, and safety requirements of equipment and systems. If procedures are not specified for specific items of equipment, follow that recommended by the item manufacturer.
D. Instructors shall be thoroughly familiar with the equipment and systems and shall be trained in operating theory as well as practical operation and maintenance work. Instruction shall be given after the equipment or system has been accepted and turned over to the Owner. The duration of instruction shall be as specified in individual sections but shall be not less than two (2) days of each portion of operating mechanical/electrical systems. Use Operating and Maintenance Data as a training guide.
E. The Architect shall be completely satisfied that the representative of the Owner has been thoroughly and completely instructed in the proper operation of all systems and equipment before final payment is made. If the Architect determines that complete and thorough instructions have not been given by the Contractor to the Owner's Representative, then the offending Contractor shall be directed by the Architect to provide whatever instructions are necessary until the intent of this paragraph of the specification has been complied with as determined by the Architect.

1.4. PARTS LIST

A. As required the respective Trade or Subcontractor shall furnish three (3) typed sets of instructions for the ordering and stocking of spare parts for all equipment installed. The lists shall include parts numbered and suggested supplier. Each set shall also include an itemized list of component parts that should be kept on hand and where such parts can be purchased.

1.5. OPERATION AND MAINTENANCE DATA

A. The Contractor shall submit to the Architect for approval three (3) typed sets, bound neatly in hard backed loose-leaf binders, of all instructions for the installation, operation, care and maintenance of all equipment, fixtures and systems.
- **1.** Provide typed or printed label identifying binder as operating and maintenance data. List title of project, contract number, and location of equipment.
- **2.** Furnish manufacturer's printed data or sheets neatly typewritten on 8-1/2 inch by 11 inch, 20 pound minimum white paper. Provide indexed tabs.
- **3.** Drawings: Bind in with text. Provide reinforcement rings. Fold larger drawings to the size of the text pages.
- **4.** Information shall indicate possible problems with equipment and suggested corrective action.

1.6. CONTENT OF MANUAL FOR EQUIPMENT AND SYSTEMS

A. The instructions shall contain information deemed necessary by the Architect and include but not be limited to the following:
- **1.** Introduction:
  - **a.** Explanation of Manual and its use.
  - **b.** Summary description of all mechanical and electrical and equipment operating systems.
  - **c.** Purpose of systems.
  - **d.** Maintenance scheduling summary analysis, sheets and software operating instructions and diskette(s).
- **2.** System:
  - **a.** Detailed description of all systems.
  - **b.** Illustrations, schematics, block diagrams, photographs and other exhibits.
  - **c.** Complete wiring diagrams, tabulations and installation drawings.
  - **d.** Valve tag charts and control diagrams.
  - **e.** ½ size reduced copy of "Record Drawings"
- **3.** Operations:

a. Complete detailed, step-by-step, sequential description of all phases of operation for portion of the systems, including startup, shutdown, adjusting and balancing, and emergency procedures. Include all posted instruction charts.

4. Maintenance:
- **a.** Parts list and parts number.
- **b.** Maintenance, lubrication and replacement charts and Contractor's recommendations for preventative maintenance.
- **c.** Troubleshooting charts for systems and components.
- **d.** Instructions of testing each type of part.
- **e.** Recommended list of on-hand spare parts.
- **f.** Complete calibration instructions for all parts and entire systems.
- **g.** Instructions for charging, filling, draining and purging.
- **h.** General or miscellaneous maintenance notes.

5. Manufacturer's Literature:
- **a.** Complete listing for all parts with names, addresses and telephone numbers.
- **b.** Care and operation.
- **c.** All and other pertinent brochures, illustrations, drawings, cuts, bulletins, technical data, certified performance charts and other literature with the model actually furnished to be clearly and conspicuously identified.
- **d.** Internal wiring diagrams and engineering data sheets for all items and/or equipment to be furnished.
- **e.** Guarantee and warranty data.

6. Instruction for lubricating each piece of equipment installed. Instructions shall state type of lubricant, where and how frequently lubrication is required.

7. Frame all instructions under glass and hang in the Mechanical Room or other location as directed by Architect.

1.7. MANUALS FOR PRODUCTS, MATERIALS, AND FINISHES

A. Submit three (3) copies of complete manual.

B. Content: Provide complete information for Architectural products, applied materials, and finishes.
- **1.** Manufacturer's data, including catalog number, size, composition, color and texture designations, and information for reordering.
- **2.** Instructions for care and maintenance, including manufacturer's recommendations for cleaning agents and methods; cautions detrimental cleaning agents and methods; and recommended schedule for cleaning and maintenance.

END OF SECTION 017823

SECTION 017900
DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
   1. Demonstration of operation of systems, subsystems, and equipment.
   2. Training in operation and maintenance of systems, subsystems, and equipment.
   3. Demonstration and training video recordings.

1.02 INFORMATIONAL SUBMITTALS

A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
   1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.

B. Qualification Data: For instructor.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.03 CLOSEOUT SUBMITTALS

A. Demonstration and Training Video Recordings: Submit (2) two copies within (7) seven days of end of each training module.
   1. Identification: On each copy, provide an applied label with the following information:
      a. Name of Project.
      b. Name and address of videographer.
      c. Name of Architect.
      d. Name of Construction Manager.
      e. Name of Contractor.
      f. Date of video recording.
   2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
   3. At completion of training, submit complete training manual(s) for Owner's use in PDF electronic file format on compact disc.

1.04 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.

C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
   1. Inspect and discuss locations and other facilities required for instruction.
   2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
   3. Review required content of instruction.
   4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.05 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

1.06 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
   1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
      a. System, subsystem, and equipment descriptions.
      b. Performance and design criteria if Contractor is delegated design responsibility.
      c. Operating standards.
      d. Regulatory requirements.
      e. Equipment function.
      f. Operating characteristics.
      g. Limiting conditions.
      h. Performance curves.
   2. Documentation: Review the following items in detail:
      a. Emergency manuals.
      b. Operations manuals.
      c. Maintenance manuals.
      d. Project record documents.
      e. Identification systems.
      f. Warranties and bonds.
      g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:
   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.
4. Operations: Include the following, as applicable:
   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. Required sequences for electric or electronic systems.
   m. Special operating instructions and procedures.
5. Adjustments: Include the following:
   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
   a. Diagnostic instructions.
   b. Test and inspection procedures.
7. Maintenance: Include the following:
   a. Inspection procedures.
   b. Types of cleaning agents to be used and methods of cleaning.
   c. List of cleaning agents and methods of cleaning detrimental to product.
   d. Procedures for routine cleaning
   e. Procedures for preventive maintenance.
   f. Procedures for routine maintenance.
   g. Instruction on use of special tools.
8. Repairs: Include the following:
   a. Diagnosis instructions.
   b. Repair instructions.
   c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   d. Instructions for identifying parts and components.
   e. Review of spare parts needed for operation and maintenance.

1.07 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

1.08 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
   1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
   2. Owner will furnish an instructor to describe Owner's operational philosophy.
   3. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
   1. Schedule training with Owner with at least (7) seven days' advance notice.

D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.

E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.09 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Video: Provide minimum 1080 video resolution converted to a format file type acceptable to Owner, on electronic media.
   1. Electronic Media: Read-only format compact disc with commercial-grade graphic label or flash drive as acceptable to Owner,
   2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
   3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.
   4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
      a. Name of Contractor/Installer.
      b. Business address.

c. Business phone number.
d. Point of contact.
e. E-mail address.

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
1. Film training session(s) in segments not to exceed 15 minutes.
a. Produce segments to present a single significant piece of equipment per segment.
b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.

D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
1. Furnish additional portable lighting as required.

E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.

F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.

G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION

SECTION 019113
GENERAL COMMISSIONING REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

1.02 SUMMARY

A. Section includes general requirements that apply to implementation of commissioning without regard to specific systems, assemblies, or components.

B. Related Sections:
   1. Section 230800 "Commissioning of HVAC" for commissioning process activities for HVAC&R systems, assemblies, equipment, and components.

1.03 DEFINITIONS

A. BoD: Basis of Design. A document that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process.

B. Commissioning Plan: A document that outlines the organization, schedule, allocation of resources, and documentation requirements of the commissioning process.

C. CxA: Commissioning Authority.

D. OPR: Owner's Project Requirements. A document that details the functional requirements of a project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information.

E. Systems, Subsystems, Equipment, and Components: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, equipment, and components.

1.04 COMMISSIONING TEAM

A. Members Appointed by Contractor(s): Individuals, each having the authority to act on behalf of the entity he or she represents, explicitly organized to implement the commissioning process through coordinated action. The commissioning team shall consist of, but not be limited to, representatives of **[each]** Contractor, including Project superintendent and subcontractors, installers, suppliers, and specialists deemed appropriate by the CxA.

B. Members Appointed by Owner:
   1. CxA: The designated person, company, or entity that plans, schedules, and coordinates the commissioning team to implement the commissioning process. Owner will engage the CxA under a separate contract.
   2. Representatives of the facility user and operation and maintenance personnel.
   3. Architect and engineering design professionals.

1.05 OWNER'S RESPONSIBILITIES

A. Provide the OPR documentation to the CxA and **[each]** Contractor for information and use.

B. Assign operation and maintenance personnel and schedule them to participate in commissioning team activities.

C. Provide the BoD documentation, prepared by Architect and approved by Owner, to the CxA and **[each]** Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

1.06 [EACH] CONTRACTOR'S RESPONSIBILITIES

A. **[Each]** Contractor shall assign representatives with expertise and authority to act on its behalf and shall schedule them to participate in and perform commissioning process activities including, but not limited to, the following:
   1. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
   2. Cooperate with the CxA for resolution of issues recorded in the Issues Log.
   3. Attend commissioning team meetings held on a **[biweekly]** basis.
   4. Integrate and coordinate commissioning process activities with construction schedule.
   5. Review and accept construction checklists provided by the CxA.
   6. Complete **[electronic]** construction checklists as Work is completed and provide to the Commissioning Authority on a **[weekly]** basis.
   7. Review and accept commissioning process test procedures provided by the Commissioning Authority.
   8. Complete commissioning process test procedures.

1.07 CXA'S RESPONSIBILITIES

A. Provide commissioning plan.

B. Convene commissioning team meetings.

C. Provide Project-specific construction checklists and commissioning process test procedures.

D. Verify the execution of commissioning process activities using random sampling. The sampling rate may vary from 1 to 100 percent. Verification will include, but is not limited to, equipment submittals, construction checklists, training, operating and maintenance data, tests, and test reports to verify compliance with the OPR. When a random sample does not meet the requirement, the CxA will report the failure in the Issues Log.

E. Prepare and maintain the Issues Log.

F. Prepare and maintain completed construction checklist log.

G. Witness systems, assemblies, equipment, and component startup.

H. Compile test data, inspection reports, and certificates; include them in the systems manual and commissioning process report.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 020800
ASBESTOS ABATEMENT PROCEDURES

PART I – GENERAL

1.01 DESCRIPTION

A. All work under this contract shall be performed in strict accordance with the specifications and all applicable laws for asbestos removal projects. The Abatement Contractor shall furnish all labor, materials, supervision, services, insurance and equipment necessary for the complete and total removal of Asbestos-containing Materials (ACM) as described herein, in attachments to the specification, Job Specific Variance(s) and/or as directed by Ossining UFSD (here-in-after the "Owner") and/or the Owners Representative(s) to support the ***Ossining UFSD – 24BD_PH1 – HS LKR RM & CTE Addition.***

B. Abatement Contractor shall provide personnel air monitoring to satisfy OSHA regulation 29 CFR Parts 1926.1101(f). All work performed shall be in strict accordance with applicable provisions and regulations promulgated under New York State Department of Labor, Industrial Code 56 (ICR-56).

C. The Abatement Contractor shall satisfy the requirements for asbestos projects issued by the New York State Department of Labor concerning licensing and certification; notification; equipment; removal and disposal procedures; engineering controls; work area preparation; decontamination and clean-up procedures; and personnel air monitoring.

D. The Abatement Contractor shall be responsible for submitting asbestos project notification(s) and applicable fees to EPA and NYSDOL concerning this project. Project notification(s) shall be made for the cumulative total of ACM to be removed as required by ICR-56-3.4. Work practices for each individual work area established shall be consistent with the quantity of ACM contained within that work area as defined in ICR-56-2.

E. The scope of work under this contract shall include the following:

1. All asbestos-containing materials (ACM) shall be removed in accordance with these specifications. The Abatement Contractor is responsible for field verification of estimated quantities, locations and other site conditions that may affect work.

2. The containerization, labeling and disposal of all asbestos waste in accordance with applicable city, state and federal regulations and these specifications.

3. The Abatement Contractor shall be responsible for any and all demolition required to access materials identified in scope of work and on associated drawings.

4. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner(s) immediately. The Abatement Contractor shall not abate these areas without a written notice to proceed. If the Abatement Contractor removes additional asbestos prior to the order to proceed the additional work will not be acknowledged.

5. Permissible working hours shall be Monday through Friday 7:00 A.M. to 4:00 P.M. and/or as defined by the Owner(s) and/or Owner's Representative(s). Holidays shall be considered weekends and not included for working days. Upon written approval from the Owner, the Abatement Contractor may work past these hours. The Abatement Contractor will incur any and all costs associated for work performed beyond the defined schedule including, but not limited to: abatement activities, project/air monitoring, custodial/staffing labor, overtime, mobilizations, etc.

6. The buildings will be turned over to the Abatement Contractor as is. At that time, all electrical services and HVAC systems in the proposed work areas will be shut down. Electricity and water supply will be maintained in the building for use by the Abatement Contractor. The Abatement Contractor is responsible for securing all power in the work area(s) and establishing all temporary GFCI hookups necessary to complete his work.

7. The Abatement Contractor must coordinate location of waste containers with the Facility and the Owner. Deliveries and storage of equipment must be coordinated with the Facility and the Owner.

1.02 PRE-CONTRACT SUBMITTALS

Within three (3) days after bids are opened, the three (3) apparent low bidders shall be required to submit the following documentation:

A. Resume': Shall include the following:

1. Provide a list of projects of similar nature performed within the past two (2) years and include the dollar value of all projects. Provide project references to include owner, consultant, and air monitoring firms' name, contact person, address, and phone number, include location of project and date of completion.

2. Abatement Contractor license issued by New York State Department of Labor for asbestos work in accordance with ICR-56-3.

3. A list of owned equipment available to be used in the performance of the project.

4. The number of years engaged in asbestos removal.

5. An outline of the worker training courses, and medical surveillance program conducted by the Abatement Contractor.

6. A standard operating procedures manual describing work practices and procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.

7. Documentation to the satisfaction of the Owner pertaining to the Abatement Contractor's financial resources available to perform the project. Such data shall include, but not be limited to, the firm's balance sheet for the last fiscal year.

B. Citations/Violations/Legal Proceedings

1. Submit a notarized statement describing any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous asbestos abatement contracts. Briefly describe the circumstances citing the project and involved persons and agencies as well as the outcome of any actions.

2. Answer the question: "Has your firm or its agents been issued a Stop Work order on any project within the last two years?" If "Yes" provide details as discussed above.

3. Answer the question: "Are you now, or have you been in the past, a party to any litigation or arbitrations arising out of your performance on Asbestos Abatement Contracts?" If "Yes" provide details as discussed in 1. above.

4. Describe any liquidated damages assessed within the last two years.

C. Preliminary Schedule

1. Provide a detailed schedule including work dates, work shift times, estimate of manpower to be utilized and the start and completion date for completion of each major work area.

1.03 DOCUMENTATION

A. The Abatement Contractor shall be required to submit the following and receive the Consultant's approval prior to commencing work on this project:

1. Provide documentation of worker training for each person assigned to the project. Documentation shall include copies of each workers valid New York State asbestos handler certificates (for those employees who may perform asbestos removal), documentation of current respirator fit test and current OSHA required training and medical examination.

2. The attached "Asbestos Employee Medical Examination Statement" and "Asbestos Employee Training Statement" forms shall be completed, signed and submitted for each worker assigned to the project. Records of all employee training and medical surveillance shall be maintained for at least forty (40) years. Copies of the records shall be submitted to the Consultant prior to commencement.

3. The Abatement Contractor shall submit proof of a current, valid license issued by the New York State Department of Labor pursuant to the authority vested in the Commissioner by section 906 of the Labor Laws, and that the employees performing asbestos related work on this project are certified by the State of New York as required in Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York latest edition. Copies of all licenses shall be submitted prior to the commencement of the project.

4. The Abatement Contractor shall submit a written respiratory protection program meeting the requirements of 29 CFR 1910.134 to the Consultant.

5. The name, address, social security number and NYS DOL certificate number of the person(s) who will supervise the asbestos project.

6. The name and address of the deposit or waste disposal site or sites where the asbestos materials are to be deposited or disposed of. This site must be approved by the Owner. The manifesting procedure must also be specified.

7. The name, address and New York State Dept. of Environmental Conservation ID Number of any transporters that are to be used to transport waste.

8. A written Standard Operation Procedure (SOP) that is designed and implemented to maximize protection against human exposure to asbestos dust. The SOP shall take into consideration the workers, general public and environment. As a minimum the procedures must include the following:

   a. Security for all work areas on an around-the-clock basis against unauthorized access.

   b. Project organization chart including the phone numbers of at least two responsible persons who shall be authorized to dispatch men and equipment to the project in the event of an emergency; including weekends.

   c. Description of protective clothing and NIOSH approved respirators to be used.

   d. Description of all removal methods to be used, including HEPA air filtration and decontamination sequence with special emphasis on any procedure that may deviate from these specifications.

   e. A list of manufacturers' certificates stating that all vacuums, negative air filtration equipment, respirators and air supply equipment meet OSHA and EPA requirements.

   f. A list of all materials proposed to be furnished and used under this contract.

   g. Emergency evacuation procedures in the event of fire, smoke or accidents such as injury from falling, heat exposure, electrical shock, etc.

   h. The name, address and ELAP number of the New York State Department of Health Certified Analytical Testing Laboratory the Contractor proposes to use for the OSHA monitoring.

9. A detailed plan, in triplicate, for the phasing of the project, division of work areas and location of decontamination facilities, waste containers and temporary office.

10. Work schedule, identifying firm dates and completion for actual areas. Bar chart or critical path chart indicating phases is required.

B. The Abatement Contractor shall post their NYS DOL contractor's license and maintain a daily log documenting the dates and time of the following items within each personal decontamination unit:

1. Meetings; purpose, attendants, discussion (brief)

2. Sign-in and sign-out of all persons entering the work area including name, date, time, social security number, position or function and general description of daily activity.

3. Testing of barriers and enclosure systems using smoke tubes prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.

4. Inspection of all plastic barriers, twice daily, by the asbestos supervisor.

5. Loss of enclosure integrity; special or unusual events, barrier breaches, equipment failures, etc.

6. Daily cleaning of enclosures.

7. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

C. Documentation with confirmation signature of Consultant's representative of the following shall be provided by the Abatement Contractor at the final closeout of the project.

1. Testing of barriers and enclosure systems using smoke tubes shall be performed prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.

2. Inspection of all plastic barriers.

3. Removal of all polyethylene barriers.

4. Consultant's inspections prior to encapsulation.

5. Removal of waste materials.

6. Decontamination of equipment (list items).

7. Consultant's final inspection/final air tests.

D. The Abatement Contractor shall provide records of all project information, to include the following which shall be submitted upon completion of the project and prior to approval of the Abatement Contractor's payment application:

1. The location and description of the abatement project.

2. The name, address and social security number of the person(s) who supervised the asbestos project.

3. Certified payroll documentation Pursuant to Article 8, Section 220 of the NYS Labor Law

4. Copies of EPA/NYSDOL Asbestos Certificates for all Workers and Supervisors employed on the Project.

5. Copies of Medical Approval and Respirator Fit Testing for all Asbestos Workers and Supervisors employed on the Project.

6. Copies of Abatement Contractors Daily Sign-In Sheets & Logs for persons entering and leaving the work area. – Title 12 NYCRR Part 56-7.3.

7. Copies of Abatement Contractor's personal air sampling laboratory results.

8. The amounts and type of asbestos materials that was removed, enclosed, encapsulated, or disturbed.

9. The name and address of the deposit or waste disposal site or sites where the asbestos waste materials were deposited or disposed of and all related manifests, receipts and other documentation associated with the disposal of asbestos waste.

10. The name and address of any transporters used to transport waste and all related manifests, receipts and other documentation associated with the transport of asbestos waste.

11. All other information that may be required by state, federal or local regulations.

12. Copy of the Supervisor's Daily Project Log of events as described in 1.03 B, above.

1.04 NOTIFICATIONS AND PERMITS

A. The Abatement Contractor shall be required to prepare and submit notifications to the following agencies at least ten (10) days prior to the commencement of the project:

1. Asbestos NESHAPS Contact
   U.S. Environmental Protection Agency
   NESHAPS Coordinator, Air Facilities Branch
   26 Federal Plaza
   New York, New York 10007
   (212) 264-7307

2. State of New York Department of Labor
   Division of Safety and Health
   Asbestos Control Bureau
   State Office Building Campus, Building 12, Room 454
   Albany, New York 12240

3. Owner(s): Ossining UFSD
400 Executive Boulevard
Ossining, NY 10562
ATTN: Jared Mance, Director of School Facilities, Operations & Maintenance
Ph. (914) 762-5740 Ext. 3366
E-mail. jmance@ossiningufsd.org

4. Environmental Consultant(s): Quality Environmental Solutions & Technologies, Inc. (QuES&T)
1376 Route 9
Wappingers Falls, New York 12590
ATTN: Rudy Lipinski, Director of Field Operations
Ph. (845) 298-6031
Fx. (845) 298-6251
E-mail. rlipinski@qualityenv.com

B. The notification shall include but not be limited to the following information:

1. Name and address of Owner.

2. Name, address and asbestos handling license number of the Abatement Contractor.

3. Address and description of the building, including size, age, and prior use of the building or area; the amount, in square feet or linear feet of asbestos material to be removed; room designation numbers or other local information where asbestos material is found, including the type of asbestos material (friable or non-friable).

4. Scheduled starting and completion dates for removal.

5. Methods to be employed in abating asbestos containing materials.

6. Procedures and equipment, including ventilating/exhaust systems, that will be employed to comply with the Code of Federal Regulation (CFR) Title 40, Part 61 of the U.S. Environmental Protection Agency.

7. The name and address of the carting company and of the waste disposal site where the asbestos waste will be deposited.

NOTE: Notifications shall be submitted using standard forms as may be used by the respective agency.

For DOL (NYS) include "Asbestos Project Notification" form (DOSH-483) with proper fee, if required. For EPA include "Notification of Demolition and Renovation"; 40 CFR Part 61.

C. The Abatement Contractor shall secure any permits required by the city, town, county, or state that may be required and the cost for obtaining the permit shall be included in his base bid.

D. The Abatement Contractor shall erect warning signs around the work space at every point of

potential entry into the work area in accordance with OSHA 1926.58k (2), (i). These signs shall bear the following information:

DANGER

CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING
ARE REQUIRED IN THIS AREA

E. The Abatement Contractor shall post at entrances to the work place and immediate adjacent areas, notifications to building occupants which include the name and license number of the contractor, project location and size, amount and type of ACM, abatement procedures, dates of expected occurrence and name and address of the air monitor and laboratory in compliance with ICR 56-3.6.

F. The Abatement Contractor shall post a list of emergency telephone numbers at the job site which shall include the Owner's Representative, police, emergency squad, local hospital, Environmental Protection Agency, N.Y. State Department of Labor, Occupational Safety and Health Administration and the local Department of Health.

1.05 APPLICABLE STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effects (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith. Resolution of overlapping and conflicting requirements, which result from the application of several different industry standards to the same unit of work, shall be by adherence to the most stringent requirement.

A. Applicable standards listed in these Specifications form a part of this Specification and include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. ANSI:
   American National Standards Institute
   1430 Broadway
   New York, New York 10018

2. ASHRAE:
   American Society for Heating, Refrigerating
   and Air Conditioning Engineers
   1791 Tullie Circle NE
   Atlanta, Georgia 30329

3. ASTM:
   American Society for Testing and Materials
   1916 Race Street
   Philadelphia, Pennsylvania 19103

4. CFR
   Code of Federal Regulations Available
   from Government Printing Office
   Washington, District of Columbia 20402

5. CGA
   Compressed Gas Association
   1235 Jefferson Davis Highway
   Arlington, Virginia 22202

6. CS
   Commercial Standard of NBS
   (US Dept. of Commerce)
   Government Printing Office

7. EPA
   Environmental Protection Agency, Region II
   26 Federal Plaza
   New York, New York 10007
   Asbestos Coordinator - Room 802
   (212) 264-9538
   Part 61, Sub-Parts A & B
   National Emission Standard for Asbestos

8. FEDERAL SPECS
   Federal Specification (General Services Administration)
   7th and D Street, SW
   Washington, District of Columbia 20406

9. NBS
   National Bureau of Standards
   (US Department of Commerce)
   Gaithersburg, Maryland 20234

10. NEC
    National Electrical Code (by NFPA)

11. NFPA
    National Fire Protection Association
    Batterymarch Park
    Quincy, Massachusetts 02269

12. NIOSH
    National Institute for Occupational Safety and Health
    26 Federal Plaza
    New York, New York 10007

13. NYSDOH
    New York State Department of Health
    Bureau of Toxic Substance Assessment
    Room 359 - 3rd Floor
    Tower Building Empire State Plaza
    Albany, New York 12237

14. NYSDEC
    New York State Department of Environmental Conservation
    Room 136
    50 Wolf Road
    Albany, New York 12233-3245

15. NYSDOL
    State of New York Department of Labor
    Division of Safety and Health
    Asbestos Control Program
    State Campus
    Building 12
    Albany, New York 12240

16. OSHA
    Occupational Safety and Health Administration
    (US Department of Labor)
    New York Regional Office - room 3445
    1515 Broadway
    New York, New York 10036

17. UL
    Underwriters Laboratories
    333 Pfingsten Road
    Northbrook, Illinois 60062

B. Federal Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA):

   a. Asbestos Regulations
      Title 29, Part 1910, of the Code of Federal Regulations.

   b. Respiratory Protection
      Title 29, Part 1910, Section 134 of the Code of Federal Regulations.

c. Construction Industry
Title 29, Part 1926, of the Code of Federal Regulations.

d. Access to Employee Exposure & Medical Records
Title 29, Part 1910, Section 20 of the Code of Federal Regulations.

e. Hazard Communication
Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.

f. Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, section 145 of the Code of Federal Regulations.

2. U.S. Environmental Protection Agency (EPA):

a. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Subpart E of the Code of Federal Regulations.

b. Worker Protection Rule
40 CFR Part 763, Subpart G, CPTS 62044, FLR 2843-9
Federal Register, Vol. 50, No. 134, 7/12/85, P28530-28540

c. Regulation for Asbestos
Title 40, Part 61, Subpart A of the Code of Federal Regulations

d. National Emission Standard for Asbestos
Title 40, Part 61, Subpart M (Revised Subpart B) of the Code of Federal Regulations

e. Resource Conservation and Recovery Act (RCRA) 1976, 1980
Hazardous and Solid Waste Amendments (HSWA) 1984
Subtitle D, Subtitle C

3. U.S. Department of Transportation (DOT):

a. Hazardous Substances: Final Rule Regulation 49 CFR, Part 171 and 172.

C. State Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. New York State Department of Environmental Conservation (DEC) Regulations regarding waste collection registration. Title 6, Part 364 of the New York State Official Compilation of Codes, Rules and Regulations - 6NYCRR 364.

2. New York State Right-To-Know Law

3. New York State Department of Labor Asbestos Regulations Industrial Code Rule 56.

4. New York State Department of Health, Title 10 Part 73 Asbestos Safety Program Requirements.

D. Standards: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. American National Standards Institute (ANSI)

   a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79

   b. Practices for Respiratory Protection Publication Z88.2-80

E. Guidance Documents: Those that discuss asbestos abatement work or hauling, and disposal of asbestos waste materials are listed below only for the Abatement Contractor's information. These documents do not describe the work and are not a part of the work of this contract.

EPA:

1. Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book) EPA560/5-85-024.

2. Asbestos Waste Management Guidance EPA 530-SW-85-007.

F. Patents and Royalties: The Abatement Contractor shall pay all royalties and/or license fees. The Abatement Contractor shall defend all suits and claims for infringement of any patent rights and save the Owner and Consultant harmless from loss including attorney fees on account thereof.

1.06 DEFINITIONS

As used in or in connection with these specifications the following are terms and definitions.

Abatement - Procedure to control release from asbestos material. This includes removal, encapsulation and enclosure.

Aggressive sampling - A method of sampling in which the person collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

AIHA - The American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311.

Airlock - A system for permitting entrance and exit while restricting air movement between a containment area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air sampling - The process of measuring the content of a known volume of air collected during a specific period of time.

Amended water - Water to which a surfactant has been added.

Approved asbestos safety program - A program approved by the Commissioner of Health providing training in the various disciplines that may be involved in an asbestos project.

Area air sampling - Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

Asbestos - Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cumingtonite-gunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

Asbestos contract - An oral or written agreement contained in one or more documents for the performance of work on an asbestos project and includes all labor, goods and service.

Asbestos handler - An individual who installs, removes, applies, encapsulates, or encloses asbestos or asbestos material, or who disturbs friable asbestos. Only individuals certified by NYS Department of Labor shall be acceptable for work under this specification.

Asbestos handling certificate - A certificate issued by the Commissioner of Labor of the State of New York, to a person who has satisfactorily completed an approved asbestos safety program.

Asbestos project - Work undertaken by a contractor which involves the installation, removal, encapsulation, application or enclosure of any ACM or the disturbance of friable ACM.

Asbestos Safety Technician (AST) - Individual designated to represent the Consultant, perform third party monitoring and perform compliance monitoring at the job site during the asbestos project.

Asbestos waste material - Asbestos material or asbestos contaminated objects requiring disposal.

Authorized visitor - The building owner, his or her representative or any representative of a regulatory or other agency having jurisdiction over the project.

Background level monitoring - A method used to determine ambient airborne concentrations inside and outside of a building or structure prior to starting an abatement project.

Building owner - The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.

Clean room - An uncontaminated area or room that is a part of the personal decontamination enclosure with provisions for storage of persons' street clothes and protective equipment.

Cleanup - The utilization of HEPA vacuuming to control and eliminate accumulations of asbestos material and asbestos waste material.

Clearance air monitoring - The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers upon conclusion of an asbestos abatement project.

Commissioner - Commissioner of the New York State Department of Labor.

Contractor - A company, unincorporated association, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

Curtained doorway - A device that consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and the left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

Decontamination enclosure system - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of persons, materials, equipment, and authorized visitors.

Encapsulant (sealant) or encapsulating agent - A liquid material that can be applied to asbestos material and which prevents the release of asbestos from the material by creating a membrane over the surface.

Enclosure - The construction of airtight walls, ceilings and floors between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, or any other appropriate procedure that prevents the release of asbestos materials.

Equipment room - A contaminated area or room that is part of the personal decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

Fixed object - A unit of equipment, furniture or other fixture in the work area which cannot be readily removed from the work area.

Friable Asbestos Material - That condition of crumbled, pulverized, powdered, crushed or exposed asbestos capable of being released into the air by hand pressure.

Friable material containment - The encapsulation or enclosure of any friable asbestos material.

Glovebag technique - A method for removing asbestos material from heating, ventilating, and air conditioning (HVAC) ducts, piping runs, valves, joints, elbows, and other nonplanar surfaces in

a noncontained work area. The glovebag assembly is a manufactured device consisting of a glovebag constructed of at least six mil transparent plastic, two inward-projecting longsleeve gloves, which may contain an inward projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and to contain all asbestos fibers released during the abatement process.

HEPA filter - A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particulate greater than 0.3 microns equivalent aerodynamic diameter.

HEPA vacuum equipment - Vacuuming equipment with a high efficiency particulate air filtration system.

Holding area - A chamber in the waste decontamination enclosure located between the washroom and an adjacent uncontaminated area.

Homogeneous work area - A site within the abatement work area that contains one type of asbestos material and where one type of abatement is used.

Large asbestos project - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 160 square feet or more of asbestos or asbestos material or 260 linear feet or more of asbestos or asbestos material.

Minor asbestos project - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material.

Movable object - A unit of equipment, furniture or fixture in the work area that can be readily removed from the work area.

Negative air pressure equipment - A local exhaust system equipped with HEPA filtration. The system shall be capable of creating and maintaining a negative pressure differential between the outside and the inside of the work area.

Non-asbestos material - Any material containing one percent or less asbestos by weight.

Occupied area - Any frequented portion of the work site where abatement is not taking place.

Outside air - The air outside the building or structure.

Personal air monitoring - A method used to determine an individual’s exposure to airborne contaminants. The sample is collected outside the respirator in the person's breathing zone.

Plasticize - To cover floors, walls, ceilings and other surfaces with 6 mil fire retardant plastic sheeting as herein specified.

Project - Any form of work performed in connection with the abatement of asbestos or alteration, renovation, modification or demolition of a building or structure that may disturb asbestos or asbestos material.

Removal - The stripping of any asbestos material.

Repair - Corrective action using required work practices to control fiber release from damaged areas.

Respiratory protection - Respiratory protection required of licensed asbestos workers and authorized visitors in accordance with the applicable laws.

Satisfactory clearance air monitoring results - For all post- abatement samples, airborne concentrations of total fibers that are less than 0.01 fibers per cubic centimeter or background levels, whichever are greater, using phase contrast microscopy (PCM).

Shower room - A room between the clean room and the equipment room in the personal decontamination enclosure with hot and cold running water controllable at the top and arranged for complete showering during decontamination.

Small asbestos project - An asbestos project involving the installation, removal, disturbances, enclosure, or encapsulation of more than 10 and less than 160 square feet of asbestos or asbestos material of more than 25 and less than 260 linear feet of asbestos or asbestos material.

Staging area - The area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

Surfactant - A chemical wetting agent added to water to improve its penetration.

Visible emissions - An emission of particulate material that can be seen without the aid of instruments.

Washroom - A room between the work area and the holding area in the waste decontamination enclosure system, where equipment and waste containers are wet cleaned and/or HEPA vacuumed.

Waste decontamination enclosure system - An area, consisting of a washroom and a holding area, designated for the controlled transfer of materials and equipment.

Wet cleaning - The process of eliminating asbestos contamination from surfaces, equipment or other objects by using cloths, mops, or other cleaning tools.

Work area - Designated rooms, spaces, or areas where asbestos abatement takes place.

Work site - Premises where asbestos abatement is taking place.

Work Surface - Substrate surface from which asbestos-containing material has been removed.

1.07 UTILITIES, SERVICE AND TEMPORARY FACILITIES

A. The Owner shall make available to the Abatement Contractor all reasonable amounts of water and electrical power at no charge.

B. The Abatement Contractor shall provide, at his own expense, all electrical, water, and waste connections, extensions, and construction materials, supplies, etc. All connections must be approved in advance by the Owner and all work relative to the utilities must be in accordance with the applicable building codes.

C. The Abatement Contractor shall provide scaffolding, ladders and staging, etc. as necessary to accomplish the work of this contract. The type, erection and use of all scaffolding, ladders and staging, etc. shall comply with all applicable OSHA provisions.

D. All connections to the Owner's water system shall include reduced pressure backflow protection or double check and double gate valves. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.

E. The Abatement Contractor shall use only heavy-duty abrasion resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water to each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment. All water must be shut off at the end of each shift.

F. The Abatement Contractor shall provide service to decontamination unit electrical subpanel with minimum 60-amp, 2 pole circuit breaker or fused disconnect and ground-fault circuit interrupters (GFCI), reset button and pilot light, connected to the building's main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. This electrical subpanel shall be used for hot water heater, PAPR battery recharging and air sampling pumps.

G. The Abatement Contractor shall provide UL rated 40-gallon electric hot water heater to supply hot water for the decontamination unit shower. Activate from 30-amp circuit breaker on the electrical subpanel located within the decontamination unit. Provide with relief valve compatible with water heater operation, relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall follow NEMA, NEC, and UL standards.

H. The Abatement Contractor shall provide identification warning signs at power outlets, which are other than 110-120-volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 plugs into higher voltage outlets. Dry transformers shall be provided where required to provide voltages necessary for work operations. All outlets or power supplies shall be protected by ground fault circuit interrupter (GFCI) at the power source.

I. The Abatement Contractor shall use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.

J. The Abatement Contractor shall provide general service incandescent lamps of wattage indicated or required for adequate illumination; Protect lamps with guard cages or tempered glass enclosures; Provide exterior fixtures where fixtures are exposed to moisture.

K. The Abatement Contractor shall provide temporary heat or air conditioning as necessary to maintain comfortable working temperatures inside and immediately outside the work areas. Heating and A/C equipment shall have been tested and labeled by UL, FM or another recognized trade association related to the fuel being used. Fuel burning heaters shall not be used inside containment areas. The Contractor shall also provide a comfortable working environment for occupied areas that are impacted by the asbestos removal.

L. The Abatement Contractor shall comply with recommendations of the NFPA standard in regard to the use and application of fire extinguishers. Locate fire extinguishers where they are most convenient and effective for their intended purpose but provide not less than one extinguisher in each work area, equipment room, clean room and outside the work area.

1.08 REMOVAL OF FIXTURES

A. In locations where the Abatement Contractor is directed to dispose of fixtures, he shall either decontaminate the fixtures and dispose of them as non-asbestos containing materials or he shall place them in an appropriate container and dispose of them as asbestos containing material.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. GENERAL REQUIREMENTS

1. Materials shall be stored off the ground, away from wet or damp surfaces and under protective cover to prevent damage or contamination.

2. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

3. Power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

4. The Abatement Contractor shall make available to authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached for inspection. Scaffold joints and ends shall be sealed with tape to prevent incursion of asbestos. Scaffolds and ladders shall comply with all applicable codes.

B. PLASTIC BARRIERS (POLYETHYLENE)

1. In sizes and shapes to minimize the number of joints.

   a. Six mil. (.006") fire-retardant for vertical protection (walls, entrances and openings).

   b. Six mil. (.006") fire-retardant for horizontal protection (fixed equipment) and heating grilles.

   c. Six mil. (.006") reinforced fire-retardant for floors of decon units.

2. Provide two (2) layers over all roof, wall and ceiling openings. Floor penetrations shall be sealed with a rigid material prior to plasticizing to prevent tripping and fall hazards. All seams within a layer shall be separated by a minimum distance of six feet and sealed airtight. All seams between layers shall be staggered.

3. Barrier Attachment - Commercially available duct tape (fabric or paper) and spray-on adhesive. Duct tape shall be capable of sealing joints of adjacent sheets of plastic, facilitating attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions.

C. SIGNS

1. Danger signs shall be provided and shall conform to 29 CFR 1926.1101 and be 14" x 20". These signs shall bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
RESPIRATORS AND PROTECTIVE
CLOTHING
ARE REQUIRED IN THIS AREA

D. DANGER LABELS AND TAPE

1. Labels shall be affixed to any asbestos contaminated material in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communication Standard, and shall contain the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID BREATHING DUST
CANCER AND LUNG DISEASE HAZARD

2. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 49 CFR Parts 171 and 172, Hazardous Substances; Final Rule (U.S. Department of

Transportation), and shall contain the following information:

RQ HAZARDOUS SUBSTANCE
SOLID, NOS, ORM-E, NA 9188
(ASBESTOS)

3. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 40 CFR Part 61.150, NESHAP; Asbestos; Final Rule (USEPA) and shall contain the name of the waste generator and the location at which the waste was generated.
   NOTE: All containers marked as above (1,2 and 3) shall be disposed of as asbestos waste.

4. Provide 3" red barrier tape printed with black lettered "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos work area.

E. PROTECTIVE EQUIPMENT

1. Respiratory Requirements

   a. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators are the minimum allowable respiratory protection permitted to be utilized during removal operations.

   b. Where not in violation of NIOSH, OSHA, and any other regulatory requirements, the Abatement Contractor shall provide the following minimum respiratory protection to the maximum use concentrations indicated:

MSHA/NIOSH Approved Respiratory Protection	Maximum Use Concentration
Half-Mask Air Purifying with HEPA Filters	10x PEL
Full-Facepiece Air Purifying HEPA Filters and Quantitative Fit Test	10x PEL
Powered Air Purifying (PAPR), Loose fitting Helmet or Hood, HEPA Filter	25x PEL
Powered Air Purifying (PAPR), Full Facepiece, HEPA Filter	50x PEL
Supplied Air, Continuous Flow Loose fitting Helmet or Hood	25x PEL

Supplied Air, Continuous Flow Full Facepiece, HEPA Filter	50x PEL
Full Facepiece-Supplied Air Pressure Demand, HEPA Filter	100x PEL
Full Facepiece-Supplied Air Pressure Demand, with Aux. SCBA, Pressure Demand or Continuous Flow	>100x PEL

2. Disposable Clothing -"Tyvek" manufactured by Dupont or approved equal.

3. NIOSH approved safety goggles to protect eyes.

4. Polyethylene bags, 6 mil. (.006") thick (use double bags).

NOTE: Workers must always wear disposable coveralls and respirator masks while in the work area. Contaminated coveralls or equipment must be left in work area and not worn into other parts of the building.

F. TOOLS AND EQUIPMENT

1. Airless Sprayer - An airless sprayer, suitable for application of encapsulating material, shall be used.

2. Scaffolding - Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.

3. Transportation Equipment - Transportation equipment, as required, shall be suitable for loading, temporary storage, transport and unloading of contaminated waste without exposure to persons or property. Watertight, hard wall containers shall be provided to retain and dispose of any asbestos waste material with sharp-edged components that may tear plastic bags or sheeting. The containers shall be marked with danger labels.

4. Surfactant - Wetting Agents - "Asbestos-Wet" - Aquatrols Corp. of America or approved equal and shall be non-carcinogenic.

5. Portable (negative air pressure) asbestos filtration system - by Micro-Trap or approved equal.

6. Vacuum, HEPA type equal to "Nilfisk" #GA73, or "Pullman/Holt" #75 ASA.

7. Amended Water Sprayer - The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

8. Other Tools and Equipment - The Abatement Contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, nylon brushes, sponges, rounded edge shovels, brooms, and carts.

PART 3 – EXECUTION

3.01 PRE-ABATEMENT WORK AREA PREPARATION

A. The work area shall be vacated by the occupants prior to work area preparation and not reoccupied until satisfactory clearance air monitoring results have been achieved.

B. Caution signs shall be posted at all locations and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted that permit a person to read the sign and take the necessary protective measures to avoid exposure.

C. Shut down and lock out electric power to all work areas. The Abatement Contractor shall provide temporary power and lighting and ensure safe installation of temporary power sources and equipment used where high humidity and/or water shall be sprayed in accordance with all applicable codes. All power to work areas shall be brought in from outside the area through a ground-fault interrupter at the source.

D. The personnel decontamination enclosure system shall be installed or constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material. The waste decontamination enclosure system shall be installed or constructed prior to commencement of abatement activities.

E. Movable objects within the work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning and such objects shall be removed from the work area to an uncontaminated location. If disposed of as asbestos waste material, cleaning is not required.

F. The work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall be prohibited. Asbestos material shall not be disturbed during pre-cleaning.

G. Isolation barriers that seal off all openings, including windows, corridors, doorways, ducts, and any other penetrations of the work area, shall be constructed using two layers of at least six mil fire-retardant plastic sheeting sealed with tape. Also, all seams in mechanical system components that pass through the work area shall be sealed. Doorways and corridors, which shall not be used for passage during work, shall also be sealed.

H. Removal of mounted objects. After isolation barriers are in place, objects such as light fixtures, electrical track, alarm systems, ventilation equipment and other items not previously sealed, shall be double sealed with six mil fire-retardant plastic sheeting. Localized HEPA filtered vacuum equipment shall be used during fixture removal to reduce asbestos dispersal.

I. Individual roof and floor drains shall be sealed watertight using two layers of 6-mil fire-retardant plastic sheeting and tape prior to plasticizing. Openings in floor shall be fully covered with plywood sheeting secured to the floor in such a way as to minimize a tripping hazard prior to plasticizing.

J. Emergency and fire exits from the work area shall be maintained or alternate exits shall be established according to all applicable codes.

K. Adequate toilet facilities shall be supplied by the Abatement Contractor and shall be located either in the clean area of the personnel decontamination enclosure or shall be readily accessible to the personnel decontamination enclosure.

3.02 LARGE ASBESTOS PROJECT PERSONNEL DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

A. The personnel decontamination enclosure shall be constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material.

1. Construction and use of personnel decontamination enclosure systems shall be in accordance with ICR-56 and any Applicable or Site-Specific Variances utilized on this project. Such systems may consist of existing rooms outside of the work area, if the layout is appropriate, that can be enclosed is plastic sheeting and are accessible from the work area. When this situation does not exist, enclosure systems may be constructed out of metal, wood or plastic support.

2. The personnel decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other and from the work area by three airlocks.

3. There shall be one shower per six full shift abatement persons calculated on the basis of the largest shift.

4. The personnel decontamination enclosure system shall be fully framed, sheathed for safety and constructed to prevent unauthorized entry.

5. Personnel decontamination enclosure systems constructed at the work site shall utilize at least six mil fire-retardant opaque plastic sheeting. At least two layers of six mil fire-retardant reinforced plastic sheeting shall be used for the flooring of this area.

6. All prefabricated decontamination units shall be completely decontaminated and sealed prior to separation and removal from the work area. Mobile decontamination units shall remain in place until satisfactory clearance results have been attained.

7. The clean room shall be sized to accommodate all authorized persons. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall also be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for the storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the work area or enclosure. It shall be used to secure the work area and decontamination enclosure during off-shift hours.

8. The shower room shall contain one or more showers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with

progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste. The shower room shall be constructed in such way that travel through the decontamination unit shall be through the shower.

9. The equipment room shall be used for the storage of equipment and tools after decontamination using a HEPA filtered vacuum and/or wet cleaning. A one day supply of replacement filters, in sealed containers, for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A walk-off pan filled with water shall be located in the work area just outside the equipment room for persons to clean foot covering when leaving the work area. A drum lined with a labeled, at least six mil plastic bag is required for collection of clothing and shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

3.03 WASTE DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

A. General Requirements

1. A waste decontamination enclosure system shall consist of the following:

   a. A washroom/cleanup room shall be constructed with an airlock doorway to the work area and another airlock doorway to the holding area.

   b. The holding area shall be constructed with an airlock doorway to the washroom/cleanup room and another lockable door to the outside.

2. Where there is only one egress from the work area, the holding area of the waste decontamination enclosure system may branch off from the equipment decontamination room, which doubles as a waste washroom, of the personnel decontamination enclosure.

3. The waste washroom shall be equipped with a drain installed to collect water and deliver it to the shower drain where it shall be filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.

4. The waste washroom shall be constructed in such a way that travel through the rooms shall be through the waste washroom

3.04 WORK AREA ENTRY AND EXIT PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved:

1. All persons shall enter and exit the work area through the personnel decontamination enclosure

system.

2. All persons who enter the work area or an enclosure shall sign the entry/exit log, located in the clean room, upon every entry and exit.

3. All persons, before entering the work area, or an enclosure shall read and be familiar with all posted regulations, personal protection requirements, including work area entry and exit procedures, and emergency procedures. The entry/exit log headings shall indicate, and the signatures shall be used to acknowledge, that these have been reviewed and understood by all persons prior to entry.

4. All persons shall proceed first to the clean room, remove all street clothing, store these items in clean sealable plastic bags or lockers and don coveralls, head covering, foot covering and gloves. All persons shall also don NIOSH approved respiratory protection. Clean respirators and protective clothing shall be utilized, by each person, for each separate entry into the work area. Respirators shall be inspected prior to each use and tested for proper seal using quantitative or qualitative fit checks.

5. Persons wearing designated personal protective equipment shall proceed from the clean room through the shower room to the equipment room, where necessary tools are collected and any additional clothing shall be donned, before entry into the work area.

6. Before leaving the work area, all persons shall remove gross contamination from the outside of respirators and protective clothing by brushing, wet cleaning, and/or HEPA vacuuming.

7. Persons shall proceed to the equipment room where all coveralls, head covering, foot covering and gloves shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, head gear and gloves shall be stored in the equipment room when not being used in the work area.

8. Still wearing respirators, persons shall proceed to the shower area, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water. Some types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection shall be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator facepiece shall be disconnected from the filter/power pack assembly prior to entering the shower.

9. After showering and drying, all persons shall proceed to the clean room and don clean personal protective equipment if returning to the work area or street clothing if exiting the enclosure.

3.05 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION & REMOVAL PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved.

1. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. These work area persons shall not enter the airlock.

2. These contaminated items shall be removed from the airlock by persons stationed in the washroom during waste removal operations. These washroom persons shall remove gross contamination from the exterior of their respirators and protective clothing by brushing, HEPA vacuuming and/or wet cleaning.

3. Once in the waste decontamination enclosure system, external surfaces of contaminated containers and equipment shall be cleaned a second time by wet cleaning.

4. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting and sealed airtight.

5. The clean recontainerized items shall be moved into the airlock that leads to the holding area. The washroom persons shall not enter this airlock or the work area until waste removal is finished for that period.

6. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from uncontaminated areas.

7. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.

8. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.

9. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.

10. Containers labeled with Asbestos hazard warnings shall not be used to dispose of non asbestos waste.

3.06 ENGINEERING CONTROLS

A. Ventilation.

1. The Abatement Contractor shall employ HEPA equipped vacuums or negative air pressure equipment for ventilation as required.

2. All negative air pressure equipment ventilation units shall be equipped with HEPA filtration. The Contractor shall provide a manufacturer's test certificate for each unit documenting the capability

of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns equivalent aerodynamic diameter.

3. A power supply shall be available to satisfy the requirements of the total of all ventilating units.

4. On electric power failure, abatement shall stop immediately and shall not resume until power is restored and exhaust units are operating fully. On extended power failure, longer than one hour, the decontamination facilities, after the evacuation of all persons from the work area, shall be sealed airtight.

5. If extending the exhaust of the ventilation units 50 feet from the building would result in an exhaust location either in the road, blocking driveway access to the facility or within 50 feet of other buildings, a second unit will be run in series with the primary unit.

3.07 MAINTENANCE OF DECONTAMINATION ENCLOSURE SYSTEMS AND WORK AREA BARRIERS

A. GENERAL REQUIREMENTS

1. The Consultant must review and approve installation before commencement of work. Upon completion of the construction of all plastic barriers and decontamination system enclosures and prior to beginning actual abatement activities.

2. All plastic barriers inside the work area, in the personnel decontamination enclosure system, in the waste decontamination enclosure system and at partitions constructed to isolate the work area from occupied areas, shall be inspected by the asbestos supervisor at least twice daily. The barriers shall be inspected before the start of and following the completion of the day's abatement activities. Inspections and observations shall be documented in the project log.

3. Damage and defects in the barriers and/or enclosure systems shall be repaired immediately upon discovery and prior to resumption of abatement activities.

4. At any time during the abatement activities, if visible emissions are observed outside of the work area of if damage occurs to the barriers, work shall be stopped, repairs made and visible residue immediately cleaned up using HEPA vacuuming methods prior to the resumption of abatement activities.

5. The Abatement Contractor shall HEPA vacuum and/or wet clean the waste decontamination enclosure system and the personnel decontamination enclosure system at the end of each day of abatement activities.

3.08 HANDLING AND REMOVAL PROCEDURES

The Abatement Contractor may utilize existing provisions of ICR-56, Applicable Variances or a Site-Specific Variance, approved by the Owner's Consultant, to permit the conduct of this work.

3.09 ABATEMENT PROCEDURES

A. AIR SAMPLING - By Owner

1. Air sampling and analysis shall be conducted according to the requirements of Subpart 56-4 before the start, during and after the completion of the asbestos removal project.

2. In addition to the requirements of Subpart 56-4, air monitoring shall be conducted in accordance with any approved job specific variance(s) or applicable variance utilized.
3. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.

4. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR 763.90[i].

B. The provisions of the Applicable Variances or a Job Specific Variance shall apply only in those areas where approval has been granted by the NYS DOL and the Contractor has obtained concurrence from the Owner's Consultant. All other applicable provisions of Industrial Code Rule 56-1 through 56-12 shall be complied.

C. A copy of the NYS DOL Job Specific or Applicable Variance, if applicable, shall be conspicuously posted at the work area(s).

D. The Abatement Contractor shall construct a decontamination unit at the work site. The Abatement Contractor shall, as a minimum, comply with the requirements of 29 CFR 1926.1101(j); Hygiene facilities and practices for employees.

3.11 CLEANUP PROCEDURES

A. The following cleanup procedures shall be required.

1. Cleanup of accumulations of loose asbestos material shall be performed whenever enough loose asbestos materials have been removed to fill a single leak tight container of the type commensurate with the material properties. In no case shall cleanup be performed less than once prior to the close of each working day. Asbestos material shall be kept wet until cleaned up.

2. Accumulations of dust shall be cleaned off all surfaces on a daily basis using HEPA vacuum cleaning methods.

3. Decontamination enclosures shall be HEPA vacuumed at the end of each shift.

4. Accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pans, squeegees or shovels. Metal shovels shall not be used to pick up or move waste.

5. Excessive water accumulation or flooding in the area shall require work to stop until the water is collected and disposed of properly.

B. The following cleanup procedures shall be required after completion of all removal activities.

1. All accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pan, squeegees or shovels. Metal shovels shall not be used to pick up or move waste. HEPA vacuums shall be used to clean all surfaces after gross cleanup.

2. Cleaning. All surfaces in the work area shall be HEPA vacuumed. To pick up excess liquid and wet debris, a wet purpose shop vacuum may be used and shall be decontaminated prior to removal from the work area.

3. Windows, doors, HVAC system vents and all other openings shall remain sealed. Decontamination enclosure systems shall remain in place and be utilized.

4. All containerized waste shall be removed from the work area and the holding area.

5. All tools and equipment shall be decontaminated and removed from the work area.

6. A final visual inspection and clearance air monitoring, as per the schedule for air sampling and analysis, shall be conducted.

7. The isolation barriers and decontamination unit shall be removed only after satisfactory clearance air monitoring results have been achieved.

3.12 SAFETY MONITORING – CONSULTANT:

The Consultant will designate an Asbestos Safety Technician (AST) to represent the Owner during the removal program. The AST must be on the job site at all times during abatement work. Absolutely no abatement or preparation work will occur without the presence of the AST.

The AST will conduct four (4) milestone inspections.

1. Pre-commencement inspection shall be conducted as follows:

   a. Notification in writing to the Consultant shall be made by the Abatement Contractor to request a pre-commencement inspection at least 48 hours in advance of the desired date of inspection. This inspection shall be requested prior to beginning preparatory work in another work area.

   b. The AST shall ensure that:

      i. The job site is properly prepared and that all containment measures are in place;

      ii. The designated supervisor shall present to the inspector a valid supervisor's license issued by the New York Department of Labor;

      iii. All workers shall present to the inspector a valid handler's license issued by the New York Department of Labor;

iv. Measures for the disposal of removed asbestos material are in place and shall conform to the adopted standards;

v. The Abatement Contractor has a list of emergency telephone numbers at the job site which shall include the monitoring firm employed by the Owner and telephone numbers for fire, police, emergency squad, local hospital and health officer.

c. If all is in order, the AST shall issue a written notice to proceed in the field. If the job site is not in order, then any needed corrective action must be taken before any work is to commence. Conditional approvals shall not be granted.

Progress inspection shall be conducted as follows:

a. Primary responsibility for ensuring that the abatement work progresses in accordance with these technical specifications and regulatory requirements rests with the Abatement Contractor. The AST shall continuously be present to observe the progress of work and perform required tests.

b. If the AST observes irregularities at any time, he shall direct such corrective action as may be necessary. If the Abatement Contractor fails to take the corrective action required, or if the Abatement Contractor or any of their employees habitually and/or excessively violate the requirements of any regulation, then the AST shall inform the Owner who shall issue a Stop Work Order to the Abatement Contractor and have the work site secured until all violations are abated.

Clean-up inspections shall be conducted as follows:

a. Notice for clean-up inspection shall be requested by the Abatement Contractor at least 24 hours in advance of the desired date of inspection;

b. The clean-up inspection shall be conducted prior to the removal of any isolation or critical barriers and before final air clearance monitoring;

c. The AST shall ensure that:

i. The work site has been properly cleaned and is free of visible asbestos containing material and debris.

ii. All removed asbestos has been properly placed in a locked secure container outside of the work area.

d. If all is in order, the AST shall issue a written notice of authorization to remove surface barriers from the work area. All isolation barriers shall remain in place until satisfactory clearance air sampling has been completed.

4. Clearance Visual Inspection shall be conducted after the removal of non-critical plastic sheeting. The AST shall insure that:

a. The work area is free of all visible asbestos or suspect asbestos debris and residue.

b. All waste has been properly bagged and removed from the work area.

c. Should clearance visual inspection identify residual debris, as determined by the AST, the Abatement Contractor is responsible for recleaning the area at his own cost and shall bear all costs of reinspection until acceptable levels are achieved.

B. The Abatement Contractor shall be required to receive written approval before proceeding after each milestone inspection.

3.13 PERSONNEL AIR MONITORING – CONTRACTOR (29 CFR 1926.1101)

A. Personnel air monitoring shall be provided to determine both short-term (STEL) and full shift during when abatement activities occur. Personnel sampling shall be performed in each work area in order to accurately determine the concentrations of airborne asbestos to which workers may be exposed.

B. The Abatement Contractor shall have a qualified "Competent Person" (as specified in 29 CFR 1926 OSHA) to conduct personnel air monitoring.

C. The laboratory performing the air sample analysis shall be certified by NYS DOH ELAP and approved by the consultant.

D. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

3.14 CLEARANCE AIR MONITORING

A. Air samples will be collected in and around the work areas at the completion of abatement activities.

B. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.

C. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR part 763 “Asbestos-Containing Materials in Schools; Final Rule and Notice” section 763.90.

D. ***RETESTING***
Should clearance air monitoring yield fiber concentrations above the “Clearance” criteria of either 0.01 fibers per CC and/or background levels (PCM) –OR- seventy (70) structures per square millimeter (TEM/AHERA), the Abatement Contractor is responsible for re-cleaning the area at his own cost and shall bear all costs associated with the retesting of the work area(s) including monitoring labor, sampling, analysis, etc. until such levels are achieved.

3.15 RESPIRATORY PROTECTION REQUIREMENT

A. Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with these specifications. The Abatement Contractor shall keep available at all times two PAPR's with new filters and charged batteries for use by authorized visitors.

B. All respiratory protection shall be MSHA/NIOSH approved in accordance with the provisions of 30 CFR Part II. All respiratory protection shall be provided by the Abatement Contractor and used by workers in conjunction with the written respiratory protection program.

C. The Abatement Contractor shall provide respirators that meet the requirements of 29 CFR Parts 1910 and 1926.

1. Full facepiece Type C supplied-air respirators operated in pressure demand mode equipped with an auxiliary self- contained breathing apparatus, operated in pressure demand or continuous flow, shall be worn during gross removal, demolition, renovation and/or other disturbance of ACM whenever airborne fiber concentrations inside the work area are greater than 10.0 f/cc.

2. Full facepiece Type C supplied-air respirators operated in pressure demand mode with HEPA filter disconnect protection shall be work during gross removal, demolition, renovation and/or other disturbance of ACM with an amphibole content and/or whenever airborne fiber concentrations inside the work area are equal to or greater than 0.5 f/cc and less than or equal to 10.0 f/cc.

3. Full facepiece powered air-purifying respirators (PAPR) equipped with HEPA filters shall be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.5 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow, with HEPA filter disconnect protection, may be substituted for a powered air-purifying respirator.

4. Loose fitting helmets or hoods with powered air-purifying respirators (PAPR) equipped with HEPA filters may be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.25 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow may be substituted for a powered air- purifying respirator.

5. Half-mask or full-face air-purifying respirators with HEPA filters shall be worn only during the preparation of the work area and final clean up procedures provided airborne fiber concentrations inside the work area are less than 0.1 f/cc.

6. Use of single use dust respirators is prohibited for the above respiratory protection.

D. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.

E. The Abatement Contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every six months thereafter with the type of respirator he/she will be using.

F. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

G. No facial hair, which interferes with the face-to-mask sealing surface, shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.

H. Contact lenses shall not be worn in conjunction with respiratory protection.

I. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the Abatement Contractor at the Abatement Contractor's expense.

J. Respiratory protection maintenance and decontamination procedures shall meet the following requirement:

1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134(b); and

2. HEPA filters for negative pressure respirators shall be changed after each shower; and

3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures; and

4. Airline respirators with HEPA filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator facepieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers' recommendations; and

5. Respirators shall be stored in a dry place and in such a manner that the facepiece and exhalation valves are not distorted; and

6. Organic solvents shall not be used for washing of respirators.

K. No visitors shall be allowed to enter the contaminated area if they do not have their medical certification and training certificate. Authorized visitors shall be provided with suitable PAPR respirators and instructions on the proper use of respirators whenever entering the work area.

3.16 DISPOSAL OF WASTE

A. APPLICABLE REGULATIONS

1. All asbestos waste shall be stored, transported and disposed of as per, but not limited to, the following Regulations:

   a. NYS Code Rule 56

   b. U.S. Department of Transportation (DOT)
   Hazardous Substances
   Title 29, Part 171 and 172 of the code of Federal Regulations
   regarding waste collector registration

   c. Regulations regarding waste collector registration Title 6, part 364 of the New York State Official Compilation of Codes, Rules and Regulations – 6 NYCRR 364

   d. USEPA NESHAPS 40 CRF 61

   e. USEPA ASBESTOS WASTE MANAGEMENT GUIDANCE EPA/530-SW-85-007

B. TRANSPORTER OR HAULER - The Abatement Contractor shall bear full responsibility for proper characterization, transportation and disposal of all solid or liquid waste, generated during the project, in a legal manner. The Owner shall approve all transportation and disposal methods.

1. The Abatement Contractor's Transporter (hauler) and disposal site shall be approved by the Owner. The Abatement Contractor shall remove within 48 hours all asbestos waste from the site after completing the clean up.

2. The Transporter must possess and present to the Owner’s representative a valid New York State Department of Environmental Conservation Part 364 asbestos hauler’s permit to verify license plate and permit numbers. The Owner’s representative will verify the authenticity of the hauler’s permit with the proper authority.

3. The Abatement Contractor shall give 24 hour notification prior to removing any waste from the site. All waste shall be removed from site only during normal working hours. No waste may be taken from the site without authorization from the Owner’s representative.

4. The Abatement Contractor shall have the Transporter give the date and time of arrival at the disposal site.

5. The Transporter with the Abatement Contractor and Owner’s consultant shall inspect all material in the transport container prior to taking possession and signing the Waste Manifest. The Transporter shall not have any off site transfers or be combined with any other off-site asbestos material.

6. The Transporter must travel directly to the disposal site with no unauthorized stops.

C. WASTE STORAGE CONTAINER

1. During loading and on site storage, the asbestos waste container shall be labeled with EPA Danger signage:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

2. The NYS DEC Hauler's Permit number shall be on both sides and back of the container.

3. The Container will not be permitted to leave the site without the proper signage.

4. A copy of the completed waste manifest shall be forwarded directly to the Owner's Consultant by the disposal facility.

5. Packaging of Non-friable Asbestos. Use of an open top container shall require written request, by the Contractor, and written approval by the Owners Representative, and be performed in compliance with all applicable regulations.

   a) A chute, if used, shall be air/dust tight along its lateral perimeter and at the terminal connection to the dumpster at ground level (solid wall and top container). The upper end of the chute shall be furnished with a hinged lid, to be closed when the chute is not being used.

   b) The container shall be lined with a minimum of two (2) layers of 6 mil. Fire-retardant polyethylene draped loosely over the sides so as to facilitate being wrapped over the top of the load and sealed prior to transport from the site.

   c) Prior to transport from the work site the Dumpster will be disconnected from the chute and sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

6. Packaging Friable Asbestos.

   a) The container shall be a solid wall, hard top and lockable container.

   b) The container shall be locked upon arrival at the site to restrict access. Security shall be provided at the entrance to the container during the loading process and immediately locked upon completion.

   c) The interior walls, floor and ceiling shall be lined with two (2) layers of 6 mil. Fire-retardant polyethylene.

d) The waste shall be loaded in such a manner as to protect the integrity of the individual waste packages.

e) Prior to transport from the work site the interior of the Dumpster will sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

D. WASTE DISPOSAL MANIFEST

1. The Asbestos Waste Manifest shall be equivalent to the “Waste Shipment Record” included in 40 CFR 61. A copy of the Contractor’s manifest shall be reviewed by the Owner’s Consultant and shall be the only manifest used.

2. The Manifest shall be verified by the Owner’s Consultant indicating that all the information and amounts are accurate and the proper signatures are in place.

3. The Manifest shall have the signatures of the Abatement Contractor and the Transporter prior to any waste being removed from the site.

4. The Manifest shall be signed by the Disposal Facility owner or operator to certify receipt of asbestos containing materials covered by the manifest.

5. A copy of the completed manifest shall be provided by the Abatement Contractor to the Owner’s Consultant and remain on site for inspection.

6. Abatement Contractor shall maintain a waste disposal log which indicates load number, date and time left site, container size, type of waste, quantity of waste, name of hauler, NYS DES permit number, trailer and tractor license number, and date manifest was returned to Consultant.
7. The Disposal Facility owner or operator shall return a signed copy of the Waste Manifest directly to:

Ossining UFSD
400 Executive Boulevard
Ossining, New York 10562
ATTN: Jared Mance

8. Copies of the completed Waste Manifest are to be sent by the disposal facility to the Hauler and Abatement Contractor.

9. Submit signed dump tickets and manifests with final payment request.

10. Final payment request will not be honored without signed dump ticket or manifests accounting for all asbestos waste removed from the site.

E. VIOLATIONS OF SPECIFICATIONS

1. Violations of the safety, hygiene, environmental, procedures herein, any applicable federal, state of local requirement s or failure to cooperate with the Owner's representative shall be grounds for dismissal and/or termination of this contract.

F. VIOLATIONS OF NO SMOKING POLICY

1. The Federal Pro Children Act of 1994 prohibits School District Officials from smoking in any buildings or on the grounds that is property of the School District. The District shall be considered smoke free. The School District strongly enforces its' No Smoking Policy. It is the Contractor's responsibility to inform all workers of this policy. Any worker(s) involved with this project that are found smoking or using tobacco products will be informed that they are in violation of the Federal and State Law and School Board Policy and will be removed from site.

3.17 LOCATION OF "ABATEMENT WORK"

(Please see attached Drawings for approximate locations)

1) <u>OSSINING HIGH SCHOOL (INTERIOR ABATEMENT)</u>

- Abatement Contractor responsible for complete removal and disposal of approximately 400 SF of concealed friable presumed asbestos-containing pipe insulation/mudded joint packing (TSI), as detailed on attached ACM Location Drawings. Abatement Contractor responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). See below for breakdown:
  - 1st Floor Women's & Men's Locker Rooms Area
    – Concealed in Wet Walls (200 SF)
  - 1st Floor Women's & Men's Locker Rooms Area
    – Concealed in Concrete Slab (200 SF)

- Abatement Contractor responsible for complete removal and disposal of approximately 1,800 SF of exposed and concealed non-friable asbestos-containing cementitious ceiling/soffit/skylight tiles/panels, as detailed on attached ACM Location Drawings. Abatement Contractor responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). See below for breakdown:
  - 1st Floor Women's Locker Room Area
    – Exposed Soffit/Ceiling Tiles and Concealed Skylight Panels (900 SF)
  - 1st Floor Men's Locker Room Area
    – Exposed Soffit/Ceiling Tiles and Concealed Skylight Panels (900 SF)

- Abatement Contractor responsible for total and complete removal and disposal of approximately 6,000 SF of non-friable asbestos-containing Built-up Roofing (Top Layer)/Tar Paper Vapor Barrier (Bottom Layer) throughout the entirety of the concealed roof, as detailed on attached ACM Location Drawings. Abatement Contractor is responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). All roofing materials are to be disposed of as ACM contaminated. See below for breakdown:
  - 1st Floor Women's & Men's Locker Rooms Area
    – Concealed Above Ceiling Throughout Area (6,000 SF)

Note: Material is part of the original roof system that was covered up during a previous project and is now present within the interstitial space between the original roof and current roof system.

2) <u>OSSINING HIGH SCHOOL (EXTERIOR ABATEMENT)</u>

- Abatement Contractor responsible for total and complete removal and disposal of approximately 100 LF of non-friable asbestos-containing caulk, around four (4) gym louvers, as detailed on attached ACM Location Drawings. Abatement Contractor is responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). See below for breakdown:
  - Gym Upper Façade – Four (4) Louvers (100 LF)

END OF LOCATION OF WORK

3.18 GENERAL

A. The Abatement Contractor shall provide access to GFCI electrical power, required to perform the area air monitoring for this project, within and immediately adjacent to each work area.

B. Unwrapped or unbagged ACM shall be immediately placed in an impermeable waste bag or wrapped in plastic sheeting.

C. Coordinate all removal operations with the Owner.

Asbestos Employee Medical Examination Statement

Certificate of Worker Release
Asbestos Employee Training Statement
CERTIFICATE OF WORKERS'S ACKNOWLEDGEMENT

PROJECT NAME: **Ossining UFSD: 24BD_PH1 – HS LKR RM & CTE Addition**

CONTRACTOR'S NAME:_____

WORKING WITH ASBESTOS INVOLVES POTENTIAL EXPOSURE TO AIRBORNE ASBESTOS FIBERS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER AND RESPIRATORY DISEASES. SMOKING CIGARETTES AND INHALATION OF ASBESTOS FIBERS INCREASES THE RISK THAT YOU WILL DEVELOP LUNG CANCER ABOVE THAT OF THE NON-SMOKING PUBLIC.

The Contract for this project requires your employer to 1) supply proper respiratory protection devices and training on their use 2) provide training on safe work practices and on use of the equipment used on the project 3) provide a medical examination meeting the requirements of 29 CFR 1926.1101. Your signature on this certificate, documents that your employer has fulfilled these contractual obligations and you understand the information presented to you.

************DO NOT SIGN THIS FORM UNLESS YOU FULLY UNDERSTAND THIS INFORMATION*********

RESPIRATORY PROTECTION: I have been trained in the proper use and limitations of the type of respiratory protection devices to be used on this project. I have reviewed the written respiratory protection program manual and a copy is available for my use. Respiratory protection equipment has been proved, by the Contractor, at no cost to me.

TRAINING COURSE: I have been trained in the risks and dangers associated with handling asbestos, breathing asbestos dust, proper work procedures, personal protection and engineering controls. I have satisfactorily completed and Asbestos Safety Training Program for New York State and have been issued a New York State Department of Health Certificate of Asbestos Safety Training.

MEDICAL EXAMINATION: I have satisfactorily completed a medical examination within the last 12 months that meets the OSHA requirement for an asbestos worker and included at least 1) medical history 2) pulmonary function 3) medical examination 4) approval to wear respiratory protection devises and may have included an evaluation of a chest x-ray.

Signature:_____Date_____

Printed Name:_____SS#:_____

Witness:_____Date:_____

Ossining UFSD: 24BD_PH1 – HS LKR RM & CTE Addition

ESTIMATE OF ACM QUANTITIES

****

EACH ABATEMENT CONTRACTOR SHALL READ AND ACKNOWLEDGE THE FOLLOWING NOTICE. A SIGNED AND DATED COPY OF THIS ACKNOWLEDGMENT SHALL BE SUBMITTED WITH THE ABATEMENT CONTRACTOR'S BID FOR THIS PROJECT. FAILURE TO DO SO MAY, AT THE SOLE DISCRETION OF THE OWNER, RESULT IN THE BID BEING CONSIDERED NON-RESPONSIVE AND RESULT IN DISQUALIFICATION OF THE ABATEMENT CONTRACTOR'S BID ON THIS PROJECT.

****

***** NOTICE *****

The linear and square footages listed within this specification are approximates. Abatement Contractor is required to visit the work locations prior to bid submittal in order to take actual field measurements within each listed location. The Abatement Contractor shall base their bid on actual quantities determined, by them, at the site walkthrough. Estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project.

****

Acknowledgment: I have read and understand the above **NOTICE** regarding removal quantity estimates and understand that estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project. The Abatement Contractor's signatory represents to the Owner that he/she has the authority of the entity he/she represents to sign this agreement on its behalf.

Company Name: _____
Type or Print

BY: _____ _____ _____
Signature Title Date

Print Name: _____

END OF SECTION 020800

SECTION 024119
SELECTIVE STRUCTURE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes the following:
   1. Demolition and removal of selected portions of building or structure.
   2. Salvage of existing items to be reused or recycled.

B. Related Sections include the following:
   1. Division 01 Section "Summary" for use of premises and Owner-occupancy requirements.
   2. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
   3. Division 01 Section "Execution" for cutting and patching procedures.
   4. Division 02 Section “Asbestos Abatement” for related Asbestos demolition work
   5. Division 31 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.02 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.03 MATERIALS OWNERSHIP

A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property , for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Use of elevator and stairs.
   5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Inventory: Submit a list of items to be removed and salvaged and deliver to Owner prior to start of demolition.

E. Predemolition Photographs or Video: Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.05 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.06 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI A10.6 and NFPA 241.

1.07 PROJECT CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is included in the Project Manual. Examine report to become aware of locations where hazardous materials are present.
   1. Hazardous material remediation is specified elsewhere in the Contract Documents.
   2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

1.08 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.

B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings and photographs.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
   2. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

3.03 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
   1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
   2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.

3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

3.04 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.
10. Removed and Salvaged Items:
11. Clean salvaged items.
12. Pack or crate items after cleaning. Identify contents of containers.
13. Store items in a secure area until delivery to Owner.
14. Transport items to Owner's storage area on-site.
15. Protect items from damage during transport and storage.

B. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.

4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.
1. If tile is removed by asbestos abatement refer to specific removal requirements in part 3 of the asbestos abatement specification.

E. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weather tight. See Division 7 " for new roofing requirements.
1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.07 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 028300 – LEAD SAFE WORK PRACTICES

PART 1 - GENERAL

1.1 DESCRIPTION/SCOPE OF WORK

A. The work covered by these specifications shall consist of furnishing all labor, materials, tools, and equipment necessary to control and mitigate potential lead-based paint (LBP) hazards during demolition/renovation activities pertaining to the ***Ossining UFSD: 24BD_PH1 – HS LKR RM & CTE Addition.***

The following is a detailed listing of identified Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm.:

TABLE I: IDENTIFIED LEAD-BASED PAINT
OSSINING UFSD
2024 BOND PHASE 1 – HS LKR RM & CTE ADDITION
(CONSTRUCTION AREAS)

Location	LBP Component	Substrate	Color	LBP Condition
1st Floor, Women's & Men's Locker Room Area, Throughout	Door Frames	Metal	Green	Intact

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

The work of this Contractor shall include the following, and shall be as required by specific work-related tasks and disturbance(s) of above-referenced Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm:

1) Personnel air monitoring and analysis.

2) Waste characterization and classification.

3) Transportation/disposal off-site of LBP wastes/debris and lead-contaminated waste/debris generated from LBP disturbance(s).

B. Manual demolition, scraping and manual sanding of lead-based paint surfaces and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

C. Components with lead-based paint shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

D. Chemical stripping should be used for LBP removal on surfaces that will be subjected to welding, cutting or torch burning. No chemical strippers containing methylene chloride shall be used by the Contractor on this project. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall not be performed on surfaces where LBP is present. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall only be performed on bare metal substrate.

E. The Contractor's use of a subcontractor shall not relieve the Contractor of full responsibility for the work to be performed.

F. If available, the Contractor may submit exposure assessment data obtained within the last twelve (12) months from previous jobs conducted under similar conditions, control methods, work practices and environmental conditions to be used in this contract. Other objective data may be used to demonstrate that work activities in this contract will not result in occupational exposures to airborne lead that exceeds the PEL. The assessment shall include comparable lead concentrations in coating materials, work practices, engineering controls and rates of work.

G. Until the exposure assessment is performed, the Contractor must provide to his workers the following: Respiratory protection with a minimum protection factor of 10, personal protective clothing, lead-free change areas, hand washing/shower facilities, biological monitoring and training per 29 CFR 1926.62.

This Specification shall be used as a Guideline for the use of Contractors who complete the demolition/renovation activities pertaining to the ***Ossining UFSD: 24BD_PH1 – HS LKR RM & CTE Addition,*** as detailed within Section #1.2 of this specification. The intent of this Specification is to remain in conformance with 29 CFR 1926.62 and to maintain an airborne concentration of lead-dust below the action level. This Specification is written in order to outline the worst-case scenario in regard to lead safe work practices. However, the work procedures section is written in a manner, which outlines the requirements that should be necessary, at a minimum, to maintain an airborne concentration of lead dust below the action level.

H. The Contractor shall ensure that any HVAC equipment intakes within and around the work areas are protected by shutting down the units and/or installing HEPA filters over the intake. The Contractor shall coordinate rebalancing of the HVAC equipment prior to installing the

HEPA filters. The Contractor shall alter the size and extent of the isolation barriers as necessary due to weather conditions, functional space use and density of building occupants in the vicinity, as required.

1.2 REGULATIONS & REFERENCE STANDARDS

A. General Requirements

All work of this section shall be conducted in strict accordance with all applicable Federal, State and Local regulations.
Matters of interpretations of the standards and regulations shall be submitted to the appropriate agency for resolution before starting work. Where these requirements vary the most stringent shall apply.

B. Specific Requirements

1. American National Standards Institute (ANSI)

   a. ANSI Z9.2-79 – Fundamentals Governing the Design and Operation of Local Exhaust Systems.

   b. Z88.2-80 – Practice for Respiratory Protection.

2. Title X - U.S. Department of Housing and Urban Development “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.”

3. Code of Federal Regulations (CFR)

   a. 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response.

   b. 29 CFR Part 1910.134 – Respiratory Protection.

   c. 29 CFR Part 1910.146 – Confined Space Entry Program.

   d. 29 CFR Part 1910.1025 – Lead.

   e. 29 CFR Part 1910.1200 – Hazard Communication.

   f. 29 CFR Part 1926.55 – Gases, Vapors, Fumes, Dusts and Mists.

   g. 29 CFR Part 1926.57 – Ventilation.

   h. 29 CFR Part 1926.62 – Lead (Construction Industry Standard).

   i. 40 CFR Part 260 – Hazardous Waste Management Systems: General.

   j. 40 CFR Part 261 – Identification and Listing of Hazardous Waste.

k. 40 CFR Part 262 – Generators of Hazardous Wastes.

l. 40 CFR Part 263 – Transporters of Hazardous Waste.

m. 40 CFR Part 264 – Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

n. 40 CFR Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

o. 40 CFR Part 268 – Land Disposal Restrictions.

p. 40 CFR Part 745 – Lead; Requirements for Lead-Based Paint Activities in Child Occupied Facilities

q. 40 CFR Part 745.90 – EPA's Renovation, Repair & Painting Rule.

r. 49 CFR Parts 170-178 – Department of Transportation Regulations.

4. New York Codes of Rules and Regulations (NYCRR)

a. 6 NYCRR Part 360 – Solid Waste Regulations.

b. 6 NYCRR Part 364 – Waste Transporter Permits.

c. 6 NYCRR Part 370-373 – Hazardous Waste Regulations.

d. 8 NYCRR Part 155 – Uniform Safety Standards for School Construction & Maintenance Projects.

5. Steel Structures Painting Council (SSPC)

a. SSPC-Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations.

SSPC-Guide 7 – Guide for the Disposal of Lead-Contaminated Surface Preparation Debris.

Preparation Debris.

6. Underwriters Laboratories. Inc. (UL)

a. UL 586 – High Efficiency, Particulate Air Filter Units.

1.3 DEFINITIONS

A. Abatement
For the purposes of this Specification, the term abatement shall refer to any procedure that impacts lead-based paint on any surface. Procedures can include: paint removal; whole

removal of the surface (i.e. window replacement): demolition of painted surfaces; and clean-up of paint debris.

B. Action Level
Employee exposure without regard to use of respirators, to an airborne concentration of lead of thirty (30) micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, micrograms per cubic meter of air" refers to the action level. (Note: For longer exposure period lower action level is triggered).

C. Area Monitoring
Sampling of lead concentrations within the lead control area (work area) and inside the physical boundaries which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

D. Physical Boundary
Area physically roped or partitioned off around a work area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area."

E. Change Rooms and Shower Facilities
Rooms within the designated physical boundary around the work area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

F. Decontamination Room
Room for removal of contaminated personal protective equipment (PPE).

G. Eight-Hour Time Weighted Average (TWA)
Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.

H. High Efficiency Particulate Air (HEPA) Filter Equipment
HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.

I. Lead Control Area
A work area within which engineering controls are implemented to prevent the spread of lead dust, paint chips or debris from lead-containing paint removal operations. The lead control area is isolated by physical boundaries to prevent entry of unauthorized personnel.

J. Lead Permissible Exposure Limit (PEL)
Fifty (50) micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR Part 1926.62. If an employee is exposed for more than 8 hours in a work day, the PEL shall be determined by the following formula:

PEL (micrograms/cubic meter of air) = 400/No. hrs worked per day

K. Personal Monitoring
Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR Part 1926.62. Samples shall be representative of the employees work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders with a radius of 6 to 9 inches and the center at the nose or mouth.

L. Wipe Sampling
Clearance testing procedures, which determine the amount of existing lead-based paint surface dust by atomic absorption spectroscopy analysis, or inductively coupled plasma emission spectrometry expressed in micrograms of lead.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Contractor: Certification that the Contractor has prior experience on LBP activity projects similar in nature and extent to ensure the capability to perform the required work procedures in a satisfactory manner.

2. Competent Person: Certification that the Contractor's full-time onsite Competent Person meets the competent person requirements of 29 CFR Part 1926.62 and is experienced in administration and supervision of LBP activity projects, including work practices, protective measures for building and personnel, disposal procedures, etc. This person shall have completed a Contractor Supervisor LBP abatement course by an EPA Training Center or an equivalent certification course, and have had a minimum of 2 years on-the-job experience.

3. Testing Laboratory: The name, address, and telephone number of the independent testing laboratory selected to perform sampling and analysis for personal and area air samples and wipe samples, and TCLP analysis of LBP wastes and debris. Documentation that the laboratory performing the analysis is an EPA National Lead Laboratory Accreditation Program (NLLAP) accredited laboratory and that it is listed proficient in the NIOSH/EPA Environmental Lead Proficiency Analytical Testing Program (ELPAT), and a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory. Certification shall include accreditation for heavy metal analysis, list of experience relevant to analysis of lead in air, and a Quality Assurance and Quality Control Program. Currently, the American Association for Laboratory Accreditation (ASLA) and the American Industrial Hygiene Association (AIHA) are the EPA recognized laboratory accreditors. Documentation shall include the date of accreditation or reaccreditation.

4. Blood Lead Testing Laboratory: The name, address and telephone number of the blood lead testing laboratory; the laboratory's listing by OSHA and the U.S. Public Health Service Center for Disease Control (CDC); and documentation that the laboratory certified in the state where the work site is located.

B. Respiratory Protection Devices

Manufacturer's certification of NIOSH for respiratory protection devices utilized on the site.

C. Cartridges, Filters, and Vacuum Systems
Manufacturer's certification of NIOSH approval of respirator cartridges (organic vapor, acid gas, mist, dust, high efficiency particulate); High Efficiency Particulate Air (HEPA) filtration capabilities for all cartridges, filters, and HEPA vacuum systems.

D. Medical Examination and Records
Certification that employees who are involved in LBP abatement work have received medical examinations and will receive continued medical surveillance, including biological monitoring, as required by 29 CFR Part 1926.62, 29 CFR Part 910.1200, 29 CFR Part 1910.120 and by the state and local regulations pertaining to such work. Records shall be retained, at Contractor expense, in accordance with 29 CFR Part 1910.20.

1. Provide medical surveillance to workers until exposure monitoring reveals that workers are not exposed on any day of the job to airborne lead at or above the Action Level of 30 ug/dL of blood. This consists of a blood test measuring the level of lead and zinc protoporphyrin by a licensed physician. Further testing and medical exams may be necessary depending on the results of initial blood tests and/or the initial exposure assessment.

E. Training
Training certification shall be provided prior to the start of work involving LBP abatement, for all of the Contractors' workers, supervisors and Competent Person. Training shall meet the requirements of 29 CFR Part 1926.62, 29 CFR Part 1926.59, 29 CFR Part 1910.1200, 29 CFR Part 1910.120 and 49 CFR 172, and that required by EPA or the state LBP course for the work to be performed. Training shall be provided prior to the time of job assignment and, at least, annually. The project specific training shall. at a minimum, include the following.

1. Specific nature of the operation, which could result in exposure to lead.

2. Purpose, proper selection, fitting, use and limitations of respirators.

3. Purpose and description of the medical surveillance program and the medical removal protection program, including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant.)

4. Relevant engineering controls and good work practices.

5. The contents of any compliance plan in effect.

6. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

7. The employee's right of access to records under 29 CFR part 1910.20.

F. Respiratory Protection Program

1. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 12 months thereafter as required by 29 CFR Part1910.134 and 29 CFR Part 1926.62.

2. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR Part 1910.134 and 29 CFR Part 1926.62.

3. All workers are required to don an appropriate level of protection commensurate with the airborne concentrations of lead in which they are working. The level of protection will be determined by the Contractor, based on objective air monitoring data.

G. Licenses and Permits
Copies of licenses and permits as required by applicable Federal, state and local regulations shall be obtained before the start of the LBP project.

1.5 SUBMITTALS

A. The submittals shall be submitted in accordance with Specification Section 01300, Submittals.

B. Certifications
Prior to the start of work, submit required certifications, plans, programs, permits and licenses identified in Paragraph 1.5 of this specification section.

C. Equipment List
Prior to the start of work submit list of equipment items to be used in the work, including brand names, model, capacity, performance characteristics, quantities and other pertinent information.

D. Lead-Based Paint (LBP) Management Plan
The contractor shall prepare a detailed LBP Management Plan that identifies the work procedures, health and safety measures to be used in LBP work procedures; and that addresses spill prevention, containment and emergency response procedures. The plan shall address the methods to be undertaken to abate the lead to include the following key elements:

1. LBP containment methods to control employee exposure to lead at or below the permissible exposure limit and to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded outside of the lead control area.

2. Training requirements as required by Federal, state and local regulations.

3. Unique problems associated with the LBP project.

4. Sketch of location, size and details of LBP control areas, decontamination rooms/areas, change rooms and shower facilities.

5. Eating, drinking, smoking, and rest room procedures.

6. Sequencing of LBP related work.

7. Personnel protective equipment and respiratory protection program, including controls.

8. Engineering controls, containment structures and safety measures.

9. Worker exposure assessment procedures.

10. Work Practice controls.

11. Housekeeping.

12. Hygiene facilities and practice.

13. Medical surveillance, including medical removal procedures.

14. Sampling, testing and analytical methods to include personnel air sampling requirements of 29 CFR Part 1926.62, wipe sampling of the surface where the LBP was removed and, when required, toxicity characteristic leaching procedure (TCLP) testing of the waste material in accordance with 40 CFR 261 and 6 NYCRR Part 371, and area air sampling required by the specifications. Procedures must include frequency, locations, sampling and analytical methods to be used.

E. Compliance Program
Contractor's Compliance Program prepared in accordance with 29 CFR Part 1926.62 (e) (2).

F. Waste Transporter and Disposal Facility Permits, and Disposal Documents.

1. Name, address and telephone number of 6 NYCRR Part 364 transporter who will be transporting the LBP wastes and debris and a copy of the transporter's 6 NYCRR Part 364 permit.

2. Name, address and telephone number of disposal facility accepting the LBP wastes and debris and a copy of the permit from the disposal facility documenting the facility is permitted to accept the wastes being delivered.

3. Copy of completed waste characterization (waste profile) forms for obtaining approval to dispose of the LBP wastes and liquid wastes at the disposal facility.

4. Copy of the approved waste characterization (waste profile) forms from the disposal facility indicating they are permitted to accept the wastes and will accept the wastes being delivered.

5. Example of completed transportation and disposal documents (i.e., bill of lading or hazardous waste manifest and land disposal restriction notification forms, as applicable) prior to shipment of wastes.

6. Copy of the completed and signed transportation and disposal documents at time of shipment for the disposal of LBP wastes and debris, liquid wastes and any other wastes generated, and copy signed by the disposal facility.

7. Copy of certificate of destruction for incinerated wastes, certificate of treatment and/or certificate of disposal, as applicable and associated tracking documents from the final disposal facility for disposal of the LBP wastes and debris.

G. Health and Safety Plan And Confined Space Entry Program
Contractor's written site specific Health and Safety Plan prepared in accordance with 29 CFR Part 1910.120 and Contractor's confined space entry program prepared in accordance with 29 CFR Part 1910.146. These documents are requested for information only and as documentation that they exist.

H. Sampling and Laboratory Analysis Reports
Submit field sampling logs for all personal and area air samples, wipe samples and waste samples taken, and submit copy of laboratory analysis reports and chain of custody records for all sample analysis.

I. Competent person certification per Section 3.5.B.

1.6 POSTED WARNINGS & NOTICES

The following regulations, warnings and notices shall be posted at the work site in accordance with 29 CFR Part 1926.62.

A. Regulations
A copy of applicable Federal, state, and local regulations shall be maintained at the work site.

B. Warning Signs
Warning signs shall be provided at approaches to LBP control areas. Signs shall be located at a distance from the LBP control areas that will allow personnel to read the sign and take the necessary protective actions required before entering the LBP control area. The signs shall comply with the requirements of 29 CFR Part 1926.62.

C. Worker Information
Right-to-know notices shall be placed in clearly visible areas of the work site in compliance with Federal, State and Local regulations.

D. Air Monitoring Results
Daily air monitoring results shall be prepared in order to be easily understood by the workers and shall be placed in a clearly visible area of the work site.

E. Emergency Telephone Numbers
A list of telephone numbers shall be posted at the site. The list shall include numbers of the local hospital, emergency squad, police and fire departments, Government and Contractor representatives who can be reached 24 hours per day and professional consultants directly involved in the project.

1.7 EQUIPMENT & MATERIALS

Sufficient quantities of health and safety materials required by 29 CFR Part 1926.62, and other materials and equipment needed to complete the project, shall be available and kept on the site.

A. Respirators
Air-purifying respirators shall be approved by NIOSH for use with dust, fumes and mists having permissible exposure limits less than 0.05 milligrams per cubic meter (i.e., have high-efficiency particulate air (HEPA) filters) and for other hazardous airborne contaminants that may be encountered, as determined by the Competent Person. The Contractor shall furnish, at no cost to personnel/employee, respirators to provide protection from airborne concentrations of lead. Respirators shall comply with the requirements of 29 CFR Part 1926.62 and shall be used in accordance with 29 CFR Part 1926.62, 29 CFR Part 1926.103 and 29 CFR Part 1910.134.

B. Respirator Cartridges
A sufficient supply of respirator cartridges shall be maintained at the work site to provide new cartridges to employees and authorized visitors, throughout the duration of the project. Cartridges shall be replaced according to the manufacturer's recommendations, when breathing becomes difficult, or if the cartridge becomes wet.

C. Protective Clothing

1. The Contractor shall furnish, at no cost to personnel/employee, equipment/ clothing for protection from airborne and waterborne LBP debris. An adequate supply of these items shall be available for worker and authorized visitor use. Workers and visitors shall not take protective clothing and equipment off the work site at any time. Protective clothing includes:

   a. Coveralls (Whole Body Protective Coverings): Full-body coveralls and head covers shall be worn by workers in the work area as necessary. Sleeves shall be secured at the wrist and pants legs at the ankle with tape. Permeable clothing shall be provided in heat-stress conditions. Where non-disposable coveralls are provided, these coveralls shall be cleaned after each wearing. Cleaning of coveralls and other non-disposable clothing shall be in accordance with the provisions for cleaning in 29 CFR Part 1926.62.

   b. Boots: Work boots with nonskid soles or impermeable work boot covers shall be worn by workers. Where required by OSHA, safety boots (steel toe or steel toe and shank) shall be worn. Paint the uppers of boots red with waterproof enamel. Do not allow boots to be removed from the work area for any reason after being contaminated with LBP debris. Dispose of boots as LBP contaminated waste at the end of the work.

   c. Gloves: Inner gloves, appropriate for items and hazards encountered and disposable outer work gloves shall be provided to each worker and shall be worn while the worker is in the work area. Glove material shall be appropriate for the specific chemical exposure. Gloves shall not be removed from the work area and shall be disposed of as LBP contaminated waste at the end of the work.

d. Hard Hats: Head protection (hard hats) shall be provided as required by OSHA for workers and authorized visitors. Protective plastic-strap suspension hats shall be used. Hard hats shall be worn at all times that work is in progress. Hats shall remain in the work area until the project is completed. Hats shall be thoroughly cleaned, decontaminated and bagged before being removed from the work area at the end of the project.

e. Eye Protection: Fog-proof goggles for personnel engaged in LBP operations shall be worn when the use of a full-face piece respirator is not required.

D. Negative Air Pressure System

When a LBP control area requires the use of an airtight containment barrier, a negative air pressure system shall be used and pressure differential recordings taken. LBP shall not be removed from the LBP control area until the proper engineer controls and HEPA filtration systems are in place.

1. HEPA Filter Requirements

The negative air pressure system shall be equipped with approved HEPA filters per UL 586. Negative air pressure equipment shall be equipped with new HEPA filters, and shall be sufficient to maintain a minimum pressure differential of minus *5* Pa (0.02 inch) of water column relative to adjacent, unsealed areas. Negative air pressure system minimum requirements are listed below.

a. The unit shall be capable of delivering its rated volume of air with a clean first stage filter, an intermediate filter and a primary HEPA filter in place.

b. The HEPA filter shall be certified as being capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

c. The unit shall be capable of continuing to deliver no less than 70 percent of rated capacity when the HEPA filter is 70 percent full or measures 620 Pa (2.5 inches of water) static pressure differential on a magnehelic gauge.

d. The unit shall be equipped with a manometer-type negative pressure differential monitor with minor scale division of 0.02 inch of water and accuracy within plus or minus 1.0 percent. The manometer shall be calibrated daily as recommended by the manufacturer. Record manually manometer readings of the pressure differential between the LBP control area and adjacent unsealed areas at the beginning of each workday and every 2 working hours thereafter.

e. The unit shall be equipped with a means for the operator to easily interpret the readings in terms of the volumetric flow rate of air per minute moving through the machine at any given moment.

f. The unit shall be equipped with an electronic mechanism that automatically shuts the machine off in the event of a filter breech or absence of a filter.

g. The unit shall be equipped with an audible horn that sounds an alarm when the machine has shut itself off.

h. The unit shall be equipped with an automatic safety mechanism that prevents a worker from improperly inserting the main HEPA filter.

i. The unit shall be ducted through the containment barrier wall to the outside of the work area. The unit shall not be exhausted into any work area.

2. Number of Units Required
The air within the containment barrier shall be changed at least once every 15 minutes by a continuously operating negative air pressure system, until the LBP control area barrier is removed. Filters shall be replaced as necessary to maintain the efficiency of the system. A back-up unit shall be maintained onsite.

3. Auxiliary Generator
An auxiliary generator shall be provided with a capacity adequate to power a minimum of 50 percent of the negative air machines at any time during the work. When power fails, the generator controls shall automatically start the generator and switch the negative air machine to generator power. The generator shall not present a carbon monoxide hazard to workers.

4. Discontinuing Negative Air Pressure System
The negative air pressure system shall not be shut down during LBP work unless authorized by the Owner's Consultant. At the completion of the LBP work procedures and disposal project, units shall be run until full cleanup has been completed and wipe clearance samples have been collected, analyzed and have passed final clearance testing requirements. Dismantling of the negative air pressure systems shall conform to the written decontamination procedures. Prefilters shall be removed and properly disposed. The intake to the machines shall be sealed with polyethylene to prevent environmental contamination.

E. Expendable Supplies

1. Polyethylene Sheet and Bags - General
Polyethylene sheet and bags shall be minimum 6-mil thick. Bags shall have pre-printed labels, and 5-inch (minimum) long plastic ties, pointed and looped to secure the filled bags. Polyethylene sheets shall be in roll sizes to minimize seams.

2. Polyethylene Sheet - Flame Resistant
Where a potential for fire exists, flame-resistant polyethylene sheets shall be provided. Polyethylene film shall conform to the requirements of NFPA 701.

3. Polyethylene Sheet - Reinforced
Reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the LBP control area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

4. Tape and Adhesive Spray
Tape and adhesive shall be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive shall retain adhesion when exposed to wet conditions, including amended water. Tape shall be minimum 2 inches wide, industrial strength.

5. Containers
DOT approved impermeable containers shall be used to receive and retain LBP waste and debris, and lead contaminated material until disposal. Containers shall be labeled in accordance with EPA, DOT and OSHA standards.

6. Chemicals
Chemicals, including caustics and paint strippers, shall be properly labeled and stored in leak-tight containers.

F. Vacuum Systems
HEPA filtered vacuum systems shall be used during LBP operations which generate dust. The systems shall be suitably sized for the project, and filters shall be capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

G. Heat Blower Guns
Heat blower guns shall be flameless, electrical, paint-softener type with controls to limit temperature to 590 degrees C (1,100 degrees F). Heat blower shall be DI (non-grounded) 120 Vac, and shall be equipped with cone, fan, glass protector and spoon reflector nozzles.

H. Chemical Paint Strippers
Chemical paint strippers shall contain no methylene chloride.

I. Chemical Paint Stripper Neutralizer
Neutralizers for paint strippers shall be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

1.8 STORAGE OF MATERIALS

Materials shall be stored in a place and manner, which protects them from damage and contamination. During periods of cold weather, plastic materials shall be protected from the cold. Regularly inspect materials to identify damaged or deteriorating items. Damaged or deteriorated items shall not be used and shall be removed from the site as soon as they are discovered. Stored materials shall not present a hazard or an inconvenience to workers, visitors and/or other employees.

PART 2 – PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

3.1 WORK PROCEDURES

LBP work procedures and related work shall be performed in accordance with the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" and the accepted Contractor's LBP Management Plan. Procedures and equipment required to limit occupational and environmental exposures to lead during LBP removal shall be in accordance with 29 CFR Part 1926.62 and as specified herein. LBP waste and debris, lead contaminated debris and personal protective clothing and equipment shall be disposed of in compliance with Federal, state, and local regulations.

A. Personnel Protection Procedures
Personnel shall wear and use protective clothing and equipment as specified and required by 29 CFR Part 1926.62 and 29 CFR Part 1910.120. Eating, smoking, drinking, chewing tobacco and chewing gum, and applying makeup shall not be permitted in the LBP control area. Personnel of trades not engaged in the LBP work procedures and disposal of LBP shall not be exposed at any time to airborne concentrations of lead equal to or in excess of 30 micrograms per cubic meter of air. Electrical service shall be disconnected when wet removal is performed, and temporary electrical service protected by a ground fault circuit interrupter shall be provided.

B. Safety and Health Procedures
The Competent Person shall be present on the work site throughout the LBP project to supervise, monitor and document the project's health and safety provisions. A daily log shall be maintained showing the results of sampling tests throughout the project area. LBP work being conducted within a LBP Control area where an airtight barrier is required shall be stopped if measured airborne lead concentrations, collected during LBP work procedures, exceed the pre- LBP work procedures airborne concentration levels.

C. Safety and Health Responsibilities

The Competent Person shall:

1. Verify that training meets applicable requirements.

2. Review and approve LBP Management Plan for conformance to the applicable referenced standards.

3. Inspect LBP removal work for conformance with the accepted LBP Management Plan.

4. Ensure that worker exposure air monitoring activities are in accordance with 29 CFR Part 1926.62.
5. Ensure work is performed in strict accordance with specifications.

6. Ensure hazardous exposure to personnel and to the environment are adequately controlled.

7. The Contractor's Competent Person shall be responsible for directing personal air monitoring.

8. The Owner's Consultant shall be responsible for directing area and final air/wipe testing.

D. Medical Surveillance Procedures
Medical surveillance shall be implemented in accordance with the accepted Contractor's LBP Management Plan, and shall comply with the requirements of 29 CFR Part 1926.62, including the provisions for biological monitoring, medical removal, protection and a physician's written opinion, signed by the physician performing the employee examination. The Contractor shall provide a copy of the written opinion for Contractor's employees prior to each employee's commencement of work.

E. Engineering Controls and Containment Structures
Engineering and work practice controls are the primary means of maintaining exposures to lead below the PEL. Paint removal and surface preparation activities must keep dust levels at a minimum. Torch cutting of surfaces with LBP will require appropriate personal protective equipment and exposure controls. Power tools must be equipped with vacuum shrouds including a high efficiency particulate air filtered vacuum system attached.

1. LBP Control Area
The LBP control area is where LBP work procedures occur and as such shall be considered contaminated. The LBP control area shall be isolated to prevent LBP containing dust or debris from passing into adjacent open areas. The control area shall be decontaminated at the completion of the LBP work procedure and disposal work.

2. Boundary Requirements.
Physical boundaries shall be provided around exterior LBP control areas by roping off the area indicated in the LBP Management Plan.

3. Control Barriers
The LBP control area shall be designated and separated from other outside areas with control barriers. The polyethylene sheeting shall have all openings masked and sealed. The LBP control area shall be erected according to the Contractors LBP Management Plan. Polyethylene sheeting shall be mechanically supported, independent of duct tape or spray adhesive.

4. Masking and Sealing

a. Exterior LBP control area requirements: Where the construction of a contained LBP control area is impractical or not required based on the method of lead work procedures, a roped-off perimeter shall be installed 20 feet from and around the area where the LBP handling procedures are performed and other requirements for LBP control areas shall be maintained. Personal monitoring of airborne concentrations shall be conducted in adjacent areas during the work shift, in accordance with 29 CFR Part 1926.62. Area air monitoring inside and outside of the roped-off perimeter shall be conducted as specified. Airborne concentrations shall not exceed specified levels.

5. Personnel Decontamination Unit
Personnel decontamination units shall be provided when required for the LBP procedures. Materials fabricated or delivered to the site before the shop drawings have been returned to the Contractor will be subject to rejection by the Owner's Consultant.

Specifications and drawings of portable prefab units, such as a trailer unit, if utilized, must be submitted for review and approval before start of construction. Submittal shall include, but not be limited to, a floor plan layout showing dimensions, materials, sizes, thickness, plumbing, and electrical outlets. Access between contaminated and uncontaminated areas shall be through an airlock. Access between any two rooms or room and trailer within the decontamination unit shall be through a plastic sheeting curtained doorway. A separate equipment decontamination unit shall be provided. Each work area shall have an emergency exit. The personnel decontamination unit's clean room shall be the only means of entrance and exit, except for emergencies, from the LBP control area. Materials shall exit the LBP control area through the equipment decontamination area.

6. Clean Room
The clean room shall have only one exit to non-contaminated areas of the site. An airtight seal shall be constructed of polyethylene between the clean room and uncontaminated areas. Surfaces of the clean room shall be protected with sheet polyethylene. A temporary unit with a separate equipment decontamination locker room and a clean locker room shall be provided for personnel who are required to wear whole body protective clothing. One locker shall be provided in each locker room for each LBP worker, and each Contractor's representative. Lead-free personal clothing and shoes shall be kept in the clean locker. Hand wash station/showers shall be located between the equipment decontamination locker room and the clean locker room, and employees shall wash or shower before changing into personal clothes. An adequate supply of clean disposable towels shall be provided. LBP contaminated work clothing shall be cleaned. Clean rooms shall be physically attached to the LBP control area for areas inside the building but may be directly adjacent to the LBP control area outside of the building. Joint use of this space for other functions, such as offices, equipment storage, etc., is prohibited.

7. Hand Wash Station/Shower Room
An operational shower and hand washing station shall be provided between the work area and the clean changing room. Workers shall wash and/or shower before entering the clean changing room. Shower room shall be separated from other rooms by air-tight walls fabricated from polyethylene sheeting. Water shall be hot and cold or warm. Shower heads/ controls, soap dish, continuing supply of soap, and clean towels shall be provided. The shower shall be maintained in a sanitary condition. Waste water shall be pumped to drain and through waste water filters that meet state and/or local requirements. These filters shall be located inside the shower unit and filters shall be changed regularly. Spent filters shall be discarded as LBP contaminated waste.

8. Equipment Decontamination
The Equipment Decontamination Unit shall be used for removal of equipment and materials from the LBP control area, and shall include a wash room, holding room, and an enclosed walkway. The unit shall be constructed from wood framing material and polyethylene sheeting. Workers shall not enter or exit the LBP control area through the Equipment Decontamination Unit. A washdown station, consisting of an enclosed shower unit, shall be located in the work area outside the Wash Room. The washdown station shall be used to clean equipment, bags and containers. Bagged or containerized

LBP wastes shall be passed from the work area and cleaned in the Wash Room. The Wash Room shall be separated from the work area by a polyethylene sheet flap. Wastewater shall be filtered and filters shall be changed as required for the shower unit and the Wash Room. Filters shall be disposed of as LBP contaminated wastes. The Holding Room shall be used as a drop location for bagged LBP passed from the Wash Room. This room shall be constructed so that bagged materials cannot be passed from the Wash Room through the Holding Room to the enclosed walkway. The walkway shall provide access to the Holding Room from outside the work area. The enclosed walkway shall be separated from the exterior by a single flap of polyethylene sheeting. The Contractor's equipment used for LBP work procedures shall be decontaminated prior to its removal outside of the lead control area. The decontamination water shall be containerized, the containers labeled, the liquid sampled and analyzed in the laboratory for lead, and properly disposed of off-site according to applicable Federal, State and Local regulations. See Paragraph 3.5.C.2.

9. Maintenance of Decontamination Units
Barriers and polyethylene sheeting shall be effectively sealed and taped. Containment barriers shall be visually inspected at the beginning of each work period. Damaged barriers and defects shall be immediately repaired upon discovery. Smoke testing methods shall be used to test effectiveness of barriers when directed by the Owner's Consultant.

10. LBP Control Area Exiting Procedures
Personnel exiting a LBP control area shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

a. HEPA vacuum all protective clothing before removing.

b. Remove protective clothing in the decontamination room and place this clothing in an approved impermeable disposal bag.

c. Wash or shower.

d. Change to clean clothes prior to leaving the physical boundary designated around the lead-contaminated work site.

F. Temporary Utilities

1. Temporary equipment as necessary to provide adequate power, light, heat, and water shall be installed, as needed, to accomplish the LBP operations properly and safely. The Contractor shall maintain the security and maintenance of the utility system in the LBP control areas. In the event of a failure of any utility system, the Owner will not be responsible for any loss of time or other expense incurred by the Contractor. In addition to any site-specific temporary utility requirements, the Contractor shall provide:

a. Back-flow protection on all water connections is required. Fittings installed by the Contractor shall be removed after completion of work with no damage or alteration to existing water piping and equipment.

b. When applicable, heavy-duty abrasion-resistant hoses to provide water to each work area and decontamination area.

c. A hot water heater, if necessary, to provide warm water to the decontamination showers.

d. Electrical service to work areas. Electrical service shall comply with National Electric Code, State and Local requirements and UL standards. Warning signs shall be posted at power outlets, which are other than 110-120 volt power. Only grounded extension cords shall be used. Incandescent lamps and light fixtures shall be of adequate wattage to provide good illumination in LBP control areas.

e. Temporary heating units, when needed, that have been tested and labeled by UL, FM, or another recognized trade association related to the fuel being consumed. Forced air or fan type units shall not be utilized inside a work area. Units shall have tip-over protection.

f. Sufficient quantity of single-occupant, self-contained chemical toilets, properly vented and fully enclosed.

3.2 LEAD-BASED PAINT WORK PRACTICES (Use methods as applicable)

A. Component Removal:

Components shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows:

1. Visual Clearance - Determine that all required work has been completed.
   Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

2. The Owner's Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing".

B. Chemical Stripping: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Chemical stripping, using an agent approved by the Owner's Consultant, followed by wet scraping is the preferred method of abatement for areas where torch cutting, welding and/or other hot-work will affect building components coated with lead-based paint or lead containing coatings. The specific stripping agent(s) proposed must be approved by the Owner. No

chemical strippers containing methylene chloride shall be used by the Contractor on this project.

1. Horizontal surfaces directly below and at least 10' in a radial direction from the area where chemical stripping is to be performed shall be protected with 6-mil poly.
2. All LBP on specified surfaces shall be removed to the bare substrate. The job is not considered complete until the substrate is dry and free of paint, debris, and LBP residue.
3. LBP stripping agents shall be brushed or troweled on the designated surfaces, or otherwise applied in accordance with manufacturer's specifications. The minimum thickness of chemical stripping agent applied shall be 0.125 (1/8) inches or the manufacturer's recommendations.
4. Stripping agents shall not be applied to, nor be allowed to inadvertently penetrate, wood and/or other porous substrates.
5. The required dwell time for stripping will depend upon the ambient temperature, humidity, and thickness of LBP. If LBP is not completely removed following the initial application of stripper, a second application and wet scraping may be required.
6. Removed LBP shall not be deposited on the polyethylene containment surfaces but shall be transferred directly into 6-mil polyethylene bags from the scraper. LBP shall be removed by wet scraping to the maximum extent feasible.
7. Any residue not removable by wet scraping shall be washed down to the bare metal substrate with a high-phosphate solution. LBP-contaminated wastewater shall be kept to a minimum using wet scrub brushes or sponges. These residues and disposable cleaning media shall also be directly transferred to the 6-mil polyethylene bags containing other LBP wastes. Free standing water shall be eliminated by use of a drying agent.
8. Clearance will be performed as follows:
    a. Visual Clearance - Determine that all required work has been completed.
    Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.
    b. The Owner’s Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing”.

C. Manual Demolition/Scraping/Cleaning: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Manual demolition, scraping, manual sanding and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

Seal openings of HVAC ductwork and other penetrations (doors, windows, etc.) within the Control Area with two layers of 6-mil polyethylene sheeting. For work on vertical surfaces, place a layer of 6-mil polyethylene sheeting below the area prior to manual demolition/scraping/ cleaning. The sheeting shall extend 5 ft. on either side of the work area, to catch any paint chips that may become dislodged.

Wet methods shall be used during manual scraping, manual sanding and power tool cleaning with dust collection systems. Local HEPA ventilation shall be utilized in conjunction with manual scraping, manual sanding and power tool cleaning with dust collection systems. In the case that local HEPA ventilation is not sufficient to control dust hazards, the Contractor shall be required to install engineering controls to meet requirements of Specification Section 1.8(D) “Negative Air Pressure System”.

Removed LBP shall not be allowed to accumulate on surfaces within the Control Area, but shall be HEPA vacuumed or placed directly into 6-mil polyethylene bags. The Contractor shall maintain all surfaces as free as practicable of accumulated lead dust to prevent the dispersal of lead into the work place. LBP shall be removed by manual methods to the maximum extent feasible.

Debris shall be bagged in 6-mil polyethylene bags and secured in leak proof drums until TCLP testing is completed. Follow proper disposal requirements. The area around the surfaces subject to work shall be wet wiped and HEPA vacuumed, including the polyethylene sheeting. Upon clearance by the Owner’s Consultant, the polyethylene sheeting shall be carefully folded in on itself and placed in a 6mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows and as needed:

a. Visual Clearance – determine that all required work has been completed. Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

b. The Owner’s Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing”.

D. Alternative Lead Work Procedures

1. Any Work Procedure other than the outline procedures above, shall be submitted to the Owner’s Consultant for approval prior to the start of the project. As there are many different components in differing areas of the building(s), it is impractical to address every potential lead work procedure. The intent of alternative lead work procedures shall be to maintain compliance with 29 CFR 1926.62 and maintain airborne concentrations of lead dust below the Action Level of 30 ug/dL of air.

3.3 MONITORING & CLEARANCE SAMPLING

During the entire LBP removal and disposal operations, the Owner's Consultant shall be on-site directing the monitoring/sampling and inspecting the work to ensure that the health and safety requirements of this contract are satisfied.

A. Personnel Air Monitoring (Provided by the Contractor, as necessary)

1. Personnel air monitoring samples for airborne concentrations of lead shall be collected and analyzed in accordance with 29 CFR Part 1926.62. Results shall be reported in micrograms per cubic meter of air. The Competent Person shall use personal air monitoring results to determine the effectiveness of engineering controls, the adequacy of PPE and to determine if proper work practices are being employed. The Owner's Consultant shall be notified if any personal air monitoring result equals or exceeds 30 micrograms per cubic meter of air. The Contractor shall take steps to reduce the concentration of lead in the air.

B. Area Air Monitoring (Provided by the Owner's Consultant, as requested)
Airborne concentrations of lead shall be collected and analyzed in the laboratory. Results shall be reported in micrograms per cubic meter of air.

1. Pre-LBP work
Pre- LBP work samples shall be collected in the following locations: I) inside the lead control area, one upwind of the LBP work and two downwind of the LBP work procedure activities; and 2) outside the physical boundary (roped off) area, one upwind of the LBP work and two downwind of the LBP work activities. A total of six (6) samples. If work is performed inside the building, similar numbers of samples are to be positioned inside and outside the LBP containment area.

2. LBP Work
The Competent Person shall collect area air samples on a daily basis during the duration of the LBP work. The samples shall be collected in the same location as the pre-work samples.

3. The area air samples shall be collected at 4 to 6 feet above grade, and using high volume air samplers.

4. The air samples shall be analyzed by NIOSH Method 7082 or method approved by Engineer.

5. Results
The Contractor shall have the results of the area air monitoring within 24 hours after completion of the sampling. Results shall be reported in micrograms per cubic meter of air.

6. Excessive Levels
Outdoor LBP work shall cease and the Owner's Consultant notified if measured airborne lead concentrations, collected during LBP activities, exceed the pre-work airborne concentration levels. The Contractor may be required to clean and re-sample the affected area, at no additional cost to the Owner, if directed by the Owner's Consultant.

The Contractor shall correct the work practices and/or engineering controls and shall resume LBP work procedures at the direction of the Owner's Consultant.

C. Waste Sampling and Testing (Provided by the Contractor)

Sampling and testing of all waste, shall be in accordance with 40 CFR Part 261, 6 NYCRR Part 371 and SW-846, Chapter 9, Sampling Plan. See Paragraph 3.5.C of this specification section for waste sampling and analyses requirements.

D. Soil Sampling (Provided by the Owner, as requested)

1. If the Owner's Consultant or Owner's representative observes paint chips or LBP debris on the surface of the soil surrounding the work area during the LBP work procedures or at completion or if the Owner's Consultant or IH/ Owner's Representative suspects potential contamination to the soil based on observed procedures and conditions during the work, the contractor shall pay for composite soil samples of the surface soil where designated by the Owner's Consultant and at a frequency specified by the Owner's Consultant. Two Background surface soil samples will be collected where directed by the Owner's Consultant. The samples shall be analyzed by an independent laboratory for lead on a total basis (by EPA Method 6010) and TCLP basis (Extraction Method 1311, analysis by EPA Method 6010).

2. Standard Soils Clearance samples shall be collected by the Owner's Consultant and paid for by the Owner. The samples shall be analyzed by an independent laboratory for lead on a total basis (by EPA Method 6010) and TCLP basis (Extraction Method 1311, analysis by EPA Method 6010).

3. If the analyses exceed the TCLP limit, the soil shall be treated as LBP contaminated waste, excavated and disposed of as a hazardous waste by the Contractor.

Clearance Level:

Soil: 400 microgram per gram

E. Dust/Wipe Sampling (Provided by the Owner, as necessary)

1. Dust/wipe samples shall be taken no sooner than 24 hours after abatement activities, including clean-up activities, have been completed.

2. Sampling for clearance criteria shall be performed as detailed in the HUD Guidance document. Appendices 13 and l4.

3. Failure to clear the work area and recleaning shall be the responsibility of the Contractor. The work area shall remain in place until satisfactory clearance has been achieved.

4. Analysis of Dust/Wipe samples for areas, which failed previous Dust/Wipe sampling, shall be reimbursed by the Contractor.

Clearance Levels:

Floors:	10 micrograms per square foot
Window Sills:	100 micrograms per square foot
Window Wells:	400 micrograms per square foot

3.4 ADJACENT AREAS

Damage to adjacent areas shall be repaired to the approval of the Owner.

3.5 CLEAN-UP & DISPOSAL

A. Cleanup

1. Daily
   Surfaces in the LBP control area shall be maintained free of accumulations of paint chips, LBP debris, blasting debris and dust. Spread of dust and debris shall be restricted; waste shall not be distributed over the work area. Dry sweep or compressed air shall not be used for cleanup. At the end of each shift, the area shall be cleaned of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner and wet wiping the area. LBP work procedures work shall cease during the cleanup.

2. At Completion of LBP work Procedure and a satisfactory visual inspection by the Engineer, a clean-up shall be performed by the Contractor. This clean-up includes removal of any contaminated material, equipment or debris including polyethylene sheeting from the work area. The polyethylene sheeting shall be sprayed or misted with water for dust control, construction debris removed and then the sheeting removed by folding it in upon itself.
   a. Lead-contaminated debris shall be containerized in accordance with paragraph 3.5.C.1, LBP Wastes and Lead-Contaminated Wastes. Waste bags shall not be overloaded, shall be securely sealed and stored in the designated area until disposal.

   b. Removal of surface polyethylene sheeting shall begin from top to bottom. Removal of floor polyethylene sheeting shall begin at the corners and folded in the middle to contain the dust. Polyethylene shall be disposed of as specified in Paragraph 3.5.C.l

   c. Cleaning Equipment. The Contractor shall decontaminate the lead abatement equipment and equipment used in the work area. The wastewater from cleaning shall be contained, sampled and disposed of as specified in Paragraph 3.5.C.2.

B. Certification
   The Contractor shall certify in writing that the inside and outside the lead control area air monitoring samples are less than 30 micrograms per cubic meter of air, the respiratory

protection for the employees was adequate, the work procedures were performed in accordance with 29 CFR Part 1926.62 and that there was no visible accumulations of lead-based paint and dust on the worksite. Do not remove warning signs at the lead control area or roped-off boundary signs prior to the Owner's Consultant's receipt of the Contractor's certification. Re-clean areas showing dust, residual paint chips. LBP debris and blasting debris.
Waste Storage, Sampling/Analysis and Disposal (Provided by the Contractor)

1. LBP Wastes and Lead-Contaminated Water

   LBP waste, and lead-contaminated waste and debris shall be stored sampled and analyzed and disposed of as follows.

   a. The LBP waste and debris, lead contaminated personal protective equipment (PPE), clothing and waste polyethylene and lead-contaminated waste and debris shall be containerized in DOT approved containers (i.e.. 55 gallon drums, roll-off, etc.). If the waste is placed in roll-off(s), the roll off shall be lined with a minimum of 2 layers of'6-il polyethylene prior to placing any waste in it and covered with a liquid tight cover. Each container shall be labeled to identify the type of waste as defined in 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated wastes were first put into the container.

   b. A representative sample of the container(s) of LBP wastes and lead-contaminated wastes and debris generated by the LBP activities shall be taken in accordance with SW-. 846, Chapter 9, Sampling Plan and analyzed in the laboratory for TCLP lead by EPA Methods 1311 (extraction) and 6010 (analysis). If the wastes are placed in roll-off(s), four (4) composite samples per roll-off shall be taken for analysis. If the wastes are placed in *55* gallon drums, one composite sample for every ten (10) drums of wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

   c. A waste characterization (waste profile) form shall be completed for the LBP waste and lead-contaminated waste and debris, and lead contaminated personal protective equipment and clothing (if containerized separately) and the forms submitted to Owner's Consultant for approval The Owner shall sign the forms. The Contractor shall process the forms and forward to the disposal facility for approval. The approved waste profile forms from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

   d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner's Consultant for approval prior to shipment of the waste off-site.

   e. Pick-up of hazardous wastes shall be made as needed to ensure that containers do not remain on the work site longer than 90 calendar days from the date affixed

to each container. The Owner will assign an area for interim storage of waste-containing containers.

f. Lead contaminated personal protective equipment/ clothing, lead contaminated polyethylene, filters and debris, which cannot be sampled, shall be handled, stored, transported, and disposed of in the same manner as the LBP wastes and lead-contaminated wastes and debris, based on the sampling, laboratory analyses results and SW-846, Chapter 9, Sampling Plan calculations performed on the LBP wastes and lead-contaminated wastes and debris.

g. The LBP and lead contaminated wastes/ debris shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Par 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360, as applicable. Additionally, the disposal shall be based on the sampling, laboratory analysis results and SW-846, Chapter 9, Sampling Plan calculations. Land disposal restriction notification shall be as required by 40 CFR Part 268 and 6 NYCRR Part 376.

2. Wastewater and Decontamination Water

a. Lead contaminated wastewater and decontamination water generated from the LBP work procedures shall be stored in DOT approved 55 gallon drums. Each drum shall be labeled to identify the type of waste as defined by 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated liquid was first put into the drum.

b. A representative sample from the drum(s) of liquid wastes shall be taken in accordance with SW-846, Chapter 9, Sampling Plan and analyzed in the laboratory for total lead and total cadmium by EPA Method 200.7/6010. One composite sample for every ten (10) drums of liquid wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

c. A waste characterization (waste profile) form shall be completed for the liquid wastes and other wastes being generated and submitted to Owner’s Consultant for approval. The Owner shall sign the form(s). The Contractor shall process the form(s) and forward the forms to the disposal facility for approval. The approved waste profile form(s) from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner’s Consultant for approval prior to shipment of the waste off-site.

e. The lead contaminated wastewater and decontamination water shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Part 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360 as applicable.

3. Waste Pick-Up and Disposal

a. Waste pick-up cannot be performed until all required submittals have been reviewed and approved by the Owner's Consultant. The Owner must be present at waste pick-up to sign the waste transportation documents and approve pick-up. No waste shall leave the site without approval and authorization by Owner.

b. Coordinate scheduling of waste pick-up and transportation with Owner's Consultant. Notify Engineer at least 48 hours ahead of when the waste pick-up will take place.

c. All wastes shall be properly disposed of off-site at an approved disposal facility. The wastes shall be transported by a transporter permitted to transport wastes per 6 NYCRR Part 364. The wastes shall be disposed of at a facility permitted to accept the waste being disposed of.

d. Submit copy of completed and signed transportation and disposal documents to Owner and Engineer at time of shipment and submit copy of document signed by the disposal facility.

e. Return or cause to be returned all waste manifests and bills of lading signed by the disposal facility within fifteen *(15)* days of removal from the project site.

f. Submit certification of destruction for all incinerated wastes and certificates of final treatment and/or final disposal, as applicable, for all wastes disposed of off-site.

g. All waste transportation and disposal must be conducted in accordance with all applicable State, Local and Federal regulations, all generator State regulations, all the State regulations where the wastes are transported through, and the disposal State regulations.

C. Payment for Disposal of Wastes

Payment for disposal of wastes will not be made until the following are received by the Owner:

1. A signed copy of the manifests
2. Bills of lading
3. Weight tickets, etc.
4. Certificate of final disposal, from the final treatment or disposal facility certifying the amount of lead containing wastes and debris delivered.

PART 4 – INSPECTION

4.1 SUMMARY OF INSPECTION

Limited lead-based paint inspections were completed throughout specific Renovation Areas as detailed on CPL architectural drawings to identify suspect lead-based paints and/or lead-containing hazards potentially affected by scheduled demolition/renovation activities included within the ***Ossining UFSD: 24BD_PH1 – HS LKR RM & CTE Addition.***as detailed within Section #1.2 of this specification.

Inspection was completed by Niton-certified XRF Technician Ms. Jessica Lopez of **QuES&T**. Existing documentation and/or information attained within prior inspections and/or sampling activities were reviewed and incorporated into this specification.

Paint testing was completed on-site utilizing a Viken Pb200e XRF Spectrum Analyzer Serial # 3553 in accordance with the EPA issued Performance Characteristics Sheet (PCS). A summary of results above the EPA action level of 1.0 mg/sq. cm., has been included to aid prospective bidders.

Survey was completed in accordance with EPA, OSHA and/or HUD Guidelines for inspection of lead-based paint(s) and/or lead-containing material(s). Per these protocols, all suspect coated surfaces impacted by demolition/renovation activities were located and categorized by homogeneous painting histories and component types.

4.2 SUMMARY OF RESULTS ABOVE THE EPA ACTION LEVEL OF 1.0 mg/cm^2

The following is a detailed listing of identified Lead-based Paint(s) and/or Lead-containing Materials, above the EPA action level of 1.0 mg/sq. cm. The following listing should be utilized as a guide to specific work-related tasks and is not necessarily an Abatement Scope. Specified lead-safe work practices shall be performed in accordance with the stipulations defined within this specification as required by specific work-related tasks and in advance of disturbance(s) of the following Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm:

TABLE I: IDENTIFIED LEAD-BASED PAINT
OSSINING UFSD
2024 BOND PHASE 1 – HS LKR RM & CTE ADDITION
(CONSTRUCTION AREAS)

Location	LBP Component	Substrate	Color	LBP Condition
1st Floor, Women's & Men's Locker Room Area, Throughout	Door Frames	Metal	Green	Intact
It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel				

occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

END OF SECTION 028300

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete formwork.

B. Concrete for composite floor construction.

C. Elevated concrete slabs.

D. Floors and slabs on grade.

E. Concrete foundation walls and footings.

F. Concrete reinforcement.

G. Joint devices associated with concrete work.

H. Miscellaneous concrete elements, including equipment pads, equipment pits, light pole bases, flagpole bases, thrust blocks, and manholes.

I. Concrete curing.

J. Concrete repair materials.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 079200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. ACI 117 - Specifications for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; 1991 (Reapproved 2009).

C. ACI 301 - Specifications for Structural Concrete; 2016.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

F. ACI 305R - Guide to Hot Weather Concreting; 2010.

G. ACI 308R - Guide to External Curing of Concrete; 2016.

H. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014 (Errata 2018).

I. ACI 347R - Guide to Formwork for Concrete; 2014, with Errata (2017).

J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2024.

K. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.

L. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

M. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2020.

N. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2020.

O. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020a.

P. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

Q. ASTM C171 - Standard Specification for Sheet Materials for Curing Concrete; 2016.

R. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2016.

S. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).

T. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.

U. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2017a.

V. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 2020.

W. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019.

X. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2019.

Y. ASTM C827/C827M - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures; 2016.

Z. ASTM C881/C881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete; 2015.

AA. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

BB. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2017.

CC. ASTM C1202 - Standard Test Method for Electrical Indication of Concrete’s Ability to Resist Chloride Ion Penetration; 2019.

DD. ASTM C1240 - Standard Specification for Silica Fume Used in Cementitious Mixtures; 2020.

EE. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete; 2019.

FF. ASTM C1602/C1602M - Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete; 2012.

GG. ASTM C1708/C1708M - Standard Test Methods for Self-leveling Mortars Containing Hydraulic Cements; 2019.

HH. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2018.

II. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018.

JJ. ASTM D8139 - Standard Specification for Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction; 2017.

KK. ASTM E1643 - Standard Practice for Selection, Design, Installation and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs; 2018a.

LL. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017.

MM. COE CRD-C 572 - Corps of Engineers Specifications for Polyvinylchloride Waterstop; 1974.

NN. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

OO. NSF 61 - Drinking Water System Components - Health Effects; 2019.

PP. NSF 372 - Drinking Water System Components - Lead Content; 2024.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Mix Design: Submit proposed concrete mix design.
   1. Indicate proposed mix design complies with requirements of ACI 301, Section 4 - Concrete Mixtures.
   2. Indicate proposed mix design complies with requirements of ACI 318, Chapter 5 - Concrete Quality, Mixing and Placing.

D. Samples: Submit samples of underslab vapor barrier to be used.

E. Test Reports: Submit report for each test or series of tests specified.

F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

G. Reinforcement Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices

H. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Follow recommendations of ACI 305R when concreting during hot weather.

C. Follow recommendations of ACI 306R when concreting during cold weather.

D. For slabs required to include moisture vapor reducing admixture (MVRA), do not proceed with placement unless manufacturer's representative is present for every day of placement.

1.06 WARRANTY

A. Slabs with Moisture Vapor Reducing Admixture (MVRA): Provide warranty to cover cost of flooring failures due to moisture migration from slabs for life of the concrete.
   1. Include cost of repair or removal of failed flooring, placement of topical moisture remediation system, and replacement of flooring with comparable flooring system.
   2. Provide warranty by admixture manufacturer matching terms of flooring adhesive or primer manufacturer's material defect warranty.

B. Moisture Emission-Reducing Curing and Sealing Compound, Membrane-Forming: Provide warranty to cover cost of flooring delamination failures for 10 years.
   1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

C. Moisture Emission-Reducing Curing and Sealing Compound, Penetrating: Provide non-prorated warranty to cover cost of flooring delamination failures for 20 years.
   1. Include cost of repair or removal of failed flooring, remediation with a moisture vapor impermeable surface coating, and replacement of flooring with comparable flooring system.

PART 2 PRODUCTS

2.01 FORMWORK

A. Formwork Design and Construction: Comply with guidelines of ACI 347R to provide formwork that will produce concrete complying with tolerances of ACI 117.

B. Form Materials: Contractor's choice of standard products with sufficient strength to withstand hydrostatic head without distortion in excess of permitted tolerances.
   1. Form Facing for Exposed Finish Concrete: Steel.
   2. Earth Cuts: Do not use earth cuts as forms for vertical surfaces. Natural rock formations that maintain a stable vertical edge may be used as side forms.
   3. Form Coating: Release agent that will not adversely affect concrete or interfere with application of coatings.
   4. Form Ties: Cone snap type that will leave no metal within 1-1/2 inches (38 mm) of concrete surface.

2.02 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi) (420 MPa).

B. Steel Welded Wire Reinforcement (WWR): Plain type, ASTM A1064/A1064M.
   1. Form: Flat Sheets.
   2. WWR Style: As noted on drawings.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gauge, 0.0508 inch (1.29 mm).
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type I - Normal Portland type.
   1. Acquire cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C33/C33M.
   1. Acquire aggregates for entire project from same source.

C. Lightweight Aggregate: ASTM C330/C330M.

D. Fly Ash: ASTM C618, Class C or F.

E. Calcined Pozzolan: ASTM C618, Class N.

F. Silica Fume: ASTM C1240, proportioned in accordance with ACI 211.1.

G. Water: ASTM C1602/C1602M; clean, potable, and not detrimental to concrete.

2.04 ADMIXTURES

A. General: Concrete supplier(s) permitted to select and use chemical admixtures indicated in this Section in concrete mix designs to enhance the placement, workability, and other characteristics of the wet concrete properties. Concrete supplier(s) shall review project schedule and coordinate the use of accelerators, barriers, etc. as necessary to facilitate concrete placement in accordance with Hot Weather and/or Cold Weather concreting practice guidelines. Concrete contractor shall also review compatability of all admixtures selected for use in each individual mix design submitted.

B. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

C. Air Entrainment Admixture: ASTM C260/C260M.

D. High Range Water Reducing and Retarding Admixture: ASTM C494/C494M Type G.

E. High Range Water Reducing Admixture: ASTM C494/C494M Type F.

F. Water Reducing and Accelerating Admixture: ASTM C494/C494M Type E.

G. Water Reducing and Retarding Admixture: ASTM C494/C494M Type D.

H. Accelerating Admixture: ASTM C494/C494M Type C.

I. Moisture Vapor Reducing Admixture (MVRA): Liquid, inorganic admixture free of volatile organic compounds (VOCs). Closes capillary systems formed during concrete curing to reduce moisture vapor emission and transmission. Reduces concrete shrinkage with no adverse effect on concrete properties or applied flooring.
   1. Provide admixture in slabs to receive adhesively applied flooring or roofing.
   2. Products:
      a. Barrier One, Inc; Barrier One Moisture Vapor Reduction Admixture (MVRA-CPS) : www.barrierone.com/#sle.
      b. Hycrete, Inc: www.hycrete.com/#sle.
      c. ISE Logik Industries, Inc; MVRA 900: www.iselogik.com/#sle.
      d. Specialty Products Group; Vapor Lock 20/20: www.spggogreen.com/#sle.

J. Waterproofing Admixture: Admixture formulated to reduce permeability to liquid water, with no adverse effect on concrete properties.

1. Admixture Composition: Crystalline, functioning by growth of crystals in capillary pores.
2. Products:
   a. Aquafin, Inc: www.aquafin.net/#sle.
   b. Euclid Chemical Company; Eucon Vandex AM-10: www.euclidchemical.com/#sle.
   c. Kryton International, Inc; Krystol Internal Membrane (KIM): www.kryton.com/#sle.
   d. Penetron, Inc.; Penetron Admix.: www.penetron.com
   e. Sika USA; Sika WT-240P: www.usa.sika.com
   f. Xypex Chemical Corporation; XYPEX Admix C-500: www.xypex.com/#sle.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Barrier:
   1. Accessory Products: Vapor barrier manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.
   2. Products:
      a. Fortifiber Building Systems Group ; Moistop Ultra 10: www.fortifiber.com/#sle.
      b. ISI Building Products; Viper VaporCheck II 10-mil (Class A): www.isibp.com/#sle.
      c. Stego Industries, LLC10-mil: www.stegoindustries.com/#sle.
      d. W. R. Meadows, Inc; PERMINATOR Class A - 10 mils (0.25 mm): www.wrmeadows.com/#sle.

B. Non-Shrink Cementitious Grout: Premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Grout: Comply with ASTM C1107/C1107M.
   2. Height Change, Plastic State; when tested in accordance with ASTM C827/C827M:
      a. Maximum: Plus 4 percent.
      b. Minimum: Plus 1 percent.
   3. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 7,000 pounds per square inch (48 MPa).

C. Architectural Concrete Floor Topping and Resurfacer:
   1. Minimum Compressive Strength at 28 Days, ASTM C109/C109M: 6,000 pounds per square inch (41 MPa).
   2. Compressive Strength: Minimum 5000 pounds per square inch (34.5 MPa), tested per ASTM C472.

D. Self-Leveling Cementitious Concrete Floor Topping:
   1. Minimum Compressive Strength at 28 Days, ASTM C1708/C1708M: 7,000 pounds per square inch (48 MPa).
   2. Products:
      a. LATICRETE International, Inc; LATICRETE SUPERCAP SC650-MC: www.laticrete.com/#sle.

2.06 BONDING AND JOINTING PRODUCTS

A. Latex Bonding Agent: Non-redispersable acrylic latex, complying with ASTM C1059/C1059M, Type II.

B. Epoxy Bonding System:

C. Waterstops: PVC, complying with COE CRD-C 572.

D. Waterstops: Bentonite and butyl rubber, complying with NSF 61 and NSF 372.

E. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent concrete intrusion during placement.

F. Slab Isolation Joint Filler: 1/2 inch (13 mm) thick, height equal to slab thickness, with removable top section that will form 1/2 inch (13 mm) deep sealant pocket after removal.
   1. Material: ASTM D1751, cellulose fiber.

G. Slab Contraction Joint Device: Preformed linear strip intended for pressing into wet concrete to provide straight route for shrinkage cracking.

H. Slab Construction Joint Devices: Combination keyed joint form and screed, galvanized steel, with rectangular or round knockout holes for conduit or rebar to pass through joint form at 6 inches (150 mm) on center; ribbed steel stakes for setting.

I. Dowel Sleeves: Plastic sleeve for smooth, round, steel load-transfer dowels.

J. Plate Dowel System: Steel plate dowel and plastic dowel sleeve; with integral fasteners for attachment to formwork.

2.07 CURING MATERIALS

A. Resin Curing Compound: Solvent-based liquid, membrane-forming.
   1. Comply with ASTM C309, Types 1 and 1D, Classes A and B.
   2. VOC Content: Less than 350 g/L.
   3. Products:
      a. Euclid Chemical Company: KUREZ DR-100: www.euclidchemical.com/#sle.
      b. Euclid Chemical Company: KUREZ DR-VOX: www.euclidchemical.com/#sle.
      c. Euclid Chemical Company: Tammscure WB: www.euclidchemical.com/#sle..

B. Curing and Sealing Compound, Moisture Emission-Reducing, Membrane-Forming: Clear, liquid sealer for application to newly-placed concrete; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission.
   1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
   2. Comply with ASTM C309 and ASTM C1315 Type I Class A.
   3. VOC Content: Less than 100 g/L.

C. Curing and Sealing Compound, Moisture Emission-Reducing, Penetrating: Clear, water-based, non-film-forming curing agent; capable of providing adequate bond for flooring adhesives, initially and over the long term; with sufficient moisture vapor impermeability to prevent deterioration of flooring adhesives due to moisture emission, moisture vapor emission, and alkalinity.
   1. Use this product to cure and seal all slabs to receive adhesively applied flooring or roofing.
   2. Compressive Strength of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C39/C39M.
   3. Chloride Ion Resistance of Treated Concrete: Equal to or greater than strength after 28-day water cure when tested according to ASTM C1202.
   4. Comply with ASTM C309 and ASTM C1315 Type I Class A.
   5. Products:

a. Green Umbrella Architectural Concrete Systems, Inc. 20 Jetview Dr. Rochester, NY 14624, basis of design manufacturer. Technical and Architectural Support:(844) 200-7336, info@greenumbrellasystems.com.

D. Moisture-Retaining Sheet: ASTM C171.
1. Polyethylene film, white opaque, minimum nominal thickness of 4 mil, 0.004 inch (0.102 mm).

2.08 REPAIR MATERIALS

A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 4100 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.09 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations. Normal weight concrete (145 PCF +/- 5) shall be provided with all cement conforming to ASTM C150, Type I.
1. Where noted, lightweight slab concrete (110 PCF +/- 5) shall be provided with all cement conforming to ASTM C330, Type I.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
1. For trial mixtures method, employ independent testing agency acceptable to Architect for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Normal Weight Concrete: Footings and Buried Foundations. (Exposure Category F0)

1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
3. Cement Content: Minimum 540 pounds per cubic yard.
4. Water-Cement Ratio: Maximum 50 percent by weight.
5. Total Air Content: 6 percent (+/- one percent), determined in accordance with ASTM C173/C173M.
6. Maximum Slump: 3 1/2 inches (+/- one inch)
7. Maximum Aggregate Size: 1 inch.
8. Provide crystaline waterproofing admixture in elevator footings and foundation walls.
9. Provide crystaline waterproofing admixture in footings and foundation walls at "zone of required underpinning" (See sheet S717).

E. Normal Weight Concrete: Exposed Foundations and Retaining Walls (Exposure Category F3)
1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 5,000 pounds per square inch (34.5 MPa).
2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
3. Cement Content: Minimum 660 pounds per cubic yard.
4. Water-Cement Ratio: Maximum 40 percent by weight.
5. Total Air Content: Minimum 6 percent, determined in accordance with ASTM C173/C173M. for all exposed concrete.
6. Maximum Slump: 3 1/2 inches (+/- one inch.)
7. Maximum Aggregate Size: 1-1/2 inches. for footings, 3/4" for walls, grade beams and slabs.

F. Normal Weight Concrete: Slab-on-Grade (interior). (Exposure Category F0)
1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
3. Cement Content: Minimum 590 pounds per cubic yard.
4. Water-Cement Ratio: Maximum 50 percent by weight.
5. Maximum Slump: 3 1/2 inches (+/- one inch.)
6. Maximum Aggregate Size: 3/4 inch (19 mm).
7. Provide Moisture Vapor Reducing Admixture (MVRA) admixture in slabs to receive adhesively applied flooring.

G. Normal Weight Concrete: Exterior Slabs. (Exposure Category F3)
1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 5,000 pounds per square inch (34.5 MPa).
2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
3. Cement Content: Minimum 660 pounds per cubic yard.
4. Water-Cement Ratio: Maximum 40 percent by weight.
5. Total Air Content: Minimum 6 percent, determined in accordance with ASTM C173/C173M.
6. Maximum Slump: 3 1/2 inches (+/- one inch.)
7. Maximum Aggregate Size: 3/4 inch (19 mm).

H. Structural Light Weight Concrete: Interior slabs on deck. (Exposure Category F0)

I. Structural Light Weight Concrete (Pump Mix): Interior slabs on deck. (Exposure Category F0)
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
   2. Water-Cement Ratio: Maximum 45 percent by weight.
   3. Total Air Content: 6 percent (+/- one percent), determined in accordance with ASTM C173/C173M.
   4. Maximum Slump: 7 inches (+/- one inch) with High Range Water Reducer.
   5. Maximum Aggregate Size: 1/2 inch (13 mm).
   6. Provide Moisture Vapor Reducing Admixture (MVRA) admixture in slabs to receive adhesively applied flooring.

J. Structural Normal Weight Concrete: Toppings and Fill for Stair Pans. (Exposure Category F0)
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 4,000 pounds per square inch (27.6 MPa).
   2. Cement Content: Minimum 590 pounds per cubic yard.
   3. Water-Cement Ratio: Maximum 45 percent by weight.
   4. Total Air Content: 5 percent (+/- one percent), determined in accordance with ASTM C173/C173M.
   5. Maximum Slump: 4 inches (100 mm) (+/- one inch.)
   6. Maximum Aggregate Size: 3/8 inch.

K. Structural Normal Weight Concrete: Site Slip-form Curbs. (Exposure Category F3)
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 5,000 pounds per square inch.
   2. Cement Content: Minimum 675 pounds per cubic yard.
   3. Water-Cement Ratio: Maximum 45 percent by weight.
   4. Total Air Content: 5 percent (+/- one percent), determined in accordance with ASTM C173/C173M.
   5. Maximum Slump: 1 inch (+/- one-half inch.)
   6. Maximum Aggregate Size: 5/8 inch (16 mm).

L. Controlled Low Strength Material (CLSM)
   1. Permanent Material.
      a. Material shall meet the requirements of ACI 229R with a minimum compressive strength of 400 lb./sq. in
   2. Removable Material.
      a. Material shall meet the requirements of ACI 229R with a minimum compressive strength of 50 to 100 lb./sq. in.

2.10 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

B. Adding Water: If concrete arrives on-site with slump less than suitable for placement, do not add water that exceeds the maximum water-cement ratio or exceeds the maximum permissible slump.

C. Do not use shrinkage-reducing admixture (SRA) in same concrete batch with MVRA or PIA.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent. Coat contact surfaces of forms with form-release agent before placing reinforcement.

C. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

F. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
   1. Class A, 1/8 inch for smooth-formed finished surfaces.
   2. Class C, 1/2 inch for rough-formed finished surfaces.

G. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
   1. Install keyways, reglets, recesses, and the like, for easy removal.
   2. Do not use rust-stained steel form-facing material.

H. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

I. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

J. Chamfer exterior corners and edges of permanently exposed concrete.

K. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

L. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

M. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

N. Prepare existing concrete surfaces to be repaired according to ICRI 310.2R.

O. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.

1. Use epoxy bonding system for bonding to damp surfaces, for structural load-bearing applications, and where curing under humid conditions is required.
2. Use latex bonding agent only for non-load-bearing applications.

P. Interior Slabs on Grade: Install vapor barrier under interior slabs on grade. Comply with ASTM E1643. Lap joints minimum 6 inches (150 mm). Seal joints, seams and penetrations watertight with manufacturer's recommended products and follow manufacturer's written instructions. Repair damaged vapor barrier before covering.

3.03 INSTALLING REINFORCEMENT, ANCHOR RODS, AND OTHER EMBEDDED ITEMS

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.
   1. Do not cut or puncture vapor barrier. Repair damage and reseal vapor barrier before placing concrete.
   2. Allow six hours between completion of reinforcement installation and placement of concrete for special inspection.

B. Bend steel reinforcement in accordance with ACI 318.
   1. Do not heat steel reinforcement for bending. Bend or straighten bars cold.
   2. Do not bend partially embedded steel reinforcement, except as approved.

C. Clean reinforcement of dirt, grease, scale, loose rust, oil, paint and other foreign matter prior to installation.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

E. Splicing of Reinforcement: Conform to ACI 318 Chapter 25 for wired lap splices and embedment lengths.

F. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

G. Install welded wire reinforcement in maximum possible lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Splice laps with tie wire.

H. "Wet Sticking", "Hooking-up" or "Walking-in" of any reinforcement will not be permitted.

I. Maintain required concrete cover dimensions indicated. Coordinate placement of conduit and inserts with reinforcement. Protect installed reinforcement from damage or displacement prior to and during concrete placement.

J. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

K. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303. Misplaced or damaged anchor rods shall be subject to re-engineering fees.
2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
3. Install dovetail anchors in concrete structures as indicated.

3.04 REMOVING AND REUSING FORMS

A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.
   1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
   2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.05 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R. Verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed and corrections made.

B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
   1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
   2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
      a. Supplement mechanical consolidation by hand, spading, rodding, or tamping.
   3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Place concrete for floor slabs in accordance with ACI 302.1R. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
   1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   2. Maintain reinforcement in position on chairs during concrete placement.
   3. Screed slab surfaces with a straightedge and strike off to correct elevations.
   4. Slope surfaces uniformly to drains where required.
   5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

E. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

F. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

G. Place concrete continuously without construction (cold) joints wherever possible; where construction joints are necessary, before next placement prepare joint surface by removing laitance and exposing the sand and sound surface mortar, by sandblasting or high-pressure water jetting.

H. Finish floors level and flat, unless otherwise indicated, within the tolerances specified below.

3.06 JOINTING

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
   1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
   2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
   3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
   4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
   5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
   6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
   7. Provide waterstops as indicated, and at all construction joints below grade adjacent to usable spaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness or a minimum of 1-inch as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch-wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
3. Spacing of joints shall not exceed 30 times (24 times for exposed concrete floor surface) the thickness of the slab or 15 feet on center. All panels should be square or nearly so. Joints shall typically isolate columns and run between columns, with intermediate joints located at equal spaces between column lines.
4. Joints produced using conventional processes shall be made within 4 or 12 hours after the slab in that area has been finished- within 4 hours in hot weather and within 12 hours in cold weather.
5. Joints produced using early-entry dry-cut saws shall be made within 1 or 4 hours after the slab in that area has been finished- within 1 hour in hot weather and within 4 hours in cold weather.
6. Hand tooled joints shall be done immediately following edging, or at the same time.
7. For floors to be covered with quarry tile, ceramic tile, or terrazzo, the joints shall be aligned with joints in the rigid floor coverings.

D. Contraction Joints in Walls: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Provide adequate shear reinforcement as indicated or directed. Construct contraction joints as follows:
   1. Joints shall be constructed to provide for the installation of watertight joint and sealant, and filled with sealant.
   2. Provide waterstops as indicated, and at all joints below grade adjacent to usable spaces.
   3. Spacing of joints shall be located 4 feet from corners and intersections, and then at 25 feet on center thereafter.

E. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
   1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
   2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 07 Section "Joint Sealants," are indicated.
   3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

F. Anchor joint fillers and devices to prevent movement during concrete placement.

G. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

H. Saw Cut Contraction Joints: Saw cut joints before concrete begins to cool, within 4 to 12 hours after placing; use 3/16 inch (5 mm) thick blade and cut at least 1 inch (25 mm) deep but not less than one quarter (1/4) the depth of the slab.

3.07 FLOOR FLATNESS AND LEVELNESS TOLERANCES

A. Maximum Variation of Surface Flatness:
   1. Exposed Concrete Floors: 1/8 inch (3 mm) in 10 feet (3 m).
   2. Under Seamless Resilient Flooring: 1/16 inch in 10 feet (3 m).
   3. Under Carpeting: 1/8 inch (3 mm) in 10 feet (3 m).

B. Correct the slab surface if tolerances are less than specified.

C. Correct defects by grinding or by removal and replacement of the defective work. Areas requiring corrective work will be identified. Re-measure corrected areas by the same process.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 (ASTM E 1155M) withihn 24 hours of finishing.

3.08 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch (6 mm) or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

C. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Surfaces to Receive Thin Floor Coverings: "Steel trowel" as described in ACI 302.1R; thin floor coverings include carpeting, resilient flooring, seamless flooring, resinous matrix terrazzo, thin set quarry tile, and thin set ceramic tile.
   2. Other Surfaces to Be Left Exposed: Trowel as described in ACI 302.1R, minimizing burnish marks and other appearance defects.

D. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.09 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Slabs and Floors To Receive Adhesive-Applied Flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
   2. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water-fog spray or saturated burlap.
      a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
      b. Spraying: Spray water over floor slab areas and maintain wet.

c. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.

3. Final Curing: Begin after initial curing but before surface is dry.
   a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.10 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - BSD Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of concrete operations.

D. Compressive Strength Tests: ASTM C39/C39M, for each test, mold and cure three concrete test cylinders. Obtain test samples for every 100 cubic yards (76 cu m) or less of each class of concrete placed.

E. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C143/C143M.

F. Slab Testing: Cooperate with manufacturer of specified moisture vapor reducing admixture (MVRA) to allow access for sampling and testing concrete for compliance with warranty requirements.

3.11 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.

B. Defective Concrete: Concrete not complying with required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

3.12 PROTECTION

A. Do not permit traffic over unprotected concrete floor surface until fully cured.

SECTION 033511
CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Liquid densifiers and hardeners.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Finishing of concrete surface to tolerance; floating, troweling, and similar operations; curing.

C. Section 033000 - CAST-IN-PLACE CONCRETE: Curing compounds that also function as sealers.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate the work with concrete floor placement and concrete floor curing.

1.04 SUBMITTALS

A. See Section 013300 -Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's published data on each finishing product, including information on compatibility of different products and limitations.

C. Manufacturer's Instructions: Indicate manufacturer's installation instructions for preparation of substrate, application of finishing products, and requirements for polishing and protection of finished surface.

D. Manufacturer's qualification statement.

E. Installer's qualification statement.

F. Maintenance Data: Provide data on maintenance and renewal of applied finishes.

G. Specimen warranty.

H. Executed warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least 5 years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least 5 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's sealed packaging, including application instructions.

1.07 FIELD CONDITIONS

A. Maintain light level equivalent to a minimum 200 W light source at 8 feet above the floor surface over each 20 foot square area of floor being finished.

B. Do not finish floors until interior heating system is operational.

C. Maintain ambient temperature of 50 degrees F minimum.

1.08 WARRANTY

A. See Section 017700 Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide one-year manufacturer warranty for manufacturing defects and deterioration under normal usage commencing on the Date of Purchase.

C. Manufacturer Dustproof Warranty: When product is installed by a manufacturer approved Installer, Provide ten-year manufacturer limited warranty for manufacturing defects and deterioration under normal usage commencing on the Date of Purchase.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 DENSIFIERS AND HARDENERS

A. Liquid Densifier and Hardener: Penetrating chemical compound that reacts with concrete, filling the pores, hardening, and dustproofing.
   1. Composition: Sodium silicate.
      a. Products:
         1) **(Basis of Design)** L&M Construction Chemicals, Inc; SEAL HARD: www.laticrete.com/#sle.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that floor surfaces are acceptable to receive the work of this section.

B. Verify that flaws in concrete have been patched and joints filled with methods and materials suitable for further finishes.

3.02 GENERAL

A. Apply materials in accordance with manufacturer's instructions.

3.03 COATING APPLICATION

A. Verify that surface is free of previous coatings, sealers, curing compounds, water repellents, laitance, efflorescence, fats, oils, grease, wax, soluble salts, residues from cleaning agents, and other impediments to adhesion.

B. Verify that water vapor emission from concrete and relative humidity in concrete are within limits established by coating manufacturer.

C. Protect adjacent non-coated areas from drips, overflow, and overspray; immediately remove excess material.

D. Apply coatings in accordance with manufacturer's instructions, matching approved mock-ups for color, special effects, sealing and workmanship.

3.04 PROTECTION

A. Protect installed coatings from subsequent construction operations.

B. Do not permit traffic over unprotected floor surface.

END OF SECTION

SECTION 042000
UNIT MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete block.
B. Concrete building brick.
C. Precast Concrete Sills and Headers.
D. Clay facing brick.
E. Mortar and grout.
F. Reinforcement and anchorage.
G. Flashings.
H. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 033000 - CAST-IN-PLACE CONCRETE: Installation of dovetail slots for masonry anchors.
B. Section 055000 - METAL FABRICATIONS: Loose steel lintels.
C. Section 061000 - Rough Carpentry: Nailing strips built into masonry.
D. Section 072100 - Thermal Insulation: Insulation for cavity spaces.
E. Section 072500 - Weather Barriers: Water-resistive barriers or air barriers applied to the exterior face of the backing sheathing or masonry.
F. Section 076200 - Sheet Metal Flashing and Trim: Through-wall masonry flashings.
G. Section 078400 - Firestopping: Firestopping at penetrations of fire-rated masonry and at top of fire-rated walls.
H. Section 079200 - Joint Sealants: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).
B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
C. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2020.
D. ASTM A641/A641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire; 2019 (Reapproved 2025).
E. ASTM A951/A951M - Standard Specification for Steel Wire for Masonry Joint Reinforcement; 2022.
F. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.
G. ASTM B370 - Standard Specification for Copper Sheet and Strip for Building Construction; 2022.

H. ASTM C55 - Standard Specification for Dry-Cast Concrete Building Brick; 2025.

I. ASTM C90 - Standard Specification for Dry-Cast Loadbearing Concrete Masonry Units; 2024a.

J. ASTM C91/C91M - Standard Specification for Masonry Cement; 2025.

K. ASTM C129 - Standard Specification for Dry-Cast Nonloadbearing Concrete Masonry Units; 2025.

L. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2025.

M. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

N. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2024.

O. ASTM C216 - Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale); 2024.

P. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2025a.

Q. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.

R. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

S. ASTM E154/E154M - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover; 2008a, with Editorial Revision (2013).

T. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing; 2017.

U. BIA Technical Notes No. 13 - Ceramic Glazed Brick Exterior Walls; 2017.

V. BIA Technical Notes No. 28B - Brick Veneer/Cold-Formed Steel Framed Walls; 2025.

W. ICC-ES AC219 - Acceptance Criteria for Exterior Insulation and Finish Systems; 2009, with Editorial Revision (2022).

X. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

Y. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data for masonry units, fabricated wire reinforcement, mortar, and masonry accessories.

C. Shop Drawings: Indicate pertinent dimensions, materials, anchorage, size and type of fasteners, and accessories for brickwork support system.

D. Manufacturer's Certificate: Certify that masonry units meet or exceed specified requirements.

E. Test Reports: Concrete masonry manufacturer's test reports for units with integral water repellent admixture.

F. Manufacturer's Qualification Statement.

G. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Comply with provisions of TMS 402/602, except where exceeded by requirements of Contract Documents.

B. Fire Rated Assemblies: Comply with applicable code for all requirements for fire rated masonry construction.

C. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section with minimum three years of documented experience.

D. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 MOCK-UP

A. Construct a masonry wall as a mock-up panel sized 8 feet long by 6 feet high; include mortar, accessories, structural backup, and flashings (with lap joint, corner, and end dam) in mock-up.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

A. Concrete Block: Comply with referenced standards and as follows:
   1. Size: Standard units with nominal face dimensions of 16 by 8 inches (400 by 200 mm) and nominal depths as indicated on drawings for specific locations.
   2. Load-Bearing Units: ASTM C90, normal weight.
      a. Hollow block, as indicated.
   3. Non-Loadbearing Units: ASTM C129.
      a. Hollow block, as indicated.
      b. Lightweight.

B. Precast Concrete Sills and Headers
   1. Precast Concrete Units: Factory-fabricated, high-density cementitious units made from cement, crushed stone, sand, and polymer reinforced with fiberglass strands.
      a. Freeze-Thaw Resistance: Demonstrated by laboratory testing in accordance with ICC-ES AC219.
      b. Surface Texture: Fine grained texture, with no bugholes, air voids, or other surface blemishes visible from distance of 20 feet.
      c. Color: Selected by Architect from manufacturer's full range.
      d. Remove cement film from exposed surfaces before packaging for shipment.
   2. Shapes: Provide shapes indicated on drawings.
      a. Variation from Any Dimension, Including Bow, Camber, and Twist: Maximum of plus/minus 1/8 inch or length divided by 360, whichever is greater, but not more than 1/4 inch.
      b. Unless otherwise indicated on drawings, provide:
         1) Wash or slope of 1:12 on exterior horizontal surfaces.
         2) Drips on projecting components, wherever possible.
   3. Reinforcement: Provide reinforcement as required to withstand handling and structural stresses; comply with ACI-318.
      a. Pieces More than 24 inches in Any Dimension: Provide full length two-way reinforcement of cross-sectional area not less than 0.25 percent of unit cross-sectional area.

C. Concrete Brick:

1. Size: As indicated on drawings.
2. Concrete Building Brick: ASTM C55; lightweight, solid, for interior or concealed use.

2.02 BRICK UNITS

A. Manufacturers:
   1. Belden Brick: www.beldenbrick.com/#sle.
   2. Endicott Clay Products Co: www.endicott.com/#sle.
   3. Watsontown Brick; https://watsontownbrick.com/.
      a. Watsontown Delaware (a.k.a Mohican) Molded Flashed Modular Brick

B. Facing Brick: ASTM C216, Type FBS Rough, Grade SW.
   1. Color and texture: to match existing adjacent brick as selected by Architect from manufacturer's standards.
   2. Nominal size: As indicated on drawings.
   3. Special shapes: Molded units as required by conditions indicated, unless standard units can be sawn to produce equivalent effect.

2.03 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91/C91M, Type S.

B. Portland Cement: ASTM C150/C150M, Type I.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Aggregate: ASTM C144.

E. Grout Aggregate: ASTM C404.

F. Water: Clean and potable.

2.04 REINFORCEMENT AND ANCHORAGE

A. Manufacturers:
   1. Blok-Lok Limited: www.blok-lok.com/#sle.
   2. Hohmann & Barnard, Inc: www.h-b.com/#sle.
   3. WIRE-BONDwww.wirebond.com/#sle.
   4. Heckmann Building Products www.heckmannbuildingprods.com.
   5. Substitutions: See Section 016000 - Product Requirements.

B. Reinforcing Steel: ASTM A615/A615M, Grade 60 60,000 psi, deformed billet bars; galvanized.

C. Joint Reinforcement: Use ladder type joint reinforcement where vertical reinforcement is involved and truss type elsewhere, unless otherwise indicated.

D. Single Wythe Joint Reinforcement: ASTM A951/A951M.
   1. Type: Truss or ladder.
   2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
   3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

E. Multiple Wythe Joint Reinforcement: ASTM A951/A951M.
   1. Type: Truss.
   2. Material: ASTM A1064/A1064M steel wire, mill galvanized to ASTM A641/A641M Class 3.
   3. Size: 0.1483 inch side rods with 0.1483 inch cross rods; width as required to provide not less than 5/8 inch of mortar coverage on each exposure.

F. Strap Anchors: Bent steel shapes, 1-1/2 inch width, 0.105 inch thick, 24 inch length, with 1-1/2 inch long, 90 degree bend at each end to form a U or Z shape or with cross pins, hot dip galvanized to ASTM A153/A153M Class B.

G. Flexible Anchors: 2-piece anchors that permit differential movement between masonry and building frame, sized to provide not less than 5/8 inch of mortar coverage from masonry face.

H. Two-Piece Wall Ties: Formed steel wire, 0.1875 inch thick, adjustable, eye and pintle type, hot dip galvanized to ASTM A153/A153M, Class B, sized to provide not less than 5/8 inch of mortar coverage from masonry face and to allow vertical adjustment of up to 1-1/4 inch.

I. Masonry Veneer Anchors: 2-piece anchors that permit differential movement between masonry veneer and structural backup, hot dip galvanized to ASTM A153/A153M, Class B.
   1. Anchor plates: Not less than 0.075 inch thick, designed for fastening to structural backup through sheathing by two fasteners; provide design with legs that penetrate sheathing and insulation to provide positive anchorage.
   2. Wire ties: Manufacturer's standard shape, 0.1875 inch thick.
   3. Vertical adjustment: Not less than 3-1/2 inches.

J. Break-away Melt-away Firewall Anchors: Anchors designed to be used in a firewall that will provide structural capability by detaching during a fire.
   1. FERO Break Away Fire Release Connectors
      a. Manufacturered by FERO Corp. in Edmonton Alberta, Canada.
      b. Slotted Steel support angle with fusible nylon washer against a grooved edge.
      c. Size:
         1) Steel support with dimensions, configuration and spacing as indicated on drawings.

2.05 FLASHINGS

A. Metal Flashing Materials: Copper, as specified in Section 076200.

B. Metal Flashing Materials:
   1. Copper Flashing: ASTM B370, 060 soft annealed; 20 oz/sq ft 0.03 inch thick; natural finish.

C. Combination Non-Asphaltic Flashing Materials - Copper:
   1. Copper/Polymer Film or Fabric Flashing: 3 oz/sq ft (0.915 kg/sq m) copper sheet laminated between two sheets of polyethylene film. Minimum Puncture Resistance of 780 psi, when measured in accordance with ASTM E154/E154M.
      a. Manufacturers:
      b. Hohmann & Barnard, Inc; Copper-Fabric NA: www.h-b.com/#sle.
      c. STS Coatings, Inc; www.stscoatings.com/#sle.
      d. WIRE-BOND; www.wirebond.com/#sle.
      e. York Manufacturing, Inc; Multi-Flash 500 Series: www.yorkmfg.com/#sle.
      f. Substitutions: See Section 016000 - Product Requirements.

D. Drip Edge: Stainless steel; angled drip with hemmed edge; compatible with membrane and adhesives.
   1. Manufacturers:
      a. Mortar Net Solutions; Metal Drip Edges: www.mortarnet.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

E. Lap Sealants and Tapes: As recommended by flashing manufacturer; compatible with membrane and adhesives.

2.06 ACCESSORIES

A. Preformed Control Joints: Rubber material. Provide with corner and tee accessories, fused joints.
   1. Manufacturers:
      a. Blok-Lok Limited: www.blok-lok.com/#sle.
      b. Hohmann & Barnard, Inc: www.h-b.com/#sle.

B. Joint Filler: Closed cell polyvinyl chloride; oversized 50 percent to joint width; self expanding; in maximum lengths available.
   1. Manufacturers:
      a. Hohmann & Barnard, Inc: www.h-b.com/#sle.
      b. WIRE-BOND: www.wirebond.com/#sle.

C. Cavity Mortar Control: Semi-rigid polyethylene or polyester mesh panels, sized to thickness of wall cavity, and designed to prevent mortar droppings from clogging weeps and cavity vents and allow proper cavity drainage.
   1. Mortar Diverter: Semi-rigid mesh designed for installation at flashing locations.
      a. Manufacturers:
         1) Advanced Building Products, Inc; Mortar Break DT: www.advancedbuildingproducts.com/#sle.
         2) Mortar Net Solutions; MortarNet: www.mortarnet.com/#sle.

D. Nailing Strips: Softwood lumber, preservative treated; as specified in Section 061000.

E. Weeps:
   1. Type: Polyester mesh.
   2. Color(s): As selected by Architect from manufacturer's full range.
   3. Manufacturers:
      a. Advanced Building Products, Inc: www.advancedbuildingproducts.com/#sle.
      b. Blok-Lok Limited: www.blok-lok.com/#sle.
      c. CavClear/Archovations, Inc: www.cavclear.com/#sle.
      d. Mortar Net Solutions; WeepVent: www.mortarnet.com/#sle.

F. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

2.07 MORTAR AND GROUT MIXING

A. Mortar for Unit Masonry: ASTM C270, using the Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

C. New Mortar for Old Brick: Proportion by volume only; no more than 20 percent of the total volume of Portland cement and lime combined to be Portland cement.
   1. Repointing Mortar: Use proportions from 1 part lime to 2 parts sand with no Portland cement, up to 2 parts Portland cement to 3 parts lime to 6 parts sand.

D. Grout: ASTM C476; consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

E. Admixtures: Add to mixture at manufacturer's recommended rate and in accordance with manufacturer's instructions; mix uniformly.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive masonry.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify that built-in items are in proper location, and ready for roughing into masonry work.

3.02 PREPARATION

A. Direct and coordinate placement of metal anchors supplied for installation under other sections.

B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

3.03 COLD AND HOT WEATHER REQUIREMENTS

A. Maintain materials and surrounding air temperature to minimum 40 degrees Fahrenheit prior to, during, and 48 hours after completion of masonry work.

B. Maintain materials and surrounding air temperature to maximum 90 degrees Fahrenheit prior to, during, and 48 hours after completion of masonry work.

3.04 COURSING

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Concrete Masonry Units:
   1. Bond: Running.
   2. Coursing: One unit and one mortar joint to equal 8 inches.
   3. Mortar Joints: Concave.

D. Brick Units:
   1. Bond: Running.
   2. Coursing: Three units and three mortar joints to equal 8 inches.
   3. Mortar Joints: Concave.

3.05 PLACING AND BONDING

A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.

B. Lay hollow masonry units with face shell bedding on head and bed joints.

C. Buttering corners of joints or excessive furrowing of mortar joints is not permitted.

D. Remove excess mortar and mortar smears as work progresses.

E. Remove excess mortar with water repellent admixture promptly. Do not use acids, sandblasting or high pressure cleaning methods.

F. Interlock intersections and external corners, except for units laid in stack bond.

G. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.

H. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

I. Cut mortar joints flush where wall tile is scheduled or resilient base is scheduled.

J. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.

K. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.

3.06 WEEPS/CAVITY VENTS

A. Install weeps in veneer and cavity walls at 24 inches on center horizontally on top of through-wall flashing above shelf angles and lintels and at bottom of walls.

3.07 CAVITY MORTAR CONTROL

A. Do not permit mortar to drop or accumulate into cavity air space or to plug weep/cavity vents.

B. For cavity walls, build inner wythe ahead of outer wythe to accommodate accessories.

C. Install cavity mortar diverter at base of cavity and at other flashing locations as recommended by manufacturer to prevent mortar droppings from blocking weep/cavity vents.

3.08 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

A. Unless otherwise indicated on drawings or specified under specific wall type, install horizontal joint reinforcement 16 inches on center.

B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches each side of opening.

C. Place continuous joint reinforcement in first and second joint below top of walls.

D. Embed longitudinal wires of joint reinforcement in mortar joint with at least 5/8 inch mortar cover on each side.

E. Lap joint reinforcement ends minimum 6 inches.

F. Fasten anchors to structural framing and embed in masonry joints as masonry is laid. Unless otherwise indicated on drawings or closer spacing is indicated under specific wall type, space anchors at maximum of 36 inches horizontally and 16 inches vertically.

G. Embed ties and anchors in mortar joint and extend into masonry unit a minimum of 1-1/2 inches with at least 5/8 inch mortar cover to the outside face of the anchor.

3.09 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

A. Masonry Back-Up: Embed anchors to bond veneer at maximum 16 inches on center vertically and 36 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

B. Stud Back-Up: Secure veneer anchors to stud framed back-up and embed into masonry veneer at maximum 16 inches on center vertically and 24 inches on center horizontally. Place additional anchors at perimeter of openings and ends of panels, so maximum spacing of anchors is 8 inches on center.

C. Seismic Reinforcement: Connect veneer anchors with continuous horizontal wire reinforcement before embedding anchors in mortar.

3.10 MASONRY FLASHINGS

A. Whether or not specifically indicated, install masonry flashing to divert water to exterior at all locations where downward flow of water will be interrupted.

1. Extend flashings full width at such interruptions and at least 6 inches, minimum, into adjacent masonry or turn up flashing ends at least 1 inch, minimum, to form watertight pan at non-masonry construction.
2. Remove or cover protrusions or sharp edges that could puncture flashings.
3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Terminate flashing up 8 inches minimum on vertical surface of backing:
1. Install vertical leg of flashing behind water-resistive barrier sheet over backing.
2. Terminate vertical leg of flashing into bed joint in masonry or reglet in concrete.
3. Anchor vertical leg of flashing into backing with a termination bar and sealant.

C. Extend metal flashings through exterior face of masonry and terminate in an angled drip with hemmed edge. Install joint sealer below drip edge to prevent moisture migration under flashing.

3.11 CONTROL AND EXPANSION JOINTS

A. Do not continue horizontal joint reinforcement through control or expansion joints.

B. Install preformed control joint device in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

C. Size control joints as indicated on drawings; if not indicated, 3/4 inch wide and deep.

D. Form expansion joint as detailed on drawings.

3.12 BUILT-IN WORK

A. As work progresses, install built-in metal door frames and glazed frames and other items to be built into the work and furnished under other sections.

B. Install built-in items plumb, level, and true to line.

C. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout.

D. Do not build into masonry construction organic materials that are subject to deterioration.

3.13 TOLERANCES

A. Maximum Variation from Alignment of Columns: 1/4 inch.

B. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

C. Maximum Variation from Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.

D. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

E. Maximum Variation from Level Coursing: 1/8 inch in 3 feet and 1/4 inch in 10 feet; 1/2 inch in 30 feet.

F. Maximum Variation of Mortar Joint Thickness: Head joint, minus 1/4 inch, plus 3/8 inch.

G. Maximum Variation from Cross Sectional Thickness of Walls: 1/4 inch.

3.14 CUTTING AND FITTING

A. Cut and fit for chases, pipes, conduit, sleeves, and grounds. Coordinate with other sections of work to provide correct size, shape, and location.

3.15 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - BSD Quality Requirements.

3.16 CLEANING

A. Remove excess mortar and mortar droppings.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

3.17 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 042616
ADHERED MASONRY VENEER

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thin brick.

B. Mortar and Grout.

C. Adhesives.

D. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 040511 - Masonry Mortaring and Grouting.

B. Section 061000 - ROUGH CARPENTRY: Wood stud backup for masonry veneer.

C. Section 072726 - Fluid Applied Vapor Permeable Membrane Air Barriers

D. Section 076200 - SHEET METAL FLASHING AND TRIM: Through-wall masonry flashings.

E. Section 079200 - JOINT SEALANTS: Sealing control and expansion joints.

1.03 REFERENCE STANDARDS

A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2024.

B. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.

C. ANSI A136.1 - American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile; 2020.

D. ASTM C91/C91M - Standard Specification for Masonry Cement; 2025.

E. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2025.

F. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

G. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2024.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2025a.

I. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2024.

J. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

K. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring; 2023.

L. ASTM C847 - Standard Specification for Metal Lath; 2018 (Reapproved 2024).

M. ASTM C933 - Standard Specification for Welded Wire Lath; 2023.

N. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2016.

O. ASTM C1063 - Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster; 2025a.

P. ASTM C1088 - Standard Specification for Thin Veneer Brick Units Made from Clay or Shale; 2024.

Q. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

R. BIA Technical Notes No. 28B - Brick Veneer/Cold-Formed Steel Framed Walls; 2025.

S. BIA Technical Notes No. 7 - Water Penetration Resistance – Design and Detailing; 2017.

T. BIA Technical Notes No. 46 - Maintenance of Brick Masonry; 2017.

U. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2019.

V. TMS 402/602 - Building Code Requirements and Specification for Masonry Structures; 2016.

W. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procudures, for submittal procedures.

B. Product Data: Provide data for masonry units, mortar, grout, and adhesive.

C. Samples: Submit four samples of masonry units to illustrate color, texture, and extremes of color range.

D. Manufacturer's Certificate: Certify masonry units, adhesives, mortar, and grout meet or exceed specified requirements.

1.06 QUALITY ASSURANCE

A. Maintain one copy of the ANSI A108/A118/A136 and TCNA (HB) on site.

B. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.

C. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

1.07 MOCK-UPS

A. Construct a mock-up panel sized 8 feet long by 6 feet high; include mortar, grout, adhesives, accessories, substrate, and representative wall openings in mock-up.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

B. Deliver, handle, and store masonry units by means that will prevent mechanical damage and contamination by other materials.

1.09 FIELD CONDITIONS

A. Do not install adhesives in an unventilated environment.

B. Cold and Hot Weather Requirements: Comply with requirements of TMS 402/602 or applicable building code, whichever is more stringent.

C. Maintain materials and surrounding air temperature to minimum 40 degrees F prior to, during, and 48 hours after completion of masonry work.

D. Maintain materials and surrounding air temperature to maximum 90 degrees F prior to, during, and 48 hours after completion of masonry work.

PART 2 PRODUCTS

2.01 THIN BRICK

A. Thin Brick: ASTM C1088.
   1. Type: TBX.
   2. Size: Manufacturer's standard Modular.
   3. Thickness: 5/8 inch.
   4. Tolerances: 1/16 inch.
   5. Color, Texture, Range, Special Shapes: As selected by Architect from manufacturer's standard range of colors, textures and blends.
   6. Protective Coating: Wax.

2.02 ADHESIVE MATERIALS

A. Manufacturers:
   1. Bostik Inc: www.bostik-us.com/#sle.
   2. LATICRETE International, Inc; LATICRETE MVIS Hi-Bond Veneer Mortar: www.laticrete.com/#sle.
   3. Mapei Corporation: www.mapei.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

B. Thin-Set Mortar: ANSI A118.4, polymer-modified; freeze-thaw stable.

C. Organic Adhesive: ANSI A136.1, thinset bond type; use Type I in areas subject to prolonged moisture exposure.

2.03 MORTAR AND GROUT MATERIALS

A. Masonry Cement: ASTM C91/C91M Type N.
   1. Colored mortar: Premixed cement as required to match Architect's color sample.
   2. Manufacturers:
      a. Custom Building Products: www.custombuildingproducts.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

B. Portland Cement: ASTM C150/C150M, Type I; color as required to produce approved color sample.

C. Hydrated Lime: ASTM C207, Type S.

D. Mortar Aggregate: ASTM C144.

E. Grout Aggregate: ASTM C404.

F. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M.
   1. Color(s): as selected by the Architect.

G. Water: Clean and potable.

H. Accelerating Admixture: Nonchloride type for use in cold weather.

I. Moisture-Resistant Admixture: Water repellent compound designed to reduce capillarity.

2.04 MORTAR AND GROUT MIXES

A. Mortar for Unit Masonry: ASTM C270, Proportion Specification.
   1. Masonry below grade and in contact with earth: Type S.

2. Exterior, non-loadbearing masonry: Type N.
3. Interior, non-loadbearing masonry: Type O.

B. Colored Mortar: Proportion selected pigments and other ingredients to match Architect's sample, without exceeding manufacturer's recommended pigment-to-cement ratio.

C. Grout: ASTM C476. Consistency required to fill completely volumes indicated for grouting; fine grout for spaces with smallest horizontal dimension of 2 inches or less; coarse grout for spaces with smallest horizontal dimension greater than 2 inches.

D. Mixing: Use mechanical batch mixer and comply with referenced standards.

2.05 FLASHINGS

A. Metal Flashing Materials: Copper, see Section 076200.

B. Copper: ASTM B370, 060 soft annealed; 20 oz/sq ft; natural finish.

C. Flashing Sealant/Adhesives: Silicone, polyurethane, or silyl-terminated polyether/polyurethane, or other type required or recommended by flashing manufacturer; type capable of adhering to type of flashing used.

2.06 LATH

A. Diamond Mesh Metal Lath: ASTM C847, galvanized; _____.
1. Weight: To suit application and as specified in ASTM C841 for framing spacing.
2. Backed with treated paper.

B. Metal Lath with Rainscreen Drainage Material: Factory-assembled combination of mesh drainage material and metal lath.
1. Diamond Mesh Metal Lath: ASTM C847, galvanized, self-furring.
a. Weight: To suit application and as specified in ASTM C841 for framing spacing.
2. Rainscreen Drainage Mesh: 90 percent open non-woven polyester mesh.
a. Thickness: 1/4 inch.
b. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less (Class A), when tested in accordance with ASTM E84.
3. Manufacturers:
a. Substitutions: See Section 016000 - Product Requirements.

C. Beads, Screeds, Joint Accessories, and Other Trim: Depth governed by plaster thickness, maximum possible lengths.
1. Material: Formed sheet steel with rust inhibitive primer, expanded metal flanges.
2. Casing Beads: Square edges.
3. Corner Beads: Radiused corners.
4. Base Screeds: Bevelled edges.
5. Expansion Joints: Accordion profile with factory-installed protective tape, 2 inch wide flanges.
6. Control Joints: Accordion profile with protective tape, 2 inch flanges.

2.07 ACCESSORIES

A. Cleaning Solution: Non-acidic, not harmful to masonry work or adjacent materials.

B. Air and Water-Resistive Barrier: Single component, fluid applied, vapor permeable; waterproofing, crack isolation, and air barrier membrane. See Section 072726.

C. Rainscreen Drainage Material:
1. Rainscreen Drainage Mat: Polyester or polypropylene mesh.

a. Thickness: 1/8 inch.
b. Surface Burning Characteristics: Flame spread index of 25 or less, smoke developed index of 450 or less (Class A), when tested in accordance with ASTM E84.
c. Seam Tape and Bug Screen: As recommended by rainscreen drainage mat manufacturer.
d. Manufacturers:
    1) Advanced Building Products, Inc; Mortairvent: www.advancedbuildingproducts.com/#sle.
    2) CavClear, a Division of Archovations Inc; CavClear Rainscreen Mat WS (With Scrim): www.cavclear.com/#sle.
    3) Keene Building Products; Driwall Rainscreen: www.keenebuilding.com/#sle.
    4) Mortar Net Solutions; _____: www.mortarnet.com/#sle.
    5) Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field conditions meet masonry manufacturer's requirements to receive masonry veneer.

B. Verify that related items provided under other sections are properly sized and located.

C. Verify built-in items are in required location and ready for installation of masonry veneer.

3.02 INSTALLATION

A. Thin Brick:

B. Install lath and furring for Portland cement plaster in accordance with ASTM C1063.

C. Install lath and furring for UL-tested, fire-rated assemblies in accordance with the requirements of the indicated assembly.

D. Install rainscreen drainage material and metal lath with accessories over sheathing material and water-resistive barrier with fastening system in accordance with ASTM C1063 into wood or metal studs. Install drainage material with filter fabric mortar screen to exterior.

E. Install metal lath with rainscreen drainage material in accordance with the manufacturer's instructions.

F. Lath Installation:
1. Apply metal lath taut, with long dimension perpendicular to supports.
2. Lap ends minimum 1 inch. Secure end laps with tie wire where they occur between supports.
3. Lap sides of diamond mesh lath minimum 1-1/2 inches.
4. Nest outside ribs of rib lath together.
5. Attach metal lath to wood supports using nails at maximum ____ inches on center.
6. Attach metal lath to metal supports using tie wire at maximum 6 inches on center.
7. Attach metal lath to concrete using wire hair pins. Attach anchors to backup surface; space at maximum 24 inches on center.
8. Continuously reinforce internal angles with corner mesh, except where the metal lath returns 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.
9. Place corner bead at external wall corners; fasten at outer edges of lath only.
10. Place 4 inch wide strips of metal lath centered over junctions of dissimilar backing materials. Secure rigidly in place.

11. Place lath vertically above each top corner and each side of door frames to 6 inches above ceiling line.
12. Place additional strip mesh diagonally at corners of lathed openings. Secure rigidly in place.

G. Thin Brick Panel System: Install according to manufacturer's written instructions.

3.03 COURSING

A. Establish lines, levels, and coursing as indicated on drawings. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.

C. Brick Units:
1. Bond: Running.
2. Coursing: Three units and three mortar joints to equal 8 inches.
3. Mortar Joints: Concave.

3.04 PLACING AND BONDING

A. Remove excess mortar as work progresses.

B. Interlock intersections and external corners, except for units laid in stack bond.

C. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove and replace.

D. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.

3.05 MASONRY FLASHINGS

A. Whether or not specifically indicated on drawings, install masonry flashing to divert water to exterior at locations where downward flow of water is interrupted.
1. Extend flashings full width at such interruptions at least 6 inches, minimum, to form watertight pan.
2. Remove or cover protrusions or sharp edges that could puncture flashings.
3. Seal lapped ends and penetrations of flashing before covering with mortar.

B. Extend metal flashings through exterior face of masonry and turn down to form drip.

C. Extend metal flashings to within 1/4 inch of exterior face of masonry.

D. Extend plastic flashings to within 1/4 inch of exterior face of masonry.

E. Lap end joints of flashings at least 6 inches, minimum, and seal watertight with flashing sealant/adhesive.

3.06 CONTROL AND EXPANSION JOINTS

A. Form joints as detailed on drawings.

3.07 TOLERANCES

A. Maximum Variation From Unit to Adjacent Unit: 1/16 inch.

B. Maximum Variation from Plane of Wall: 1/4 inch in 10 feet and 1/2 inch in 20 feet or more.

C. Maximum Variation from Plumb: 1/4 inch per story non-cumulative; 1/2 inch in two stories or more.

D. Maximum Variation from Level Coursing: 1/8 inch in 3 feet and 1/4 inch in 10 feet; 1/2 inch in 30 feet.

E. Maximum Variation of Joint Thickness: 1/8 inch in 3 ft.

3.08 CUTTING AND FITTING

A. Cut and fit for pipes and conduit. Coordinate with other sections of work to provide correct size, shape, and location.

3.09 CLEANING

A. Remove excess mortar and mortar smears as work progresses.

B. Replace defective mortar. Match adjacent work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.10 PROTECTION

A. Without damaging completed work, provide protective boards at exposed external corners that are subject to damage by construction activities.

END OF SECTION

SECTION 047200
CAST STONE MASONRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural cast stone.

B. Units required are:
   1. Exterior wall units, including lintels and sills.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 042000 - UNIT MASONRY: Installation of cast stone in conjunction with masonry.

C. Section 042000 - UNIT MASONRY: Mortar and grout for setting cast stone.

D. Section 079200 - JOINT SEALANTS: Sealing joints indicated to be left open for sealant.

1.03 REFERENCE STANDARDS

A. ACI CODE-318 - Building Code Requirements for Structural Concrete and Commentary; 2019 (Reapproved 2022).

B. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2020.

C. ASTM A767/A767M - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement; 2016.

D. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement; 2025.

E. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.

F. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2018.

G. ASTM C150/C150M - Standard Specification for Portland Cement; 2020.

H. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2025a.

I. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019.

J. ASTM C642 - Standard Test Method for Density, Absorption, and Voids in Hardened Concrete; 2021.

K. ASTM C1364 - Standard Specification for Architectural Cast Stone; 2025.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Test results of cast stone components made previously by the manufacturer.

C. Shop Drawings: Include elevations, dimensions, layouts, profiles, cross sections, reinforcement, exposed faces, arrangement of joints, anchoring methods, anchors, and piece numbers.

D. Mortar Color Selection Samples.

E. Verification Samples: Pieces of actual cast stone components not less than 12 inches square, illustrating range of color and texture to be anticipated in components furnished for the project.

F. Source Quality Control Test Reports.

G. Manufacturer's Qualification Data: Documentation showing compliance with specified requirements.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications:
   1. A firm with a minimum of 5 years experience producing cast stone of types required for project.
   2. Current producer member of the Cast Stone Institute or the Architectural Precast Association.
   3. Manufacturer's production facility currently holds a Plant Certification from the Cast Stone Institute or the Architectural Precast Association.
   4. Adequate plant capacity to furnish quality, sizes, and quantity of cast stone required without delaying progress of the work.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.06 MOCK-UPS

A. Provide full size cast stone components for installation in mock-up of exterior wall.

B. See Section 014000 – Quality Requirements, for additional requirements.

C. Approved mock-up will become standard for appearance and workmanship.

D. Mock-up may remain as part of the completed work.

E. Remove mock-up not incorporated into the work and dispose of debris.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver cast stone components secured to shipping pallets and protected from damage and discoloration. Protect corners from damage.

B. Number each piece individually to match shop drawings and schedule.

C. Store cast stone components and installation materials in accordance with manufacturer's instructions.

D. Store cast stone components on pallets with nonstaining, waterproof covers. Ventilate under covers to prevent condensation. Prevent contact with dirt.

E. Protect cast stone components during handling and installation to prevent chipping, cracking, or other damage.

F. Store mortar materials where contamination can be avoided.

G. Schedule and coordinate production and delivery of cast stone components with unit masonry work to optimize on-site inventory and to avoid delaying the work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.

1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Architectural Cast Stone:
   1. Any current producer member of the Architectural Precast Association.
   2. Any current producer member of the Cast Stone Institute.
   3. Substitutions: See Section 016000 - Product Requirements.

2.02 ARCHITECTURAL CAST STONE

A. Cast Stone: Architectural concrete product manufactured to simulate appearance of natural granite, complying with ASTM C1364.
   1. Compressive Strength: As specified in ASTM C1364; calculate strength of pieces to be field cut at 80 percent of uncut piece.
   2. Freeze-Thaw Resistance: Demonstrated by laboratory testing in accordance with ASTM C1364.
   3. Surface Texture: Fine grained texture, with no bugholes, air voids, or other surface blemishes visible from distance of 20 feet.
   4. Color: Match sample on file at Architect 's office.
   5. Color: Match existing.
   6. Color: Selected by Architect from manufacturer's full range.
   7. Remove cement film from exposed surfaces before packaging for shipment.

B. Shapes: Provide shapes indicated on drawings.
   1. Variation from Any Dimension, Including Bow, Camber, and Twist: Maximum of plus/minus 1/8 inch or length divided by 360, whichever is greater, but not more than 1/4 inch.
   2. Unless otherwise indicated on drawings, provide:
      a. Wash or slope of 1:12 on exterior horizontal surfaces.
      b. Drips on projecting components, wherever possible.
      c. Raised fillets at back of sills and at ends to be built in.

C. Reinforcement: Provide reinforcement as required to withstand handling and structural stresses; comply with ACI CODE-318.
   1. Pieces More than 24 inches in Any Dimension: Provide full length two-way reinforcement of cross-sectional area not less than 0.25 percent of unit cross-sectional area.

2.03 MATERIALS

A. Portland Cement: ASTM C150/C150M.
   1. For Mortar: Type I or II, except Type III may be used in cold weather.

B. Coarse Aggregate: ASTM C33/C33M, except for gradation; granite, quartz, or limestone.

C. Fine Aggregate: ASTM C33/C33M, except for gradation; natural or manufactured sands.

D. Admixtures: ASTM C494/C494M.

E. Water: Potable.

F. Reinforcing Bars: ASTM A615/A615M, Grade 40 (40,000 psi), deformed bars, galvanized.
   1. Galvanized in accordance with ASTM A767/A767M, Class I.

G. Steel Welded Wire Reinforcement: ASTM A1064/A1064M, galvanized or ASTM A884/A884M, epoxy coated.

H. Embedded Anchors, Dowels, and Inserts: Type 304 stainless steel, of type and size as required for conditions.

I. Mortar: Portland cement-lime, as specified in Section 040511 ; do not use masonry cement.

J. Cleaner: General-purpose cleaner designed for removing mortar and grout stains, efflorescence, and other construction stains from new masonry surfaces without discoloring or damaging masonry surfaces; approved for intended use by cast stone manufacturer and by cleaner manufacturer for use on cast stone and adjacent masonry materials.

2.04 SOURCE QUALITY CONTROL

A. Test compressive strength and absorption of specimens selected at random from plant production.
   1. Test in accordance with ASTM C642.
   2. Select specimens at rate of 3 per 500 cubic feet, with a minimum of 3 per production week.
   3. Submit reports of tests by independent testing agency, showing compliance with requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine construction to receive cast stone components. Notify Architect if construction is not acceptable.

B. Do not begin installation until unacceptable conditions have been corrected.

3.02 INSTALLATION

A. Install cast stone components in conjunction with masonry, complying with requirements of Section 042000.

B. Mechanically anchor cast stone units indicated; set remainder in mortar.

C. Setting:
   1. Drench cast stone components with clear, running water immediately before installation.
   2. Set units in a full bed of mortar unless otherwise indicated.
   3. Fill vertical joints with mortar.
   4. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.

3.03 TOLERANCES

A. Joints: Make all joints 3/8 inch, except as otherwise detailed.
   1. Rake mortar joints 3/4 inch for pointing.
   2. Remove excess mortar from face of stone before pointing joints.
   3. Point joints with mortar in layers 3/8 inch thick and tool to a slight concave profile.
   4. Leave the following joints open for sealant:
      a. Head joints in top courses, including copings, parapets, cornices, sills, and steps.
      b. Joints in projecting units.
      c. Joints between rigidly anchored units, including soffits, panels, and column covers.
      d. Joints below lugged sills and stair treads.
      e. Joints below ledge and relieving angles.
      f. Joints labeled "expansion joint".

B. Installation Tolerances:
   1. Variation from Plumb: Not more than 1/8 inch in 10 feet or 1/4 inch in 20 feet or more.

2. Variation from Level: Not more than 1/8 inch in 10 feet or 1/4 inch in 20 feet, or 3/8 inch maximum.
3. Variation in Joint Width: Not more than 1/8 inch in 36 inches or 1/4 of nominal joint width, whichever is less.
4. Variation in Plane Between Adjacent Surfaces (Lipping): Not more than 1/16 inch difference between planes of adjacent units or adjacent surfaces indicated to be flush with units.

3.04 REPAIR

A. Repair chips and other surface damage noticeable when viewed in direct daylight at 20 feet.

B. Repair with matching touch-up material provided by the manufacturer and in accordance with manufacturer's instructions.

C. Repair methods and results subject to Architect 's approval.

3.05 CLEANING

A. Clean completed exposed cast stone after mortar is thoroughly set and cured.
1. Wet surfaces with water before applying cleaner.
2. Apply cleaner to cast stone in accordance with manufacturer's instructions.
3. Remove cleaner promptly by rinsing thoroughly with clear water.
4. Do not use acidic cleaners.

B. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

3.06 PROTECTION

A. Protect completed work from damage.

B. Clean, repair, or restore damaged or mortar-splashed work to condition of new work.

END OF SECTION

SECTION 051200
STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural steel framing members.

B. Structural steel support members and struts.

C. Base plates, shear stud connectors.

D. Grouting under base plates.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 052100 - STEEL JOIST FRAMING.

C. Section 053100 - STEEL DECKING: Support framing for small openings in deck.

D. Section 055000 - METAL FABRICATIONS: Steel fabrications affecting structural steel work.

E. Section 078100 - Applied Fire Protection: Fireproof protection to framing and metal deck systems.

1.03 REFERENCE STANDARDS

A. AISC (MAN) - Steel Construction Manual; 2023.

B. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges; 2022.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished; 2018.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

F. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.

H. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.

I. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric); 2021a.

J. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2022.

K. ASTM C827/C827M - Standard Test Method for Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures; 2016.

L. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions; 2019.

M. ASTM F959/F959M - Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners, Inch and Metric Series; 2017a.

N. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; 2020.

O. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

P. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

Q. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

R. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; 2018.

S. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections; 2020.

T. SSPC-SP 3 - Power Tool Cleaning; 2024.

U. UL (FRD) - Fire Resistance Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Shop Drawings:
   1. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
   2. Connections not detailed.

C. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.

D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

E. Designer's Qualification Statement.

F. Fabricator's Qualification Statement: Provide documentation showing steel fabricator's years of experience prerforming this type of work and provide list of minimum five (5) previous projects.

1.05 QUALITY ASSURANCE

A. Fabricate structural steel members in accordance with AISC (MAN) "Steel Construction Manual."

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.

C. Fabricator Qualifications: A qualified steel fabricator that is certified by the American Institute of Steel Construction (AISC) Fabricator Certification Program for Structural Steel Buildings in accordance with AISC 207-20.

D. Design connections not detailed on drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

A. All steel details and connections shall be in accordance with the requirements of "Specification for Structural Steel Buildings" . AISC-Load and resistance factor design.

B. All connections, unless indicated as being completely designed on the structural drawings shall be designed and detailed by a professional engineer licensed in the state of New York. The design and detailing shall comply with all applicable codes and specification sections.

C. The steel fabricator and erector shall be AISC certified for steel structures and comply with the applicable provisions of AISC's "Code of Standard Practice for Steel Buildings and Bridges".

D. All welding shall conform to the requirements of the strucutural welding code, ANSI/AWS D1.1 latest edition. All weld sizes shall be the larger of the size required by connection forces, the minimum size per ANSI/AWS D1.1 or 3/16 inch minimum fillet weld UON. Any weld sizes shown on the design drawings are considered effective weld sizes and shall be increased in accordance with AWS are required by gaps of skews between components.

2.02 MATERIALS

A. Steel Angles and Plates: ASTM A572/A572M.

B. Steel W Shapes, Channels and Tees: ASTM A992/A992M.

C. Rolled Steel Structural Shapes: ASTM A992/A992M.

D. Cold-Formed Structural Tubing: ASTM A500/A500M, Grade B.

E. Hot-Formed Structural Tubing: ASTM A500/A500M, Grade C.

F. Shear Stud Connectors: Made from ASTM A108 Grade 1015 bars.

G. Structural Bolts and Nuts: Carbon steel, ASTM A307, Grade A and galvanized in compliance with ASTM A153/A153M Class C.

H. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.

I. Tension Control Bolts: Twist-off type; ASTM F3125/F3125M.

J. Unheaded Anchor Rods: ASTM F1554, Grade 36, plain, with matching ASTM A563/A563M nuts and ASTM F436/F436M Type 1 washers.

K. Headed Anchor Rods: ASTM F1554 Grade 36, plain.

L. Load Indicator Washers: Provide washers complying with ASTM F959/F959M at connections requiring high-strength bolts.

M. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

N. Grout: ASTM C1107/C1107M; Non-shrink; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 48 Hours: 2,000 pounds per square inch (13.7 MPa).

2. Minimum Compressive Strength at 28 Days: 7,000 pounds per square inch (48 MPa).
3. Height Change, Plastic State; when tested according to ASTM C827/C827M:
   a. Maximum: Plus 4 percent.
   b. Minimum: Plus 1 percent.

O. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

P. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction. test

2.03 FABRICATION

A. Shop fabricate to greatest extent possible.

B. Space shear stud connectors as indicated on framing plan(s).

C. Fabricate connections for bolt, nut, and washer connectors.

2.04 FINISH

A. Prepare structural component surfaces in accordance with SSPC-SP 3.

B. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.

2.05 SOURCE QUALITY CONTROL

A. Provide shop testing and analysis of structural steel.

B. High-Strength Bolts: Provide testing and verification of shop-bolted connections in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts," testing at least 20 percent of bolts at each connection.

C. Welded Connections: Visually inspect all shop-welded connections

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed. Verify elevations of concrete and masonry bearing surfaces, and locations of anchor rods, bearing plates and other embedments for compliance with construction documents.

B. Verify that concrete in the footings, piers and walls or the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, 75 percent of its design compressive design strength before commencement of steel erection.

C. Proceed with erection only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Provide temporary shores, guys, braces and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections and bracing are in place unless otherwise directed.

1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

3.03 ERECTION

A. Erect structural steel in compliance with AISC 303.

B. Allow for erection loads and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Field weld components and shear studs indicated on shop drawings.

D. Do not field cut or alter structural members without approval of Architect.

E. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.

F. Provide temporary shores, guys, braces and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections and bracing are in place unless otherwise directed.
   1. Do not remove temporary shoring supporting composite deck construction until cast-in-place concrete has attained its design compressive strength.

G. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for non-shrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees. Protect grout and allow to cure.

H. Align and adjust various members that form part of a complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that will be in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
   1. Level and plumb individual members of structure.
   2. Make allowances for difference in temperature at time of erection and mean temperature when structure is completed and in service.

I. Splice members only where indicated.

J. Do not use thermal cutting during erection unless approved by architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.

K. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.04 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint.
   1. Joint Type: Snug tightened, except slip critical at wind frames and moment connections.

B. Welded Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welded work..
   1. Comply with AISC 303 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

2. Remove backing bars or runoff tabs, back gouge and grind steel smooth.
3. Assemble and weld built-up sections by methods that will maintaintrue alignment of axes without exceeding tolerances in AISC's "Code of Standard Practice for Steel Buildings and Bridges" for mil material.

3.05 TOLERANCES

A. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

B. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.

C. Maximum Offset From True Alignment: 1/4 inch (6 mm).

3.06 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - BSD Quality Requirements.

B. High-Strength Bolts: Provide testing and verification of field-bolted connections in accordance with RCSC (HSBOLT) "Specification for Structural Joints Using High-Strength Bolts," testing at least 20 percent of bolts at each connection.

SECTION 052100
STEEL JOIST FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Open web steel joists and shear stud connectors, with bridging, attached seats and anchors.

B. Loose bearing members, such as plates or angles, and anchor bolts for site placement.

C. Supplementary framing for floor and roof openings greater than 18 inches (450 mm).

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 051200 - STRUCTURAL STEEL FRAMING: Grouting base plates and bearing plates. Superstructure framing.

C. Section 055000 - METAL FABRICATIONS: Non-framing steel fabrications attached to joists.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished; 2018.

C. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

D. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

E. ASTM A563/A563M - Standard Specification for Carbon and Alloy Steel Nuts (Inch and Metric); 2021a.

F. ASTM F436/F436M - Standard Specification for Hardened Steel Washers Inch and Metric Dimensions; 2019.

G. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

H. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

I. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

J. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; 2018.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Designer's Qualification Statement.

C. Manufacturer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Design connections not detailed on drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Manufacturer Qualifications: Company specializing in performing the work of this section with minimum 3 years documented experience.

C. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel in accordance with IAS AC172.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Transport, handle, store, and protect products to SJI requirements.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Joists:
   1. Canam Group Inc: www.canam-steeljoists.ws
   2. Nucor-Vulcraft Group: www.vulcraft.com/#sle.
   3. New Millennium Building Systems (Subsidiary of Steel Dynamics, Inc.): www.newmill.com

2.02 MATERIALS

A. Open Web Joists: SJI Type K Joists:
   1. Provide bottom chord extensions.
   2. Minimum End Bearing on Steel Supports: Comply with referenced SJI standard.
   3. Minimum End Bearing on Concrete or Masonry Supports: 4 inches (100 mm).

B. Anchor Bolts, Nuts and Washers: ASTM A307 hot-dip galvanized per ASTM A153/A153M Class C.

C. High-Strength Structural Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, with matching compatible ASTM A563/A563M nuts and ASTM F436/F436M washers.

D. Shear Stud Connectors: Made from ASTM A108 Grade 1015 bars.

E. Structural Steel For Supplementary Framing and Joist Leg Extensions: ASTM A36/A36M.

F. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

2.03 FABRICATION

A. Drill holes in chords for attachment of wood nailers (if required).

2.04 FINISH

A. Galvanize joists as specified.
   1. Do not prime surfaces that will be fireproofed.
   2. Galvanize steel ledge angles.

2.05 SOURCE QUALITY CONTROL

A. Provide shop testing and analysis of open-web steel joists.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions prior to beginning work.

3.02 ERECTION

A. Erect joists with correct bearing on supports.

B. Allow for erection loads. Provide sufficient temporary bracing to maintain framing safe, plumb, and in true alignment.

C. Coordinate the placement of anchors for securing loose bearing members furnished as part of the work of this section.

D. After joist alignment and installation of framing, field weld joist seats to steel bearing surfaces.

E. Install supplementary framing for floor and roof openings greater than 18 inches (450 mm).

F. Do not permit erection of decking until joists are braced, bridged, and secured or until completion of erection and installation of permanent bridging and bracing.

G. Do not field cut or alter structural members without approval of joist manufacturer.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch (6 mm).

B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

3.04 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 014000 - BSD Quality Requirements.

B. Welded Connections: Visually inspect all field-welded connections and test at least 10 percent of welds using one of the following:

SECTION 053100
STEEL DECKING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof deck.

B. Composite floor deck.

C. Supplementary framing for openings up to and including 18 inches (450 mm).

D. Bearing plates and angles.

E. Stud shear connectors.

F. Acoustical insulation in roof deck flutes.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Concrete topping over metal deck.

C. Section 042000 - UNIT MASONRY: Placement of anchors for bearing plates embedded in unit masonry assemblies.

D. Section 051200 - STRUCTURAL STEEL FRAMING: Support framing for openings larger than 18 inches (450 mm) and shear stud connectors.

E. Section 051200 - STRUCTURAL STEEL FRAMING: Placement of embedded steel anchors for bearing plates in cast-in-place concrete.

F. Section 052100 - STEEL JOIST FRAMING: Support framing for openings larger than 18 inches (450 mm) and shear stud connectors.

G. Section 055000 - METAL FABRICATIONS: Steel angle concrete stops at deck edges.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished; 2018.

C. ASTM A510/A510M - Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel; 2020.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

E. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2023.

F. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

G. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

H. AWS D1.3/D1.3M - Structural Welding Code - Sheet Steel; 2018.

I. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; 2018.

J. ICC-ES AC43 - Acceptance Criteria for Steel Deck Roof and Floor Systems; 2022.

K. ICC-ES AC70 - Acceptance Criteria for Power-Actuated Fasteners Driven into Concrete, Steel and Masonry Elements; 2019, with Editorial Revision (2021).

L. SDI (DM) - Publication No.30, Design Manual for Composite Decks, Form Decks, and Roof Decks; 2007.

M. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

N. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittals procedures.

B. Product Data: Provide deck profile characteristics, dimensions, structural properties, and finishes.

C. Shop Drawings: Indicate deck plan, support locations, projections, openings, reinforcement, pertinent details, and accessories.

D. Certificates: Certify that products furnished meet or exceed specified requirements.

E. Submit manufacturer's installation instructions.

F. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

G. Designer's Qualification Statement.

H. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

1.05 QUALITY ASSURANCE

A. Design deck layout, spans, fastening, and joints under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.3/D1.3M and dated no more than 12 months before start of scheduled welding work.

C. Fabricator Qualifications: A qualified steel fabricator that is accredited by the International Accreditation Service (IAS) Fabricator Inspection Program for Structural Steel in accordance with IAS AC172.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Cut plastic wrap to encourage ventilation.

B. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Deck:
   1. Canam Steel Corporation: www.canam-steeljoists.ws.
   2. New Millennium Building Systems (subsidiary of Steel Dynamics, Inc.): www.newmill.com.
   3. Nucor-Vulcraft Group: www.vulcraft.com/#sle.

2.02 STEEL DECK

A. All Deck Types: Select and design metal deck in accordance with SDI Design Manual.
   1. Calculate to structural working stress design and structural properties specified.
   2. Maximum Vertical Deflection of Floor Deck: 1/360 of span.
   3. Maximum Lateral Deflection of Diaphragms: 1/500 of the height of the wall.

B. Roof Deck: Non-composite type, fluted steel sheet:
   1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.
   2. Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.
   3. Minimum Base Metal Thickness: 20 gauge, 0.0359 inch (0.91 mm).
   4. Nominal Height: 1-1/2 inch (38 mm).
   5. Profile: Fluted; SDI WR.
   6. Formed Sheet Width: 36 inch (900 mm).
   7. Side Joints: Lapped, welded. or sidelap screws placed at 18 inches on center.
   8. End Joints: Lapped, welded.

C. Composite Floor Deck: Fluted steel sheet embossed to interlock with concrete:
   1. Galvanized Steel Sheet: ASTM A653/A653M, Structural Steel (SS) Grade 33/230, with G90/Z275 galvanized coating.
   2. Primer: Shop coat of manufacturer's standard primer paint over cleaned and phosphatized substrate.
   3. Span Design: Triple.
   4. Minimum Base Metal Thickness: 20 gauge, 0.0359 inch (0.91 mm).
   5. Nominal Height: As shown on drawings.
   6. Profile: Fluted; SDI NR.
   7. Formed Sheet Width: 24 inch (600 mm).
   8. Side Joints: Lock seam.

2.03 ACCESSORY MATERIALS

A. Bearing Plates and Angles: ASTM A36/A36M steel, galvanized per ASTM A123/A123M.

B. Stud Shear Connectors: Made from ASTM A108 Grade 1015 bars.

C. Welding Materials: AWS D1.1/D1.1M.

D. Fasteners: Galvanized hardened steel, self tapping.

E. Powder Actuated Mechanical Fasteners: Steel; with knurled shank and forged ballistic point. Comply with applicable requirements of ICC-ES AC70.
   1. Design Requirements: Provide number and type of fasteners that comply with the applicable requirements of SDI (DM) design method for roof deck and floor deck applications and ICC-ES AC43.

2. Material: Steel; ASTM A510/A510M.
   a. Hardness: Rockwell C 54.5, minimum.
   b. Tensile Strength: 285 kips per square inch (1965 MPa), minimum.
   c. Shear Strength: 175 kips per square inch (1205 MPa), minimum.
   d. Washers:
      1) Steel Bar Joist Framing Applications: 0.472 inch (12 mm) diameter, minimum.
      2) Exposed Roof Deck Applications: 0.591 inch (15 mm) diameter, minimum.
   e. Corrosion Resistance:
      1) Steel Bar Joist Framing Applications: ASTM B633, SC1, Type III zinc electroplate..
3. Products:
   a. Simpson Strong-Tie; www.strongtie.com/#sle.

F. Mechanical Fasteners: Steel; hex washer head, self-drilling, self-tapping.
   1. Design Requirements for Sidelap Connections: Provide number and type of fasteners that comply with the applicable requirements of SDI (DM) design method for roof deck and floor deck applications and ICC-ES AC43.

G. Weld Washers: Mild steel, uncoated, 3/4 inch (19 mm) outside diameter, 1/8 inch (3 mm) thick.

H. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

I. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, complying with VOC limitations of authorities having jurisdiction.

J. Flute Closures: Closed cell foam rubber, 1 inch (25 mm) thick; profiled to fit tight to the deck.

K. Acoustical Insulation: Glass fiber type, minimum 1.1 lb/cu ft (18 kg/cu m) density; profiled to suit deck.

2.04 FABRICATED DECK ACCESSORIES

A. Sheet Metal Deck Accessories: Metal closure strips, wet concrete stops, and cover plates, 20 gauge, 0.0359 inch (0.91 mm) thick sheet steel; of profile and size as indicated; finished same as deck.

B. Floor Drain Pans: Formed sheet steel, 14 gauge, 0.0747 inch (1.90 mm) minimum thickness, flat bottom, sloped sides, recessed 1-1/2 inches (38 mm) below floor deck surface, bearing flange 3 inches (75 mm) wide, sealed watertight.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect metal deck in accordance with SDI Design Manual and manufacturer's instructions. Align and level.

B. On concrete and masonry surfaces provide minimum 4 inch (100 mm) bearing.

C. On steel supports provide minimum 1-1/2 inch (38 mm) bearing.

D. Fasten deck to steel support members at ends and intermediate supports at 12 inches (300 mm) on center maximum, parallel with the deck flute and at each transverse flute using methods specified.

1. Welding: Use fusion welds through weld washers.
2. Place and secure special deep fluted sections for integral concrete bridging.

E. Clinch lock seam side laps.

F. At mechanically fastened male/female side laps fasten at 24 inches (600 mm) on center maximum.

G. Drive mechanical sidelap connectors completely through adjacent lapped sheets; positively engage adjacent sheets with minimum three-thread penetration.

H. At welded male/female side laps weld at 18 inches (450 mm) on center maximum.

I. Weld deck in accordance with AWS D1.3/D1.3M.

J. At deck openings from 6 inches (150 mm) to 18 inches (450 mm) in size, provide 2 by 2 by 1/4 inch (50 by 50 by 6 mm) steel angle reinforcement. Place angles perpendicular to flutes; extend minimum two flutes beyond each side of opening and fusion weld to deck at each flute.

K. At deck openings greater than 18 inches (450 mm) in size, provide steel angle reinforcement. as specified in Section 051200 and on plans.

L. Where deck (other than cellular deck electrical raceway) changes direction, install 6 inch (150 mm) minimum wide sheet steel cover plates, of same thickness as deck. Fusion weld 12 inches (300 mm) on center maximum.

M. At floor edges, install concrete stops upturned to top surface of slab, to contain wet concrete. Provide stops of sufficient strength to remain stationary without distortion.

N. At openings between deck and walls, columns, and openings, provide sheet steel closures and angle flashings to close openings.

O. Close openings above walls and partitions perpendicular to deck flutes with single row of foam cell closures.

P. Position roof drain pans with flange bearing on top surface of deck. Fusion weld at each deck flute.

Q. Position floor drain pans with flange bearing on top surface of deck. Fusion weld at each deck flute.

R. Weld stud shear connectors through steel deck to structural members below.

S. Immediately after welding deck and other metal components in position, coat welds, burned areas, and damaged surface coating, with touch-up primer.

SECTION 054000
COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Load-bearing wall framing.
2. Exterior non-load-bearing wall framing.
3. Interior non-load-bearing wall framing, for framing exceeding height limitations of standard, nonstructural metal framing.
4. Floor joist framing.
5. Roof rafter framing.
6. Ceiling joist framing.
7. Soffit framing.

1.2 RELATED REQUIREMENTS

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
2. Section 055000 "Metal Fabrications" for miscellaneous steel shapes, masonry shelf angles, and connections used with cold-formed framing.
3. Section 092216 "Non-structural Metal Framing" for standard, interior non-load-bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.
B. Product Data: For the following:
1. Cold-formed steel framing materials.
2. Load-bearing wall framing.
3. Exterior non-load-bearing wall framing.
4. Interior non-load-bearing wall framing.
5. Vertical deflection clips.
6. Single deflection track.
7. Double deflection track.
8. Drift clips.
9. Floor joist framing.
10. Roof-rafter framing.
11. Ceiling joist framing.
12. Soffit framing.
13. Post-installed anchors.
14. Power-actuated anchors.
15. Sill sealer gasket.
16. Sill sealer gasket/termite barrier.

C. Shop Drawings:
1. Provide Shop Drawings prepared by cold-formed steel framing manufacturer.
2. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical

fasteners.

3. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

D. Delegated Design Submittal: For cold-formed steel framing.
E. Qualification Data: For testing agency.
F. Welding certificates.
G. Product certificate: For each type of code-compliance certification for studs and tracks.
H. Product test reports: For each listed product, for tests performed by manufacturer and witnessed by a qualified testing agency.
   1. Steel sheet.
   2. Expansion anchors.
   3. Power-actuated fasteners.
   4. Mechanical fasteners.
   5. Vertical deflection clips.
   6. Horizontal drift deflection clips.
   7. Miscellaneous structural clips and accessories.
I. Research Reports:
   1. For post-installed anchors and power-actuated fasteners, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.
   2. For cold-formed steel framing from a qualified testing agency acceptable to authorities having jurisdiction.
   3. Steel framing manufacturer to have a third-party evaluation report for its product reviewed to the local building code or its model code (IBC 2018 and AISI S100).

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Member in good standing of the Steel Framing Industry Association (SFIA).
B. Testing Agency Qualifications: Qualified according to ASTM E329 for testing indicated.
C. Product Tests: Mill certificates or data from a qualified independent testing agency or in-house testing with calibrated test equipment, indicating steel sheet complies with requirements, including base-steel thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
D. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."
E. Comply with the following AISI specifications and standards:
   1. AISI S100, "North American Specification for Design of Cold-Formed Steel Structural Members."
   2. AISI S200, "North American Standard for Cold-Formed Steel Framing - General Provisions."
   3. AISI S201, "North American Standard for Cold-Formed Steel Framing - Product Standards."

4. AISI S202, "Code of Standard Practice for Cold-Formed Steel Structural Framing."
5. AISI S230, "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."
6. AISI S240, "North American Standard for Cold-Formed Steel Structural Framing."

1.6 DELIVERY, STORAGE, AND HANDLING:

A. Protect and store cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling as required in AISI S202.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. Basis-of-Design Product: Subject to compliance with requirements, provide cold-formed steel framing products by ClarkDietrich; as specified in other part 2 articles or comparable product by a current member of the SFIA.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in section 014000 "Quality Requirements" to design cold-formed steel framing. The design professional shall be licensed in the project jurisdiction and acceptable to the AOR.

B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
   1. Design loads: As indicated on drawings.
   2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
      a. Exterior Load-Bearing Wall Framing: Horizontal deflection of 1/240 of the wall height or 1/600 of the wall height when supporting masonry unless otherwise noted on the drawings.
      b. Interior Load-Bearing Wall Framing: Horizontal deflection of 1/240 of the wall height under a horizontal load of 51bf/sq. ft. unless otherwise noted on the drawings.
      c. Exterior Non-Load-Bearing Framing: Horizontal deflection of 1/240 of the wall height or 1/600 of the wall height when supporting masonry unless otherwise noted on the drawings.
      d. Interior Non-Load-Bearing Framing: Horizontal deflection of 1/240 of the wall height under a horizontal load of 51bf/sq. ft. unless otherwise noted on the drawings.
      e. Floor Joist Framing: Vertical deflection of 1/360 for live loads and 1/240 for total loads of the span unless otherwise noted on the drawings.
      f. Roof Rafter Framing: Vertical deflection of 1/120 of the horizontal projected span for total loads unless otherwise noted on the drawings.
      g. Ceiling Joist Framing: Vertical deflection of 1/120 of the span for live loads and 1/240 of the span for total loads.

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure undue strain on fasteners and anchors, or other detrimental effects when subject to maximum ambient temperature change of 120 degree F.
4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
   a. Upward and downward movement of 3/4 inch.

C. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.3 COLD-FORMED STEEL FRAMING MATERIALS

A. Framing Members, General: Comply with AISI S240 for conditions indicated.
B. Steel Sheet Components: Comply with AISI S240, ASTM A1003/A1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
   1. Grade: As required by structural performance.
   2. Protective Coating: Comply with AISI S240, CP60.
C. Steel Sheet for Connecting Clips: ASTM A1003/A1003M, ASTM A653/A653M, structural steel, zinc coated. Grade and coating as follows:
   1. Grade: As required by structural performance.
   2. Coating: CP90: G90 (Z275), AZ50 (AZM150), or GF45 (ZGF135)

2.4 LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-5/8 inches.
   3. Minimum Depth: 2-1/2 inches.
B. Steel Track: Manufacturer's standard Li-shaped steel track, of web depths indicated, unpunched, with straight flanges, and matching minimum base-metal thickness of steel studs.
C. Headers and Jambs - Heavy-Duty Stud: Manufacturer's proprietary shape used to form header beams and jambs, columns or posts, of web depths indicated, unpunched with stiffened flanges and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Web Size: 3-5/8 inches.
   3. Flange Width: 3 inches.
   4. Type HDSC Header Bracket: Size as required by design.
D. Steel Box or Back-to-Back Headers: Manufacturer's standard C-shapes used to form header beams, of web depths indicated, unpunched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-5/8 inches.
   3. Minimum Depth: 2-1/2 inches.
E. Steel Single- or Double-L Headers: Manufacturer's standard L-shapes used to form header beams, of web depths indicated, and as follows:

1. Minimum Base-Metal Thickness: 0.0329 inch.
2. Minimum Leg Width: 1-1/2 inches.

F. Open Framing: Manufacturer's one-piece header and jamb profile for rough openings.
1. Minimum Base-Steel Thickness: 0.0329 inch.
2. Minimum Flange Width: 3 inches.
3. Type HDSC Header Bracket: Size as required for design.

G. Li-Channel Assembly: Manufacturer's standard-length Li-channel for lateral bracing for exterior load-bearing walls.
1. Li-Channel Minimum Base-Steel Thickness: 0.0538 inch.

H. Rigid Connections: Manufacturer's standard clips and connectors designed to resist loads.
1. Minimum Base-Steel Thickness: 0.0677 inch.

I. Foundation Connections: Manufacturer's standard clips and connectors designed to transfer tension loads between floors or from structural members to the foundation.
1. Shear Wall and Knee Wall Connector:
   a. Minimum Base-Steel Thickness: 0.0677 inch.
2. Shear Wall Anchor:
   a. Minimum Base-Steel Thickness: 0.1793 inch.

2.5 EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0329 inches.
2. Minimum Flange Width: 1-3/8 inches.
3. Minimum Depth: 2-1/2 inches.

B. Steel Track: Manufacturer's standard Li-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and matching minimum base-metal thickness and width of steel studs.

C. Headers and Jambs - Heavy-Duty Stud: Manufacturer's proprietary shape used to form header beams and jambs, columns or posts, of web depths indicated, unpunched with stiffened flanges and as follows:
1. Minimum Base-Steel Thickness: 0.0329 inch.
2. Minimum Web Size: 3-5/8 inches.
3. Flange Width: 3 inches.
4. Type HDSC Header Bracket: Size as required by design.

D. Headers and Jambs: Manufacturer's proprietary shape used to form header beams and jambs, columns or posts, of web depths indicated, unpunched with stiffened flanges and as follows:
1. Minimum Base-Steel Thickness: 0.0329 inch.
2. Minimum Web Size: 3-5/8 inches.
3. Minimum Flange Width: 3 inches.
4. Type HDSC Header Bracket: Size as required by design.

E. Vertical Deflection Clips, Exterior: Manufacturer's standard bypass clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

1. Minimum Base-Steel Thickness: 0.0677 inch.

F. Vertical Deflection and Horizontal Standoff Clips: Manufacturer's standard bypass clips with horizontal standoff, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
   1. Minimum Base-Steel Thickness: 0.0966 inch.

G. Head-of-Wall Deflection Clips: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.
   1. Minimum Base-Steel Thickness: 0.0677 inch.

H. Slotted Deflection Track: Manufacturer's single, deep-leg, Li-shaped steel track; punched with vertical slots in both legs. Studs should be positively attached to deep-leg track using vertical slots while allowing free vertical movement. Legs designed to support horizontal and lateral loads and transfer them to the primary structure, as follows:
   1. Leg Dimension: As required.
   2. Minimum Thickness: 0.0329 inch.

I. Single Deflection and Firestop Track: Manufacturer's single, deep-leg, Li-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure. Install a continuous row of bridging, composed of 1-1/2-inch cold-formed channel secured to each stud with clip angle, or bridging, or spacer bar, at upper-most knockout, not more than 12 inches from top of wall.
   1. Minimum Base-Steel Thickness: 0.0428 inch.
   2. Flange Width: 2 inches.

J. Firestop Track: Top track manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Web Size: 2-1/2 inch.

K. Li-Channel Assembly: Manufacturer's standard-length Li-channel for lateral bracing for exterior curtain-wall framing,
   1. Li-Channel Size: 1-1/2 inches.
   2. Li-Channel Minimum Base-Steel Thickness: 0.0538 inch.

L. Bridging and Spacer Bar:
   1. Minimum Base-Steel Thickness: 0.0428 inch.
   2. Size: 1-1/4 by 1-1/4 by 50 inches long, pre notched at 12, 16 and 24 inches OC.

M. Double Deflection Tracks: Manufacturer's double, deep-leg, Li-shaped steel tracks, consisting of nested inner and outer tracks; unpunched, with unstiffened flanges.
   1. Outer Track: Of web depth to allow free vertical movement of inner track, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
      a. Minimum Base-Steel Thickness: 0.0329 inch.
      b. Minimum Flange Width: 1 inch plus the design gap for one-story structure or 1 inch plus the design gap for other applications.
   2. Inner Track: Of web depth indicated and as follows:
      a. Minimum Base-Steel Thickness: 0.0428 inch.
      b. Flange Width: Sum of out deflection track flange width plus 1 inch.

N. Drift Clips: Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical; attachment to stud web and structure.

1. Minimum Base-Steel Thickness: 0.0677 inch.

2.6 INTERIOR NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-3/8 inches.

B. Steel Track: Manufacturer's standard Li-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and matching minimum base-metal thickness and width of steel studs.

C. Vertical Deflection Clips, Interior: Manufacturer's standard head clips, capable of accommodating upward and downward vertical displacement of primary structure through positive mechanical attachment to stud web.

D. Deflection Track and Firestop Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thicknesses not less than indicated for studs and in width to accommodate depth of studs.
   1. Minimum Base-Steel Thickness: 0.0428 inch.
   2. Minimum Flange Width: 1 inch plus the design gap for one-story structure or 1 inch plus twice the design gap for other applications.

E. Slotted Deflection Track: Manufacturer's single, deep-leg, Li-shaped steel track; punched with vertical slots in both legs. Studs should be positively attached to deep-leg track using vertical slots while allowing free vertical movement. Legs designed to support horizontal and lateral loads and transfer them to the primary structure, as follows:
   1. Standard Leg: As required.
   2. Minimum Base-Steel Thickness: 0.0329 inch.

F. Single Deflection Track: Manufacturer's single, deep-leg, Li-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal and lateral loads and transfer them to the primary structure. Install a continuous row of bridging, composed of 1-1/2-inch cold-formed channel secured to each stud with clip angle, or bridging, or spacer bar, at upper-most knockout, not more than 12 inches from top of wall.
   1. Minimum Base-Steel Thickness: 0.0428 inch.
   2. Flange Width: 2 inches.

G. Firestop Track: Top track manufactured to allow partition heads to expand and contract with movement of structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Web Size: 2-1/2 inches.

H. Li-Channel Assembly: Manufacturer's standard-length Li-channel for lateral bracing for high interior partitions constructed of structural studs.
   1. Li-Channel Size: 1-1/2 inches.
   2. Li-Channel Minimum Base-Steel Thickness: 0.0538 inch.

I. Bridging and Spacer Bar:
   1. Minimum Base-Steel Thickness: 0.0538 inch.
   2. Size: 1-1/4 by 1-1/4 by 50 inches long, pre-notched at 12, 16, and 24 inches OC.

2.7 FLOOR JOIST FRAMING

A. Steel Floor Joists: Manufacturer's proprietary cold-formed galvanized-steel joists, of web depths indicated, featuring large, extruded holes and as follows:
   1. Minimum Base-Steel Thickness: 0.0428 inch.

B. Steel Joist Rim Track: Manufacturer's standard Li-shaped steel joist track; punched with clip angles at required joist spacing, of web depths indicated; with stiffened webs and as follows:
   1. Minimum Base-Steel Thickness: matching steel joists.
   2. Flange Width: 1-1/4 inches top, 2-1/2 inches bottom, minimum.

C. Steel Joists: Manufacturer's standard C-shaped steel joists, of web depths indicated, unpunched or punched with stiffened flanges, and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-5/8 inches.

D. Steel Joist Track: Manufacturer's standard Li-shaped steel joist track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-1/4 inches.

2.8 ROOF-RAFTER FRAMING

A. Steel Rafters: Manufacturer's Standard C-shaped steel sections, of web depth indicated, with stiffened flanges, and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-1/4 inches.

2.9 CEILING JOIST FRAMING

A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated, punched with standard holes, with stiffened flanges, and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-5/8 inches.

2.10 SOFFIT FRAMING

A. Exterior Soffit Frame: Manufacturer's standard C-shaped steel sections, of web depths indicated, with stiffened flanges, and as follows:
   1. Minimum Base-Steel Thickness: 0.0329 inch.
   2. Minimum Flange Width: 1-5/8 inches.

2.11 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from ASTM A1003/A1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
   1. Supplementary framing.
   2. Bracing, Bridging, and Solid Blocking:
   3. Web Stiffeners:
   4. Anchor Clips:
   5. End clips.
   6. Foundation Clips:
   7. Gusset plates.
   8. Stud kickers and knee braces.

9. Joist Hangers and End Closures:
10. Hole-reinforcing plates.
11. Backer plates.

2.12 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A36/A36M, zinc coated by hot-dip process according to ASTM A123/A123M.

B. Anchor Bolts: ASTM F1554, Grade 36, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A153/A153M, Class C.

C. Post-Installed Anchors: Fastener systems with bolts of same basic metal as fastened metal, if visible, unless otherwise indicated; with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC193, ICC-ES AC58, or ICC-ES AC308 as appropriate for the substrate.
   1. Uses: Securing cold-formed steel framing to structure.
   2. Type: Torque-controlled expansion anchor or adhesive anchor.
   3. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941, Class Fe/Zn 5, unless otherwise indicated.
   4. Material for Exterior or Interior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F593, and nuts, ASTM F594.

D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
   1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.13 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A780/A780M or SSPC-Paint 20.

B. Cement Grout: Portland cement, ASTM C150/C150M, Type I; and clean, natural sand, ASTM C404. Mix at ratio of 1 part cement to 2-1/2 parts sand, by volume, with minimum water required for placement and hydration.

C. Nonmetallic, Non-shrink Grout: Factory-packaged, nonmetallic, noncorrosive, nonstaining grout, complying with ASTM C1107/C1107M, and with a fluid consistency and 30-minute working time.

D. Shims: Load-bearing, high-density, multimonomer, non-leaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.

E. Sill Sealer Gasket: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

F. Sill Sealer Gasket/Termite Barrier: Minimum 68-mil nominal thickness, self-adhering sheet consisting of 64 mils of rubberized asphalt laminated on one side to a 4-mil-thick, polyethylene-film reinforcement, and with release liner on adhesive side formulated for application with primer or surface condition that complies with VOC limits of authorities having jurisdiction.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      a. Polyguard Products, Inc.
   2. Physical Properties:

a. Peel Adhesion: 17.0 lb/in of width when tested in accordance with ASTM D412.
b. Low-Temperature Flexibility: Pass at minus 25 deg F when tested in accordance with ASTM D146/D146M.
c. Water Vapor Permeance: 0.05 perm maximum when tested in accordance with ASTM E96/E96M, Method B.
d. Resistance to Termite Penetration: Comply with ICC-ES AC380.

2.14 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, in accordance with referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this section.
1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
a. Comply with AWS D1.3/01.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
b. Locate mechanical fasteners and install in accordance with Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.
4. Fasten other materials to cold-formed steel framing by welding, bolting pneumatic pin fastening, or screw fastening, in accordance with Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.

C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 ft. (1:960) and as follows:
1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error are not to exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 - EXECUTION

3.1 **EXAMINATION**

A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 **PREPARATION**

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that required to obtain fire-resistance ratings indicated. Protect remaining fire-resistive materials from damage.

C. Install load-bearing shims or grout between the underside of load-bearing wall bottom track

and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.

D. Install sill sealer gasket at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

E. Install sill sealer/termite barrier in accordance with manufacturer's written instructions at the underside of the wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200, AISI S240, and manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field fabricated, cold-formed framing and securely anchor to supporting structure.
   1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flish, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
   1. Cut framing members by sawing or shearing; do not torch cut.
   2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearances and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners, install in accordance with Shop Drawings, and comply with the requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

3.4 INSTALLATION OF LOAD-BEARING WALL FRAMING

A. Install continuous top and bottom tracks sized to match studs. Align tracks accurately and securely anchor at corners and ends, and at spacings as follows:
   1. Anchor Spacing: As shown on Shop Drawings.

B. Squarely seat studs against top and bottom tracks, with gap not exceeding 1/8 inch between the end of wall-framing member and the web of track.
   1. Fasten both flanges of studs to top and bottom tracks.
   2. Space studs as follows:
      a. Stud Spacing: As indicated on Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar configurations.

D. Align studs vertically where floor framing interrupts wall-framing continuity. Where studs cannot be aligned, continuously reinforce track to transfer loads.

E. Align floor and roof framing over studs according to AISI S200, Section C1. Where framing cannot be aligned, continuously reinforce track to transfer loads.

F. Anchor studs abutting structural columns or walls, including masonry walls, to supporting structure.

G. Install headers over wall openings wider than stud spacing. Locate headers above openings. Fabricate headers of compound shapes indicated or required to transfer load to supporting studs, complete with clip-angle connectors, web stiffeners, or gusset plates.
   1. Frame wall openings with not less than a double stud at each jamb of frame. Fasten jamb members together to uniformly distribute loads.
   2. Install tracks and jack studs above and below wall openings. Anchor tracks to jamb studs with clip angles or by welding, and space jack studs same as full-height wall studs.

H. Install supplementary framing, blocking, and bracing in stud framing indicated to support fixtures, equipment, services, casework, heavy trim, furnishings, and similar work requiring attachment to framing.
   1. If the type of supplementary support is not indicated, comply with stud manufacturer's written recommendations and industry standards in each case, considering weight or load resulting from item supported.

I. Install horizontal bridging in stud system, spaced vertically as indicated on Shop Drawings Insert dimension. Fasten at each stud intersection.
   1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs with a minimum of two screws into each flange of the clip angle for framing members up to 6 inches deep.
   2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges, and secure solid blocking to stud webs or flanges.
   3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

J. Install steel sheet diagonal bracing straps to both stud flanges; terminate at and fasten to reinforced top and bottom tracks. Fasten clip-angle connectors to multiple studs at ends of bracing and anchor to structure.

K. Install miscellaneous framing and connections, including supplementary framing, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 INSTALLATION OF EXTERIOR NON-LOAD-BEARING WALL FRAMING

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:
   1. Stud Spacing: As indicated on Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
   1. Install single deep-leg deflection tracks and anchor to building structure.

2. Install double deep-leg deflection tracks and anchor outer track to building structure.
3. Connect vertical deflection clips to studs and anchor to building structure.
4. Connect drift clips to cold-formed steel framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 INSTALLATION OF INTERIOR NON-LOAD-BEARING WALL FRAMING

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

B. Fasten both flanges of studs to bottom track unless otherwise indicated. Space studs as follows:
1. Stud Spacing: As indicated on Drawings.

C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Install single deep-leg deflection tracks and anchor to building structure.
2. Install double deep-leg deflection tracks and anchor outer track to building structure.
3. Connect vertical deflection clips to studs and anchor to building structure.
4. Connect drift clips to cold-formed steel metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
2. Strap Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud-track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges.
3. Bar Bridging: Proprietary bridging bars installed according to manufacturer's written instructions.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.7 INSTALLATION OF JOIST FRAMING

A. Install perimeter joist track sized to match joists. Align and securely anchor or fasten track to supporting structure at corners, ends, and spacings indicated on Shop Drawings.

B. Install joists bearing on supporting frame, level, straight, and plumb; adjust to final position, brace, and reinforce. Fasten joists to both flanges of joist track.
   1. Install joists over supporting frame with a minimum end bearing of 1-1/2 inches.
   2. Reinforce ends and bearing points of joists with web stiffeners, end clips, joist hangers, steel slip angles, or steel-stud sections.

C. Space joists no more than 2 inches from abutting walls, and as follows:
   1. Joist spacing: As indicated on Drawings.

D. Frame openings with built-up joist headers, consisting of joist and joist track or another combination of connected joists if indicated.

E. Install joist reinforcement at interior supports with single, short length of joist section located directly over interior support, with lapped joists equal length to joist reinforcement.
   1. Install web stiffeners to transfer axial loads of walls above.

F. Install bridging at intervals indicated on Shop Drawings. Fasten bridging at each joist intersection as follows:
   1. Joist-Track Solid Bridging: Joist-track solid blocking of width and thickness indicated, secured to joist webs.
   2. Combination bridging: Combination of flat, taut, steel sheet straps of widths and thickness indicated and joist-track solid blocking of width and thickness indicated. Fasten flat straps to bottom flange and secure solid blocking to joist webs.

G. Secure joists to load-bearing interior walls to prevent lateral movement of bottom flange.

H. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable joist-framing assembly.

3.8 INSTALLATION TOLERANCES

A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
   1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.9 REPAIRS

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

3.10 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.
D. Cold-formed steel framing will be considered defective if it does not pass tests and inspections.
E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
F. Prepare test and inspection reports.

3.11 **PROTECTION**

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of substantial completion.

END OF SECTION 054000

SECTION 055000
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop fabricated steel and aluminum items.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Placement of metal fabrications in concrete.

C. Section 042000 - UNIT MASONRY: Placement of metal fabrications in masonry.

D. Section 053100 - STEEL DECKING: Bearing plates for metal deck bearing, including anchorage.

E. Section 055100 - Metal Stairs.

F. Section 055213 - PIPE AND TUBE RAILINGS.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

D. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.

E. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.

G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2019a.

H. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

I. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

J. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

K. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

L. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

M. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2015, with Errata (2016).

N. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).

O. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

P. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

Q. SSPC-SP 2 - Hand Tool Cleaning; 2024.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   1. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
   2. Design data: Submit drawings and supporting calculations, signed and sealed by a qualified professional structural engineer.
      a. Include the following, as applicable:
         1) Design criteria.
         2) Engineering analysis depicting stresses and deflections.
         3) Member sizes and gauges.
         4) Details of connections.
         5) Support reactions.
         6) Bracing requirements.

C. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

1.05 QUALITY ASSURANCE

A. Design under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.

C. Plates: ASTM A283/A283M.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Stainless Steel, General: ASTM A666/A666M, Type 304.

F. Slotted Channel Fittings: ASTM A1011/A1011M.

G. Mechanical Fasteners: Same material as or compatible with materials being fastened; type consistent with design and specified quality level.

H. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.

I. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

J. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

K. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

L. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

E. Furnish components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.03 FABRICATED ITEMS

A. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; prime paint finish.

B. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.

C. Lintels: As detailed; galvanized finish.

D. Door Frames for Overhead Door Openings, Wall Openings, and _____: Channel sections; prime paint finish.

E. Elevator Hoistway Divider Beams: Beam sections; prime paint finish.

F. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; factory-applied, rust-inhibiting thermoset acrylic enamel finish.

2.04 FINISHES - STEEL

A. Prime paint steel items.
   1. Exceptions: Galvanize items to be embedded in concrete and items to be embedded in masonry.
   2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: One coat.

E. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements. Provide minimum 1.7 oz/sq ft galvanized coating.

F. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.

G. Slotted Channel Framing: ASTM A653/A653M, Grade 33.

H. Stainless Steel Finish: No. 4 Bright Polished finish.

2.05 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Furnish setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components as indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed , except surfaces to be in contact with concrete.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 055113
METAL PAN STAIRS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Preassembled steel stairs with concrete-filled treads.
   2. Steel tube railings attached to metal stairs.
   3. Steel tube handrails attached to walls adjacent to metal stairs.

B. Related Requirements:
   1. Section 033000 "Cast-in-Place Concrete" for concrete fill for stair treads and platforms.
   2. Section 055213 "Pipe and Tube Railings" for pipe and tube railings.

1.02 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages for metal stairs. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

C. Coordinate locations of hanger rods and struts with other work so that they do not encroach on required stair width and are within the fire-resistance-rated stair enclosure.

1.03 ACTION SUBMITTALS

A. Product Data: For metal pan stairs and the following:
   1. Prefilled metal-pan-stair treads.
   2. Precast concrete treads.
   3. Epoxy-resin-filled stair treads.
   4. Nonslip aggregates and nonslip-aggregate finishes.
   5. Abrasive nosings.
   6. Paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

C. Delegated-Design Submittal: For stairs, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.04 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

B. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design stairs.

B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Uniform Load: 100 lbf/sq. ft..
   2. Concentrated Load: 300 lbf applied on an area of 4 sq. in..
   3. Uniform and concentrated loads need not be assumed to act concurrently.
   4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.
   5. Limit deflection of treads, platforms, and framing members to L/360 or 1/4 inch, whichever is less.

C. Structural Performance of Railings: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Handrails and Top Rails of Guards:
      a. Uniform load of 75 lbf/ft. applied in any direction.
      b. Concentrated load of 200 lbf applied in any direction.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   2. Infill of Guards:
      a. Concentrated load of 75 lbf applied horizontally on an area of 1 sq. ft..
      b. Infill load and other loads need not be assumed to act concurrently.

2.02 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

C. Steel Plates, Shapes, and Bars: ASTM A 572

D. Steel Tubing: ASTM A 500 (cold formed) or ASTM A 513.

E. Cast Iron: Either gray iron, ASTM A 48, or malleable iron, ASTM A 47 unless otherwise indicated.

F. Uncoated, Cold-Rolled Steel Sheet: ASTM A 1008, either commercial steel, Type B, or structural steel, Grade 25, unless another grade is required by design loads; exposed.

G. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011, either commercial steel, Type B, or structural steel, Grade 30, unless another grade is required by design loads.

2.03 FASTENERS

A. General: Provide zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 12 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

B. Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; and, where indicated, flat washers.
   1. Provide mechanically deposited or hot-dip, zinc-coated anchor bolts for.

D. Post-Installed Anchors: Torque-controlled expansion anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
   1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.

2.04 MISCELLANEOUS MATERIALS

A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
   1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

C. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

D. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.

E. Welded Wire Reinforcement: ASTM A 185/A 185M, 6 by 6 inches, W1.4 by W1.4, unless otherwise indicated.

2.05 FABRICATION, GENERAL

A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.
   1. Join components by welding unless otherwise indicated.
   2. Use connections that maintain structural value of joined pieces.

B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

E. Form exposed work with accurate angles and surfaces and straight edges.

F. Weld connections to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. Weld exposed corners and seams continuously unless otherwise indicated.
   5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 4 welds: good quality, uniform undressed weld with minimal splatter.

G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts unless otherwise indicated. Locate joints where least conspicuous.

2.06 STEEL-FRAMED STAIRS

A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," Commercial Class, unless more stringent requirements are indicated.

B. Stair Framing:
   1. Fabricate stringers of steel channels.
      a. Provide closures for exposed ends of channel stringers.
   2. Construct platforms of steel channel headers and miscellaneous framing members as needed to comply with performance requirements indicated.
   3. Weld or bolt stringers to headers; weld or bolt framing members to stringers and headers. If using bolts, fabricate and join so bolts are not exposed on finished surfaces.
   4. Where stairs are enclosed by gypsum board shaft-wall assemblies, provide hanger rods or struts to support landings from floor construction above or below. Locate hanger rods and struts where they do not encroach on required stair width and are within the fire-resistance-rated stair enclosure.

C. Metal Pan Stairs: Form risers, subtread pans, and subplatforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.067 inch.
   1. Steel Sheet: Uncoated cold-rolled steel sheet.
   2. Directly weld metal pans to stringers; locate welds on top of subtreads where they are concealed by concrete fill. Do not weld risers to stringers.
   3. Attach risers and subtreads to stringers with brackets made of steel angles or bars. Weld brackets to stringers and attach metal pans to brackets by welding, riveting, or bolting.
   4. Shape metal pans to include nosing integral with riser.
   5. Provide subplatforms of configuration indicated or, if not indicated, the same as subtreads. Weld subplatforms to platform framing.
      a. Smooth Soffit Construction: Construct subplatforms with flat metal under surfaces to produce smooth soffits.

2.07 STAIR RAILINGS

A. Comply with applicable requirements in Section 055213 "Pipe and Tube Railings."

B. Steel Tube Railings: Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.

C. Welded Connections: Fabricate railings with welded connections. Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
   1. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 welds: no evidence of a welded joint as shown in NAAMM AMP 521.

D. Form changes in direction of railings as follows:
   1. By bending or by inserting prefabricated elbow fittings.

E. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

F. Close exposed ends of railing members with prefabricated end fittings.

G. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

H. Connect posts to stair framing by direct welding unless otherwise indicated.

I. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work. Furnish inserts and other anchorage devices for connecting to concrete or masonry work.
   1. For nongalvanized railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves, except galvanize anchors embedded in exterior masonry and concrete construction.
   2. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

J. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

2.08 FINISHES

A. Finish metal stairs after assembly.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized or stainless steel finishes and those to be embedded in concrete or masonry unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 EXECUTION

3.01 INSTALLING METAL PAN STAIRS

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal stairs to in-place construction. Include threaded fasteners for concrete and masonry inserts, through-bolts, lag bolts, and other connectors.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

C. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.

D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

E. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.

F. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.

G. Place and finish concrete fill for treads and platforms to comply with Section 033000 "Cast-in-Place Concrete."
   1. Install abrasive nosings with anchors fully embedded in concrete. Center nosings on tread width.

3.02 INSTALLING RAILINGS

A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated or, if not indicated, as required by design loads. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:
   1. Anchor posts to steel by welding to steel supporting members.
   2. Anchor handrail ends to concrete and masonry with steel round flanges welded to rail ends and anchored with postinstalled anchors and bolts.

B. Attach handrails to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads. Secure wall brackets to building construction as follows:
   1. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs. Coordinate with stud installation to locate backing members.
   2. For steel-framed partitions, use self-tapping screws fastened to steel framing or to concealed steel reinforcements.

3.03 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
   1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

END OF SECTION

SECTION 055133
METAL LADDERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Shop-fabricated metal ladders.

B. Accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 055113 - Metal Pan Stairs.

C. Section 055213 - PIPE AND TUBE RAILINGS.

D. Section 099000 - Painting and Coating: Paint finish.

1.03 REFERENCE STANDARDS

A. ANSI A14.3 - American National Standard for Ladders -- Fixed -- Safety Requirements; 2008 (Reaffirmed 2018).

B. ASME A17.1 - Safety Code for Elevators and Escalators Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters with Automatic Transfer Devices; 2022.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

E. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.

F. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength; 2021.

G. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2023.

H. ASTM F3125/F3125M - Standard Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength; 2023.

I. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; 2012.

J. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

K. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

L. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; 2014, with Errata (2020).

M. IAS AC172 - Accreditation Criteria for Fabricator Inspection Programs for Structural Steel; 2018.

N. SSPC-Paint 15 - Steel Joist Shop Primer/Metal Building Primer; 2004.

O. SSPC-SP 2 - Hand Tool Cleaning; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages for casting into concrete. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data; For the following:
   1. Paint products.
   2. Manufacturer's data sheets on each ladder safety system product to be used, including installation instructions.

C. Shop Drawings:
   1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
   2. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.

D. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

E. Designer's Qualification Statement.

F. Fabricator's Qualification Statement: Provide documentation showing steel fabricator is accredited under IAS AC172.

G. Specimen warranty.

H. Executed warranty.

1.06 QUALITY ASSURANCE

A. Design metal ladders under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and AWS D1.2/D1.2M and dated no more than 12 months before start of scheduled welding work.

C. Fabricator Qualifications: A qualified steel fabricator that is accredited by IAS AC172.

1.07 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for material and workmanship. Complete forms in Owner's name and register with manufacturer.

1.08 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal ladders by field measurements before fabrication.

PART 2 PRODUCTS

2.01 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.02 MANUFACTURERS

A. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.03 MATERIALS - STEEL

A. Steel Sections: ASTM A36/A36M.

B. Steel Tubing: ASTM A500/A500M Grade B cold-formed structural tubing.

C. Plates, Shapes and Bars: ASTM A283/A283M.

D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.

E. Mechanical Fasteners: Same material or compatible with materials being fastened; type consistent with design and specified quality level.

F. Bolts, Nuts, and Washers: ASTM A307, plain.

G. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

H. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.

I. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.

2.04 FABRICATION

A. Fit and shop assemble items in largest practical sections, for delivery to site.

B. Fabricate items with joints tightly fitted and secured.

C. Continuously seal joined members by continuous welds.

D. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

E. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.

F. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.05 SHOP FABRICATED LADDERS

A. General:
   1. Ladders: Steel; in compliance with ANSI A14.3; with mounting brackets and attachments; prime paint finish.
      a. Side Rails: 3/8 by 2 inches members spaced at 20 inches.

2. Elevator Pit Ladders: Steel; in compliance with ASME A17.1; with mounting brackets and attachments; prime paint finish.
   a. Elevator Pit Side Rails: 3/8 by 2 inches members spaced at 12 inches.
3. Rungs: One inch diameter solid round bar spaced 12 inches on center.
4. Space rungs 7 inches from wall surface.
5. Fit rungs in centerline of siderails; plug-weld and grind smooth on outer rail faces.
6. Provide nonslip surfaces on top of each rung, either by coating rung with aluminum-oxide granules set in epoxy-resin adhesive or by using a type of manufactured rung filled with aluminum-oxide grout.
   a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
      1) IKG Industries; Mebac: www.ikg.com/#sle.
      2) **(Basis of Design)** Slipnot Metal Safety Flooring; SlipNOT: www.slipnot.com/#sle.
      3) Substitutions: See Section 016000 - Product Requirements.
7. Support each ladder at top and bottom and not more than 60 inches o.c. with welded or bolted steel brackets.
8. Galvanize exterior ladders, including brackets and fasteners.

2.06 ACCESSORIES

A. Steel Ladder Guard for Fixed Ladders:
   1. 14 Gauge steel construction.
   2. Dimensions:
      a. Width: 20.88 inches.
      b. Depth: 6.28 inches.
      c. Height: 6 feet - 0 inches.
   3. Lockable Hasps
   4. Mounting Type: Hinges.
   5. Provide all required components for field assembly and installation, including but not limited to, the following: Brackets, hasps, hinges, screws, nuts and guard panels.
   6. Provide manufacturer's assembly and installation instructions.
   7. Finish: Manufacturer applied Powder Coat.
      a. Color: Gray.
   8. Manufacturers:
      a. Cotterman; Ladder Guard, model 487V32: www.cotterman.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.07 FINISHES - STEEL

A. Prime paint steel items.
   1. Do not prime surfaces in direct contact with concrete.
   2. Do not prime surfaces where field welding is required.

B. Prepare surfaces to be primed in accordance with SSPC-SP2.

C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

D. Prime Painting: Two coats.

2.08 FABRICATION TOLERANCES

A. Squareness: 1/8 inch maximum difference in diagonal measurements.

B. Maximum Offset Between Faces: 1/16 inch.

C. Maximum Misalignment of Adjacent Members: 1/16 inch.

D. Maximum Bow: 1/8 inch in 48 inches.

E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

A. Clean and strip primed steel items to bare metal where site welding is required.

B. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.

3.03 INSTALLATION

A. Install items plumb and level, accurately fitted, free from distortion or defects.

B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.

C. Field weld components as indicated on drawings.

D. Perform field welding in accordance with AWS D1.1/D1.1M.

E. Obtain approval prior to site cutting or making adjustments not scheduled.

F. After erection, prime welds, abrasions, and surfaces not shop primed , except surfaces to be in contact with concrete.

3.04 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.

B. Maximum Offset From True Alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

END OF SECTION

SECTION 055213
PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:
   1. Steel tube railings.
   2. Wall mounted handrails.
   3. Stair railings and guardrails.

1.02 RELATED REQUIREMENTS

A. Section 033000 - Cast in Place Concrete: Placement of anchors in concrete

B. Section 055100 - Metal Stairs: Attachment plates for handrails specified in this section.

C. Section 099113 - Exterior Painting

D. Section 099123 - Interior Painting

1.03 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design: 2010.

B. AISC 207 - Standard for Certifications Programs 2023

C. ASTM A53/A53M - Standard for specification for pipe, steel, black and hot dipped, zinc coated welded and seamless; 2022.

D. ASTM A123/A123M - Standard specification for Zinc (Hot Dipped Galvanized) coating on iron and steel products; 2017

E. AWS D1.1/D1.1M - Structural Welding Code - Steel ; 2010.

F. AWS D1.6/ D1.6M - Structural Welding Code - Stainless Steel 2017 with Amendment (2021)

1.04 COORDINATION

A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.05 ACTION SUBMITTALS

A. Product Data: For the following:
   1. Manufacturer's product lines of mechanically connected railings.
   2. Railing brackets.
   3. Grout, anchoring cement, and paint products.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
   1. Indicated welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
   2. Include the design engineer's seal and signature on each sheet of the shop drawings.

C. Samples: For each type of exposed finish required.
   1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
   2. Fittings and brackets.
   3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
      a. Show method of connecting members at intersections.

D. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.06 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.

D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

E. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

F. Evaluation Reports: For post-installed anchors, from ICC-ES.

1.07 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:
   1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
   2. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

1.09 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Steel Pipe and Tube Railings:
   1. Manufacturers: Subject to compliance with requirements, provide products by the following:
      a. Wagner, R & B, Inc.

B. Stainless-Steel Pipe and Tube Railings:
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Blum, Julius & Co., Inc.
      b. Wagner, R & B, Inc.

C. Source Limitations: Obtain each type of railing from single source from single manufacturer.

2.02 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.

B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Handrails and Top Rails of Guards:
      a. Distributed Load: Uniform load of 75 lbf/ ft. applied to the top of the assembly and in any direction, without damage or permanent set. Test in accordance with ASTM E935.
      b. Concentrated load of 200 lbf applied in any direction. Test in accordance with ASTM E935.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   2. Infill of Guards:
      a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
      b. Infill load and other loads need not be assumed to act concurrently.

C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
   1. Temperature Change: 120 deg F, ambient; 180 deg F.

D. Dimensions: See drawings for configurations and heights.
   1. Top rails and wall rails: 1-1/2" diameter round.
   2. Intermediate Posts: 1-1/2" diameter round
   3. Posts: 1-1/2" diameter round.
   4. Ballusters: 3/4" square solid bar.

E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.

F. Welded and Brazed Joints: Make visible joints butt tight, flush and hairline; use methods that avoid discoloration and damage of finish; grind smooth, polish, and restore to required finish.
   1. Ease exposed edges to small uniform radius.
   2. Welded Joints:
      a. Carbon Steel; Perform welding in accordane with AWS D1.1/ D1.1M
      b. Stainless Steel: Perform welding in accordance with AWS D1.6/ D1.6M

2.03 METALS, GENERAL

A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

2.04 STEEL AND IRON

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

B. Tubing: ASTM A 500 (cold formed).

C. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
   1. Provide galvanized finish for exterior installations and where indicated.

D. Plates, Shapes, and Bars: ASTM A 36/A 36M.

E. Woven-Wire Mesh: Intermediate-crimp, square pattern, 2-inch woven-wire mesh, made from 0.135-inch nominal diameter wire complying with ASTM A 510.

F. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.

2.05 STAINLESS STEEL

A. Tubing: ASTM A 554, Grade MT 304.

B. Plate and Sheet: ASTM A 240/A 240M or ASTM A 666, Type 304.

C. Stainless Steel Woven-Wire Mesh: Intermediate-crimp, 2-inch woven-wire mesh, square pattern.
   1. Product Wagner BWL 62.

2.06 ACCESSORIES

A. Handrail Brackets
   1. Manufacturer: Wagner
      a. MB3251W Stainless Steel Handrail Bracket
         1) Locations: Stair Handrails
      b. MB3251P Stainless Steel Handrail Bracket
         1) Locations: Post mount handrail bracket.
      c. GB3251 Stainless Steel Handrail Bracket
         1) Locations: Ramp

B. Flanges:
   1. Manufacturer: Wagner
      a. Model: Flat Base Flange w/ 4 holes #636 with Stainless flange cover #1534.

2.07 FASTENERS

A. Fastener Materials: Unless otherwise indicated, provide the following:
   1. Stainless-Steel Components: Type 304 stainless-steel fasteners.

B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.

C. Fasteners for Interconnecting Railing Components:

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
2. Provide square or hex socket flat-head machine screws for exposed fasteners unless otherwise indicated.

2.08 MISCELLANEOUS MATERIALS

A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

B. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

D. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
   1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

2.09 FABRICATION

A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.

B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

D. Form work true to line and level with accurate angles and surfaces.

E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.

F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.

G. Connections: Fabricate railings with welded connections unless otherwise indicated.

H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove flux immediately.
   4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

I. Form Changes in Direction as Follows:
   1. By bending or by inserting prefabricated elbow fittings.

J. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.

K. Close exposed ends of railing members with prefabricated end fittings.

L. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.

M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
   1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.

2.10 STEEL AND IRON FINISHES

A. For nongalvanized-steel railings, provide nongalvanized ferrous-metal fittings, brackets, fasteners, and sleeves; however, galvanize anchors to be embedded in exterior concrete or masonry.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

C. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
   1. Shop prime uncoated railings with universal shop primer unless indicated.

D. Provide Electrostatically applied finishes to all steel and iron components

2.11 STAINLESS-STEEL FINISHES

A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.

B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.

C. Run grain of directional finishes with long dimension of each piece.

D. Dull Satin Finish: No. 6.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.02 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
   1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
   2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
   3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.

C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
   1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.

D. Adjust railings before anchoring to ensure matching alignment at abutting joints.

3.03 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.

C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.04 ANCHORING POSTS

A. Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with non-shrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.

B. Cover anchorage joint with flange of same metal as post, attached to post with set screws.

3.05 ATTACHING RAILINGS

A. Attach railings to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

B. Secure wall brackets and railing end flanges to building construction as follows:
   1. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs. Coordinate with stud installation to locate backing members.

3.06 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.

1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Clean stainless steel by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

3.07 TOLERANCES

A. Maximum Variation from Plumb: 1/4" per floor level, non-cumulative.

B. Maximum offset from true alignment: 1/4 inch.

C. Maximum Out-of-Position: 1/4 inch.

3.08 PROTECTION

A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

SECTION 061000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Structural dimension lumber framing.

B. Rough opening framing for doors, windows, and roof openings.

C. Sheathing.

D. Preservative treated wood materials.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 072500 - Weather Barriers: Water-resistive barrier over sheathing.

C. Section 072700 - Air Barriers: Air barrier over sheathing.

D. Section 092116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

B. ASTM B117 - Standard Practice for Operating Salt Spray (Fog) Apparatus; 2019.

C. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.

D. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2024.

E. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

F. ASTM F1667 - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021.

G. AWC (WFCM) - Wood Frame Construction Manual for One- and Two-Family Dwellings; 2024, with Errata.

H. AWPA M4 - Standard for the Handling, Storage, Field Fabrication and Field Treatment of Preservative-Treated Wood Products; 2023.

I. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.

J. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. NELMA (SGR) - Standard Grading Rules for Northeastern Lumber; 2024.

L. PS 2 - Performance Standard for Wood Structural Panels; 2019.

M. PS 20 - American Softwood Lumber Standard; 2025.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide technical data on All specified products.

C. Product Data: Submit technical data on wood treatment.

D. Evaluation Reports: For the following, from ICC-ES:
   1. Wood-preservative-treated plywood.
   2. Air-barrier and water-resistant glass-mat gypsum sheathing.

E. ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.

F. Manufacturer's Certificate: Certify that wood products supplied for rough carpentry meet or exceed specified requirements.

G. ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.

H. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification. Keep copies of all contractor accreditation and installer certification on site during and after installation. Present on-site documentation upon request.

I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

A. Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:
   1. Installer Qualification: Use accredited contractor, certified installers, evaluated materials, and third-party field quality control audit.
   2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture. Use secondary materials approved in writing by primary material manufacturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. General: Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

1.07 WARRANTY

A. Existing Warranties:
   1. Remove, replace, patch and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
      a. Existing warranties include the following:
         1) Roofing.
   2. Notify warrantor upon completion of selective demolition and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project Closeout.

B. See Section 017700 - Closeout Procedures, for additional warranty requirements.

C. Manufacturer Warranty: Provide 2-year manufacturer warranty for materials and workmanship commencing on Date of Substantial Completion.

D. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For assemblies with fire-resistance ratings, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E119 by a testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory".

2.02 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source and from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

2.03 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee at www.alsc.org, and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

2.04 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Northeastern Lumber Manufacturers Association; NELMA (SGR).

B. Sizes: Nominal sizes as indicated on drawings, S4S.

C. Moisture Content: S-dry or MC19.

D. Stud Framing (2 by 2 through 2 by 10) as indicated on drawings:
   1. Species: Southern Pine.
   2. Grade: No. 2.

E. Rafter Framing (2 by 6 through 2 by 10):
   1. Species: Southern Pine.
   2. Grade: No. 1 and Better.

2.05 CONSTRUCTION PANELS (SHEA

A. Roof Sheathing: PS 2 type, rated Structural I Sheathing.
   1. Bond Classification: Exterior.
   2. Span Rating: 60.
   3. Performance Category: 3/4 PERF CAT.

B. Wall Sheathing, at exterior stud framed walls: Glass mat faced gypsum, ASTM C1177/C1177M, 5/8 inch Type X fire resistant.
   1. Edges: Square.
   2. Products:
      a. Georgia-Pacific Gypsum; Dens Glass Sheathing: www.gpgypsum.com/#sle.

b. Substitutions: See Section 016000 - Product Requirements.

2.06 PRESSURE-PRESERVATIVE TREATMENT (PPT)

A. Factory-treat wood members in accordance with AWPA U1 and use category indicated.

B. Kiln-dry wood after treatment with waterborne preservative to maximum moisture content of 19 percent for lumber and 15 percent for plywood.

C. Fabricate to maximum extent possible before treatment.

D. Label preservative-treated wood with marking as required by AWPA U1 and ICC (IBC). Unless otherwise permitted by standard U1 and building code, include the following markings: AWPA U1, accredited inspection agency mark, treating plant identification, type of preservative, preservative retention, and permitted end use.

E. Field Treatment for Cuts and Holes in Preservative-Treated Wood: Comply with AWPA M4.

2.07 ACCESSORIES

A. Metal and Finish of Fasteners:
   1. Preservative-Treated Wood:
      a. Nails, timber rivets, wood screws, and lag screws - general use: Hot-dip galvanized steel complying with ASTM A153/A153M Class D.
   2. Untreated Wood: Unfinished steel.
   3. Masonry Anchors: Toggle bolt type for anchorage to hollow masonry.

B. Fasteners and Anchors; Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture:
   1. Nails, Brads, and Staples: ASTM F1667.
   2. Power-Driven Fasteners: NES NER-272.
   3. Wood Screws: ASME B18.6.1.
   4. Metal and Finish: Hot-dipped galvanized steel complying with ASTM A153/A153M for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   5. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117.
      a. For steel framing from 0.033 to 0.112-inch-thick, use screws that comply with ASTM C954.

C. Water-Resistive Barrier: See Section 072726.

D. Air Barrier: See Section 072726.

2.08 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C 834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.
   1. Sheathing Tape: Self-adhering glass-fiber tape, minimum two inches wide, 10 by 10 threads/inch, of type recommended by sheathing and tape manufacturers for use with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

PART 3 EXECUTION

3.01 PREPARATION

A. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:
   1. Chapter 23, "Fastening Schedule" in Building Code of New York State.

D. Use common wire nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections. Install fasteners without splitting wood.

E. Coordinate wall and roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

F. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

G. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

H. Select material sizes to minimize waste.

I. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.03 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength or result in unacceptable appearance of exposed members.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC (WFCM) Wood Frame Construction Manual.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

F. Construct double joist headers at floor and ceiling openings and under wall stud partitions that are parallel to floor joists; use metal joist hangers unless otherwise detailed.

G. Frame wall openings with two or more studs at each jamb; support headers on cripple studs.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Roof Sheathing: Secure panels with long dimension perpendicular to framing members, with ends staggered and over firm bearing.
   1. Nail panels to framing; staples are not permitted.
   2. Space panels 1/16 inch apart at edges and ends.

C. Wall Sheathing: Secure with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using screws.
   1. Screw to cold-formed metal framing.
   2. Space panels 1/16 inch apart at edges and ends.

3.06 GYPSUM SHEATHING INSTALLATION

A. Comply with GA-253 and with manufacturer's written instructions.
   1. Fasten gypsum sheathing to cold-formed metal framing with screws.

B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent boards without forcing. Abut ends of boards over centers of studs, and stagger end joints of adjacent boards not less than one stud spacing. Attach boards at perimeter and within field of board to each steel stud.
   1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

D. Seal sheathing joints according to sheathing manufacturer's written instructions.
   1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel silicone emulsion sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

3.07 FIELD QUALITY CONTROL

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Coordination of ABAA Tests and Inspections:
   1. Provide testing and inspection required by ABAA QAP.
   2. Notify in ABAA writing of schedule for air barrier work. Allow adequate time for testing and inspection.
   3. Cooperate with ABAA testing agency.
   4. Allow access to air barrier work areas and staging.
   5. Do not cover air barrier work until tested, inspected, and accepted.

3.08 CLEANING

A. Waste Disposal: See Section 017419 - Construction Waste Management and Disposal.
   1. Comply with applicable regulations.
   2. Do not burn scrap on project site.
   3. Do not burn scraps that have been pressure treated.
   4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 061053
MISCELLANEOUS ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Roof-mounted curbs.

B. Preservative treated wood materials.

C. Fire retardant treated wood materials.

D. Communications and electrical room mounting boards.

E. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 077200 - Roof Accessories: Prefabricated roof curbs.

C. Section 092116 - Gypsum Board Assemblies: Gypsum-based sheathing.

1.03 REFERENCE STANDARDS

A. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

B. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing; 2010 (Reapproved 2024).

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

D. AWPA U1 - Use Category System: User Specification for Treated Wood; 2025.

E. PS 1 - Structural Plywood; 2009.

F. PS 20 - American Softwood Lumber Standard; 2025.

G. SPIB (GR) - Standard Grading Rules; 2021.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
3. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

C. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

D. Evaluation Reports: For the following, from ICC-ES:
   1. Preservative-treated wood.
   2. Fire-retardant-treated wood.
   3. Power-driven fasteners.
   4. Post-installed anchors.

1.05 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant-treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.06 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

B. Fire Retardant Treated Wood: Prevent exposure to precipitation during shipping, storage, and installation.

1.07 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective work within a two-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2.02 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
   1. If no species is specified, provide species graded by the agency specified; if no grading agency is specified, provide lumber graded by grading agency meeting the specified requirements.
   2. Grading Agency: Grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness 15 percent for 2-inch nominal thickness or less; no limit for more than 2-inch nominal thickness unless otherwise indicated.

2.03 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

A. Grading Agency: Southern Pine Inspection Bureau, Inc; SPIB (GR).

B. Sizes: Nominal sizes as required, S4S.

C. Moisture Content: Kiln-dry or MC15.

D. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:

1. Lumber: S4S, No.2 or Standard Grade.
2. Boards: Standard or No.3.

2.04 CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: PS 1, A-D plywood, or medium density fiberboard; 3/4 inch (19 mm) thick; flame spread index of 25 or less, smoke developed index of 450 or less, when tested in accordance with ASTM E84.

B. Plywood Concealed From View But Located Within Exterior Enclosure: PS 1, C-C Plugged or better, Exterior grade.
   1. Thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.05 ACCESSORIES

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

B. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 or as appropriate for the substrate.

C. Fasteners and Anchors:
   1. Metal and Finish: Stainless steel for high humidity and preservative-treated wood locations, unfinished steel elsewhere.
   2. Anchors: Toggle bolt type for anchorage to hollow masonry.

D. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

2.06 FACTORY WOOD TREATMENT

A. Treated Lumber and Plywood: Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
   1. Fire-Retardant Treated Wood: Mark each piece of wood with producer's stamp indicating compliance with specified requirements.
   2. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

B. Fire Retardant Treatment:
   1. Exterior Type: AWPA U1, Category UCFB, Commodity Specification H, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes both before and after accelerated weathering test performed in accordance with ASTM D2898.
      a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
      b. Do not use treated wood in direct contact with ground.
   2. Interior Type A: AWPA U1, Use Category UCFA, Commodity Specification H, low temperature, low hygroscopic type, chemically treated and pressure impregnated; capable of providing a maximum flame spread index of 25 when tested in accordance with ASTM E84, with no evidence of significant combustion when test is extended for an additional 20 minutes.

a. Kiln dry wood after treatment to a maximum moisture content of 19 percent for lumber and 15 percent for plywood.
b. Treat rough carpentry items as indicated.
c. Do not use treated wood in applications exposed to weather or where the wood may become wet.

C. Preservative Treatment:
1. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A using waterborne preservative to ____ lb/cu ft retention (to ____ kg/cu m retention).
a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
b. Treat lumber exposed to weather.
c. Treat lumber in contact with roofing, flashing, or waterproofing.
d. Treat lumber in contact with masonry or concrete.
e. Treat lumber less than 18 inches (450 mm) above grade.
f. Treat lumber in other locations as indicated.
2. Preservative Pressure Treatment of Plywood Above Grade: AWPA U1, Use Category UC2 and UC3B, Commodity Specification F using waterborne preservative to 0.25 lb/cu ft retention (to 4.0 kg/cu m retention).
a. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
b. Treat plywood in contact with roofing, flashing, or waterproofing.
c. Treat plywood in contact with masonry or concrete.
d. Treat plywood less than 18 inches (450 mm) above grade.

PART 3 EXECUTION

3.01 PREPARATION

A. Where wood framing bears on cementitious foundations, install full width sill flashing continuous over top of foundation, lap ends of flashing minimum of 4 inches (100 mm) and seal.

B. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

C. Coordinate installation of rough carpentry members specified in other sections.

3.02 INSTALLATION - GENERAL

A. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Install plywood backing panels by fastening to studs or block; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.

C. Select material sizes to minimize waste.

D. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

E. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

F. Where treated wood is used on interior, provide temporary ventilation during and immediately after installation sufficient to remove indoor air contaminants.

G. Securely attach carpentry work to substrate by anchoring and fastening as indicated

3.03 BLOCKING, NAILERS, AND SUPPORTS

A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.

B. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

C. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

D. In metal stud walls, provide continuous blocking around door and window openings for anchorage of frames, securely attached to stud framing.

E. In walls, provide blocking attached to studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.

F. Provide the following specific nonstructural framing and blocking:
1. Cabinets and shelf supports.
2. Wall brackets.
3. Handrails.
4. Grab bars.
5. Towel and bath accessories.
6. Wall-mounted door stops.
7. Chalkboards and marker boards.

3.04 ROOF-RELATED CARPENTRY

A. Coordinate installation of roofing carpentry with deck construction, framing of roof openings, and roofing assembly installation.

B. Provide wood curb at roof openings except where prefabricated curbs are specified and where specifically indicated otherwise. Form corners by alternating lapping side members.

3.05 INSTALLATION OF CONSTRUCTION PANELS

A. Communications and Electrical Room Mounting Boards: Secure with screws to studs with edges over firm bearing; space fasteners at maximum 24 inches (610 mm) on center on edges and into studs in field of board.
1. At fire-rated walls, install board over wall board indicated as part of the fire-rated assembly.
2. Where boards are indicated as full floor-to-ceiling height, install with long edge of board parallel to studs.
3. Install adjacent boards without gaps.
4. Size and Location: As indicated on drawings.

3.06 CLEANING

A. Waste Disposal: See Section 017419 - Construction Waste Management and Disposal.
1. Comply with applicable regulations.
2. Do not burn scrap on project site.

3. Do not burn scraps that have been pressure treated.
4. Do not send materials treated with pentachlorophenol, CCA, or ACA to co-generation facilities or “waste-to-energy” facilities.

B. Do not leave wood, shavings, sawdust, etc. on the ground or buried in fill.

C. Prevent sawdust and wood shavings from entering the storm drainage system.

END OF SECTION

SECTION 068316
FIBERGLASS REINFORCED PANELING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fiberglass reinforced plastic panels.

B. Trim.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 092116 - Gypsum Board Assemblies.

C. Section 092216 - Non-Structural Metal Framing.

D. Section 096500 - Resilient Flooring.

E. Section 097800 - INTERIOR WALL PANELING: Decorative FRP wall paneling.

F. Section 099000 - Painting and Coating

1.03 REFERENCE STANDARDS

A. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels; 2022.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. FM 4880 - Examination Standard for Class 1 Fire Rating of Building Panels or Interior Finish Materials; 2022.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Verification Samples: Submit two samples 12 inch by 12 inch in size illustrating material and surface design of panels and trim.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Panels: Quantity equal to 5 percent of total installed.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store panels and trim lying flat, under cover and protected from the elements. Allow panels and adhesive to acclimate to room temperature (range of 60 to 75°F) for 48 hours prior to installation

1.06 FIELD CONDIIONS

A. Environmental Limitations: Building(s) are to be fully enclosed prior to installation with heat (70° or similar room temperature) and ventilation consistent with good working conditions for finish work.

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation by adhesive manufacturer.

C. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Fiberglass Reinforced Plastic Panels: The Manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as Basis-of-Design. Other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
      a. Marlite, Inc; Standard FRP: www.marlite.com/#sle.
      b. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PANEL SYSTEMS

A. Wall Panels: Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.
   1. Panel Size: 4 by 8 feet (1.2 by 2.4 m).
   2. Panel Thickness: 0.09 inch (2.3 mm).
   3. Surface Design: As indicated on drawings.
   4. Color: As selected by Architect.
   5. Finish: Satin.
   6. Attachment Method: Adhesive only, with trim and sealant in joints.
   7. Scratch Resistance: 28 per ASTM D 2583.
   8. Impact Strength: 6.0 ft. lbs/in per ASTM D256.
   9. Water Absorption: 0.15% per ASTM D 570.
   10. Cross-Cut Ahesion: 0 removed per ASTM D 3359.
   11. Mold & Mildew: Passes per ASTM D 3273.

2.03 MATERIALS

A. Panels: Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
   1. Surface Burning Characteristics: Maximum flame spread index of 25 and smoke developed index of 450; when system tested in accordance with ASTM E84.
   2. Class 1 fire rated when tested in accordance with FM 4880.

B. Trim: Aluminum; For use at top edges, inside corners and outside corners.

C. Adhesive: Type recommended by panel manufacturer per substrate.

D. Sealant: Type recommended by panel manufacturer; clear.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate flatness before starting work.

B. Verify that substrate conditions are ready to receive the work of this section.

3.02 INSTALLATION - WALLS

A. Install panels in accordance with manufacturer's instructions.

B. Cut and drill panels with carbide tipped saw blades, drill bits, or snips.

C. Apply adhesive to the back side of the panel using trowel as recommended by adhesive manufacturer.

D. Apply panels to wall with seams plumb and pattern aligned with adjoining panels.

E. Install panels with manufacturer's recommended gap for panel field and corner joints.

F. Place trim on panel before fastening edges, as required.

G. Fill channels in trim with sealant before attaching to panel.

H. Install trim with adhesive and screws or nails, as required.

I. Seal gaps at floor, ceiling, and between panels with applicable sealant to prevent moisture intrusion.

J. Remove excess sealant after paneling is installed and prior to curing.

END OF SECTION

SECTION 071300
SHEET WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Self-adhered modified bituminous sheet membrane. For use at all below grade foundations.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Concrete substrate.

C. Section 072100 - THERMAL INSULATION: Insulation used for protective cover.

D. Section 076200 - SHEET METAL FLASHING AND TRIM: Metal parapet, coping, and counterflashing.

1.03 REFERENCE STANDARDS

A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics; 2022.

C. ASTM D882 - Standard Test Method for Tensile Properties of Thin Plastic Sheeting; 2018.

D. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2025.

E. ASTM D4541 - Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers; 2022.

F. ASTM D5295/D5295M - Standard Guide for Preparation of Concrete Surfaces for Adhered (Bonded) Membrane Waterproofing Systems; 2018.

G. ASTM D5385/D5385M - Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes; 2025.

H. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2024a.

I. NRCA (WM) - The NRCA Waterproofing Manual; 2021.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data for membrane.

C. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.

D. Certificate: Certify products meet or exceed specified requirements.

E. Manufacturer's Instructions: Indicate special procedures.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Testing firm's qualification statement.

I. Executed warranty.

J. Specimen warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

C. Testing Firm Qualifications: Company specializing in performing work of type specified and approved by manufacturer.

1.06 MOCK-UPS

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Construct mock-up consisting of 100 sq ft (10 sq m) of horizontal and vertical sheet waterproofing panel; represents finished work, including internal and external corners, seam jointing, attachment method, counterflashings, drainage panel, and protective cover.

C. Locate where directed.

D. Mock-up may remain as part of work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Store sheet waterproofing materials under cover and elevated above grade.

1.08 FIELD CONDITIONS

A. Maintain ambient temperatures above 40 degrees F (5 degrees C) for 24 hours before and during application and until liquid or mastic accessories have cured.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty for sheet waterproofing. Complete forms in Owner's name and register with manufacturer.

C. Installer Warranty: Provide 2-year warranty for correcting leaks in waterproofing, unless leakage is caused by structural failure, structural movement, or other causes beyond installer's control, commencing on Date of Substantial Completion. Complete forms in Owner's name and register with installer.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2.02 MANUFACTURER

A. Sheet Waterproofing:
   1. **(Basis of Design)** W. R. Meadows, Inc: www.wrmeadows.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

2.03 APPLICATIONS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Location: All below grade foundations and footings.
   2. Cover with insulation and protection & drainage boards.

2.04 MATERIALS

A. Self-Adhered Modified Bituminous Sheet Membrane:
   1. Thickness: 60 mils, 0.060 inch (1.5 mm), minimum.
   2. Sheet Width: 36 inches (0.914 m), minimum.
   3. Tensile Strength:
      a. Film: 5,000 psi (34.57 MPa), minimum, measured in accordance with ASTM D882 and at grip-separation rate of 2 inches (50 mm) per minute.
      b. Membrane: 325 psi (2.24 MPa), minimum, measured in accordance with ASTM D412 Method A, using Die C and at spindle-separation rate of 2 inches (50 mm) per minute.
   4. Elongation at Break: 300 percent, minimum, measured in accordance with ASTM D412.
   5. Water Vapor Permeance: 0.05 perm (2.9 ng/(Pa s sq m)), maximum, measured in accordance with ASTM E96/E96M.
   6. Low Temperature Flexibility: Unaffected when tested in accordance with ASTM D1970/D1970M at minus 20 degrees F (minus 29 degrees C), 180-degree bend on 1-inch (25 mm) mandrel.
   7. Adhesion: 150 psi (1.03 MPa), minimum, measured in accordance with ASTM D4541.
   8. Water Absorption: 0.1 percent increase in weight, maximum, measured in accordance with ASTM D570, 24-hour immersion.
   9. Hydrostatic Pressure Resistance: Membrane resists leakage for at least one hour from pressure equivalent to 200-foot (61 m) head of water applied in accordance with test method ASTM D5385/D5385M.
   10. Adhesives, Sealants, Tapes, and Accessories: As recommended by membrane manufacturer.
   11. Products:
      a. W. R. Meadows, Inc; MEL-ROL: www.wrmeadows.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

A. Seaming Materials: As recommended by membrane manufacturer.

B. Membrane Sealant: As recommended by membrane manufacturer.

C. Sealant for Cracks and Joints in Substrates: Resilient elastomeric joint sealant compatible with substrates and waterproofing materials.

D. Swellable Sealant: Elastic, solvent-free, one-component sealant used as penetration waterstop and adhesive for waterstop strips.

E. Protection Board: Rigid insulation; see Section 072100.

F. Protection Board: Provide type capable of preventing damage to waterproofing due to backfilling and construction traffic.
   1. Hardboard: 1/8 inch (3 mm) thick.
   2. Polystyrene Foam Board: 2 inches (50.8 mm) thick.
   3. Products:
      a. W. R. Meadows, Inc; Protection Course: www.wrmeadows.com/#sle.

b. Substitutions: See Section 016000 - Product Requirements.

G. Drainage Panel: Drainage layer with geotextile filter fabric on earth side.
1. Composition: Dimpled polystyrene, polyethylene, or polypropylene core; polypropylene filter fabric.
2. Thickness: 3/8 inch (9.5 mm).
3. Products:
a. W. R. Meadows, Inc; Mel-Drain 5012: www.wrmeadows.com/#sle.
b. Substitutions: See Section 016000 - Product Requirements.

H. Cant Strips: Premolded composition material.

I. Flexible Flashings: Type recommended by membrane manufacturer.

J. Termination Bars: Aluminum; compatible with membrane and adhesives.

K. Surface Conditioner: Manufacturer's recommended type, compatible with membrane.

L. Adhesives: As recommended by membrane manufacturer.

M. Thinner and Cleaner: As recommended by adhesive manufacturer, compatible with sheet membrane.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions are acceptable prior to starting work.

B. Verify substrate surfaces are durable and free of matter detrimental to adhesion or application of waterproofing system.

C. Verify items penetrating surfaces to receive waterproofing are securely installed.

D. Where existing conditions are responsibility of another installer, notify Architect of unsatisfactory conditions.

E. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Protect adjacent surfaces not designated to receive waterproofing from damage.

B. Clean and prepare surfaces to receive waterproofing in accordance with manufacturer's instructions; vacuum substrate clean.

C. Do not apply waterproofing to surfaces unacceptable to membrane manufacturer.

D. Fill nonmoving joints and cracks with filler compatible with waterproofing materials.

E. Seal moving cracks with sealant and nonrigid filler using procedures recommended by sealant and waterproofing manufacturers.

F. Prepare building expansion joints at locations as indicated on drawings.

G. Apply surface conditioner at rate recommended by manufacturer, and protect conditioner from rain or frost until dry.

H. Concrete Surfaces for Adhesive Bonding:
1. Remove substances inhibiting adhesion, including form release agents, curing compounds, admixtures, laitance, moisture, dust, dirt, grease, and oil.
2. Repair surface defects, including honeycombs, fins, tie holes, bug holes, sharp offsets, rutted cracks, ragged corners, deviations in surface plane, spalling, and delaminations in accordance with ASTM D5295/D5295M.

3. Remove and replace areas of defective concrete; see Section 033000.
4. Prepare concrete for adhesive-bonded waterproofing using mechanical or chemical methods in accordance with ASTM D5295/D5295M.
5. Test concrete surfaces in accordance with ASTM D5295/D5295M, and verify surfaces are ready to receive adhesive-bonded waterproofing membrane system.

3.03 INSTALLATION - MEMBRANE

A. Install membrane waterproofing in accordance with manufacturer's instructions and NRCA (WM) applicable requirements.

B. Roll out membrane and minimize wrinkles and bubbles.

C. Self-Adhering Membrane: Remove release paper layer and roll out onto substrate with mechanical roller to provide full contact bond.

D. Overlap edges and ends, minimum 3 inches (76 mm), seal permanently waterproof by method recommended by manufacturer and apply uniform bead of sealant to joint edge.

E. Reinforce membrane with multiple thicknesses of membrane material over joints, whether joints are static or dynamic.

F. Weather lap joints on sloped substrate in drainage direction, and seal joints and seams.

G. Install building expansion joints at locations as indicated on drawings.

H. Flexible Flashings: Seal items penetrating through waterproofing membrane with flexible flashings.

I. Extend membrane over cants and up intersecting surfaces at membrane perimeter minimum 6 inches (152 mm) above horizontal surface for first ply; extend membrane 8 inches (203.2 mm) at subsequent plies laid in shingle fashion.

J. Seal membrane and flashings to adjoining surfaces.
   1. Install termination bar along edges.

K. Composite Waterstop: Install composite waterstop according to manufacturer's instructions.
   1. Smooth Troweled Surfaces: Install composite waterstop in continuous bead of manufacturer's recommended mastic adhesive.
   2. Irregular or Rough-Formed Surfaces: Remove protrusions greater than 1/2 inch (12 mm) high and fill voids with manufacturer's recommended mastic adhesive.

3.04 INSTALLATION - DRAINAGE PANEL AND PROTECTION BOARD

A. Place drainage panel directly against membrane, butt joints, place to encourage drainage downward; scribe and cut boards around projections, penetrations, and interruptions.

B. Place protection board directly against membrane; butt joints, and scribe and cut boards around projections, penetrations, and interruptions.

C. Adhere drainage panel and protection board to substrate with compatible adhesive.

3.05 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirement, for additional requirements.

B. Owner to provide testing services, and Contractor to provide temporary construction and materials for testing.

C. Provide daily on-site attendance of waterproofing and insulation manufacturer's representative during installation of this work.

3.06 PROTECTION

A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

SECTION 072100
THERMAL INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Board insulation and integral vapor retarder at cavity wall construction, perimeter foundation wall, underside of floor slabs, and exterior wall behind exterior side wall finish.

B. Batt insulation and vapor retarder in exterior wall, ceiling, and roof construction.

C. Batt insulation for filling perimeter window and door shim spaces and crevices in exterior wall and roof.

D. Acoustic glass fiber batt insulation in stud framed walls to reduce sound transmission from one room to another.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

B. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation; 2019.

C. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2025.

D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2023.

E. ASTM C764 - Standard Specification for Mineral Fiber Loose-Fill Thermal Insulation; 2025.

F. ASTM C1029 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation; 2025.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

H. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2026.

I. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024c.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on product characteristics, performance criteria, and product limitations.

C. ABAA Field Quality Control Submittals: Submit third-party reports of testing and inspection required by ABAA QAP.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer's Installation Instructions: Include information on special environmental conditions required for installation and installation techniques.

F. ABAA Manufacturer Qualification: Submit documentation of current evaluation of proposed manufacturer and materials.

G. ABAA Installer Qualification: Submit documentation of current contractor accreditation and current installer certification. Keep copies of contractor accreditation and installer certification on project site during and after installation. Present on-site documentation upon request.

1.05 QUALITY ASSURANCE

A. Air Barrier Association of America (ABAA) Quality Assurance Program (QAP); www.airbarrier.org/#sle:
   1. Installer Qualification: Use accredited contractors, certified installers, evaluated materials, and third-party field quality control audit.
   2. Manufacturer Qualification: Use evaluated materials from a single manufacturer regularly engaged in air barrier material manufacture. Use secondary materials approved in writing by primary material manufacturer.

1.06 FIELD CONDITIONS

A. Do not install insulation adhesives when temperature or weather conditions are detrimental to successful installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS - GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2.02 APPLICATIONS

A. Insulation Under Concrete Slabs: Extruded polystyrene (XPS) board.

B. Insulation at Perimeter of Foundation: Extruded polystyrene (XPS) board.

C. Insulation Over Metal Stud Framed Walls, Continuous: Extruded polystyrene (XPS) board.

D. Insulation in Metal Framed Walls: Batt insulation with integral vapor retarder.

E. Sound Batt Insulation in Metal or Wood framed walls.

2.03 FOAM BOARD INSULATION MATERIALS

A. Extruded Polystyrene (XPS) Board Insulation: Complies with ASTM C578 with either natural skin or cut cell surfaces.
   1. Type and Compressive Resistance: Type VII, 60 psi (414 kPa), minimum.
   2. Flame Spread Index (FSI): Class A - 0 to 25, when tested in accordance with ASTM E84.
   3. Smoke Developed Index (SDI): 450 or less, when tested in accordance with ASTM E84.
   4. Type and Thermal Resistance, R-value: Type VII, 5.0 (0.88), minimum, per 1 inch thickness at 75 degrees F mean temperature.
   5. Board Edges: Square.
   6. Type and Water Absorption: Type XII, 0.3 percent by volume, maximum, by total immersion.
   7. Products:
      a. Owens Corning Corporation; FOAMULAR Extruded Polystyrene (XPS) Insulation: www.ocbuildingspec.com/#sle.

b. Substitutions: See Section 016000 - Product Requirements.

2.04 FIBERBOARD INSULATION MATERIALS

A. Mineral Fiberboard Insulation: Rigid mineral fiber, in accordance with ASTM C612.
1. Facing: None, unfaced.
2. Flame Spread Index: 25 or less, when tested with facing, if any, in accordance with ASTM E84.
3. Smoke Developed Index: 50 or less, when tested with facing, if any, in accordance with ASTM E84.
4. Board Thickness: 1 inch.

2.05 BATT INSULATION MATERIALS

A. Where batt insulation is indicated, either glass fiber or mineral fiber batt insulation may be used, at Contractor's option.

B. Glass Fiber Batt Insulation: Flexible preformed batt or blanket, complying with ASTM C665; friction fit.
1. Flame Spread Index: 75 or less, when tested in accordance with ASTM E84.
2. Smoke Developed Index: 450 or less, when tested in accordance with ASTM E84.
3. Combustibility: Non-combustible, when tested in accordance with ASTM E136, except for facing, if any.
4. Formaldehyde Content: Zero.
5. Thermal Resistance: R-value .
6. Thickness: As indicated on drawings.
7. Facing: Unfaced.
8. Products:
a. CertainTeed Corporation; _____: www.certainteed.com/#sle.
b. Owens Corning Corporation; EcoTouch PINK FIBERGLAS Insulation: www.ocbuildingspec.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

C. Mineral Fiber Batt Insulation: Flexible or semi-rigid preformed batt or blanket, complying with ASTM C665; friction fit; unfaced flame spread index of 0 (zero) when tested in accordance with ASTM E84.
1. Flame Spread Index: 25 or less, when tested in accordance with ASTM E84.
2. Smoke Developed Index: 0 (zero), when tested in accordance with ASTM E84.

D. Acoustic Glass Fiber Batt Insulation (Sound Attenuation Batts) - Metal Framed Walls.
1. Type: Unfaced glass-fiber acoustical insulation, complying with ASTM C665, Type I.
a. Thickness: 3 1/2 inches (R Value: 11).
b. Width: 16 to 24 inches.
c. Length: 96 inches.
2. Surface Burning Characteristics: ASTM E84.
a. Maximum flame spread: <25
b. Maximum smoke developed: <50
3. Combustion Characteristics: Passes ASTM E136.
4. Fire Resistance Ratings: Part of ASTM E119 fire tested wall assemblies.
5. Sound Transmission Class: ASTM C423, STC based on manufacturer's published data on thickness and wall assembly.
6. Dimensional Stability: Linear Shrinkage less than 0.1%

7. Products:
    a. Owens Corning Corporation; PINK Next Gen SOUND ATTENUATION BATTS (SAB): www.ocbuildingspec.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

E. Safing Insulation
1. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics and made with no formaldehyde.
    a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
        1) CertainTeed Corporation.
        2) Guardian Building Products, Inc.
        3) **(Basis Of Design)** Johns Manville; a Berkshire Hathaway company; Min Wool.
        4) Knauf Insulation.
        5) Owens Corning.

2.06 ACCESSORIES

A. Insulation for Miscellaneous Voids:
1. Glass-Fiber Insulation: ASTM C764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E84.
2. Spray Polyurethane Foam Insulation: ASTM C1029, Type II, closed cell, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, per ASTM E84.

B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.
1. Adhesives shall have a VOC content of 70 g/L or less.
2. Adhesive shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Interior Vapor Retarder: Modified polyethylene/polyacrylate (PE/PA) film reinforced with polyethylene terephthalate (PET) fibers, 6 mil, ___ inch thick.
1. Width: 4.9 feet.
2. Products:
    a. SIGA Cover Inc; SIGA-Majrex: www.sigacover.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

D. Tape: Reinforced polyethylene film with acrylic pressure sensitive adhesive.
1. Application: Sealing of interior circular penetrations, such as pipes or cables.
2. Width: Are required for application.

E. Flashing Tape: Special reinforced film with high performance adhesive.
1. Application: Window and door opening flashing tape.
2. Width: As required for application.
3. Primer: Tape manufacturer's recommended product.
4. Products:
    a. Protecto Wrap Company; Protecto Super Stick Building Tape: www.protectowrap.com/#sle.

F. Insulation Fasteners: Impaling clip of galvanized steel with washer retainer and clips, to be adhered to surface to receive insulation, length to suit insulation thickness and substrate, capable of securely and rigidly fastening insulation in place.
   1. Adhesively Attached, Spindle-Type Anchors: Plate welded to projecting spindle; capable of holding insulation of specified thickness securely in position with self-locking washer in place.
      a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
         1) AGM Industries, Inc.
         2) Gemco.
      b. Plate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
      c. Spindle: Copper-coated, low-carbon steel; fully annealed; 0.105 inch in diameter; length to suit depth of insulation.
   2. Anchor Adhesive: Product with demonstrated capability to bond insulation anchors securely to substrates without damaging insulation, fasteners, or substrates.
      a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
         1) AGM Industries, Inc.
         2) Gemco.

G. Protection Board for Below Grade Insulation: Cementitious, 1/4 inch thick.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate, adjacent materials, and insulation materials are dry and that substrates are ready to receive insulation.

B. Verify substrate surfaces are flat, free of honeycomb, fins, irregularities, or materials or substances that may impede adhesive bond.

3.02 BOARD INSTALLATION AT FOUNDATION PERIMETER

A. Install boards horizontally on foundation perimeter.
   1. Install in running bond pattern.
   2. Butt edges and ends tightly to adjacent boards and to protrusions.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

C. Immediately following application of board insulation, place protective boards over exposed insulation surfaces.

3.03 BOARD INSTALLATION AT EXTERIOR WALLS

A. Adhere 6 inches wide strip of polyethylene sheet over expansion joints with double beads of adhesive each side of joint.
   1. Tape seal joints between sheets.
   2. Extend sheet full height of joint.

B. Apply adhesive to back of boards:
   1. Three continuous beads per board length.
   2. Full bed 1/8 inch thick.

C. Install boards horizontally on walls.

1. Install in running bond pattern.
2. Butt edges and ends tightly to adjacent boards and protrusions.

D. Extend boards over expansion joints, unbonded to wall on one side of joint.

E. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

F. Tape insulation board joints.

3.04 BOARD INSTALLATION AT CAVITY WALLS

A. Install boards to fit snugly between wall ties.

B. Install boards horizontally on walls.

C. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

3.05 BOARD INSTALLATION UNDER CONCRETE SLABS

A. Place insulation under slabs on grade after base for slab has been compacted.

B. Cut and fit insulation tightly to protrusions or interruptions to the insulation plane.

C. Prevent insulation from being displaced or damaged while placing vapor retarder and placing slab.

3.06 BATT INSTALLATION

A. Install insulation and vapor retarder in accordance with manufacturer's instructions.

B. Install in exterior wall and roof spaces without gaps or voids. Do not compress insulation.

C. Trim insulation neatly to fit spaces. Insulate miscellaneous gaps and voids.

D. Fit insulation tightly in cavities and tightly to exterior side of mechanical and electrical services within the plane of the insulation.

E. Install with factory-applied vapor retarder membrane facing warm side of building spaces. Lap ends and side flanges of membrane over framing members.

F. Tape seal butt ends, lapped flanges, and tears or cuts in membrane.

G. At metal framing, place vapor retarder on warm side of insulation; lap and seal sheet retarder joints over face of member

H. Tape seal tears or cuts in vapor retarder.

I. Extend vapor retarder tightly to full perimeter of adjacent window and door frames and other items interrupting the plane of the membrane; tape seal in place.

3.07 FIELD QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for additional requirements.

B. Coordination of Air Barrier Association of America (ABAA) Tests and Inspections:
1. Provide testing and inspection required by ABAA Quality Assurance Program (QAP).
2. Notify ABAA in writing of schedule for air barrier work, and allow adequate time for testing and inspection.
3. Cooperate with ABAA testing agency.
4. Allow access to air barrier work areas and staging.
5. Do not cover air barrier work until tested, inspected, and accepted.

3.08 PROTECTION

A. Do not permit installed insulation to be damaged prior to its concealment.

END OF SECTION

SECTION 072129
SPRAYED INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sprayed cellulose acoustical / thermal insulation.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019.

C. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2017.

D. ASTM C739 - Standard Specification for Cellulosic Fiber Loose-Fill Thermal Insulation; 2025.

E. ASTM C1014 - Standard Specification for Spray-Applied Mineral Fiber Thermal and Sound Absorbing Insulation; 2017.

F. ASTM D1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics; 2020.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

H. ASTM E136 - Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750 Degrees C; 2024c.

I. ITS (DIR) - Directory of Listed Products; Current Edition.

J. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on materials, describing insulation properties.

C. Certificates: Certify that products of this section meet or exceed specified requirements.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

E. Manufacturer's Qualification Statement.

F. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Must be licensed by company specializing in performing work of the type specified and with at least five years of documented experience.

C. Products Specified by Flammability Criteria: Listed and classified by ITS (DIR), UL (DIR), or authorities having jurisdiction (AHJ).

D. Manufacturer must subscribe to independent laboratory followup inspection services of Underwriters Laboratories and Factory Mutual. Each bag shall be labeled accordingly

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver in original, unopened containers bearing name of manufacturer and product identification.

B. Store materials dry, off ground, and under cover.

C. Protect liquid adhesive from freezing.

D. Water to be potable.

1.07 MOCK-UP

A. Apply a 100 square foot representative sample to be reviewed by the Architect and/or Owner prior to proceeding.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Exposed Cellulosic Fiber Sprayed Insulation: **Basis of Design; Isolatek International Corp; CAFCO CELLU-SHIELD; Refer to I000 Finish schedule**: www.isolatek.com/#sle.
   1. Isolatek International Corp; CAFCO CELLU-SHIELD: www.isolatek.com/#sle.

2.02 MATERIALS

A. Cellulosic Fiber Insulation: ASTM C739; treated cellulosic fiber.
   1. Thermal Resistance (R-value (RSI-value)): 3.9 (0.67), at 2 inch (50.8 mm) thick when tested in accordance with ASTM C177 at 75 degrees F (23 degrees C) temperature
   2. Minimum Fiber Recycled Content to be 80%.
   3. Bond strength shall be greater than 150 psf per ASTM E 736.
   4. R-Value to be 3.90 per inch per ASTM C 518.
   5. Meet ASTM C 1149
   6. Density: 2 pcf (32 kg/cu m), when tested in accordance with ASTM D1622.
   7. Noise Reduction Coefficient (NRC): 1.00 for 2-inch (25 mm) thickness.
   8. Moisture Absorption: Maximum 15 percent by weight.
   9. Flame Spread / Smoke Developed Index: 0-25 / 0-450, Class A, when tested in accordance with ASTM E84.
   10. Combustibility: Passing ASTM E136.
   11. Color: Refer to Interior Finish Schedule on " I.
   12. Cannot contain any added Urea-Formaldehyde Resin.

2.03 ACCESSORIES

A. Primer: As required by insulation manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are clean, dry, and free of matter that may inhibit adhesion.

B. Verify that ceiling hangers and supporting clips have been are installed correctly.

C. Verify other work on and within spaces to be insulated is complete prior to application.

3.02 PREPARATION

A. Mask and protect adjacent surfaces from overspray or damage.

B. Apply primer in accordance with manufacturer's instructions.

C. Install insulation stops between rafters at wall/sloped roof construction to prevent insulation from covering soffit vents or from limiting air circulation from soffit to attic space.

D. Clips, hangers, supports, sleeves and other attachments to spray bases are to be placed by other trades prior to the application of sprayed insulation.

E. Ducts, piping, conduit or other suspended equipment shall not be positioned until after the application of sprayed insulation.

F. Roof penetrations to be installed prior to application.

G. Roof traffic and construction to be done prior to application.

3.03 INSTALLATION

A. Install sprayed insulation in accordance with manufacturer's instructions.

B. Install sprayed insulation to a uniform monolithic density without voids.

C. Install to a minimum cured thickness of 2 inch (50.8 mm).

D. Install to achieve a thermal resistance R-value of 7.8.

E. Tamp wet sprayed insulation surface to improve adhesion and to achieve a smooth surface.

3.04 FIELD QUALITY CONTROL

A. Independent agency field inspection will be provided under provisions of Section 014000 - BSD Quality Requirements.

3.05 PROTECTION

A. Do not permit subsequent construction work to disturb applied sprayed insulation.

END OF SECTION

SECTION 072726
FLUID-APPLIED VAPOR PERMEABLE MEMBRANE AIR BARRIERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fluid-applied membrane air barriers.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Concrete substrate.

C. Section 054000 - COLD-FORMED METAL FRAMING: Exterior metal stud walls.

D. Section 061000 - Rough Carpentry: Exterior sheathing.

E. Section Section 074246 - Rainscreen System.

F. Section 076200 - SHEET METAL FLASHING AND TRIM: Metal flashing.

G. Section 079200 - JOINT SEALANTS: Sealants applied to adjacent work.

1.03 DEFINITIONS

A. Air Barrier: Airtight barrier made of material that is virtually air-impermeable but water vapor permeable, both to amount as specified, with seams and joints sealed to adjacent surfaces.

1.04 REFERENCE STANDARDS

A. ASTM C297/C297M - Standard Test Method for Flatwise Tensile Strength of Sandwich Constructions; 2016 (Reapproved 2024).

B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).

C. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers--Tension; 2016 (Reapproved 2021).

D. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2025.

E. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

F. ASTM D2369 - Standard Test Method for Volatile Content of Coatings; 2020.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

H. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2016.

I. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

J. ICC-ES AC212 - Acceptance Criteria for Water-Resistive Coatings Used as Water-Resistive Barriers over Exterior Sheathing; 2015, with Editorial Revision (2020).

K. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2025.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before commencing work of this section.
   1. Require attendance of parties directly affecting work of this section, including the Owner's Representative, Contractor, Architect, Installation Subcontractor, and Membrane System Manufacturer's Representative.
   2. Contractor to notify Architect at least seven days before this meeting.
   3. Contractor to record minutes of meeting and distribute to attending parties.
   4. Review the following topics:
      a. Surface preparation.
      b. Substrate condition and pretreatment.
      c. Minimum curing duration.
      d. Special details and sheet flashing.
      e. Sequence of construction, responsibilities, and schedule for subsequent operations.
      f. Installation procedures.
      g. Inspection procedures.
      h. Protection and repair procedures.

1.06 SUBMITTALS

A. See Section 013300 - Submittal Procedures for submittal procedures.

B. Product Data: Provide data on membrane and accessory material types, technical and test data, composition, descriptions and properties, installation instructions, and substrate preparation requirements.

C. Shop Drawings: Provide drawings of special joint conditions.

D. Manufacturer's Installation Instructions: Indicate preparation, installation methods, and storage and handling criteria.

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

G. Testing agency's qualification statement.

H. Executed warranty.

I. VOC Certification: Submit certification that furnished products comply with local regulations controlling use of volatile organic compounds.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.08 MOCK-UPS

A. See Section 014000 - BSD Quality Requirements for additional requirements.

B. Construct air barrier mock-up, 8 feet (2.44 m) long by 8 feet (2.44 m) wide, indicating backup wall, cladding, window, door frame, sill, penetrations, insulation, and flashing.

C. Allow at least 72 hours for inspection and testing of mock-up before proceeding with additional related work.

D. Coordinate construction of mock-up to allow for inspection by Architect and Owner's Representative before start of installation.

E. Locate where directed.

F. Mock-up may remain as part of work.

1.09 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver materials to project site in original packaging with seals unbroken and properly labeled.

C. Store materials in their original undamaged packaging within a clean, dry, and protected location at a temperature above freezing and less than 90 degrees F (32 degrees C).

D. Sequence deliveries to avoid delays and minimize on-site storage.

1.10 FIELD CONDITIONS

A. Ambient Conditions:
   1. Apply primer within temperature range between 40 to 100 degrees F (4 to 38 degrees C).
   2. Apply filler within temperature range between 32 to 110 degrees F (0 to 43 degrees C).
   3. Apply silicone sealant extrusion within temperature range between 40 to 100 degrees F (4 to 38 degrees C).
   4. Apply sealant adhesive within temperature range between 32 to 110 degrees F (0 to 43 degrees C).

B. Maintain substrate temperature and humidity and other conditions affecting performance requirements as recommended by materials manufacturers before, during, and after installation.

C. Perform work only when existing and forecasted weather conditions are within the limits as established by material manufacturer.

D. Proceed with installation only when substrate construction and other preparation work are completed and in acceptable condition for air barrier material.

E. Do not apply to frozen substrate; allow adequate time for substrate to thaw, if freezing conditions exist before application.

F. Ultraviolet (UV) Exposure: Do not expose air barrier materials to sunlight and weather longer than recommended by material manufacturer.

1.11 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for defective material. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.

1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Fluid-Applied Membrane Air Barriers:
   1. **(Basis of Design)** PROSOCO, Inc: www.prosoco.com/#sle.
      a. Location: Lawrence, KS.
      b. Phone: (800) 255-4255.
   2. Henry, a Carlisle Company: www.henry.com.
      a. Location 999 N. Sepulveda Blvd Ste 800 El Segundo CA 90245
   3. GCP Applied Technologies: www.gcpat.com.

D. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Comply with physical and performance requirements as indicated:
   1. Provide building envelope with a continuous air- and water-resistive barrier that controls air leakage, avoids condensation in interior wall assembly, and prevents water intrusion.
   2. Provide watertight and airtight joints; seal penetrations and paths of water and air infiltration.
   3. Provide system that withstands positive and negative combined wind, stack effect, and static pressure in HVAC on building envelope without damage or displacement.
   4. Provide system that is airtight and flexible, allowing for relative movement of systems due to thermal and moisture variations.

2.03 FLUID-APPLIED MEMBRANE AIR BARRIERS

A. Applications:
   1. Concrete Walls:
      a. See Section 033000 for concrete.
   2. Exterior Sheathing on Steel Stud Walls:
      a. See Section 054000 for steel studs.
      b. See Section 061000 for exterior sheathing.
      c. See Section 079200 for joint sealants applied to adjacent work.
   3. Rain Screen Wall Panel System:
      a. See Section 074246 - Rainscreen System.

B. Vapor-Permeable Membrane Air Barrier, Fluid Applied: Prevents air and water leakage and is specially formulated for exterior sheathing behind open-jointed or vented pressure-equalized rain screen construction for conditions ranging from everyday weather to drenching rains and 155 mph winds of Category 5 hurricane, and other above-grade wall assemblies complying with ICC-ES AC212.
   1. Material: Limestone, propylene glycol, and silyl-terminated polymer (STP).
   2. Air Permeance: 0.004 cfm/sq ft (0.02 L/(s sq m)), maximum, when tested in accordance with ASTM E2178.
   3. Water Vapor Transmission Rate: At least 14 perms (798 ng/(Pa s sq m)), when tested in accordance with ASTM E96/E96M using Water Method, at 73.4 degrees F (23 degrees C).
   4. Tensile Bond: 15 psi (103.4 kPa), minimum, when tested in accordance with ASTM C297/C297M.
   5. Surface Burning Characteristics: Flame spread index of 25 or less, smoke-developed index of 450 or less, Class A when tested in accordance with ASTM E84.

6. Comply with NFPA 285 requirements for fire propagation characteristics of exterior non-load-bearing wall assembly.
7. Fastener Sealability: Pass, when tested in accordance with ASTM D1970/D1970M.
8. VOC Content: Less than 4 fl oz/gal (30 g/L).
9. Products:
   a. **(Basis of Design)** PROSOCO, Inc; R-GUARD Cat 5 Rain Screen: www.prosoco.com/#sle.
   b. HENRY Co. Air-Bloc All Weather STPE: www.henry.com
   c. GCP Applied Technologies: Perm-A-Barrier VPL and Perm-A-Barrier VPL Low Temperature
   d. Substitutions: See Section 016000 - Product Requirements.

2.04 ACCESSORIES

A. Sealants, Tapes, and Accessories for Sealing Air Barrier and Adjacent Substrates: As indicated or in compliance with air barrier manufacturer's installation instructions.

B. Thinners and Cleaners: As recommended by material manufacturer.

C. Metal Flashing: See Section 076200.

D. Primer for Gypsum Wallboard Edges: Brush-on, breathable liquid primer with glue-like viscosity; used to seal cut edges of gypsum wallboard where exposed in rough openings for windows and doors; sealed edge provides compatible surface for application of liquid-applied, fiber-reinforced fill coat and seam treatment for through-wall components.
   1. Color: Light blue.
   2. Total Solids: 16 percent, in accordance with ASTM D2369 test method.
   3. VOC Content: Less than 13.3 fl oz/gal (100 g/L).
   4. Products:
      a. PROSOCO, Inc; R-GUARD PorousPrep: www.prosoco.com/#sle.
      b. HENRY Aquatec Primer: www.henry.com

E. Joint and Seam Filler: Silyl-terminated polymer (STP); single-component, fiber-reinforced gun-grade adhesive and detailing compound with silicone and polyurethane properties.
   1. Color: Pale red.
   2. Water Vapor Transmission Rate: At least 19 perms (1083 ng/(Pa s sq m)) at 20 mil, 0.020-inch (0.508 mm) thickness, when tested in accordance with ASTM E96/E96M.
   3. Tensile Strength: 70 psi (483 kPa), minimum, when tested in accordance with ASTM D412.
   4. Elongation at Break: Greater than 180 percent when tested in accordance with ASTM D412.
   5. Total Solids: 99 percent.
   6. VOC Content: Less than 4 fl oz/gal (30 g/L).
   7. Products:
      a. PROSOCO, Inc; R-GUARD Joint & Seam Filler: www.prosoco.com/#sle.
      b. HENRY Co., 925 BSE Sealant: www.henry.com
      c. Substitutions: See Section 016000 - Product Requirements.

F. Liquid-Applied Flashing: Single-component silyl-terminated polymer (STP) waterproofing, adhesive, and detailing compound with silicone and polyurethane properties which produces durable, seamless elastomeric membrane to flash rough openings of structural walls, to counterflash waterproofing and air barrier components, and to treat joints, seams, and cracks.

1. Application: Gun-grade, spread-and-tool, or roller-applied.
2. Color: Red.
3. Water Vapor Transmission Rate: At least 21 perms (1197 ng/(Pa s sq m)) when tested in accordance with ASTM E96/E96M.
4. Tensile Strength: 150 psi (1034 kPa), minimum, when tested in accordance with ASTM D412.
5. Elongation at Break: Greater than 350 percent, when tested in accordance with ASTM D412.
6. Total Solids: 99 percent.
7. VOC Content: Less than 4 fl oz/gal (30 g/L).
8. Products:
    a. PROSOCO, Inc; R-GUARD FastFlash: www.prosoco.com/#sle.
    b. HENRY Co. Air-Bloc LF Liquid-Applied Flashing
    c. GCP Applied Tech: Perm-A-Barrier NPS Detail Membrane
    d. Substitutions: Not permitted.

G. Waterproofing Sealant: Single-component, gun-grade, waterproofing sealant that has silicone and polyurethane properties; silyl-terminated polymer (STP) produces durable seals, and stops movement of moist air through cracks surrounding windows and doors.
1. Color: White paste.
2. Tensile Strength: 85 psi (300 kPa), minimum, when tested in accordance with ASTM D412.
3. Elongation at Break: Greater than 1,000 percent, when tested in accordance with ASTM D412.
4. Peel Strength: 25 pli (4.4 kN/m) when tested in accordance with ASTM C794.
5. Total Solids: 98 percent.
6. VOC Content: Less than 4 fl oz/gal (30 g/L).
7. Products:
    a. PROSOCO, Inc; R-GUARD AirDam: www.prosoco.com/#sle.
    b. HENRY Co. 925 BES Sealant: www.henry.com
    c. Substitutions: See Section 016000 - Product Requirements.

H. Backer Rod: Closed-cell, suitable for deep joints.

I. Preformed Silicone Sealant Extrusion: Extruded, elastomeric, precured silicone material that provides a continuous transition and bridges windows and door frames at curtain wall, storefront, expansion joints, skylights, and roof to air barrier materials.
1. Roll Size: 3 inches wide by 100 feet long (76 mm wide by 30.5 m long).
2. Corner Size: 4-inch outside corner (102 mm outside corner).
3. Tensile Strength: 700 psi (4826 kPa), minimum, when tested in accordance with ASTM D412.
4. Shore Hardness, Type A: 50 to 65 when tested in accordance with ASTM D2240.
5. Elongation: Greater than 400 percent, when tested in accordance with ASTM D412.
6. Joint Movement Capacity: Greater than 200 percent elongation and 75 percent compression.
7. Ultraviolet (UV) Resistance: No degradation of material when exposed to UV.
8. Products:
    a. PROSOCO, Inc; R-GUARD SureSpan EX: www.prosoco.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

J. Silicone Sealant Extrusion Adhesive: Single-component, gun-grade adhesive that has silicone and polyurethane properties; silyl-terminated polymer (STP) is easy to gun, spread, and tool.
   1. Color: Gray.
   2. Tensile Strength: 150 psi (1034 kPa), minimum, when tested in accordance with ASTM D412.
   3. Shore Hardness, Type A: 40 to 50 when tested in accordance with ASTM D2240.
   4. Elongation at Break: Greater than 200 percent, when tested in accordance with ASTM D412.
   5. Total Solids: 99 percent.
   6. VOC Content: Less than 4 fl oz/gal (30 g/L).
   7. Products:
      a. PROSOCO, Inc; R-GUARD SureSpan Adhesive: www.prosoco.com/#sle.
      b. GCP Applied Tech: Perm-A-Barrier Universal Flashing and Sealant
      c. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces and conditions are ready for work in this section.

B. Verify surfaces are sound, clean and free of voids, surface oxidation, dirt, loose aggregate, sharp protrusions, excess mortar, or other contaminants such as grease, oil, and wax that are detrimental to application.

C. Where existing conditions are the responsibility of another installer, notify Architect of unsatisfactory conditions.

D. Do not proceed with this work until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Remove projections, protruding fasteners, and loose or foreign matter that might interfere with proper installation.

B. Clean and prime substrate surface to receive adhesives and sealants in accordance with manufacturer's installation instructions.

C. Treat joints in substrate and between dissimilar materials in accordance with manufacturer's installation instructions.

D. Fill or bridge damaged surfaces, voids, or gaps larger than 1 inch (25.4 mm).

E. Fill voids and gaps measuring 1 inch (25.4 mm) or less with liquid-applied fill coat and seam filler as necessary to ensure continuity.

F. Exterior Sheathing:
   1. Ensure that sheathing is properly installed with ends, corners, and edges properly fastened; remove and replace damaged sheathing.
   2. Set mechanical fasteners flush with sheathing; spot overdriven fasteners with liquid-applied fill coat and seam filler.
   3. Seal cut edges of gypsum wallboards exposed in rough openings for windows and doors at corners, as recommended by manufacturer.
   4. Where exterior masonry veneer is being installed, install masonry anchors before installing air barrier over masonry; provide airtight seal around anchors.

G. Masonry and Concrete Substrates:

1. Ensure that masonry head and bed joints are filled and tooled.
2. Mechanically remove loose mortar fins, mortar accumulations and protrusions, and debris.
3. Fill cracks, joints, and gaps with liquid-applied fill coat and seam filler.

3.03 INSTALLATION

A. Install materials in accordance with manufacturer's installation instructions.

B. Air Barriers: Install continuous airtight barrier over surfaces indicated, with seams and joints sealed to adjacent surfaces.

C. Apply sealants and adhesives within recommended temperature range in accordance with manufacturer's installation instructions.

D. Backer Rod: Control sealant depth by installing closed-cell backer rod, with diameter 25 percent greater than joint width; do not puncture backer rod.

E. Fluid-Applied Membranes:
   1. Apply bead or trowel coat of mastic sealant with minimum thickness of 1/4 inch (6 mm) along coating seams, rough cuts, and as recommended by manufacturer.
   2. Use flashing to seal adjacent construction and to bridge joints in coating substrate.
   3. Apply liquid-applied fill coat and filler for seams, joints, cracks, gaps, primed rough edges at gypsum sheathing, and rough openings in accordance with manufacturer’s written instructions.
   4. Rate of Application: Spray apply air barrier to substrate at ratings recommended by manufacturer to provide pinhole-free surface and uniform color.
      a. Concrete Masonry Unit (CMU) Substrate:
         1) STP-Based Membrane: 50 to 80 sq ft/gal (1.23 to 1.96 sq m/L) per coat; provide at least two coats.
      b. Exterior Gypsum Board, Oriented Strand Board (OSB), and Plywood Substrate: 50 to 100 sq ft/gal (1.23 to 2.45 sq m/L) per coat; provide additional material for uniform surface where substrate porosity varies.
   5. Cap and seal top edge of fluid-applied air barrier where it comes in contact with roofing system to eliminate water intrusion.

F. Openings and Penetrations in Exterior Air Barriers:
   1. Install flashing over sills, covering entire sill frame member, extending at least 5 inches (125 mm) onto air barrier and at least 6 inches (150 mm) up jambs; mechanically fasten stretched edges.
   2. Apply liquid flashing membrane over surfaces to seal and waterproof rough openings in accordance with manufacturer’s written instructions.
      a. Spread wet product to create an opaque, monolithic flashing membrane that surrounds the rough opening and extends 4 to 6 inches (102 to 152 mm) over face of structural wall or sheathing. Apply additional coats as necessary to provide a void-free and pinhole-free surface.
   3. At openings with frames having nailing flanges, seal head and jamb flanges using a continuous bead of sealant compressed by flange and cover flanges with sealing tape at least 4 inches (100 mm) wide; do not seal sill flange.
   4. At openings with nonflanged frames, seal air barrier to each side of framing at opening using flashing at least 9 inches (230 mm) wide and covering entire depth of framing.
   5. At head of openings, install flashing under air barrier extending at least 2 inches (50 mm) beyond face of jambs; seal air barrier to flashing.

6. At interior face of openings, seal gap between window and/or door frame, and rough framing, using joint sealant over backer rod.
7. Service and Other Penetrations: Form flashing around penetrating item and seal to air barrier surface.

3.04 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements for additional requirements.

B. Owner will provide testing and inspection services, and Contractor to provide temporary construction and materials for testing.

C. Do not cover installed air barriers until required inspections have been completed.

D. Obtain approval of installation procedures from air barrier manufacturer based on installed-in-place mock-up before proceeding with remainder of installation.

E. Take digital photographs of each portion of installation before covering up air barriers.

3.05 PROTECTION

A. Do not leave installed materials exposed to sunlight and weather longer than recommended by manufacturer.

END OF SECTION

SECTION 074113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Architectural roofing system of preformed, standing seam, aluminum panels.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 051200 - STRUCTURAL STEEL FRAMING: Roof framing and purlins.

C. Section 079200 - JOINT SEALANTS: Sealing joints between metal roof panel system and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

D. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

E. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2017.

F. ASTM D2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates; 2025.

G. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films; 2023.

H. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference; 2025.

I. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2024, with Editorial Revision (2025).

1.04 PERFORMANCE REQUIREMENTS

A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.

B. Water Penetration: No water penetration when tested according to ASTM E1646 at the following test-pressure difference:
   1. Test-Pressure Difference: 2.86 lbf/sq. ft. for roof slopes less than 30 degrees.

2. Test-Pressure Difference: 20 percent of positive design wind pressure, but not less than 6.24 lbf/sq. ft. and not more than 12.0 lbf/sq. ft. for roof slopes greater than 30 degrees.
3. Positive Preload Test-Pressure Difference: Greater than or equal to 15.0 lbf/sq. ft. and the greater of 75 percent of building live load or 50 percent of building design positive wind-pressure difference.
4. Negative Preload Test-Pressure Difference: 50 percent of design wind-uplift-pressure difference.

C. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.

D. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

E. Thermal Performance: Provide insulated metal roof panel assemblies with thermal-resistance value (R-value) indicated when tested according to ASTM C518.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Storage and handling requirements and recommendations.
2. Installation methods.
3. Specimen warranty.

C. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
1. Show work to be field-fabricated or field-assembled.
2. Include structural analysis signed and sealed by qualified structural engineer, indicating compliance of roofing system to specified loading conditions.

D. Initial Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each roofing system specified, submit samples of minimum size 12 inches square, representing actual roofing metal, thickness, profile, color, and texture.

F. Manufacturer Certificates: Signed by manufacturer certifying that roof panels comply with energy performance requirements specified in "Performance Requirements" Article.
1. Submit evidence of meeting performance requirements.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Product Test Reports: Indicate compliance of metal roofing system to specified requirements.

J. Maintenance Data: For metal roof panels to include in maintenance manuals.

K. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in Owner's name and are registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.
1. Accredited by IAS in accordance with IAS AC472.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

C. Source Limitations: Obtain each type of metal roof panels from single source from single manufacturer.

D. Preinstallation Conference: Conduct conference at Project site.
   1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, metal roof panel Installer, metal roof panel manufacturer's representative, deck installer, and installers whose work interfaces with or affects metal roof panels including installers of roof accessories and roof-mounted equipment.
   2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   3. Review methods and procedures related to metal roof panel installation, including manufacturer's written instructions.
   4. Examine deck substrate conditions for compliance with requirements, including flatness and attachment to structural members.
   5. Review structural loading limitations of deck during and after roofing.
   6. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
   7. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.
   8. Review temporary protection requirements for metal roof panel assembly during and after installation.
   9. Review roof observation and repair procedures after metal roof panel installation.
   10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Provide strippable plastic protection on prefinished roofing panels for removal after installation.

C. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

D. Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.

E. Unload, store, and erect metal roof panels in a manner to prevent bending, warping, twisting, and surface damage.

F. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage.

G. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.

H. Protect foam-plastic insulation as follows:
   1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.

2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.08 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.

B. Do not install metal roof panels, eave protection membrane or underlayment when surface, ambient air, or wind chill temperatures are below 45 degrees F.

C. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.09 COORDINATION

A. Coordinate metal roof panels with rain drainage work, flashing, trim, and construction of decks, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Special Panel Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace metal roof panel assemblies that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: Five years from date of Substantial Completion.

C. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: Twenty years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source and from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Architectural Metal Roof Panel Manufacturers:
1. (Basis of Design) ATAS International, Inc; Dutch Seam: www.atas.com/#sle.
2. Metl-Span, a Nucor Company: www.metlspan.com/#sle.

3. Petersen Aluminum Corporation: www.pac-clad.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Metal Roof Panels: Provide complete roofing assemblies, including roof panels, clips, fasteners, connectors, and miscellaneous accessories, tested for compliance with the following minimum standards:
   1. Structural Design Criteria: Provide panel assemblies designed to safely support design loads at support spacing indicated, with deflection not to exceed L/180 of span length(L) when tested in accordance with ASTM E1592.
      a. Dead Loads: Weight of roofing system.
      b. Live Loads: As required by ASCE 7.
   2. Overall: Complete weathertight system tested and approved in accordance with ASTM E1592.
   3. Thermal Movement: Design system to accommodate without deformation anticipated thermal movement over ambient temperature range of 100 degrees F.

2.03 ATTACHMENT SYSTEM

A. Concealed System: Provide manufacturer's standard stainless steel or nylon-coated aluminum concealed anchor clips designed for specific roofing system and engineered to meet performance requirements, including anticipated thermal movement.

2.04 SECONDARY FRAMING

A. Miscellaneous Secondary Framing: Light gauge steel framing incidental to structural supports; fabricated from steel sheet.

B. Framing Material: ASTM A1011/A1011M Designation SS steel sheet.
   1. Profile: Manufacturer's standard cee, zee, asymmetrical zee, hat channel, plain channel, single slope eave strut, double slope eave strut, and angle.
   2. Thickness: 12 gauge, 0.1046 inch.
   3. Finish: Galvanized per ASTM A653/A653M, G90.

C. Framing Connectors: Factory-made formed steel sheet, ASTM A653/A653M SS Grade 50, with G60/Z180 hot dipped galvanized coating and factory punched holes.

2.05 FABRICATION

A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.

B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.06 FINISHES

A. Fluoropolymer Coil Coating System: Polyvinylidene fluoride (PVDF) multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent PVDF resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; color and gloss as selected by Architect from manufacturer’s standard line.
   1. Products:
      a. Arkema, Inc; Kynar 500: www.arkema.com/#sle.

b. Sherwin-Williams Company; Fluropon: www.coil.sherwin.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

2.07 ACCESSORIES

A. Miscellaneous Sheet Metal Items: Provide flashings, gutters, downspouts, trim, moldings, closure strips, preformed crickets, caps, and equipment curbs of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.

C. Sealants:
1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
3. Seam Sealant: Factory-applied, non-skinning, non-drying type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to ensure that completed roof will be free of leaks.

B. Remove protective film from surface of roof panels immediately prior to installation; strip film carefully to avoid damage to prefinished surfaces.

C. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by metal roof panel manufacturer.

D. Protect surrounding areas and adjacent surfaces from damage during execution of this work.

E. At locations where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

A. Overall: Install roofing system in accordance with approved shop drawings and metal roof panel manufacturer's instructions and recommendations, as applicable to specific project conditions; securely anchor components of roofing system in place allowing for thermal and structural movement.
1. Install roofing system with concealed clips and fasteners, except as otherwise recommended by manufacturer for specific circumstances.
2. Minimize field cutting of panels. Where field cutting is required, use methods that will not distort panel profiles. Use of torches for field cutting is prohibited.

B. Accessories: Install necessary components that are required for complete roofing assembly, including flashings, trim, moldings, closure strips, rib closures, and similar roof accessory items.

C. Roof Panels: Install metal roof panels in accordance with manufacturer's installation instructions, minimizing transverse joints except at junction with penetrations.
   1. Form weathertight standing seams incorporating concealed clips, using an automatic mechanical seaming device approved by panel manufacturer.
   2. Provide sealant tape or other approved joint sealer at lapped panel joints.
   3. Install sealant or sealant tape at end laps and side joints as recommended by metal roof panel manufacturer.

3.04 CLEANING

A. See Section 017700 - Closeout Procedures for additional requirements.

B. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.

B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 074213
METAL WALL PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured metal panels for soffit panels, with accessory components.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 054000 - COLD-FORMED METAL FRAMING: Wall panel substrate.

C. Section 061000 - ROUGH CARPENTRY: Wall panel substrate.

D. Section 072100 - THERMAL INSULATION.

E. Section 072500 - Weather Barriers: Weather barrier under wall panels.

F. Section 072726 - Fluid Applied Vapor Permeable Membrane Air Barriers: Weather, vapor and air barrier under wall panels.

G. Section 079200 - JOINT SEALANTS: Sealing joints between metal wall panel system and adjacent construction.

1.03 REFERENCE STANDARDS

A. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum; 2025.

A. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2022.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Physical characteristics of components shown on shop drawings.
   2. Storage and handling requirements and recommendations.
   3. Installation instructions and recommendations.

C. Shop Drawings: Indicate dimensions, layout, joints, construction details, support clips, and methods of anchorage.

D. Samples: Submit two samples of soffit panel, illustrating finish color, sheen, and texture.

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years of experience.

B. Installer Qualifications: Company specializing in installing products specified in this section with minimum five years of experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

C. Store prefinished material off the ground and protected from weather; prevent twisting, bending, or abrasion; provide ventilation; slope metal sheets to ensure proper drainage.

D. Prevent contact with materials that may cause discoloration or staining of products.

1.07 FIELD CONDITIONS

A. Do not install wall panels when air temperature or relative humidity are outside manufacturer's limits.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Finish Warranty: Provide 15-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

C. Special Warranty: Provide 2-year warranty covering water tightness and integrity of seals of metal wall panels. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Metal Soffit Panels:
   1. Drexel Metals; DMC FWQ100: www.drexelmetals.com
   2. Metal Roofing Systems, Inc; Flush Seam Soffit Panels: www.metalroofingsystems.com.
   3. Petersen Aluminum Corporation; Flush Soffit: www.pac-clad.com.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 METAL WALL PANEL SYSTEM

A. Wall Panel System: Factory fabricated prefinished metal panel system, site assembled.
   1. Provide soffit panels.
   2. Design and size components to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
   3. Design Pressure: In accordance with applicable codes.
   4. Movement: Accommodate movement within system without damage to components or deterioration of seals, movement between system and perimeter components when subject to seasonal temperature cycling; dynamic loading and release of loads; and deflection of structural support framing.
   5. Drainage: Provide positive drainage to exterior for moisture entering or condensation occurring within panel system.
   6. Fabrication: Formed true to shape, accurate in size, square, and free from distortion or defects; pieces of longest practical lengths.
   7. Corners: Factory-fabricated in one continuous piece with minimum 2-inch returns.

8. Provide continuity of weather barrier seal at building enclosure elements in accordance with requirements; see Section 072726.

B. Soffit Panels:
   1. Profile: Style as indicated, with vented and non-vented panels as indicated on drawings.
   2. Material: Precoated aluminum sheet, 20 gauge, 0.032 inch minimum thickness.
   3. Color: As selected by Architect from manufacturer's standard line.

C. Trim: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

D. Anchors: Galvanized steel.

2.03 MATERIALS

A. Precoated Aluminum Sheet: ASTM B209/B209M, 3105 alloy, O temper, with smooth surface texture; continuous-coil-coated on exposed surfaces with specified finish coating and on panel back with specified panel back coating.

B. Select materials with surface flatness, smoothness, and lack of surface blemishes where exposed to view in finished system.

2.04 FINISHES

A. Exposed Surface Finish: Panel manufacturer's standard polyvinylidene fluoride (PVDF) coating, top coat over epoxy primer.

B. Panel Backside Finish: Panel manufacturer's standard siliconized polyester wash coat.

C. Fluoropolymer Coil Coating System: Polyvinylidene fluoride (PVDF) multi-coat superior performing organic coatings system complying with AAMA 2605, including at least 70 percent PVDF resin, and at least 80 percent of coil coated metal surfaces having minimum total dry film thickness (DFT) of 0.9 mil, 0.0009 inch; color and gloss as selected by Architect from manufacturer’s standard line.
   1. Products:
      a. Arkema, Inc; Kynar 500: www.arkema.com/#sle.
      b. Beckers Group; Beckry Fluor: www.beckers-group.com/#sle.
      c. PPG; Duranar: www.ppgmetalcoatings.com/#sle.
      d. Sherwin-Williams Company; Fluropon: www.coil.sherwin.com.
      e. Substitutions: See Section 016000 - Product Requirements.

2.05 ACCESSORIES

A. Bituminous Paint: Asphalt base.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that building framing members are ready to receive panels.

3.02 PREPARATION

A. Protect surrounding areas and adjacent surfaces from damage during execution of this work.

3.03 INSTALLATION

A. Install panels on soffits in accordance with manufacturer's instructions.

B. Protect surfaces in contact with dissimilar metals with bituminous paint; allow to dry prior to wall panel installation.

C. Fasten panels to structural supports; aligned, level, and plumb.

D. Locate joints over supports.

E. Lap panel ends 2 inches, minimum.

F. Provide expansion and control joints where indicated.

G. Use concealed fasteners unless otherwise indicated by Architect.

3.04 TOLERANCES

A. Offset From True Alignment Between Adjacent Members Abutting or In Line: 1/16 inch, maximum.

B. Variation from Plane or Location As Indicated on Drawings: 1/4 inch, maximum.

3.05 CLEANING

A. See Section 017700 - Closeout Procedures, for additional requirements.

B. Remove site cuttings from finish surfaces.

C. Remove protective material from wall panel surfaces.

D. Upon completion of installation, thoroughly clean prefinished aluminum surfaces in accordance with AAMA 609 & 610.

3.06 PROTECTION

A. Protect metal soffit panels until completion of project.

B. Touch-up, repair, or replace damaged soffit panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 074246
RAINSCREEN SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fiber reinforced cementitious wall panels mounted using the drained and back ventilated rainscreen design principles.

B. Porcelain ceramic wall panels.

C. Metal Sub-Framing Support System. Provide a non-continuous, thermally broken rainscreen for attachment of various siding types, installed in conjunction with exterior insulation. System shall be designed to incorporate flashing components, drainage components and air barriers in a manner to deliver the required performance.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 072100 - THERMAL INSULATION.

C. Section 072726 Fluid Applied Vapor Permeable Membrane Air Barriers.

D. Section 072700 - Air Barriers.

E. Section 076200 - SHEET METAL FLASHING AND TRIM.

F. Section 079200 - JOINT SEALANTS.

1.03 REFERENCE STANDARDS

A. ASTM 331 - Test Method for Water Penetration of Exterior Windows.

B. IBC 1403.2: Reference standard for Selection of Weather Resistive Barriers

C. Energy Conservation Code of NY 2025 edition

D. AAMA 509 - Voluntary Test and Classification Method for Drained and Back Ventilated Rainscreen Wall Cladding Systems; 2022.

E. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

F. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

G. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

H. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

I. ASTM C1186 - Standard Specification for Flat Fiber-Cement Sheets; 2022, with Editorial Revision (2023).

J. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

K. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

L. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components; 2025.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide manufacturer's data sheets for each product, including preparation instructions, storage and handling requirements, and installation instructions.

C. Shop Drawings: Indicate layout, panel locations, and configuration.
   1. Indicate size, spacing, and location of support and attachment components, connections, and fasteners. Details at top, bottom, corner, window, doors and intersections with other materials.
   2. Indicate provisions for structural and thermal movement.
   3. Copy of written approval by perimeter fastener supplier of the use of selected screws confirming use in a rainscreen wall assembly..
   4. Indicate locations and sizes of penetrations through wall panel system for Architect's approval.
   5. Thermal analysis report of exterior facade assembly.
   6. Engineering calculations: Submit engineering calculations signed and sealed by a licensed professional within the state of New York. Include comprehensive analysis of design locates inclduing dead loads, live loads, wind loads and thermal movement based on panel selected.

D. Samples: Submit two samples of each color of panel, 6 by 6 inches, showing finish and texture.
   1. Submit 6- to 24-inch long sample of support framing, trim, and corners.
   2. Typical anchor brackets and fasteners
   3. Submit mounted sample, 6 by 6 inches in size showing four-way joint with equally sized panels.

E. Test Reports: Indicate wall system complies with AAMA 509.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Specimen warranty and installation and maintenance instructions.

I. Executed warranty.

1.05 QUALITY ASSURANCE

A. Provide, in conjunction with wall substrate and air/ vapor barrier, a weather tight wall assembly utilizing rain screen principles.
   1. Manufacturer is responsible for designing system, including anchorage to structural system
   2. Design modifications shall be provided only as necesary to satisfy as built conditions and to meet performance requirements.
   3. A registered professional engineer, licensed in New York, is to engineer each comoponent of the rain screen attachment system and provide stamped and sealed documents.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum 20 years of documented experience.

C. Installer Qualifications: Company specializing in performing work of type specified in this section with minimum 5 years of documented experience and approved by manufacturer.

D. Continuous Insulation (CI): System shall comply with ASHRAE 90.1 thermal performance requirements and meet all requirements of the Energy Conservation Code of NY 2025.

1. System shall be designed with independent non-continuous wall brackets to ensure optimal thermal and moisture performance when required to provide outboard insulation (CI) within the cladding cavity. Continuous framing profiles (including C or Z shaped sections or furring) penetrating the insulation are not permitted.
2. Provide a thermal analysis to show final U-value of cladding assembly to accomodate ASHRAE 90.1 performance requirements.

E. Design Loads - as required by the applicable codes for the project location.
1. System shall be optimized based on design loads.
2. Maximum panel deflection: 1/300 of span or less of span when tested in accordnace with positive and negative pressures and as required to prevent cracking or damage to panel facing.
3. Comply with applicable seismic requirements for project location.
4. Adequately resist wind forces and uplift for project location with a loads calculated for parapet and corner panels tested in accordance with ASTM E330.
5. Accomodate movement of cladding components without undue stress on fasteners or other detrimental effects, when subjected to seasonal temperature range of
   a. Ambient: 120 degrees F.
   b. Cladding Surface: 180 degrees F.
6. Non-continuous, thermal support components must be designed and manufactured in a manner that appropriately addresses expansion and contraction of entire system (Panels and subframing) while maintaining specified deflections critera and accomodates tolerances of support structure.
7. Condensation: System shall accomodate positive drainage for moisture entering or condensation occuring within panel system.
8. Flatness: System shall be flat with no noticeable warpage, buckling, deflections or other surface irregularities as determined by the Architect.

F. Attic Stock: Provide 5% extra stock per color in largest format size in use for project.

G. Preinstallation Conference
1. Before fabrication of the panels is scheduled to commence, a conference will be called for the purpose of reviewing the mockup, the drawings, specs and approved shop drawings and to discuss installation sequencing. Attendence is required of the GC, the fabricators authorized field installer and the supplier, the Owner, CM and Architect.

1.06 MOCK-UPS

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Construct mock-up of each panel type, 8 feet long by 8 feet wide. Include air/ vapor barrier, insulation, framing, panels, flashings, joints, attachments, anchors, trim and termination accessories, perimeter sealant and treatment at corners and transitions.

C. Locate where directed by Architect.

D. Mock-up may remain as part of work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver and store materials in manufacturer's unopened packaging with labels intact.

C. Store products under waterproof cover, well-ventilated, and elevated above grade on flat surface.

D. Protect materials from harmful environmental elements, construction dust, direct sunlight, and other detrimental conditions.

1.08 FIELD CONDITIONS

A. Do not install panels when air temperature or relative humidity are outside manufacturer's limits.

B. Field Measurements: Contractor is responsible to verify actual supporting and adjoining construction before fabrication. Record measurements on project record shop drawings.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures for additional warranty requirements.

B. Manufacturer Warranty: Provide 20-year manufacturer warranty for panels. Complete forms in Owner's name and register with manufacturer.

C. Installation Warranty for Building Rainscreen Assembly: Provide 10-year warranty for defective materials, defect repairs, and restoration of system to watertight condition. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Wall Panel System Manufacturers:
   1. Alucobond: www.alucobondusa.com/#sle.
   2. Cladding Corp: www.claddingcorp.com/#sle.
   3. Overly Manufacturing: www.overly.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

D. Rainscreen Attachement System Manufacturers:
   1. Eco Cladding: www.ecocladding.com.
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 WALL PANELS

A. Description: Factory-fabricated, drained and back-ventilated (D/BV) rainscreen panel system, site assembled; comply with AAMA 509.

B. Performance Requirements:
   1. Design and size components to support assembly dead loads and withstand live loads caused by positive and negative wind pressure acting normal to plane of wall.
   2. Structural Performance:
      a. Comply with ASTM E330/E330M, using test pressure 1.5 times design wind pressure, with 10-second maximum load duration.
      b. Maximum Allowable Deflection of Panel: L/300 for length (L) of span.
   3. Fire Performance: Comply with NFPA 285.
   4. Panel Surface Burning Characteristics: Maximum flame spread index of 0 and maximum smoke developed index of 5 when tested in accordance with ASTM E84.

5. Movement:
    a. Accommodate movement within system without damage to components or seal deterioration.
    b. Accommodate movement between system and perimeter components when subject to seasonal temperature cycling, dynamic loading, load release, and support framing deflection.
6. Drainage: Provide positive drainage to exterior for moisture entering system and condensation occurring within system.

C. Cementitious Wall Panels: Fiber-cement sheets complying with ASTM C1186, Type A, Grade IV; with manufacturer's standard factory-trimmed edges.
1. Panel Construction:
    a. Portland cement greater than 70% of composition.
    b. Polyvinyl alchohol fibers (PVA).
    c. High Performanc finish on all siz sides (face, rear and all edges).
2. Panels must be air cured for a minimum of 4 weeks.
3. Size: As indicated on drawings.
4. Thickness: 0.3 inch.
5. Panel Orientation: As indicated on drawings.
6. Panel Fastening: Concealed Fastening System.
7. Color: As selected by Architect from manufacturer's full range of available colors.
8. Products:
    a. Cladding Corp; Swisspearl Fiber Cement Rainscreen: www.claddingcorp.com/#sle.
    b. Substitutions: See Section 016000 - Product Requirements.

D. Porcelain Wall Panels: Fiber-cement sheets complying with ASTM C1186, Type A, Grade IV; with manufacturer's standard factory-trimmed edges.
1. Size: As indicated on drawings.
2. Thickness: No less than .35 inch.
3. Panel Orientation: As indicated on drawings.
4. Panel Fastening: Concealed Fastening System.
5. Color: As selected by Architect from manufacturer's full range of available colors.
6. Material Performance Requirements:
    a. Determination of Dimensions complies with ASTM C499
    b. Thickness complies with ASTM C49
    c. Chemical Resistance compies with ASTM C650
    d. Breaking Strength complies with ASTM C648
    e. Water Absorption complies with ASTM C373
    f. Warpage complies with ASTM C485
    g. Frost Resistance tested according to ASTM C1026 and unaffected.
    h. Resistance to Staining tested according to ASTM 1378 and unaffected.
7. Products:
    a. Cladding Corp; Ceramic5 Porcelain Rainscreen: www.claddingcorp.com.
    b. Substitutions: See Section 016000 - Product Requirements.

E. Metal Wall Panels: MCM sheets complying with ASTM C1186, Type A, Grade IV; with manufacturer's standard factory-trimmed edges.
1. Products:
    a. Alucobond; Alucolux 0.080" Rainscreen Panel System: www.alucobondusa.com/#sle.

b. Overly Manufacturing; Rainscreen XP(RXP): www.overly.com/#sle.

F. Insulation: See Section 072100.

G. Air Barrier: See Section 072726.

2.03 SUPPORT FOR CLADDING AND CONTINUOUS INSULATION

A. Manufacturer: ECO Cladding, www.ECOcladding.com.
   1. For Fiber Cement and Porcelain Ceramic Panels:
      a. Sigma Vci.40 System
   2. For Metal Panels:
      a. Sigma Vci C.I System
   3. Non-continuous, self-shimming bracket and rail assembly to accomodate out of plumb conditions.
   4. Provide all rain screen attachment system components from a single source.

B. Materials:
   1. Sigma Brackets
      a. Made from 300 series stainless steel.
      b. Mill finish
      c. Brackets must be self-shimming for out of plumb conditions, with at least 1.5 inch of built in adjustability. External shims are not acceptable.
      d. Brackets must be compatible for use in both horizontal and vertical applications.
      e. Thermal isolator pads to attach to brackets must be included.
   2. Rail Components:
      a. Made from 6000 series architectural grade aluminum.
      b. Mill finish
   3. Fasteners:
      a. Minimum 304 series stainless steel fasteners and anchors of type, size and spacing required for type of substrate and project conditions, to meet performance requirements specified and as indicated in design calculations and shop drawings.
   4. The following characteristics are not acceptable:
      a. Continuous framing profiles
      b. Components made from galvanized steel or galvalume.
      c. Components made from FRP or figerglass materials.
   5. Thermal Barrier
      a. Material:
         1) Injection molded polypropylene copolymer.
         2) Injection molded polyoxymethylene copolymer (POM) non-fiber reinforced.

C. Concealed Clip System: Manufacturer's standard system consisting of starter tracks, panel clips, corner clips, sealant backers, and spacers.

2.04 FABRICATION

A. Fabricate panels by a manufacturer approved fabricator.

B. Dimensional Tolerances:
   1. Overall panel dimensions within 1mm of panel width and height.
   2. Squareness within 0.5 mm per meter.

2.05 ACCESSORIES

A. Trim: Same material and texture as panel.

B. Metal Trim: Extruded aluminum, ASTM B221, color anodized.
   1. Dimensions, Profile, and Layout: As indicated on drawings.
   2. Anodized Color: As selected by Architect.

2.06 SOURCE QUALITY CONTROL

A. See Section 014000 - Quality Control, for additional requirements.

B. Testing of Drainable and Back-Ventilated (D/BV) Rain Screen Panel System: Submit results in accordance with AAMA 509 for D/BV wall panel system similar to system specified.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrate; clean and repair to eliminate conditions detrimental to installation.

B. Verify installation of water-resistive barrier.

C. Correct conditions that do not meet manufacturer's requirements before beginning installation.

3.02 PREPARATION

A. Touch up field cut edges.

B. Protect surrounding areas and adjacent surfaces from damage during execution of work.

C. Weather resistive barrier: Verify complete, cured and conforming to manufacturers instructions. Verify sills, ledgers and discontinuites are flashed and sealed to move moisture to exterior of the building as part of the air/ vapor barrier system.

3.03 INSTALLATION

A. Rainscreen attachemnt system:
   1. Install rain screen attachment system in accordance with manufacturer's instructions and approved shop drawings.
   2. Establish level lines for panel coursing and position of brackets and rails.
   3. Attach brackets with engineered fasteners to accomplish performance requirements.
   4. Attach horizontal or vertical rails with engineered fasteners to accomplish performance requirements.
      a. Provide 1/2" to 1" space between end of adjacent profiles.
   5. Install exterior insulation to fit between wall brackets prior to installing vertical support rails.
   6. Attach support rails with engineered fasteners to accomplish performance requirements.
      a. Provide 1/2" to 1" space between endof adjacent profiles.

B. Install panel system in accordance with manufacturer's installation instructions and approved shop drawings.

C. Install wall panels minimum 6 inches above surface of ground and minimum 1 inch away from surfaces where water may collect.

D. Ensure supports for cladding and continuous insulation are plumb and plane.

E. Control and Expansion Joints: Install as recommended by wall panel manufacturer.

F. Sheet Metal Flashing: Install in accordance with wall panel manufacturer's instructions.

G. See Section 079200 for installation of sealants and backers around penetrations and between wall panels and adjacent construction.

3.04 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Immediately after installation, wipe panels clean. Remove excess sealer, handling marks, and debris. Leave panels unmarked and free from dents or other finish damage.

3.05 PROTECTION

A. Immediately remove and replace damaged, bowed or bent pieces of aluminum.

B. Protect installed products until Date of Substantial Completion.

END OF SECTION

SECTION 075323
ETHYLENE PROPYLENE DIENE MONOMER MEMBRANE ROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Vapor retarder.

B. Substrate board.

C. Roof insulation.

D. Cover boards.

E. Base sheet materials.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 053100 - STEEL DECKING: Placement of acoustical insulation for deck flutes.

C. Section 061063 - MISCELLANEOUS ROUGH CARPENTRY: Wood cant strips.

D. Section 077100 - ROOF SPECIALTIES: Prefabricated roofing expansion joint flashing.

1.03 REFERENCE STANDARDS

A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2017.

C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2019.

D. ASTM D41/D41M - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing; 2011 (Reapproved 2016).

E. ASTM D2178/D2178M - Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing; 2015a (Reapproved 2021).

F. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane; 2015, with Editorial Revision (2022).

G. ASTM D6083/D6083M - Standard Specification for Liquid-Applied Acrylic Coating Used in Roofing; 2021.

H. CAN-ULC-S770 - Standard Test Method Determination of L-Term Thermal Resistance Of Closed-Cell Thermal Insulating Foams; 2015.

I. FM (AG) - FM Approval Guide; current edition.

J. FM 4470 - Approval Standard for Single-Ply, Polymer-Modified Bitumen Sheet, Built-Up Roof (BUR) and Liquid Applied Roof Assemblies for use in Class 1 and Noncombustible Roof Deck Construction; 2016.

K. NRCA (WM) - The NRCA Waterproofing Manual; 2021.

L. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

M. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene preinstallation meeting one week before starting work of this section; require attendance by affected installers; review preparation, installation procedures, coordination, and scheduling necessary for related work.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, vapor retarder, surfacing, and fasteners.

C. Shop Drawings: Provide roofing system plans, elevations, sections, details, and attachment details to other work, including:
   1. Base flashings, cants, and membrane terminations.
   2. Tapered insulation, including slopes.
   3. Crickets, saddles, and tapered edge strips, including slopes.
   4. Insulation fastening patterns.

D. Samples: Provide for each product specified.

E. Manufacturer's qualification statement.

F. Installer's Qualification Statement: Confirmation installer approved, authorized, or licensed by manufacturer to properly install roofing system.

G. Maintenance Data: Latest published documents.

H. Guarantees: Provide manufacturer's current guarantee specimen for the following:
   1. Roofing subcontractor to provide copy of final System Assembly Letter issued by the manufacturer, indicating products and system installed eligible to receive specified manufacturer's guarantee when installed by certified contractor, in accordance with manufacturer's application requirements, and inspected and approved by he manufacturers technical representative.
   2. Prior to roofing system installation, roofing subcontractor to provide copy of Guarantee Application Confirmation document issued by the manufacturer, indicating project has been reviewed for eligibility to receive specified guarantee and registered.

I. Testing firm's qualification statement.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this section with minimum five years documented experience.

C. Testing Firm Qualifications: Company specializing in performing work of type specified and approved by manufacturer.
   1. Test Reports:
      a. Roof drain and leader test or submit plumber's verification.
      b. Core cutting, if requested.
      c. Roof deck fastener pullout test, if required.

d. Bonded pull test, if required.

2. Source Limitations: Obtain components from one single-source roofing system manufacturer to guarantee product quality consistency.
3. Fire-Test Response Characteristics: Roofing materials to comply with characteristics indicated as determined by testing identical products, using test methods listed herein by UL or another testing and inspection agency considered the standard.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver materials in manufacturer's original containers, dry and undamaged, with seals and labels intact, product brand name, type, date of manufacture, and directions for storage.

C. Store materials in weather-protected environment; do not place directly on ground, and protect from moisture.

D. Ensure materials' storage and staging does not exceed static and dynamic loadbearing roof decking capacities.

E. Store liquid materials in original, undamaged containers, in clean, dry, protected location, and within temperature range required by roofing system manufacturer.

F. Protect roof insulation materials from physical damage and deterioration by sunlight, moisture, soiling, and other sources. Comply with insulation manufacturer's written instructions for handling, storing, and protection during installation.

G. Protect foam insulation from direct exposure to sunlight.

1.08 FIELD CONDITIONS

A. Do not apply roofing membrane during unsuitable weather.

B. Do not apply roofing membrane when ambient temperature below 40 degrees F (5 degrees C) or above 110 degrees F (43 degrees C).

C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation expected or occurring.

D. Protect materials vulnerable to water or sun damage during day that work occurs.

E. Schedule applications so no partially completed roof sections left exposed at end of workday.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Provide manufacturer's system guarantee equal to Johns Manville's Peak Advantage No Dollar Limit Roofing System Guarantee:

1. Single-source special guarantee includes roofing membrane, accessories, basic flashing, and other approved single-source components of roofing system marketed by manufacturer, including roof insulation.
2. Warranty Period: 20 years from Date of Substantial Completion.

C. Installer's Warranty: Submit roofing Installer's Warranty, including components of roofing system for a guarantee period of two years from Date of Substantial Completion.

D. Existing Warranties: Ensure warranties on existing building elements not affected by project scope of work. Installer responsible for coordinating with building Owner's representative to verify compliance.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. **(Basis of Design)** Johns Manville - Commercial Roofing Systems: www.jm.com/#sle.

D. Versico, a subsidiary of Carlisle Companies; VersiGard: www.versico.com/#sle.

E. Mule-Hide Products: www.mulehide.com/#sle.

F. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE CRITERIA

A. General: Install watertight roofing membrane system, resist specified wind uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Ensure roofing materials compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.

C. Installer to comply with current code requirements from authority having jurisdiction.

D. Wind Uplift Performance: Roofing system to meet intent of systems successfully tested by qualified testing and inspecting agency to resist wind uplift pressure calculated in accordance with ASCE 7.

E. Fire Test Response Characteristics: Provide roofing materials with characteristics as determined by testing identical products with UL test method below or comparable testing and inspecting agencies acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
   1. Exterior Fire Test Exposure: UL 790, Class A, for applications and roof slopes indicated.

2.03 EPDM MEMBRANES

A. EPDM Membrane Materials:
   1. Thickness: 60 mils, 0.060 inch (1.5 mm).
   2. Product: JM EPDM NR.

B. Scrim or Internally Reinforced Uniform Fabric:
   1. Flexible sheet made from Ethylene Propylene Diene Monomer, ASTM D4637/D4637M, Type II.
   2. Thickness: 60 mils, 0.060 inch (1.5 mm).
   3. Exposed Face Color: Black.
   4. Factory Inseam Tape: 6 inches (150 mm) wide minimum, butyl splice tape with release film.
   5. Product: JM EPDM NR.
   6. Substitutions: See Section 016000 - Product Requirements.

2.04 VAPOR RETARDER

A. Glass-Fiber Felts:
   1. Asphalt-Impregnated Glass-Fiber Felt:
      a. In accordance with ASTM D2178/D2178M, Type IV.
      b. Product: JM GlasPly IV.
      c. Substitutions: See section 016000 Product Requirements

B. Asphalt Primer:
   1. Comply with ASTM D41/D41M.
   2. Product: JM Asphalt Primer or approved equal.

2.05 SUBSTRATE BOARD

A. Gypsum Board:
   1. Heavy-duty coated glass-mat facer, water-resistant gypsum substrate for adhered roof applications, complying with ASTM C1177/C1177M.
      a. Products: JM Dens Deck Prime Roof Board.

2.06 ROOF INSULATION

A. Standard:
   1. Preformed roof insulation boards complying with requirements and referenced standards, selected from material sizes and thicknesses indicated. Provide insulation package with minimal R Value: R-33ci required by code Energy Conservation Code of NY State 2025.
   2. Provide insulation package in multiple layers.
   3. Minimum Long-Term Thermal Resistance (LTTR): 5.7 per inch, determined in accordance with CAN-ULC-S770 at 75 degrees F (24 degrees C).
      a. Polyisocyanurate Board Insulation:
         1) In accordance with ASTM C1289, Type II, Class 1, Grade 2 (20 psi).
         2) Products: JM ENRGY 3 or approved equal.

B. Tapered Insulation:
   1. Factory-tapered insulation boards fabricated to slope of 1/4" inch per 12 inches (1:48), unless indicated otherwise.
      a. Polyisocyanurate Board Insulation, Tapered:
         1) In accordance with ASTM C1289, Type II, Class 1, Grade 2 (20 psi).
         2) Products: JM Tapered ENRGY 3.

C. Insulation Accessories:
   1. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.
      a. Provide saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
         1) Products: JM Tapered Fesco Edge Strip or approved equal.
      b. Fasteners: Factory-coated steel fasteners with metal or plastic plates designed for fastening roof insulation to substrate and furnished by roofing system manufacturer. Comply with corrosion-resistant provisions in FM 4470.
         1) Products: JM UltraFast Fasteners and UltraFast Plates or approved equal
      c. Urethane Adhesive: Manufacturer's two-component polyurethane adhesive formulated to adhere insulation to substrate.
         1) Products: JM Two-Part Urethane Insulation Adhesive (UIA) or approved equal.

d. Wood Nailer Strips: See Section 061053.

2.07 COVER BOARDS

A. Polyisocyanurate Boards: Faced with high compressive strength polyisocyanurate insulation, complying with ASTM C1289.
   1. Classifications:
      a. Type II - Bonded in-line to fiberglass reinforced facer.
         1) Class 1 - Faced with glass-reinforced facers on both major surfaces of closed cell foam core. Product thickness of 1/2 inch (12.7 mm).
            (a) Compressive Strength: Grade 2, 20 psi (Grade 2, 138 kPa), minimum.
         2) Board Size: 48 by 96 inches (1220 by 2440 mm).
         3) Board Thickness: 1/2 inch (12.7 mm).
         4) Thermal Resistance at 1/2 inch (12.7 mm) Thick, R-Value (RSI-Value): 2.8 (0.49).
         5) Products: JM SeparatoR.
      b. Type II - Bonded in-line to inorganic coated glass facer.
         1) Class 2 - Faced with inorganic coated glass facers on both major surfaces of closed cell polyisocyanurate foam core. This product used at maximum thickness of 1/2 inch (12.7 mm).
            (a) Compressive Strength: Grade 3, 25 psi (Grade 3, 172 kPa), minimum.
         2) Board Size: 48 by 96 inches (1220 by 2440 mm).
         3) Board Thickness: 1/2 inch (12.7 mm).
         4) Thermal Resistance at 1/2 inch (12.7 mm) Thick, R-Value (RSI-Value): 2.9 (0.51).
         5) Products: JM SeparatoR CGF.

2.08 SURFACING - REFLECTIVE COATING

A. Elastomeric Coating: Multipurpose, acrylic elastomeric coating for use over variety of substrates, conforming to ASTM D6083/D6083M standards.
   1. Products: JM TopGard 4000.

B. Base Coat: One-part acrylic elastomeric with bleed-blocking properties for coating over asphalt surfaces.
   1. Product: JM TopGard Base Coat.

2.09 EDGE METAL COMPONENTS

A. Expansion Joints: Provide factory-fabricated, weatherproof exterior covers for expansion joint openings consisting of flexible rubber membrane, supported by closed-cell foam to form flexible bellows, with two metal flanges, adhesively and mechanically combined to bellows via bifurcation process. Provide product both manufactured and marketed by single-source membrane supplier, included in No Dollar Limit Guarantee.
   1. Products: JM Expand-O-Flash.

B. Coping System: Manufacturer's factory-fabricated coping consisting of base piece and snap-on cap. Provide product both manufactured and marketed by single-source membrane supplier, included in No Dollar Limit Guarantee.
   1. Products: JM Presto-Lock Coping.

C. Fascia System: Manufacturer's factory-fabricated fascia consisting of base piece and snap-on cover. Provide product both manufactured and marketed by single-source membrane supplier, included in No Dollar Limit Guarantee.
   1. Products: JM Presto-Tite Fascia (Single-Ply Systems).

D. Metal or Membrane Flashing: Specially designed and manufactured flashing for sealing and waterproofing.
   1. Products: JM EPDM Metal/Membrane Flashing.

2.10 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing:
   1. Liquid-type auxiliary materials meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Internally reinforced or scrim reinforced.
   1. Product: JM EPDM Peel & Stick Flashing.

C. Primer Material: Synthetic-rubber polymer.
   1. Products: JM EPDM Tape Primer Plus.

D. Liquid-Applied Flashing: Single-ply liquid and fabric-reinforced flashing system created with fleece polyester scrim and two-component, polyurethane-based, liquid-applied flashing material, consisting of liquid resin.
   1. Products: JM SP Liquid Flashing Resin and JM SP Liquid Flashing Scrim curing agent.

E. Seaming Material: Butyl splice tape with release film.
   1. Product: 3 inches (75 mm) wide, minimum, EPDM Seam Tape Plus butyl splice tape.

F. Sealing Strip: 6 inches (150 mm) wide, 45 mil, 0.045 inch (1.14 mm) thick minimum, cured EPDM with factory-laminated, self-adhering seam tape.
   1. Product: JM EPDM Peel & Stick Sealing Strip.

G. Bonding Adhesive: Solvent-based bonding adhesive for membrane. Serviceable Installation Ambient Air Temperature: 25 degrees F (-3.9 degrees C) and rising.
   1. Products: JM All Season Sprayable Bonding Adhesive.

H. Flashing Adhesive: Solvent-based bonding adhesive for base flashings. Serviceable Installation Ambient Air Temperature: 25 degrees F (-3.9 degrees C) and rising.
   1. Products: JM Membrane Bonding Adhesive (TPO and EPDM).

I. Slip Sheet: Manufacturer recommended slip sheet of type required for application.

J. Protection Mat: Nominal 7 oz/yd^2 (237.34 g/m^2) needle-punched, UV-resistant polypropylene fabric.

K. Metal Termination Bars: Standard predrilled stainless steel or aluminum bars with anchors.
   1. Product: JM Termination Systems.

L. Membrane Battens: Manufacturer recommended polymer or aluminum-zinc-alloy coated, prepunched steel sheet.

M. Fasteners: Factory-coated steel fasteners and metal plates meeting corrosion-resistance provisions in FM 4470, designed for fastening membrane to substrate and acceptable to membrane roofing system manufacturer.
   1. Products: JM Purlin Fasteners.

N. Miscellaneous Accessories: Provide accessories to meet roofing manufacturer's warranty requirements.

2.11 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads.
   1. Product: JM EPDM Peel & Stick Walkpads.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify surfaces and site conditions ready to receive work.

B. Verify deck supported and secure.

C. Verify deck clean and smooth, flat, free of depressions, waves, or projections, sloped according to drawings and correct installation of roof system.

D. Verify deck surfaces dry and free of snow or ice.

E. Verify roof drains securely clamped in place.

F. Verify roof openings, curbs, blocking, nailers, and penetrations through roof are solidly set, and cant strips in place. Thickness of nailers to match thickness of insulation.

G. Ensure rigidity and proper slope for drainage for decking materials.

H. Verify deck securely fastened with no projecting fasteners and adjoining deck units no greater than 1/16 inch (1.6 mm) out-of-plane relative to each other.

I. Bring unacceptable panels to the attention of General Contractor and Project Owner's Representative and correct or replace with appropriate panels of like material prior to installation of roofing system.

J. Concrete Deck
   1. Verify concrete curing compounds that impair adhesion of roofing components to roof deck have been removed.
   2. Verify concrete substrate visible and free of moisture.

K. Metal Deck
   1. Verify surface plane flatness and fastening of steel roof deck in accordance with manufacturer's instructions; see Section 053100.
   2. Verify decking visibly dry and free of moisture.
   3. Verify decking is smooth, free of visible cracks, holes, or sharp changes in surface elevation.
   4. When applicable, perform pull test with specific deck fasteners being used on project to confirm fasteners meet resistance requirements for particular system being installed.

3.02 PREPARATION

A. General
   1. Clean and remove from substrate sharp projections, dust, debris, moisture, and other substances detrimental to roofing installation, in accordance with roofing system manufacturer's written instructions.
   2. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto other adjacent surfaces.

3. If applicable, prime surface of deck with primer at rate recommended by roofing manufacturer and allow primer to dry.
4. Proceed with installation steps only after correcting unsatisfactory conditions.

B. Reroofing Preparation
1. Remove area no larger than one day's worth of reroofing. Remove roofing membrane, surfacing, coverboards, insulation, fasteners, asphalt, pitch, adhesives, and other related materials.
2. Tear out base flashings, counterflashings, pitch pans, pipe flashings, vents, sumps, and like components necessary for new membrane applications.
3. Remove abandoned equipment curbs, skylights, smoke hatches, and penetrations. Install new decking to match existing, adjoining decking material.
4. Raise HVAC units and other equipment supported by curbs to conform with the following:
   a. If necessary, disconnect connections to existing HVAC units, work done by appropriate, licensed tradesmen, and coordinated by General Contractor.
   b. Modify curbs as required to provide minimum 8 inches (203.2 mm) of base flashing height measured from surface of new membrane to top of flashing membrane.
   c. Secure existing flashing and install new metal counterflashing prior to reinstallation of units.
   d. Elevate perimeter nailers to match elevation of new roof insulation.
   e. Ensure removal of roof surface debris. Do not store demolished roof system material on roof surface.

3.03 INSTALLATION - MEMBRANE

A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.

B. Shingle joints on sloped substrate in direction of drainage.

C. Refer to membrane manufacturer's installation instructions regarding installation direction and backnailing, where roof slope exceeds 0.5 inch (12.7 mm) per 12 inches (305 mm) (1:24).

D. Cooperate with testing and inspecting agencies engaged to perform testing services for roofing system installation.

E. Coordinate roofing system installation to ensure insulation and other roofing membrane components not permanently exposed are not subjected to precipitation or left uncovered at end of each work day, or if rain imminent:
1. Provide tie-offs at end of each work day to cover exposed roofing membrane sheets and insulation. Complete terminations, base flashing, and provide temporary seals to prevent water from entering completed sections of roofing system. Remove and discard temporary seals before beginning work on adjoining roofing.

F. Adhered Roofing Membrane Installation:
1. Install roofing membrane over area to receive roofing in accordance with membrane roofing system manufacturer's written instructions.
2. Unroll roofing membrane and allow to relax before installing.
3. Align roofing membrane, stagger end laps, and maintain uniform side and end laps of minimum dimensions required by manufacturer.
4. Bonding Adhesive: Apply solvent-based bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

5. Mechanically fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing.
6. Apply roofing membrane with side laps shingled along slope of roof deck where possible.
7. Field-Fabricated Seam Installation: Clean and prime both faces of splice areas, apply splice tape and firmly roll side and end laps of overlapping roofing membrane according to manufacturer's written instructions to ensure watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.
8. Tape-to-Tape Installation: Align membrane for appropriate overlap, remove release liners and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure watertight seam installation.
9. Tape-to-Standard Sheet Installation: Align membrane for appropriate overlap, clean and prime nontaped face of splice area, remove release liners and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure watertight seam installation.
10. Spread sealant or mastic bead over deck drain flange at deck drains and securely seal roofing membrane with clamping ring.

G. Around roof penetrations, seal flanges and flashings with flexible flashing.

H. Coordinate installation of roof drains and sumps and related flashings.

3.04 INSTALLATION - VAPOR RETARDER AND INSULATION, UNDER MEMBRANE

A. Install polyethylene sheet vapor retarder as loose-laid single layer over area to receive vapor retarder, with side and end-lapping each sheet minimum of 2 inches (51 mm) and 6 inches (152 mm), respectively. Ensure side and end laps securely sealed.

B. Install modified bituminous vapor retarder sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond cants, installing as follows:
1. Unroll roofing bituminous vapor retarder sheet according to roofing manufacturer.
2. Torch-apply vapor retarder to substrate according to roofing system manufacturer's instruction.
3. Adhere vapor retarder in full mopping of hot asphalt to substrate according to roofing system manufacturer's instruction.
4. Self-adhere vapor retarder to substrate according to roofing system manufacturer's instruction.

C. Laps: Align roofing membrane sheets without stretching, and maintain uniform side and end laps. Stagger end laps and completely bond and seal laps, leaving no voids. Repair tears and voids in laps and lapped seams not completely sealed.

D. Completely seal vapor retarder at terminations, obstructions, and penetrations, to prevent air movement into membrane roofing system.

E. Cover Boards: Mechanically fasten cover boards in accordance with roofing manufacturer's instructions and FM (AG) Factory Mutual requirements.

F. Lay subsequent layers of insulation with joints staggered minimum 6 inches (152 mm) from joints of preceding layer.

G. On metal deck, place boards parallel to flutes with insulation board edges bearing on deck flutes.

H. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof.

I. Apply only enough insulation to cover membrane within one work day.

3.05 INSTALLATION - SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
   1. Fasten substrate board to top flanges of steel decktop flanges of steel deck to resist uplift pressure at corners, perimeter and field of roof, according to roofing system manufacturer's written instructions.

3.06 INSTALLATION - INSULATION

A. Standard Installation:
   1. Coordinate installation of roof system components so insulation and cover board not exposed to precipitation or left exposed at end of each work day.
   2. Install tapered insulation under area of roofing to conform to slopes indicated.
   3. Install insulation boards with long joints in continuous straight line. Stagger joints between rows, abutting edges. Fill gaps exceeding .25 inch (6 mm) with like materials.
   4. Install two or more layers with joints of each succeeding layer staggered minimum of 6 inches (153 mm) from joints of previous layer.
   5. Trim surface of insulation boards where necessary at roof drains so completed surface is flush and does not restrict flow of water.
   6. Install tapered edge strips at perimeter edge of roof not terminating at vertical surfaces.

B. Adhered Installation:
   1. Install each layer in two-part urethane adhesive according to roofing system manufacturer's instruction.
   2. Install each layer to resist uplift pressure at corners, perimeter, and entire roof field.

3.07 INSTALLATION - COVER BOARDS

A. Coordinate installing membrane roofing system components so cover board not exposed to precipitation or left exposed at end of each work day.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof cover boards.

C. Install cover board with long joints in continuous straight line. Stagger joints between rows, abutting edges, and ends as directed by manufacturer's written instructions. Fill gaps exceeding .25 inch (6 mm) with cover board. Cut and fit cover board within .25 inch (6 mm) of nailers, projections and penetrations.

D. Trim surface of cover board where necessary at roof drains so completed surface is flush and does not restrict flow of water. Install tapered edge strips at perimeter edges of roof not terminating at vertical surfaces.

E. Adhered Cover Board Installation:
   1. Install each layer in two-part urethane adhesive according to roofing system manufacturer's instruction.
   2. Install each layer to resist uplift pressure at corners, perimeter and entire roof field.

3.08 INSTALLATION - BASE SHEET

A. Install one lapped base sheet course and mechanically fasten to substrate according to roofing system manufacturer's written instructions:
   1. Enhance fastening rate along perimeter and corner zones, according to code requirements, including wind uplift system minimums and manufacturer's warranty requirements.

B. Comply with roofing manufacturer's written instructions for installing roof insulation.

3.09 INSTALLATION - BASE FLASHING

A. Apply liquid flashing membranes at locations below 8" clearance from top edge of membrane to roof surface. Follow manufacturers standard suggested detail for low clearance installations.

B. Install sheet flashing and preformed flashing accessories and adhere to substrates in accordance with membrane roofing system manufacturer's written instructions.

C. Apply solvent-based bonding adhesive at required rate and allow to dry partially. Do not apply bonding adhesive to seam area of flashing.

D. Apply single-ply liquid-applied flashing system as directed by manufacturer's written instructions.

E. Clean seam areas, overlap, and firmly roll sheet flashings into adhesive.

F. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.10 INSTALLATION - COATINGS

A. Ensure surfaces clean, dry, and free of dirt, grease, oil, or other debris interfering with proper adhesion.

B. Apply coating to roofing membrane and base flashings as recommended by manufacturer. Apply in two coats, allowing first coat to completely dry before applying second coat.

3.11 INSTALLATION - EDGE METAL

A. Examine substrates and conditions under which sheet metal flashings and trim installed and verify work can commence. Do not proceed with installation until unsatisfactory conditions corrected.

B. Provide edge details as indicated on drawings. Install in accordance with membrane manufacturer's requirements and SMACNA (ASMM) Architectural Sheet Metal Manual.

C. Join individual sections in accordance with membrane manufacturer's requirements and SMACNA (ASMM) Architectural Sheet Metal Manual.

3.12 INSTALLATION - WALKWAYS

A. Flexible Walkways: Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

B. Roof-Paver Walkways: Install walkway roof pavers with applicable slip sheet according to manufacturer's written instructions in locations indicated. Leave 3 inches (76 mm) of space between adjacent roof pavers.

3.13 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Owner to provide testing services, and Contractor to provide temporary construction and materials for testing in accordance with requirements.

C. Provide daily on-site attendance of roofing and insulation manufacturer's representative during installation of this work.

D. Final Roof Inspection: Arrange for roofing system manufacturer's technical representative to inspect roofing installation upon completion, and submit report to Architect for approval.

E. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

F. Perform additional testing and inspecting to determine compliance of replaced or additional work with specified requirements, at General Contractor's expense.

3.14 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Remove bituminous markings from finished surfaces.

C. In areas where finished surfaces soiled by work of this section, including overspray and spillage from adjacent construction, consult manufacturer of surfaces for cleaning advice, proper cleaning agents and procedures, and comply with manufacturer's documented instructions.

D. Repair or replace defaced or damaged finishes caused by work of this section.

3.15 PROTECTION

A. Protect installed roofing and flashings from construction operations.

B. Where traffic continues over finished roof membrane, protect surfaces using durable materials.

C. Correct deficiencies or remove roofing system not complying with requirements. Repair substrates and repair or reinstall roofing system to condition free of damage and deterioration at time of Substantial Completion, and according to warranty requirements.

END OF SECTION

SECTION 076200
SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fabricated sheet metal items, including flashings, counterflashings, gutters, downspouts, and other items indicated on drawings.

B. Sealants for joints within sheet metal fabrications.

C. Precast concrete splash pads.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

B. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

C. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2024).

E. CDA A4050 - Copper in Architecture - Handbook; Current Edition.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

C. Samples: Submit two samples, 2 by 2 inches (50.8 by ___ mm) in size, illustrating metal finish color.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

B. Maintain one copy of each document on site.

C. Fabricator and Installer Qualifications: Company specializing in sheet metal work with 10 years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials that could cause discoloration or staining.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Galvanized Steel: ASTM A653/A653M, with G90/Z275 zinc coating; minimum 24-gauge, 0.0239-inch (0.61 mm) thick base metal.

B. Pre-Finished Aluminum: ASTM B209/B209M, 3005 alloy, H12 or H14 temper; 18 gauge, 0.040 inch (1.02 mm) thick; plain finish shop pre-coated with silicone modified polyester coating.

C. Stainless Steel: ASTM A666/A666M, Type 304 alloy, soft temper, 28 gauge, 0.0156 inch (0.40 mm) thick; smooth No. 4 - Brushed finish.

2.02 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Form pieces in longest possible lengths.

C. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.

D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.

E. Fabricate corners from one piece with minimum 18-inch (450 mm) long legs; seam for rigidity, seal with sealant.

F. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

G. Fabricate flashings to allow toe to extend 2 inches (50 mm) over roofing gravel. Return and brake edges.

2.03 GUTTERS AND DOWNSPOUTS

A. Gutters: SMACNA (ASMM) Rectangular profile.

B. Downspouts: Rectangular profile.

C. Gutters and Downspouts: Size for rainfall intensity determined by a storm occurrence of 1 in 10 years in accordance with SMACNA (ASMM).

D. Accessories: Profiled to suit gutters and downspouts.
   1. Anchorage Devices: In accordance with SMACNA (ASMM) requirements.

E. Splash Pads: Precast concrete type, of size and profiles indicated; minimum 3,000 psi (21 MPa) at 28 days, with minimum 5 percent air entrainment.

F. Seal metal joints.

2.04 ACCESSORIES

A. Fasteners: Galvanized steel, with soft neoprene washers.

B. Primer Type: Zinc chromate.

C. Concealed Sealants: Non-curing butyl sealant.

D. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

E. Asphalt Roof Cement: ASTM D4586/D4586M, Type I, asbestos-free.

F. Reglets: Surface-mounted type, galvanized steel; face and ends covered with plastic tape.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, reglets in place, and nailing strips located.

B. Verify roofing termination and base flashings are in place, sealed, and secure.

3.02 PREPARATION

A. Install starter and edge strips, and cleats before starting installation.

B. Back paint concealed metal surfaces with protective backing paint to a minimum dry film thickness of 15 mil, 0.015 inch (0.38 mm).

3.03 INSTALLATION

A. Insert flashings into reglets to form tight fit; secure in place with lead wedges; pack remaining spaces with lead wool; seal flashings into reglets with sealant.

B. Apply plastic cement compound between metal flashings and felt flashings.

C. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

D. Seal metal joints watertight.

E. Secure gutters and downspouts in place with concealed fasteners.

F. Slope gutters 1/4 inch per 10 feet (2.1 mm per m), minimum.

G. Set splash pads under downspouts.

END OF SECTION

SECTION 077100
ROOF SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured roof specialties, including copings, fascias, and gravel stops.

B. Roof control and expansion joint covers.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 077200 - Roof Accessories: Manufactured curbs, roof hatches, and snow guards.

1.03 REFERENCE STANDARDS

A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.

B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix); 2017a.

C. ANSI/SPRI/FM 4435/ES-1 - Test Standard for Edge Systems Used with Low Slope Roofing Systems; 2017.

D. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2024).

E. NRCA (RM) - The NRCA Roofing Manual; 2026.

F. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

1.04 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on shape of components, materials and finishes, anchor types and locations.

C. Shop Drawings: Indicate configuration and dimension of components, adjacent construction, required clearances and tolerances, and other affected work.

D. Samples: Submit two, 6 by 4 inches, illustrating component shape, finish, and color.

E. Samples: Submit two appropriately sized samples of coping and gravel stop.

F. Manufacturer's Installation Instructions: Indicate special procedures, fasteners, supporting members, and perimeter conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Roof Edge Flashings and Copings:

1. **(Basis of Design)** ATAS International, Inc; Rapid-Lok Extruded Fascia: www.atas.com/#sle.
2. GAF: www.gaf.com/#sle.
3. Hickman Edge Systems: www.hickmanedgesystems.com/#sle.
4. Metal-Era Inc: www.metalera.com/#sle.
5. Metal Roofing Systems, Inc: www.metalroofingsystems.biz/#sle.
6. Substitutions: See Section 016000 - Product Requirements.

D. Control and Expansion Joint Covers:
1. Hickman Edge Systems: www.hickmanedgesystems.com/#sle.
2. Johns Manville: www.jm.com/#sle.
3. Metal-Era Inc: www.metalera.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

2.02 COMPONENTS

A. Roof Edge Flashings: Factory fabricated to sizes required; corners mitered; concealed fasteners.
1. Configuration: Fascia, cant, and edge securement for roof membrane.
2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test methods RE-1 and RE-2 to positive and negative design wind pressure as defined by applicable local building code.
3. Exposed Face Height: As indicated on drawings.
4. Material: Formed aluminum sheet, 0.063 inch thick, minimum.
5. Color: As selected by Architect from manufacturer's custom range.

B. Copings: Factory fabricated to sizes required; corners mitered; concealed fasteners.
1. Configuration: Concealed continuous hold down cleat at both legs; internal splice piece at joints of same material, thickness, and finish as cap; concealed stainless steel fasteners.
2. Pull-Off Resistance: Tested in accordance with ANSI/SPRI/FM 4435/ES-1 using test method RE-3 to positive and negative design wind pressure as defined by applicable local building code.
3. Wall Width: As indicated on drawings.
4. Outside Face Height: As indicated on drawings.
5. Inside Face Height: As indicated on drawings.
6. Material: Formed aluminum sheet, 0.063 inch thick, minimum.
7. Finish: 70 percent polyvinylidene fluoride.
8. Color: As selected by Architect from manufacturer's custom range.
9. Products:
   a. **(Basis of Design)** ATAS International, Inc; Rapid-Lok Coping: www.atas.com/#sle.
   b. Hickman Edge Systems: www.hickmanedgesystems.com/#sle.
   c. Metal-Era Inc: www.metalera.com/#sle.
   d. Substitutions: See Section 016000 - Product Requirements.

C. Control and Expansion Joint Covers: Composite construction of 4-inch wide flexible EPDM flashing of white color with closed cell urethane foam backing, each edge seamed to aluminum sheet metal flanges, designed for nominal joint width of 1 inch. Include special formed corners, tees, intersections, and wall flashings, each sealed watertight.

D. Expansion Joint Covers: Roof-to-roof joint cover comprised of continuous rails fastened to continuous cleat and covered with metal cap.
1. Material: Aluminum sheet, 0.04 inch thick.

2. Material: Galvanized steel sheet, 24 gauge, 0.0239 inch.
3. Length: 12 inches.
4. Fasteners: Concealed. Factory-punched fastener holes.
5. Color: As selected by Architect from manufacturer's standard range.
6. Products:
   a. Hickman Edge Systems; PermaSpan Expansion Joint: www.hickmanedgesystems.com/#sle.
   b. Metal-Era Inc; Perma-Tite Expansion Joint: www.metalera.com/#sle.
   c. Johns Manville.

2.03 FINISHES

A. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system; color as indicated.

B. PVDF (Polyvinylidene Fluoride) Coating: Superior Performance Organic Finish, AAMA 2605; multiple coat, thermally cured fluoropolymer finish system; color as indicated.

2.04 ACCESSORIES

A. Sealant for Joints in Linear Components: As recommended by component manufacturer.

B. Adhesive for Anchoring to Roof Membrane: Compatible with roof membrane and approved by roof membrane manufacturer.

C. Insulation Board Adhesive: Two-component, low-rise polyurethane foam adhesive used for adhering insulation to low slope roof deck materials.
   1. Products:
      a. OMG Roofing Products; OlyBond500: www.roofing.com/#sle.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that deck, curbs, roof membrane, base flashing, and other items affecting work of this Section are in place and positioned correctly.
   1. See Section 077200 for information on roofing related accessories.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.

B. Seal joints within components when required by component manufacturer.

C. Anchor components securely.

D. Comply with NRCA (RM) drawing details as noted:

E. Coordinate installation of components of this section with installation of roofing membrane and base flashings.

F. Coordinate installation of sealants and roofing cement with work of this section to ensure water tightness.

G. Coordinate installation of flashing flanges into reglets.

END OF SECTION

SECTION 077200
ROOF ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Curbs.

B. Equipment rails.

C. Roof penetrations mounting curbs.

D. Roof hatches.

E. Non-penetrating pedestals.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 053100 - STEEL DECKING.

C. Section 076200 - SHEET METAL FLASHING AND TRIM: Roof accessory items fabricated from sheet metal.

D. Section 077100 - ROOF SPECIALTIES: Other manufactured roof items.

1.03 REFERENCE STANDARDS

A. ANSI/SPRI ES1 - Wind Test Design Standard For Edge Systems Used With Low Slope Roofing Systems.

B. 29 CFR 1910.23 - Ladders; Current Edition.

C. 29 CFR 1910.29 - Fall Protection Systems and Falling Object Protection - Criteria and Practices; Current Edition.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

F. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

G. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used.
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.
   4. Maintenance requirements.

C. Shop Drawings: Submit detailed layout developed for this project and provide dimensioned location and number for each type of roof accessory.

1. Non-penetrating Rooftop Supports: Submit design calculations for loadings and spacings, sealed and signed by a Professional Engineer experienced in design of this type and licensed in the state of New York.
2. Submit shop drawings sealed and signed by a Professional Engineer experienced in design of this type of work and licensed in the State of New York.

D. Warranty Documentation:
1. Submit manufacturer warranty.
2. Ensure that forms have been completed in Owner's name and registered with manufacturer.
3. Submit documentation that roof accessories are acceptable to roofing manufacturer, and do not limit the roofing warranty.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products under cover and elevated above grade.

1.06 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a One year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2.02 ROOF CURBS

A. Manufacturers:
1. AES Industries Inc: www.aescurb.com/#sle.
2. The Pate Company: www.patecurbs.com/#sle.
3. Substitutions: See Section 016000 - Product Requirements.

B. Roof Curbs Mounting Assemblies: Factory fabricated hollow sheet metal construction, internally reinforced, and capable of supporting superimposed live and dead loads and designated equipment load with fully mitered and sealed corner joints welded or mechanically fastened, and integral counterflashing with top and edges formed to shed water.
1. Applications: Roof curbs used for roof penetrations/openings as indicated on drawings.
2. Roof Curb Mounting Substrate: Curb substrate consists of steel roof deck.
3. Sheet Metal Material:
a. Aluminum: 0.080 inch minimum thickness, with 3003 alloy, and H14 temper.
1) Finish: Mill finish.
4. Provide layouts and configurations indicated on drawings.

C. Curbs Adjacent to Roof Openings: Provide curb on each side of opening, with top of curb horizontal and level for equipment mounting.
1. Provide preservative treated wood nailers along top of curb.
2. Insulate inside curbs with 1-1/2 inch thick fiberglass insulation.

3. Height Above Finished Roof Surface: 8 inches, minimum.

D. Equipment Rail Curbs: Straight curbs on each side of equipment, with top of curbs horizontal and level with each other for equipment mounting.
   1. Provide preservative treated wood nailers along top of rails.
   2. Height Above Finished Roof Surface: 8 inches, minimum.
   3. Manufacturers:
      a. MKT Metal Manufacturing; Equipment Rails: www.mktduct.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.03 ROOF HATCHES AND VENTS

A. Roof Hatch Manufacturers:
   1. Acudor Products Inc: www.acudor.com/#sle.
   2. Babcock-Davis: www.babcockdavis.com/#sle.
   3. **(Basis of Design)** Bilco Company; Type TB (various types and special size): www.bilco.com/#sle.
   4. Milcor, Inc: www.milcorinc.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

B. Roof Hatches and Smoke Vents: Factory-assembled aluminum frame and cover, complete with operating and release hardware.
   1. Style: Provide flat metal covers unless otherwise indicated.
   2. Mounting: Provide frames and curbs suitable for mounting conditions as indicated on drawings.
   3. Thermally Broken Hatches: Added insulation to frame and cover; available in each manufacturer's standard, single leaf sizes; special sizes available upon request
   4. For Ladder Access: Single leaf; 30 by 36 inches.

C. Frames and Curbs: One-piece curb and frame with integral cap flashing to receive roof flashings; extended bottom flange to suit mounting.
   1. Material: Mill finished aluminum, 11 gauge, 0.0907 inch thick.
   2. Insulation: Manufacturer's standard; 2 inches rigid glass fiber, located on outside face of curb.
   3. Curb Height: 8 inches.

D. Metal Covers: Flush, insulated, hollow metal construction.
   1. Capable of supporting 40 psf live load.
   2. Material: Mill finished aluminum; outer cover 11 gauge, 0.0907 inch thick, liner 0.04 inch thick.
   3. Insulation: Manufacturer's standard 1 inch rigid glass fiber.
   4. Gasket: Neoprene, continuous around cover perimeter.

E. Safety Railing System: Roof hatch manufacturer's standard accessory safety rail system mounted directly to curb.
   1. Railing: Comply with 29 CFR 1910.23 for ladder safety, with a safety factor of two.
   2. Self-Closing Gate: Comply with 29 CFR 1910.29 for safe egress and fall protection through hatch opening.
   3. Posts and Rails: Aluminum tubing.
   4. Gate: Same material as railing; automatic closing with latch.
   5. Finish: Manufacturer's standard, factory applied finish.

6. Gate Hinges and Post Guides: ASTM B221 (ASTM B221M), 6063 alloy, T5 temper aluminum.
7. Manufacturers:
   a. BILCO Company; Bil-Guard 2.0: www.bilco.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.

F. Hardware: Steel, zinc coated and chromate sealed, unless otherwise indicated or required by manufacturer.
1. Lifting Mechanisms: Compression or torsion spring operator with shock absorbers that automatically opens upon release of latch; capable of lifting covers despite 10 psf load.
2. Hinges: Heavy duty pintle type.
3. Hold open arm with vinyl-coated handle for manual release.
4. Latch: Upon closing, engage latch automatically and reset manual release.
5. Manual Release: Pull handle on interior.
6. Locking: Padlock hasp on interior.

2.04 NON-PENETRATING ROOFTOP SUPPORTS/ASSEMBLIES

A. Non-Penetrating Rooftop Support/Assemblies: Manufacturer-engineered and factory-fabricated, with pedestal bases that rest on top of roofing membrane, and not requiring any attachment to roof structure and not penetrating roofing assembly.
1. Design Loadings and Configurations: As required by applicable codes.
2. Height: Provide minimum clearance of 8 inches under supported items to top of roofing.
3. Support Spacing and Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
4. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
5. Hardware, Bolts, Nuts, and Washers: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A153/A153M.
6. Manufacturers:
   a. Portals Plus: www.portalsplus.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.

B. Non-Penetrating Pedestals: Steel pedestals with square, round, or rectangular bases.
1. Bases: High density polypropylene.
2. Base Sizes: As required to distribute load sufficiently to prevent indentation of roofing assembly.
3. Steel Components: Stainless steel, or carbon steel hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.
4. Manufacturers:
   a. Portals Plus; Pedestal Plus: www.portalsplus.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using methods recommended by manufacturer for achieving acceptable results for applicable substrate under project conditions.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions, in manner that maintains roofing system weather-tight integrity.

3.04 CLEANING

A. Clean installed work to like-new condition.

3.05 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 078100
APPLIED FIRE PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Applied fire protection of interior structural steel not exposed to damage or moisture.

B. Preparation of applied fire protection for application of exposed overcoat finish specified elsewhere.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 051200 - STRUCTURAL STEEL FRAMING.

C. Section 052100 - STEEL JOIST FRAMING.

D. Section 053100 - STEEL DECKING.

E. Section 078123 - INTUMESCENT FIRE PROTECTION.

F. Section 078400 - FIRESTOPPING.

G. Section 092116 - Gypsum Board Assemblies: Gypsum board fireproofing.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

B. ASTM E605/E605M - Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 2019 (Reapproved 2023).

C. ASTM E736/E736M - Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members; 2019 (Reapproved 2023).

D. ASTM E760/E760M - Standard Test Method for Effect of Impact on Bonding of Sprayed Fire-Resistive Material Applied to Structural Members; 1992 (Reapproved 2023).

E. ASTM E937/E937M - Standard Test Method for Corrosion of Steel by Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members; 1993 (Reapproved 2023).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with placement of ceiling hanger tabs, mechanical component hangers, and electrical components.

B. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittals procedures.

B. Product Data: Provide data indicating product characteristics.

C. Manufacturer's Certificate: Certify that applied fireproofing products meet or exceed requirements of Contract Documents.

D. Test Reports: Reports from reputable independent testing agencies for proposed products, indicating compliance with specified criteria, conducted under conditions similar to those on project, as follows:
   1. Bond strength.

2. Bond impact.
3. Compressive strength.
4. Fire tests using substrate materials similar those on project.

E. Manufacturer's Installation Instructions: Indicate special procedures.

F. Field Quality Control Submittals: Submit field test report.

G. Manufacturer Reports: Indicate environmental conditions that applied fireproofing materials were installed.

H. Manufacturer's Qualification Statement.

I. Installer's Qualification Statement.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.07 MOCK-UP

A. Construct mock-up, 100 square feet in size.

B. Comply with project requirements for fire ratings.

C. Locate where directed.

D. Examine installation within one hour of application to determine variances from specified requirements due to shrinkage, temperature, and humidity.

E. Where shrinkage and cracking are evident, adjust mixture and method of application as necessary; remove materials and re-construct mock-up.

F. Mock-up may remain as part of the Work.

1.08 FIELD CONDITIONS

A. Do not apply fireproofing when temperature of substrate material and surrounding air is below 40 degrees F or when temperature is predicted to be below said temperature for 24 hours after application.

B. Provide ventilation in areas to receive fireproofing during application and 24 hours afterward, to dry applied material.

C. Provide temporary enclosure to prevent spray from contaminating air.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a two year period after Date of Substantial Completion.
1. Include coverage for fireproofing to remain free from cracking, checking, dusting, flaking, spalling, separation, and blistering.
2. Reinstall or repair failures that occur within warranty period.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.

1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Applied Fire Protection:
   1. GCP Applied Technologies; Monokote MK-6 Series: www.gcpat.com/#sle.
   2. **(Basis of Design)** Isolatek International Corp; CAFCO Isolatek Type 300, CAFCO Blaze-shield II or Isolatek type II Series: www.isolatek.com/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

2.02 APPLIED FIRE PROTECTION ASSEMBLIES

A. Provide assemblies as indicated on drawings.

B. UL listings with a Load Restriction are not allowed.

2.03 MATERIALS

A. Applied Fire Protection Material for Interior Applications, Concealed: Manufacturer's standard factory mixed material, which when combined with water is capable of providing indicated fire resistance, and complying with following requirements:
   1. Bond Strength: 150 pounds per square foot, minimum, when tested in accordance with ASTM E736/E736M when set and dry.
   2. Dry Density: Minimum average density of 15 lb/cu ft, with minimum individual density of any test sample of 14 lb/cu ft, when tested in accordance with ASTM E605/E605M.
   3. Compressive Strength: 8.33 pounds per square inch, minimum.
   4. Effect of Impact on Bonding: No cracking, spalling or delamination, when tested in accordance with ASTM E760/E760M.
   5. Corrosivity: No evidence of corrosion, when tested in accordance with ASTM E937/E937M.
   6. Surface Burning Characteristics: Maximum flame spread index of 0 (zero) and maximum smoke developed index of 0 (zero), when tested in accordance with ASTM E84.
   7. Manufacturers:
      a. GCP Applied Technologies; Monokote MK-6: www.gcpat.com/#sle.
      b. **(Basis of Design)** Isolatek Type 300 Series, CAFCO Blaze Shield II / Isolatek Type II Series.
      c. Substitutions: See Section 016000 - Product Requirements.

2.04 ACCESSORIES

A. Primer Adhesive: Of type recommended by applied fire protection manufacturer.

B. Overcoat: As recommended by manufacturer of applied fire protection material.

C. Water: Clean, potable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive fireproofing.

B. Verify that clips, hangers, supports, sleeves, and other items required to penetrate fireproofing are in place.

C. Verify that ducts, piping, equipment, or other items that would interfere with application of fireproofing have not been installed.

D. Verify that voids and cracks in substrate have been filled.

E. Verify that projections have been removed where fireproofing will be exposed to view as a finish material.

3.02 PREPARATION

A. Perform tests as recommended by fireproofing manufacturer in applications where adhesion of fireproofing to substrate is in question.

B. Remove incompatible materials that could effect bond by scraping, brushing, scrubbing, or sandblasting.

C. Prepare substrates to receive fireproofing in strict accordance with instructions of fireproofing manufacturer.

D. Apply fireproofing manufacturer's recommended bonding agent on primed steel.

E. Protect surfaces not scheduled for fireproofing and equipment from damage by overspray, fall-out, and dusting.

F. Close off and seal duct work in areas where fireproofing is being applied.

3.03 APPLICATION

A. Apply primer adhesive in accordance with manufacturer's instructions.

B. Apply fireproofing in uniform thickness and density as necessary to achieve required ratings.

C. Apply overcoat to a thickness of 0.125 inches.

3.04 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 014000 – Quality Requirements.

B. Inspect installed fireproofing after application and curing for integrity, prior to its concealment.

C. Ensure that actual thicknesses, densities, and bond strengths meet requirements for specified ratings and requirements of authorities having jurisdiction (AHJ).

D. Repair or replace applied fireproofing at locations where test results indicate fireproofing does not meet specified requirements.

E. Re-inspect installed fireproofing for integrity of fire protection, after installation of subsequent Work.

3.05 CLEANING

A. Remove excess material, overspray, droppings, and debris.

B. Remove fireproofing from materials and surfaces not required to be fireproofed.

C. At exposed fireproofing, clean surfaces that have become soiled or stained, using manufacturer's recommended procedures.

END OF SECTION

SECTION 078123
INTUMESCENT FIRE PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Thin-film intumescent fire protection.

B. Compressible-rod intumescent fire protection.

C. Protective and/or decorative topcoats.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 078100 - APPLIED FIRE PROTECTION: Conventional cementitious and mineral fiber fireproofing.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

D. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

E. SSPC-PA 2 - Procedure for Determining Conformance to Dry Coating Thickness Requirements; 2022.

F. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittals procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Performance characteristics and test results.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Installation methods.

C. Selection Samples: For decorative top coat, color chips representing manufacturer's full range of available colors and sheens.

D. Verification Samples: For each thickness, color, sheen, and finish required, submit samples not less than 4 inches square on designated substrate illustrating finished appearance.

E. Certificates: Certify that intumescent fireproofing provided for this project meets or exceeds specified requirements in all respects.

F. Test Reports: Published fire resistive designs for structural elements of the types required for the project, indicating hourly ratings of each assembly.

G. Field Quality Control Submittals: Submit field test report.

H. Manufacturer's qualification statement.

I. Installer's qualification statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company that specializes in manufacturing the type of products specified, with minimum of ten years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.06 MOCK-UPS

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Provide a mock-up for evaluation of surface preparation techniques and application workmanship; approved mock-up will serve as a standard of comparison for subsequent work of this section.

C. Finish at least 100 sq ft of surface in areas as designated by Architect.

D. Evaluate mock-up for compliance with specified requirements, including thickness and finish texture.

E. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.

F. Refinish mock-up area as required to produce acceptable work.

G. Approved mock-up may remain as part of the project.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver materials in manufacturer’s original, unopened containers with identification labels and testing agency markings intact and legible.

C. Store products in manufacturer's unopened packaging until ready for installation.
   1. Store at temperatures not less than 50 degrees F in dry, protected area.
   2. Protect from freezing, and do not store in direct sunlight.
   3. Dispose of any materials that have come into contact with contaminants of any kind prior to application.

D. Dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.08 FIELD CONDITIONS

A. Protect areas of application from windblown dust and rain.

B. Maintain ambient field conditions, such as temperature, humidity, and ventilation, within limits recommended by manufacturer for optimum results. Do not install products under ambient conditions outside manufacturer's absolute limits.
   1. Provide temporary enclosures as required to control ambient conditions.
   2. Do not apply intumescent fireproofing when ambient temperatures are below 50 degrees F without specific approval from manufacturer.
   3. Ensure that relative humidity is between 40 and 60 percent in areas of application.
   4. Provide ventilation in enclosed spaces during application and for not less than 72 hours afterward.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Intumescent Thin-Film Fire Protection for Metal:
   1. Contego International, Inc; Contego High Solids Reactive Fire Barrier (HS RFB) Intumescent with Contego High Solids Reactive Fire Barrier (HS RFB) Low VOC: www.contegointernational.com/#sle.
   2. Hilti, Inc; Fire Finish Steel Protection Spray CFP-SP WB: www.hilti.com/#sle.
   3. Isolatek International Corp; Firesolve SB: www.isolatek.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 SYSTEM REQUIREMENTS

A. Fireproofing: Provide intumescent thin-film fire protection systems tested by an independent testing agency in accordance with ASTM E119 and acceptable to authorities having jurisdiction (AHJ).

B. Structural Steel Beams and Exposed Steel Deck: Fire resistance rating of 1 or 2 hours. as shown in the drawings.

2.03 MATERIALS

A. Fire Resistive Coating System: Thin-film intumescent fire protection system for structural steel.
   1. Surface Burning Characteristics: Class A, flame spread/smoke developed index of 25/450, maximum, when tested in accordance with ASTM E84.
   2. For Interior Use:
      a. Use only products without fiber content.
      b. VOC Content: Less than 500 g per L when tested in accordance with 40 CFR 59, Subpart D (EPA Method 24).
      c. Durometer Hardness, Type D: 65, minimum, in accordance with ASTM D2240.

B. Fire Resistive Compressible-Rod System: Compressible intumescent fire protection system for structural steel, gypsum board, wood, oriented strand board (OSB), concrete, and concrete masonry units (CMU).

C. Sealers and Primer: As required by tested and listed assemblies, and recommended by fireproofing manufacturer to suit specific substrate conditions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates to determine if they are in satisfactory condition to receive intumescent fire protection; verify that substrates are clean and free of oil, grease, incompatible primers, or other foreign substances capable of impairing bond to fireproofing system.

B. Do not begin installation until substrates have been properly prepared.

C. If substrate preparation is responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Thoroughly clean surfaces to receive fireproofing.

B. Repair substrates to remove surface imperfections that could effect uniformity of texture and thickness of fireproofing system, and remove minor projections and fill voids that could telegraph through finished work.

C. Cover or otherwise protect other work that might be damaged by fallout or overspray of fireproofing system, and provide temporary enclosures as necessary to confine operations and maintain required ambient field conditions.

3.03 APPLICATION

A. Comply with manufacturer's instructions for each particular intumescent fire protection system installation application as indicated.

B. Apply manufacturer’s recommended primer to required coating thickness.

C. Apply fireproofing to full thickness over entire area of each substrate to be protected.

D. Apply coats at manufacturer’s recommended rate to achieve dry film thickness (DFT) as required for fire resistance ratings designated for each condition.

E. Apply intumescent fire protection by spraying to maximum extent possible, and as necessary complete coverage by roller application or other method acceptable to manufacturer.

F. Achieve uniform finished appearance complying with approved mock-up.

3.04 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with Section 014000 – Quality Requirements.
   1. Owner will arrange for testing of installed intumescent fire protection by an independent testing laboratory using magnetic pull-off dry film thickness gauge in accordance with SSPC-PA 2, and ensure it meets requirements of authorities having jurisdiction (AHJ).
   2. Submit field test reports promptly to Contractor and Architect.

B. Repair or replace intumescent fire protection at locations where test results indicate fireproofing does not meet specified requirements.

3.05 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Immediately after installation of fireproofing in each area, remove overspray and fallout from other surfaces and clean soiled areas.

3.06 PROTECTION

A. Protect installed intumescent fire protection from damage due to subsequent construction activities, so fireproofing is without damage or deterioration before Date of Substantial Completion.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 078400
FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Firestopping systems.

B. Firestopping of joints and penetrations in fire-resistance-rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 017300 - Execution: Cutting and patching.

C. Section 078100 - APPLIED FIRE PROTECTION.

D. Section 092116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.

1.03 REFERENCE STANDARDS

A. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).

C. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems; 2024.

D. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestops; 2019.

E. ASTM E2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-story Test Apparatus; 2023b.

F. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers; 2010a (Reapproved 2015).

G. ASTM E2837 - Standard Test Method for Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed between Rated Wall Assemblies and Nonrated Horizontal Assemblies; 2023a.

H. FM (AG) - FM Approval Guide; current edition.

I. FM 4991 - Approval Standard of Firestop Contractors; 2013.

J. ITS (DIR) - Directory of Listed Products; Current Edition.

K. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

L. UL (DIR) - Online Certifications Directory; Current Edition.

M. UL (FRD) - Fire Resistance Directory; Current Edition.

N. UL 1479 - Standard for Fire Tests of Penetration Firestops; Current Edition, Including All Revisions.

O. UL 2079 - Standard for Tests for Fire Resistance of Building Joint Systems; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.

C. Product Data: Provide data on product characteristics, performance ratings, and limitations.

D. Sustainable Design Submittal: Submit VOC content documentation for nonpreformed materials.

E. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

1.05 QUALITY ASSURANCE

A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.
   1. Listing in UL (FRD) will be considered as constituting an acceptable test report.

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and:
   1. Trained by manufacturer.
   2. Approved by Factory Mutual Research Corporation under FM 4991, or meeting any two of the following requirements:
   3. Verification of minimum five years documented experience installing work of this type.
   4. Verification of at least five satisfactorily completed projects of comparable size and type.
   5. Licensed by local authorities having jurisdiction (AHJ).

1.06 FIELD CONDITIONS

A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation; maintain minimum temperature before, during, and for three days after installation of materials.

B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Firestopping Manufacturers:
   1. 3M Fire Protection Products: www.3m.com/firestop/#sle.
   2. Hilti, Inc: www.us.hilti.com/#sle.
   3. RectorSeal, a CSW Industrials Company; Metacaulk 150+ General Purpose Firestop Sealant: www.rectorseal.com/firestop-solutions/#sle.
   4. Tremco Commercial Sealants & Waterproofing; TREMstop Acrylic: www.tremcosealants.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

2.02 MATERIALS

A. Firestopping Materials: Any materials meeting requirements.

B. Prohibited Materials: Do not use any product with an asbestos component.

C. Volatile Organic Compound (VOC) Content: Provide products having VOC content lower than that required by SCAQMD 1168.

D. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Provide type of materials as required for tested firestopping assembly.

E. Fire Ratings: Refer to drawings for required systems and ratings.

2.03 FIRESTOPPING ASSEMBLY REQUIREMENTS

A. Perimeter Fire Containment Firestopping: Use system that has been tested according to ASTM E2307 to have fire resistance F Rating equal to required fire rating of floor assembly.
   1. Movement: Provide systems that have been tested to show movement capability as indicated.

B. Head-of-Wall (HW) Joint System Firestopping at Joints Between Fire-Rated Wall Assemblies and Non-Rated Horizontal Assemblies: Use system that has been tested according to ASTM E2837 to have fire resistance F Rating equal to required fire rating of wall assembly.

C. Floor-to-Floor (FF), Floor-to-Wall (FW), Head-of-Wall (HW), and Wall-to-Wall (WW) Joints, Except Perimeter, Where Both Are Fire-Rated: Use system that has been tested according to ASTM E1966 or UL 2079 to have fire resistance F Rating equal to required fire rating of the assembly in which the joint occurs.
   1. Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories will be considered evidence of successful testing.

D. Through Penetration Firestopping: Use system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.
   1. Listing by FM (AG), ITS (DIR), UL (DIR), or UL (FRD) in their certification directories will be considered evidence of successful testing.

2.04 FIRESTOPPING FOR PERIMETER CONTAINMENT

A. Perimeter Joint Systems That Have Not Been Tested For Movement Capabilities (Static-S):
   1. 2 Hour Construction: UL System CW-S-2015; RectorSeal MetaCaulk 1200 Spray.
   2. 2 Hour Construction: UL System CW-S-2017; RectorSeal MetaCaulk 1200 Spray.

B. Perimeter Joint Systems That Have Movement Capabilities (Dynamic-D):
   1. 2 Hour Construction: Intertek System BP-120-03; RectorSeal MetaCaulk 1200 Spray.
   2. 2 Hour Construction: Intertek System BP-120-05; RectorSeal MetaCaulk 1200 Spray.
   3. 2 Hour Construction: Intertek System BP-120-09; RectorSeal MetaCaulk 1200 Spray.
   4. 2 Hour Construction: Intertek System BP-120-12; RectorSeal MetaCaulk 1200 Spray.
   5. 2 Hour Construction: UL System CW-D-2014; RectorSeal MetaCaulk 1200 Spray.
   6. 2 Hour Construction: UL System CW-D-2016; RectorSeal MetaCaulk 1200 Spray.
   7. 2 Hour Construction: UL System CW-D-2018; RectorSeal MetaCaulk 1200 Spray.
   8. 2 Hour Construction: UL System CW-D-2047; RectorSeal MetaCaulk 1200 Spray.
   9. 2 Hour Construction: UL System CW-D-2049; RectorSeal MetaCaulk 1200 Spray.

2.05 FIRESTOPPING FOR FLOOR-TO-FLOOR, FLOOR-TO-WALL, HEAD-OF-WALL, AND WALL-TO-WALL JOINTS

A. Concrete and Concrete Masonry Walls and Floors:
   1. Floor-to-Floor Joints:
      a. 4 Hour Construction: UL System FF-D-0023; RectorSeal MetaCaulk 150+.

b. 3 Hour Construction: UL System FF-D-1024; RectorSeal MetaCaulk 1200 Spray.
c. 3 Hour Construction: UL System FF-D-1027; RectorSeal MetaCaulk 150+.
d. 3 Hour Construction: UL System FF-D-1077; RectorSeal MetaCaulk 835+.
e. 2 Hour Construction: UL System FF-D-0024; RectorSeal MetaCaulk 150+.
f. 2 Hour Construction: UL System FF-D-0053; RectorSeal MetaCaulk Joint Strip.
g. 2 Hour Construction: UL System FF-D-0084; RectorSeal MetaCaulk Joint Strip.
h. 2 Hour Construction: UL System FF-D-1013; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
i. 2 Hour Construction: UL System FF-D-1085; Tremco, TREMstop Acrylic Firestop Sealant.

2. Head-of-Wall Joints at Concrete/Concrete Masonry Wall to Concrete Over Metal Deck Floor:
   a. 2 Hour Construction: UL System HW-D-0058; RectorSeal MetaCaulk 1200 Spray.
   b. 2 Hour Construction: UL System HW-D-0149; RectorSeal MetaCaulk 150+.
   c. 2 Hour Construction: UL System HW-D-0181; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   d. 2 Hour Construction: UL System HW-D-1037; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
3. Head-of-Wall Joints at Concrete/Concrete Masonry Wall to Concrete Floor:
   a. 3 Hour Construction: UL System HW-D-1058; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   b. 3 Hour Construction: UL System HW-D-0166; RectorSeal MetaCaulk 1200 Spray.
   c. 2 Hour Construction: UL System HW-D-0268; Hilti CP 606 Flexible Firestop Sealant.
   d. 2 Hour Construction: UL System HW-D-0312; Specified Technologies Inc. SIL Silicone Sealant.
4. Concrete/Concrete Masonry Wall-to-Wall Joint Systems That Have Not Been Tested For Movement Capabilities (Static-S):
   a. 2 Hour Construction: UL System WW-S-1025; RectorSeal MetaCaulk 835+.
   b. 2 Hour Construction: UL System WW-S-1038; RectorSeal MetaCaulk 835+.
5. Concrete/Concrete Masonry Wall-to-Wall Joint Systems That Have Movement Capabilities (Dynamic-D):
   a. 4 Hour Construction: UL System WW-D-0054; RectorSeal MetaCaulk Joint Strip.
   b. 3 Hour Construction: UL System WW-D-0023; RectorSeal MetaCaulk 1200 Spray.
   c. 3 Hour Construction: UL System WW-D-0095; RectorSeal MetaCaulk 150+.
   d. 3 Hour Construction: UL System WW-D-1028; RectorSeal MetaCaulk 1200 Spray.
   e. 2 Hour Construction: UL System WW-D-0025; RectorSeal MetaCaulk 1200 Spray.
   f. 2 Hour Construction: UL System WW-D-0027; RectorSeal MetaCaulk 150+.
   g. 2 Hour Construction: UL System WW-D-0110; RectorSeal MetaCaulk 150+.
   h. 2 Hour Construction: UL System WW-D-1077; Tremco, TREMstop Acrylic Firestop Sealant.
   i. 2 Hour Construction: UL System WW-D-0017; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   j. 2 Hour Construction: UL System WW-D-0032; Hilti CP 606 Flexible Firestop Sealant.

B. Gypsum Board Walls:
   1. Wall-to-Wall Joints That Have Not Been Tested For Movement Capabilities (Static-S):
      a. 2 Hour Construction: UL System WW-S-0089; RectorSeal MetaCaulk 150+.
   2. Wall-to-Wall Joints That Have Movement Capabilities (Dynamic-D):

a. 3 Hour Construction: UL System WW-D-0101; RectorSeal MetaCaulk 150+.
b. 2 Hour Construction: UL System WW-D-0067; Hilti CP 606 Flexible Firestop Sealant.
c. 1 Hour Construction: UL System WW-D-0067; Hilti CP 606 Flexible Firestop Sealant.

3. Head-of-Wall Joints at Underside of Steel Beam and Concrete Over Metal Deck Floor with Sprayed On Fireproofing:
   a. 2 Hour Construction: UL System HW-D-0259; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   b. 1 Hour Construction: UL System HW-D-0259; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
4. Head-of-Wall Joints at Underside of Flat Concrete:
   a. 4 Hour Construction: UL System HW-D-0108; RectorSeal MetaCaulk 1200 Spray.
   b. 2 Hour Construction: UL System HW-D-0798; RectorSeal Blaze Foam.
   c. 2 Hour Construction: UL System HW-D-1068; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   d. 2 Hour Construction: UL System HW-D-0757; Hilti CFS-TTS Top Track Seal.
   e. 2 Hour Construction: UL System HW-D-0016; Tremco, TREMstop Acrylic Firestop Sealant.
   f. 2 Hour Construction: UL System HW-D-0017; Tremco, TREMstop Acrylic Firestop Sealant.
   g. 2 Hour Construction: UL System HW-D-1072; Tremco, TREMstop Acrylic Firestop Sealant.
   h. 1 Hour Construction: UL System HW-D-1068; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   i. 1 Hour Construction: UL System HW-D-0757; Hilti CFS-TTS Top Track Seal.
   j. 1 Hour Construction: UL System HW-D-0016; Tremco, TREMstop Acrylic Firestop Sealant.
5. Head-of-Wall Joints at Concrete Over Metal Deck:
   a. 2 Hour Construction: UL System HW-D-0144; RectorSeal MetaCaulk 150+.
   b. 2 Hour Construction: UL System HW-D-0256; Tremco, TREMstop Acrylic Firestop Sealant.
   c. 1 Hour Construction: UL System HW-D-0256; Tremco, TREMstop Acrylic Firestop Sealant.
6. Head-of-Wall Joints at Concrete Over Metal Deck, Wall Parallel to Ribs:
   a. 2 Hour Construction: UL System HW-D-0049; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   b. 2 Hour Construction: UL System HW-D-0184; Hilti CP 606 Flexible Firestop Sealant.
   c. 1 Hour Construction: UL System HW-D-0049; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   d. 1 Hour Construction: UL System HW-D-0184; Hilti CP 606 Flexible Firestop Sealant.
7. Head-of-Wall Joints at Concrete Over Metal Deck, Wall Perpendicular to Ribs, Cut to Fit Ribs:
   a. 2 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
   b. 1 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.
8. Head-of-Wall Joints at Concrete Over Metal Deck, Wall Perpendicular to Ribs, Not Cut to Fit:
   a. 2 Hour Construction: UL System HW-D-0042; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
   b. 2 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.

c. 1 Hour Construction: UL System HW-D-0042; Hilti CFS-SP WB Firestop Joint Spray and CP 672.
d. 1 Hour Construction: UL System HW-D-0045; Hilti CP 606 Flexible Firestop Sealant.

2.06 FIRESTOPPING FOR FLOOR-TO-WALL MOVABLE JOINTS

A. Floor-To-Wall Joint System That Have Movement Capabilities (Dynamic-D):
1. 2 Hour Construction: UL System FW-D-1069; Tremco, TREMstop Acrylic Firestop Sealant.

2.07 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION

A. Blank Openings:
1. In Floors or Walls:
a. 4 Hour Construction: UL System C-AJ-0042; RectorSeal MetaCaulk Fire Rated Mortar.
b. 4 Hour Construction: UL System C-AJ-0088; RectorSeal MetaCaulk Composite Sheet.
c. 3 Hour Construction: UL System C-AJ-0045; RectorSeal MetaCaulk Fire Rated Putty.
d. 2 Hour Construction: UL System C-AJ-0090; Hilti FS-ONE MAX Intumescent Firestop Sealant.

B. Penetrations Through Floors or Walls By:
1. Multiple Penetrations in Large Openings:
a. 3 Hour Construction: UL System C-AJ-8047; RectorSeal MetaCaulk 1000.
b. 3 Hour Construction: UL System C-AJ-8099; Hilti FS-ONE MAX Intumescent Firestop Sealant.
c. 3 Hour Construction: UL System C-AJ-8110; Hilti CFS-BL Firestop Block.
d. 3 Hour Construction: UL System C-AJ-8133; RectorSeal Fire Rated Mortar.
e. 2 Hour Construction: UL System C-AJ-8143; Hilti FS-ONE MAX Intumescent Firestop Sealant.
f. 2 Hour Construction: UL System C-AJ-8042; RectorSeal MetaCaulk 1000.
g. 2 Hour Construction: UL System C-AJ-8129; RectorSeal MetaCaulk 1200 Spray.
h. 2 Hour Construction: UL System C-AJ-8149; RectorSeal MetaCaulk 1000.
i. 2 Hour Construction: UL System C-AJ-8171; RectorSeal MetaCaulk Wrap Strip.
2. Bathtub Drains:
a. Up to 3 Hour Construction: UL System F-A-1037, F-A-1038, F-A-2094, or F-A-2095; Hilti CP 681 Tub Box Kit.
3. Uninsulated Metallic Pipe, Conduit, and Tubing:
a. 3 Hour Construction: UL System C-AJ-1076; RectorSeal MetaCaulk 950.
b. 3 Hour Construction: UL System C-AJ-1184; Hilti FS-ONE MAX Intumescent Firestop Sealant.
c. 3 Hour Construction: UL System C-AJ-1226; Hilti FS-ONE MAX Intumescent Firestop Sealant.
d. 3 Hour Construction: UL System C-AJ-1261; RectorSeal MetaCaulk 1000.
e. 3 Hour Construction: UL System C-AJ-1320; RectorSeal MetaCaulk 1000.
f. 3 Hour Construction: UL System C-AJ-1421; Hilti FS-ONE MAX Intumescent Firestop Sealant or CP 604 Self-Leveling Firestop Sealant.

g. 3 Hour Construction: UL System C-AJ-1425; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.
h. 2 Hour Construction: UL System C-AJ-1036; RectorSeal MetaCaulk 950.
i. 2 Hour Construction: UL System C-AJ-1090; Specified Technologies Inc. SSP Firestop Putty.
j. 2 Hour Construction: UL System C-AJ-1186; RectorSeal MetaCaulk 950.
k. 2 Hour Construction: UL System C-AJ-1226; Hilti FS-ONE MAX Intumescent Firestop Sealant.
l. 2 Hour Construction: UL System C-AJ-1425; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.
m. 1 Hour Construction: UL System C-AJ-1039; RectorSeal MetaCaulk 950.

4. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
   a. 3 Hour Construction: UL System C-AJ-2109; Hilti CP 643N/644 Firestop Collar.
   b. 3 Hour Construction: UL System C-AJ-2151; RectorSeal MetaCaulk 1200.
   c. 3 Hour Construction: UL System C-AJ-2220; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   d. 3 Hour Construction: UL System C-AJ-2342; Hilti CP-E/S Firestop Wrap Strip.
   e. 3 Hour Construction: UL System C-AJ-2661; RectorSeal MetaCaulk 1000.
   f. 2 Hour Construction: UL System C-AJ-2047; RectorSeal MetaCaulk 1000.
   g. 2 Hour Construction: UL System C-AJ-2167; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   h. 2 Hour Construction: UL System C-AJ-2109; Hilti CP 643N/644 Firestop Collar.
   i. 2 Hour Construction: UL System C-AJ-2348; RectorSeal MetaCaulk 150+.
   j. 2 Hour Construction: UL System C-AJ-2707; RectorSeal MetaCaulk 1000.
   k. 2 Hour Construction: UL System C-BJ-2021; Hilti CP 643N Firestop Collar.
5. Electrical Cables Not In Conduit:
   a. 3 Hour Construction: UL System C-AJ-3095; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   b. 3 Hour Construction: UL System C-AJ-3208; Hilti CP 618 Firestop Putty Stick.
   c. 2 Hour Construction: UL System C-AJ-3216; Hilti CFS-PL Firestop Plug.
   d. 2 Hour Construction: UL System C-AJ-3283; Hilti CP653 Speed Sleeve.
   e. 2 Hour Construction: UL System C-AJ-3283; Hilti CFS-SL SK Firestop Sleeve Kit.
   f. 2 Hour Construction: UL System C-AJ-3283; Hilti CFS-SL SK Firestop Sleeve Kit with Hilti CFS-SL GP Gangplate.
   g. 2 Hour Construction: UL System W-J-3198; Hilti CFS-SL RK Retrofit Sleeve Kit for Existing Cables.
   h. 2 Hour Construction: UL System W-J-3199; Hilti CFS-SL SK Firestop Sleeve Kit.
6. Cable Trays with Electrical Cables:
   a. 3 Hour Construction: UL System C-AJ-4093; Hilti CFS-BL Firestop Block.
   b. 2 Hour Construction: UL System C-AJ-4094; Hilti CFS-BL Firestop Block.
7. Electrical Busways:
   a. 3 Hour Construction: UL System C-AJ-6017; Hilti FS-ONE MAX Intumescent Firestop Sealant.
8. Insulated Pipes:
   a. 3 Hour Construction: UL System C-AJ-5090; Hilti FS-ONE MAX Intumescent Firestop Sealant.

b. 2 Hour Construction: UL System C-AJ-5048; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CP 601S Elastomeric Firestop Sealant, CP 604 Self-Leveling Firestop Sealant or CFS-S SIL GG Firestop Silicone Sealant Gun-Grade.
c. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE IMAX Intumescent Firestop Sealant.

9. HVAC Ducts, Uninsulated:
a. 3 Hour Construction: UL System C-AJ-7051; Hilti FS-ONE MAX Intumescent Firestop Sealant.
b. 2 Hour Construction: UL System C-AJ-7111; Hilti FS-ONE MAX Intumescent Firestop Sealant.

C. Penetrations Through Floors By:
1. Multiple Penetrations in Large Openings:
a. 4 Hour Construction: UL System F-A-0019; RectorSeal Cast-in-Place Firestop Device.
b. 3 Hour Construction: UL System F-A-1023; Hilti CP 680-P/M Cast-In Device.
c. 2 Hour Construction: UL System F-A-0021; RectorSeal Cast-in-Place Firestop Device.
d. 2 Hour Construction: UL System F-A-8012; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade or CFS-S SIL SL Firestop Silicone Sealant Self-Leveling.
2. Uninsulated Metallic Pipe, Conduit, and Tubing:
a. 3 Hour Construction: UL System F-A-1017; Hilti CP 680-P/M Cast-In Device.
b. 2 Hour Construction: UL System F-A-1016; Hilti CP 680-P/M Cast-In Device.
c. 2 Hour Construction: UL System F-A-1110; Specified Technologies Inc. CID Cast-In Device.
d. 2 Hour Construction: UL System F-A-1129; Specified Technologies Inc. Closet Flange Firestop Gasket.
3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
a. 3 Hour Construction: UL System F-A-2054; Hilti CP 680-P Cast-In Device.
b. 3 Hour Construction: UL System F-A-2066; Hilti CP 680-P Cast-In Device.
c. 3 Hour Construction: UL System F-A-2213; Hilti CFS-DID Drop-In Device.
d. 2 Hour Construction: UL System F-A-2065; Hilti CP 680-P Cast-In Device.
e. 2 Hour Construction: UL System F-A-2213; Hilti CFS-DID Drop-In Device.
f. 2 Hour Construction: UL System F-A-2053; Hilti CP 680-P Cast-In Device.
4. Electrical Cables Not In Conduit:
a. 3 Hour Construction: UL System F-A-3033; Hilti CP 680-P/M Cast-In Device.
b. 2 Hour Construction: UL System F-A-3033; Hilti CP 680-P/M Cast-In Device.
5. Electrical Busways:
a. 3 Hour Construction: UL System C-AJ-6017; Hilti CFS-S SIL GG Firestop Silicone Sealant Gun-Grade or CFS-S SIL SL Firestop Silicone Sealant Self-Leveling.
b. 2 Hour Construction: UL System F-A-6002; Hilti CP 604 Self-Leveling Firestop Sealant.
6. Insulated Pipes:
a. 3 Hour Construction: UL System F-A-5016; Hilti CP 680-P Cast-In Device.
b. 3 Hour Construction: UL System F-A-5018; Hilti CP 680-P Cast-In Device.
c. 2 Hour Construction: UL System F-A-5015; Hilti CP 680-P/M Cast-In Device.
d. 2 Hour Construction: UL System F-A-5017; Hilti CP 680-P/M Cast-In Device.

D. Penetrations Through Walls By:
   1. Uninsulated Metallic Pipe, Conduit, and Tubing:
      a. 2 Hour Construction: UL System W-J-1067; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      b. 1 Hour Construction: UL System W-J-1067; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   2. Electrical Cables Not In Conduit:
      a. 2 Hour Construction: UL System C-AJ-3095; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      b. 2 Hour Construction: UL System C-AJ-3216; Hilti CFS-PL Firestop Plug.
   3. Insulated Pipes:
      a. 2 Hour Construction: UL System C-AJ-5090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      b. 2 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      c. 1 Hour Construction: UL System C-AJ-5090; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      d. 1 Hour Construction: UL System C-AJ-5091; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   4. HVAC Ducts, Uninsulated:
      a. 2 Hour Construction: UL System W-J-7109; Hilti FS-ONE MAX Intumescent Firestop Sealant, or CP 606 Flexible Firestop Sealant.
   5. HVAC Ducts, Insulated:
      a. 2 Hour Construction: UL System W-J-7112; Hilti FS-ONE MAX Intumescent Firestop Sealant.

2.08 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS

A. Blank Openings:
   1. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
   2. 1 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.

B. Penetrations By:
   1. Multiple Penetrations in Large Openings:
      a. 2 Hour Construction: UL System W-L-1408; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      b. 2 Hour Construction: UL System W-L-8013; Hilti CFS-BL Firestop Block.
      c. 2 Hour Construction: UL System W-L-8071; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      d. 2 Hour Construction: UL System W-L-8079; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      e. 1 Hour Construction: UL System W-L-1408; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      f. 1 Hour Construction: UL System W-L-8013; Hilti CFS-BL Firestop Block.
      g. 1 Hour Construction: UL System W-L-8071; Hilti FS-ONE MAX Intumescent Firestop Sealant.
      h. 1 Hour Construction: UL System W-L-8073; Specified Technologies Inc. Composite Sheet.
      i. 1 Hour Construction: UL System W-L-8079; Hilti FS-ONE MAX Intumescent Firestop Sealant.

2. Uninsulated Metallic Pipe, Conduit, and Tubing:
   a. 2 Hour Construction: UL System W-L-1054; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   b. 2 Hour Construction: UL System W-L-1164; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   c. 2 Hour Construction: UL System W-L-1506; Hilti CFS-D Firestop Cable Disc.
   d. 1 Hour Construction: UL System W-L-1054; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   e. 1 Hour Construction: UL System W-L-1164; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   f. 1 Hour Construction: UL System W-L-1506; Hilti CFS-D Firestop Cable Disc.
3. Uninsulated Non-Metallic Pipe, Conduit, and Tubing:
   a. 2 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.
   b. 2 Hour Construction: UL System W-L-2128; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   c. 1 Hour Construction: UL System W-L-2078; Hilti CP 643N/644 Firestop Collar.
   d. 1 Hour Construction: UL System W-L-2128; Hilti FS-ONE MAX Intumescent Firestop Sealant.
4. Electrical Cables Not In Conduit:
   a. 2 Hour Construction: UL System W-L-3065; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
   b. 2 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
   c. 2 Hour Construction: UL System W-L-3393; Hilti CFS-SL RK Retrofit Sleeve Kit for Existing Cables.
   d. 2 Hour Construction: UL System W-L-3395; Hilti CP653 Speed Sleeve.
   e. 2 Hour Construction: UL System W-L-3395; Hilti CFS-SL SK Firestop Sleeve Kit.
   f. 2 Hour Construction: UL System W-L-3395; Hilti CFS-SL SK Firestop Sleeve Kit with Hilti CFS-SL GP Gangplate.
   g. 2 Hour Construction: UL System W-L-3414; Hilti CFS-D Firestop Cable Disc.
   h. 1 Hour Construction: UL System W-L-3065; Hilti FS-ONE MAX Intumescent Firestop Sealant, CP 606 Flexible Firestop Sealant, CD 601S Elastomeric Firestop Sealant, or CP 618 Firestop Putty Stick.
   i. 1 Hour Construction: UL System W-L-3334; Hilti CP 653 Speed Sleeve.
   j. 1 Hour Construction: UL System W-L-3393; Hilti CFS-SL RK Retrofit Sleeve Kit for Existing Cables.
   k. 1 Hour Construction: UL System W-L-3414; Hilti CFS-D Firestop Cable Disc.
5. Cable Trays with Electrical Cables:
   a. 2 Hour Construction: UL System W-L-4011; Hilti CFS-BL Firestop Block.
   b. 2 Hour Construction: UL System W-L-4060; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   c. 1 Hour Construction: UL System W-L-4011; Hilti CFS-BL Firestop Block.
   d. 1 Hour Construction: UL System W-L-4060; Hilti FS-ONE MAX Intumescent Firestop Sealant.
6. Insulated Pipes:
   a. 2 Hour Construction: UL System W-L-5028; Hilti FS-ONE MAX Intumescent Firestop Sealant.

b. 2 Hour Construction: UL System W-L-5029; Hilti FS-ONE Intumescent Firestop Sealant.
c. 1 Hour Construction: UL System W-L-5028; Hilti FS-ONE MAX Intumescent Firestop Sealant.
d. 1 Hour Construction: UL System W-L-5029; Hilti FS-ONE Intumescent Firestop Sealant.

7. HVAC Ducts, Insulated:
   a. 2 Hour Construction: UL System W-L-7156; Hilti FS-ONE MAX Intumescent Firestop Sealant.
   b. 1 Hour Construction: UL System W-L-7156; Hilti FS-ONE MAX Intumescent Firestop Sealant.

2.09 FIRESTOPPING SYSTEMS

A. Firestopping: Any material meeting requirements.
   1. Fire Ratings: Use system that is listed by FM (AG), ITS (DIR), or UL (FRD) and tested in accordance with ASTM E814, ASTM E119, or UL 1479 with F Rating equal to fire rating of penetrated assembly and minimum T Rating Equal to F Rating and in compliance with other specified requirements.
   2. See drawings for fire rating requirements of all construction elements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other materials that could adversely affect bond of firestopping material.

B. Remove incompatible materials that could adversely affect bond.

C. Install backing materials to prevent liquid material from leakage.

3.03 INSTALLATION

A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.

B. Do not cover installed firestopping until inspected by authorities having jurisdiction.

C. Install labeling required by code.

3.04 FIELD QUALITY CONTROL

A. Independent Testing Agency: Inspection agency employed and paid by Owner, will examine penetration firestopping in accordance with ASTM E2174 and ASTM E2393.

B. Repair or replace penetration firestopping and joints at locations where inspection results indicate firestopping or joints do not meet specified requirements.

3.05 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.06 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 079200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 072726 - Fluid Applied Vapor Permeable Membrane Air Barriers.

C. Section 078400 - FIRESTOPPING: Firestopping sealants.

D. Section 079513 - EXPANSION JOINT COVER ASSEMBLIES: Sealants forming part of expansion joint cover assemblies.

E. Section 087100 - Door Hardware: Setting exterior door thresholds in sealant.

F. Section 088000 - Glazing: Glazing sealants and accessories.

G. Section 092116 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.

H. Section 092116 - Gypsum Board Assemblies: Sealing between framing and adjacent construction in acoustical and sound-rated walls and ceilings.

I. Section 093000 - Tiling: Sealant between tile and plumbing fixtures and at junctions with other materials and changes in plane.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

B. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants; 2018 (Reapproved 2022).

C. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

D. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2024.

E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

F. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.

G. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

H. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2022.

I. ASTM C1311 - Standard Specification for Solvent Release Sealants; 2022.

J. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants; 2023.

K. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.04 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
   2. List of backing materials approved for use with the specific product.
   3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
   4. Substrates the product should not be used on.
   5. Substrates for which use of primer is required.
   6. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
   7. Sample product warranty.
   8. Certification by manufacturer indicating that product complies with specification requirements.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

E. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

F. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

G. Manufacturer's Qualification Statement.

H. Installer's Qualification Statement.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
   1. Sealant and Waterproofing Specialist: Engage an experienced sealant and waterproofing firm to perform work of this Section. Firm shall have completed work similar to extent to that indicated for this Project with a record of successful in-service performance. Experience in only installing sealants is insufficient experience for this work.
      a. Field Supervision: Sealant and waterproofing specialist firms shall maintain experienced full-time supervisors on Project site during times that sealant and waterproofing work is in progress.
   2. Provide a list of a minimum of 5 projects where sealant and waterproofing work was successfully installed

B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

C. Installer Qualifications: Company specializing in performing the work of this section and with at least five years of documented experience.

D. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
   1. Adhesion Testing: In accordance with ASTM C794.

2. Compatibility Testing: In accordance with ASTM C1087.
3. Allow sufficient time for testing to avoid delaying the work.
4. Deliver to manufacturer sufficient samples for testing.
5. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
6. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

1.06 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Two years from date of Substantial Completion.

C. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: 10 years from date of Substantial Completion.

D. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
   1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
   2. Disintegration of joint substrates from causes exceeding design specifications.
   3. Mechanical damage caused by individuals, tools, or other outside agents.
   4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

E. Correct defective work within a five year period after Date of Substantial Completion.

F. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Non-Sag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
   1. Dow Chemical Company: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.
   2. Hilti, Inc: www.us.hilti.com/#sle.
   3. Momentive Performance Materials, Inc (formerly GE Silicones): www.momentive.com/#sle.
   4. Sika Corporation: www.usa-sika.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Openings below ledge angles in masonry.
      e. Other joints indicated below.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
      c. Other joints indicated below.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      d. Joints where installation of sealant is specified in another section.
      e. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use non-sag non-staining silicone sealant, unless otherwise indicated.

C. Interior Joints: Use non-sag polyurethane sealant, unless otherwise indicated.
   1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant.
   2. Joints between Fixtures in Wet Areas and Floors, Walls, and Ceilings: Mildew-resistant silicone sealant; white.
   3. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.

D. Interior Wet Areas: Bathrooms, restrooms, kitchens, and food service areas; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, and other similar items.

E. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in SCAQMD 1168.

B. Colors: Selected by Architect from manufacturer's full range

2.04 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Type S, Grade NS, Class 50, Use NT.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
   3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.

4. Color: To be selected by Architect from manufacturer's full range.
5. Manufacturers:
   a. Dow Chemical Company; DOWSIL 795 Silicone Building Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.

B. Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's standard range.
4. Cure Type: Single-component, neutral moisture curing
5. Service Temperature Range: Minus 65 to 180 degrees F.
6. Manufacturers:
   a. Dow Chemical Company; DOWSIL 999-A Building and Glazing Sealant: consumer.dow.com/en-us/industry/ind-building-construction.html/#sle.

C. Mildew-Resistant Silicone Sealant: ASTM C920, Grade NS, Uses M and A; single component, mildew resistant; not expected to withstand continuous water immersion or traffic.
1. Color: Clear.
2. Manufacturers:
   a. Sika Corporation; Sikasil GP: www.usa-sika.com/#sle.

2.05 SELF-LEVELING SEALANTS

A. Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multi-component; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion .
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's standard range.

2.06 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type C - Closed Cell Polyethylene.
3. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   1. Width/depth ratio of 2:1.
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

F. Install bond breaker backing tape where backer rod cannot be used.

G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

H. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

I. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.05 FIELD QUALITY CONTROL

A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

B. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION

SECTION 079513
EXPANSION JOINT COVER ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Expansion joint cover assemblies for floor, wall, and ceiling surfaces.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 042000 - UNIT MASONRY: Placement of joint cover assembly frames in masonry.

C. Section 076200 - SHEET METAL FLASHING AND TRIM: Roof expansion and control joint covers.

D. Section 077100 - ROOF SPECIALTIES: Roof expansion and control joint covers.

E. Section 079200 - JOINT SEALANTS: Sealing expansion and control joints using gunnable and pourable sealants.

F. Section 092116 - Gypsum Board Assemblies: Placement of expansion joint assemblies in gypsum board walls and ceilings.

1.03 REFERENCE STANDARDS

A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

B. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

C. ASTM B308/B308M - Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles; 2020.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Installation Templates: For frames and anchors to be embedded in concrete or masonry, furnish templates to relevant installers; include installation instructions and tolerances.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices and available colors and finish.

C. Shop Drawings: Indicate joint and splice locations, miters, layout of the work, affected adjacent construction and anchorage locations.

D. Samples: Submit two samples 4 inch long, illustrating profile, dimension, color, and finish selected.

E. Manufacturer's Installation Instructions: Indicate rough-in sizes and required tolerances for item placement.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.

1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Expansion Joint Cover Assemblies:
1. Construction Specialties, Inc: www.c-sgroup.com/#sle.
2. Inpro: www.inprocorp.com/#sle.
3. MM Systems Corp: www.mmsystemscorp.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

2.02 EXPANSION JOINT COVER ASSEMBLY APPLICATIONS

A. ARCHITECTURAL JOINT SYSTEMS FOR BUILDING INTERIORS
1. Basis of Design Manufacturer: Construction Specialties, Inc., 6696 Route 405 Highway, Muncy, PA.
2. Wall-to-Wall Joint Systems:
a. Basis-of-Design Product: Construction Specialties, Inc. Model ASM.
b. Type: Snap-on cover.
1) Exposed Metal: Aluminum.
(a) Finish: Class II, clear anodic.
c. Fire-Resistance Rating: Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction.
3. Wall Corner Joint Systems:
a. Basis-of-Design Product: Construction Specialties, Inc. Model ASMC
b. Type: Snap-on cover.
1) Exposed Metal: Aluminum.
(a) Finish: Class II, clear anodic.
c. Fire-Resistance Rating: Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction.
4. Floor-to-Floor Joint Systems:
a. Basis-of-Design Product: INPRO Architectural Products. 320 Series.
b. Type: Snap-on cover.
1) Exposed Metal: Aluminum.
(a) Finish: Anodized Aluminum
c. Fire-Resistance Rating: Provide joint system and fire-barrier assembly with a rating not less than that of adjacent construction.

B. EXTERIOR EXPANSION JOINT COVERS
1. Exterior Elastomeric-Seal Joint Cover Assembly consisting of elastomeric seal anchored to surface-mounted frames fixed to sides of joint gap.
a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1) Balco, Inc.
2) Construction Specialties, Inc. (Basis of Design)
(a) Model: VF (Not Rated), VFR (Fire Rated)
3) MM Systems Corporation.
4) Watson Bowman Acme Corp.
b. Application: Wall to wall.
c. Installation: Recessed.
d. Fire-Resistance Rating: Not less than that of adjacent construction.
e. Seal: Preformed elastomeric membrane or extrusion.

1) Color: As selected by Architect from manufacturer's full range.

2.03 EXPANSION JOINT COVER ASSEMBLIES

A. Expansion Joint Cover Assemblies - General: Factory-fabricated and assembled; designed to completely fill joint openings, sealed to prevent passage of air, dust, water, smoke; suitable for traffic expected.
   1. Joint Dimensions and Configurations: As indicated on drawings.
   2. Joint Cover Sizes: Selected to suit joint width and configuration, based on manufacturer's published recommendations and limitations.
   3. Lengths: Provide covers in full lengths required; avoid splicing wherever possible.
   4. Anchors, Fasteners, and Fittings: Provided by cover manufacturer.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper; or ASTM B308/B308M, 6061 alloy, T6 temper.
   1. Exposed Finish Outdoors: Natural anodized.
   2. Exposed Finish at Floors: Mill finish or natural anodized.
   3. Exposed Finish at Walls and Ceilings: Natural anodized.

B. Anchors and Fasteners: As recommended by cover manufacturer.

C. Backing Paint for Aluminum Components in Contact with Cementitious Materials: Asphaltic type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joint preparation and dimensions are acceptable and in accordance with manufacturer's requirements.

B. Verify that frames and anchors installed by others are in correct locations and suitable for installation of remainder of assembly.

3.02 INSTALLATION

A. Install components and accessories in accordance with manufacturer's instructions.

B. Align work plumb and level, flush with adjacent surfaces.

C. Rigidly anchor to substrate to prevent misalignment.

3.03 PROTECTION

A. Do not permit traffic over unprotected floor joint surfaces.

B. Provide strippable coating to protect finish surface.

END OF SECTION

SECTION 081113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

B. Hollow metal frames for wood doors.

C. Fire-rated hollow metal doors and frames.

D. Thermally insulated hollow metal doors with frames.

E. Hollow metal borrowed lites glazing frames.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 087100 - Door Hardware.

C. Section 088000 - Glazing: Glass for doors and borrowed lites.

D. Section 099113 - Exterior Painting: Field painting.

E. Section 099123 - Interior Painting: Field painting.

1.03 ABBREVIATIONS AND ACRONYMS

A. ANSI: American National Standards Institute.

B. HMMA: Hollow Metal Manufacturers Association.

C. NAAMM: National Association of Architectural Metal Manufacturers.

D. NFPA: National Fire Protection Association.

E. SDI: Steel Door Institute.

F. UL: Underwriters Laboratories.

1.04 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames and Frame Anchors; 2024.

C. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

D. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2025.

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

F. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

G. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

H. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic-Cement Concrete; 2020.

I. ASTM C476 - Standard Specification for Grout for Masonry; 2023.

J. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

K. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

L. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

M. NAAMM HMMA 830 - Hardware Selection for Hollow Metal Doors and Frames; 2002.

N. NAAMM HMMA 831 - Hardware Locations for Hollow Metal Doors and Frames; 2024.

O. NAAMM HMMA 840 - Guide Specifications for Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2024.

P. NAAMM HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames; 2014.

Q. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

R. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

S. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames; 2023.

T. UL (DIR) - Online Certifications Directory; Current Edition.

U. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

D. Installation Instructions: Manufacturer's published instructions, including any special installation instructions relating to this project.

E. Manufacturer's Certificate: Certification that products meet or exceed specified requirements.

F. Manufacturer's Qualification Statement.

G. Installer's Qualification Statement.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

C. Maintain at project site copies of reference standards relating to installation of products specified.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   2. Curries, an Assa Abloy Group company: www.assaabloydss.com/#sle.
   3. Steelcraft, an Allegion brand: www.allegion.com/#sle.

2.02 PERFORMANCE REQUIREMENTS

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel Sheet: Comply with one or more of the following requirements; galvannealed steel complying with ASTM A653/A653M, cold-rolled steel complying with ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel complying with ASTM A1011/A1011M, commercial steel (CS) Type B, for each.
   2. Accessibility: Comply with ICC A117.1 and ADA Standards.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Manufacturers standard for application indicated.
   5. Typical Door Face Sheets: Flush.
   6. Glazed Lights: Non-removable stops on non-secure side; sizes and configurations as indicated on drawings. Style: Manufacturer's standard.
   7. Hardware Preparations, Selections and Locations: Comply with NAAMM HMMA 830 and NAAMM HMMA 831 or BHMA A156.115 and ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

B. Combined Requirements: If a particular door and frame unit is indicated to comply with more than one type of requirement, comply with the specified requirements for each type; for instance, an exterior door that is also indicated as being sound-rated must comply with the requirements specified for exterior doors and for sound-rated doors; where two requirements conflict, comply with the most stringent.

2.03 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.
   1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
      a. Level 2 - Heavy-duty.
      b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
      c. Model 1 - Full Flush.
      d. Door Face Metal Thickness: 20 gauge, 0.032 inch, minimum.
      e. Zinc Coating: A60/ZF180 galvannealed coating; ASTM A653/A653M.
   2. Door Core Material: Polystyrene, 1 lbs/cu ft minimum density.
      a. Foam Plastic Insulation: Manufacturer's standard board insulation with maximum flame spread index (FSI) of 75, and maximum smoke developed index (SDI) of 450 in accordance with ASTM E84, and completely enclosed within interior of door.
   3. Door Thermal Resistance: R-Value of 6.0 minimum, for installed thickness of polystyrene.
   4. Door Thickness: 1-3/4 inches, nominal.
   5. Top Closures for Outswinging Doors: Flush with top of faces and edges.
   6. Door Face Sheets: Flush.
   7. Weatherstripping: Refer to Section 087100.
   8. Door Finish: Factory primed and field finished.

B. Interior Doors, Non-Fire-Rated:

1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 2 - Heavy-duty.
   b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 1 - Full Flush.
   d. Door Face Metal Thickness: 18 gauge, 0.042 inch, minimum.
2. Door Core Material: Manufacturers standard core material/construction and in compliance with requirements.
3. Door Thickness: 1-3/4 inches, nominal.
4. Door Face Sheets: Flush.
5. Door Finish: Factory primed and field finished.

C. Fire-Rated Doors:
1. Based on SDI Standards: ANSI/SDI A250.8 (SDI-100).
   a. Level 2 - Heavy-duty.
   b. Physical Performance Level B, 500,000 cycles; in accordance with ANSI/SDI A250.4.
   c. Model 1 - Full Flush.
   d. Door Face Metal Thickness: 18 gauge, 0.042 inch, minimum.
2. Fire Rating: As indicated on Door Schedule, tested in accordance with UL 10C and NFPA 252 ("positive pressure fire tests").
3. Provide units listed and labeled by UL (DIR).
   a. Attach fire rating label to each fire rated unit.
4. Door Core Material: Manufacturers standard core material/construction in compliance with requirements.
5. Door Thickness: 1-3/4 inches, nominal.
6. Door Face Sheets: Flush.
7. Door Finish: Factory primed and field finished.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. Exterior Door Frames: Full profile/continuously welded type.
1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A40/ZF120 coating.
2. Frame Metal Thickness: 16 gauge, 0.053 inch, minimum.
3. Frame Finish: Factory primed and field finished.
4. Weatherstripping: Separate, see Section 087100.

C. Interior Door Frames, Non-Fire Rated: Full profile/continuously welded type.
1. Terminated Stops: Provide at interior doors; closed end stop terminated 6 inch, maximum, above floor at 45 degree angle.
2. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.
3. Frame Finish: Factory primed and field finished.

D. Door Frames, Fire-Rated: Full profile/continuously welded type.
1. Fire Rating: Same as door, labeled.
2. Frame Metal Thickness: 18 gauge, 0.042 inch, minimum.
3. Frame Finish: Factory primed and field finished.

E. Frames for Wood Doors: Comply with frame requirements in accordance with corresponding door.

F. Borrowed Lites Glazing Frames: Construction and face dimensions to match door frames, and as indicated on drawings.

G. Transom Bars: Fixed, of profile same as jamb and head.

H. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

I. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inches high to fill opening without cutting masonry units.

J. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Cold-applied asphalt mastic, compounded for 15 mil, 0.015 inch dry film thickness (DFT) per coat; provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.
   1. Fire-Rated Frames: Comply with fire rating requirements indicated.

2.06 ACCESSORIES

A. Glazing: As specified in Section 088000, factory installed.

B. Grout for Frames: Mortar grout complying with ASTM C476 with maximum slump of 4 inches as measured in accordance with ASTM C143/C143M for hand troweling in place; plaster grout and thinner pumpable grout are prohibited.

C. Silencers: Resilient rubber, fitted into drilled hole; provide three on strike side of single door, three on center mullion of pairs, and two on head of pairs without center mullions.

D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Install fire rated units in accordance with NFPA 80.

C. Coordinate frame anchor placement with wall construction.

D. Grout frames in masonry construction, using hand trowel methods; brace frames so that pressure of grout before setting will not deform frames.

E. Install door hardware as specified in Section 087100.

F. Comply with glazing installation requirements of Section 088000.

G. Coordinate installation of electrical connections to electrical hardware items.

H. Touch up damaged factory finishes.

3.04 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified frame standards or custom guidelines indicated in accordance with SDI 117 or NAAMM HMMA 861.

B. Maximum Diagonal Distortion: 1/16 inch measured with straight edge, corner to corner.

3.05 ADJUSTING

A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 081416
FLUSH WOOD DOORS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:
   1. Solid-core doors with wood-veneer faces.
   2. Factory finishing flush wood doors.
   3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.03 SUBMITTALS - GENERAL

A. See Section 013300 – Submittal Procedures, for submittal procedures.

1.04 ACTION SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; and the following:
   1. Dimensions and locations of blocking.
   2. Dimensions and locations of mortises and holes for hardware.
   3. Dimensions and locations of cutouts.
   4. Undercuts.
   5. Requirements for veneer matching.
   6. Doors to be factory finished and finish requirements.
   7. Fire-protection ratings for fire-rated doors.

C. Samples for Initial Selection: For factory-finished doors.

D. Samples for Verification:
   1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.

1.05 INFORMATIONAL SUBMITTALS

A. Sample Warranty: For special warranty.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.07 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during remainder of construction period.

1.08 WARRANTY

A. A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Warping (bow, cup, or twist) more than 1/4 inch (6.4 mm) in a 42-by-84-inch (1067-by-2134-mm) section.
      b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch (0.25 mm in a 76.2-mm) span.
   2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
   3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Algoma Hardwoods, Inc.
   2. Eggers Industries.
   3. Marshfield Door Systems, Inc. Signature Series – Basis of Design

2.02 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."

B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
   1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
   2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

D. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

E. Particleboard-Core Doors:
   1. Particleboard: ANSI A208.1, Grade LD-2.

F. Mineral-Core Doors:
   1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
   2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.

3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
    a. Screw-Holding Capability: 475 lbf (2110 N) per WDMA T.M.-10.

2.03 VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Solid-Core Doors:
1. Grade: Premium, with Grade A faces.
2. Species: Select white maple.
3. Cut: Plain sliced (flat sliced).
4. Match between Veneer Leaves: Book match.
5. Assembly of Veneer Leaves on Door Faces: Center-balance match.
6. Exposed Vertical Edges: Same species as faces - edge Type A.
7. Core: Particleboard or mineral core as needed to provide fire-protection rating indicated.
8. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering.

2.04 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
1. Comply with NFPA 80 requirements for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2.05 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.

B. Factory finish doors.

C. Transparent Finish:
1. Grade: Premium.
2. Finish: WDMA TR-6 catalyzed polyurethane.
3. Staining: Match existing doors.
4. Sheen: Match existing doors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine doors and installed door frames, with Installer present, before hanging doors.
1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
   1. Install fire-rated doors according to NFPA 80.
   2. Install smoke- and draft-control doors according to NFPA 105.

C. Job-Fitted Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
   1. Clearances: Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
      a. Comply with NFPA 80 for fire-rated doors.
      b. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
   2. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and rails only to extent permitted by labeling agency.

D. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

E. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.03 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 081743
FRP/ ALUMINUM HYBRID DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. FRP/ Aluminum Hybrid Door installed in Thermally Broken Aluminum Framing.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 084313 - Aluminum Framed Storefronts.

C. Section 084413 - Glazed Aluminum Curtainwalls.

D. Section 087100 - Door Hardware.

E. Section 088000 - Glazing.

1.03 REFRENCES

A. AAMA 1304 – Voluntary Specification for Forced Entry Resistance of Side-Hinged Door Systems.

B. AAMA 1503-98 – Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.

C. ANSI A250.4 – Test Procedure and Acceptance Criteria for Physical Endurance of Steel Doors and Hardware Reinforcing.

D. ASTM-B117 – Standard Practices for Operating Salt Spray (Fog) Apparatus.

E. ASTM-B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

F. ASTM-B221 – Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

G. ASTM-C518 – Standard test Method for Steady-State Thermal Transmission Properties by Means of Heat Flow Meter Apparatus.

H. ASTM-D256 – Standard Test Methods for Determining the Pendulum Impact Resistance of Plastics.

I. ASTM-D570 – Standard Test Method for Water Absorption of Plastics.

J. ASTM-D638 – Standard Test Method for Tensile Properties of Plastics.

K. ASTM-D790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.

L. ASTM-D1621 – Standard Test Method for Compressive Properties of Rigid Cellular Plastics.

M. ASTM-D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.

N. ASTM-D1623 – Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics.

O. ASTM-D2126 – Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.

P. ASTM-D2583 – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

Q. ASTM-D3029 – Test Methods for Impact Resistance of Flat Rigid Plastic Specimens by Means of a Tup (Falling Weight) (Withdrawn 1995) (Replaced by ASTM-D5420).

R. ASTM-D5116 – Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/ Products.

S. ASTM-D5420 – Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).

T. ASTM-D6670 – Standard Practice for Full-Scale Chamber Determination of Volatile Organic Emissions from Indoor Materials/ Products.

U. ASTM-E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.

V. ASTM-E90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

W. ASTM-E283 – Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

X. ASTM-E330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Y. ASTM-E1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.

Z. ASTM-E1996 – Standard Specification for Performance of Exterior Windows, Glazed Curtain Walls, Doors and Storm Shutters Impacted by Wind Borne Debris in Hurricanes.

AA. ASTM-F476 – Standard Test Methods for Security of Swinging Door Assemblies.

BB. ASTM-F1642-04 – Standard Test Method for Glazing Systems Subject to Air Blast Loading.

CC. NWWDA T.M. 7-90 – Cycle Slam Test Method.

DD. NFRC 100 – Procedure for Determining Fenestration Products U-Factors.

EE. NFRC 400 – Procedure for Determining Fenestration Products Air Leakage.

FF. TAS 201 – Impact Test Procedures.

GG. TAS 202 – Criteria for Testing Impact & Nonimpact Resistant Building Envelope Components Using Uniform Static Air Pressure.

HH. TAS 203 – Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Action Submittals/ Informational Submittals.
   1. Product Data.
      a. Submit manufacturer’s product data sheets, catalog pages illustrating the products, description of materials, components, fabrication, finishes, installation instructions, and applicable test reports.
   2. Shop Drawings.
      a. Submit manufacturer’s shop drawings, including elevations, sections, and details indicating dimensions, tolerances, materials, fabrication, doors, panels, framing, hardware schedule, and finish.
   3. Samples.

a. Submit manufacturer's door sample composed of door face sheet, core, framing and finish.
b. Submit manufacturer's sample of standard colors for door face and frame.

4. Testing and Evaluation Reports.
   a. Submit testing reports and evaluations provided by manufacturer conducted by and accredited independent testing agency certifying doors and frames comply with specified performance requirements listed in Section 2.04.
5. Manufacturer Reports.
   a. Manufacturer's Project References.
      1) Submit list of successfully completed projects including project name, location, name of architect, type, and quantity of doors manufactured.

C. Closeout Submittals.
1. Operation and Maintenance Manual.
   a. Submit manufacturer's maintenance and cleaning instructions for doors and frames, including maintenance and operating instructions for hardware.
2. Warranty Documentation.
   a. Submit manufacturer's standard warranty.

1.05 QUALITY ASSURANCE

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Manufacturer's Qualifications.
1. Continuously engaged in manufacturing of doors of similar type to that specified, with a minimum of 25 years concurrent successful experience.
2. Door and frame components must be fabricated by same manufacturer.
3. Evidence of a documented complaint resolution quality management system.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Delivery.
1. Deliver materials to site in manufacturer's original, unopened, containers and packaging.
2. Labels clearly identifying opening, door mark, and manufacturer.

B. Storage.
1. Store materials in a clean, dry area, indoors in accordance with manufacturer's instructions.

C. Handling.
1. Protect materials and finish from damage during handling and installation.

1.07 WARRANTY

A. Warrant doors, frames, and factory installed hardware against failure in materials and workmanship, including excessive deflection, faulty operation, defects in hardware installation, and deterioration of finish or construction in excess of normal weathering.

B. Standard Period.
1. Ten years starting on date of Substantial Completion.

C. Limited lifetime
1. Covers failure of corner joinery, core deterioration, and delamination or bubbling of door skin and corrosion of all-fiberglass products.

D. Finish
1. 10 years.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 FRP/ALUMINUM HYBRID DOORS

A. Manufacturer (Basis of Design):
   1. Special-Lite, Inc.
      a. PO Box 6, Decatur, Michigan 49045.
      b. Toll Free (800) 821-6531, Phone (269) 423-7068, Fax (800) 423-7610.
      c. Web Site www.special-lite.com.
      d. E-Mail info@special-lite.com.

2.03 DESCRIPTION

A. Model.
   1. SL-17 Pebble Grain FRP/ Aluminum Hybrid Door.

B. Door Opening Size.
   1. As indicated on Door Schedule.

C. Construction.
   1. Door Thickness: 1-3/4".
   2. Stiles & Rails.
      a. Aluminum extrusions made from 6063 aluminum alloys with a minimum temper of T5.
      b. Minimum 2-5/16” deep one-piece extrusion with have integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
      c. Screw or snap in place applied caps are not acceptable.
      d. Top rails must have integral legs for interlocking continuous extruded aluminum flush cap.
      e. Bottom rails must have integral legs for interlocking continuous weather bar with single nylon brush weather stripping or manually adjustable SL-301 door bottom with two nylon brush weather stripping.
      f. Meeting stiles to include integral pocket to accept pile brush weather seal.
   3. Corners.
      a. Mitered.
      b. Secured with 3/8” diameter full-width steel tie rod through extruded splines top and bottom which are integral to standard tubular shaped rails.
      c. 1-1/4” x 1-1/4” x 3/16” 6061 aluminum angle reinforcement at corner to give strong, flat surface for locking hex nut to bear on.
      d. Weld, glue, or other methods of corner joinery are not acceptable.
   4. Core.
      a. Poured-in-place polyurethane foam.
      b. Laid in foam cores are not acceptable.
      c. Foam Plastic Insulated Doors: IBC 2603.4.

1) Foam plastic shall be separated from the interior of a building by an approved thermal barrier.
2) Approved thermal barrier must meet the acceptance criteria of the Temperature Transmission Fire Test and Integrity Fire Test as stated in NFPA 275.
3) IBC 2603.4.1.7 foam plastic insulation, having a flame spread index less than 75 and a smoke developed index of not more than 450 shall be permitted as a door core when the face is metal minimum 0.032” aluminum or 0.016” steel.
4) Standard door assembly can be tested to show it meets these requirements without the use of thermal barrier. If no independent testing conducted all doors with foam plastic core must have a thermal barrier.

5. Face Sheet.
   a. Exterior
      1) 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
      2) Color as selected by Architect from manufacturer’s full range of standard colors.
   b. Interior
      1) 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
      2) Class A.
   c. Attachment of face sheet.
      1) Extruded stiles and rails to have integral reglets to accept face sheet on both interior and exterior side of door which secure face sheet into place and permit flush appearance.
      2) Use of glue to bond face sheet to core or extrusions is not acceptable.
6. Cutouts.
   a. Manufacture doors with cutouts for required vision lites, louvers, and panels.
7. Hardware.
   a. Pre-machine doors in accordance with templates from specified hardware manufacturers.
   b. Surface mounted closures will be reinforced for but not prepped or installed at factory.
   c. Factory install door hardware.
8. Reinforcements.
   a. Aluminum extrusions made from 6061 or 6063 aluminum alloys.
   b. Sheet and plate to conform to ASTM-B209.
   c. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.
   d. Bars and tubes to meet ASTM-B221.

2.04 FRAMING

A. Framing
   1. Thermally Broken Aluminum Framing.
      a. Model: SL-600TB
      b. Materials.
         1) See 2.05.A.
      c. Perimeter Frame Members.
         1) Storefront frame with thermally broken pocket filler.
         2) Factory fabricated.
         3) Open-back framing is not acceptable.
      d. Thermal Strut.

1) Fiber reinforced plastic, no other materials will be accepted.

e. Applied Door Stops.
1) 5/8" x 1-1/4" or 5/8" x 1-3/4", 0.125" wall thickness, with screws and weather-stripping.
2) Provide solid ½" aluminum bar behind door stop for closer shoe attachment.
3) Pressure gasketing for weathering seal.
4) Counterpunch fastener holes in door stop to preserve full-metal thickness under fastener head.
5) Minimum ½" aluminum bar reinforcement under doorstop for required hardware attachments, aluminum to meet ASTM-B221.

f. Caulking.
1) Caulk joints before assembling frame members.

g. Frame Member to Member Connections.
1) Secure joints with fasteners.
2) Provide hairline butt joint appearance.
3) Shear block construction only, no screw spline allowed.

h. Hardware
1) Pre-machine and reinforce frame members for hardware in accordance with manufacturer's standards and door hardware schedule.
2) Surface mounted closures will be reinforced for but not prepped or installed at factory.
3) Factory install door hardware.

i. Anchors:
1) Anchors appropriate for wall conditions to anchor framing to wall materials.
2) Door Jamb and Header Mounting Holes: Maximum of 24-inch centers.
3) Secure head and sill members of transom, side lites, and similar conditions.

2. Capping.
a. Model: SL-70.
b. Materials.
1) See Article 2.05.A.
2) Size as indicated on drawings.

2.05 PERFORMANCE

A. Face Sheet.
1. Standard Interior and Exterior Class C 0.120" thick, pebble texture, through color with integral surfaseal film FRP sheet.
a. Flexural Strength, ASTM-D790: 21 x 10^3 psi.
b. Flexural Modulus, ASTM-D790: 0.7 x 10^6 psi.
c. Tensile Strength, ASTM-D638: 13 x 10^3 psi.
d. Tensile Modulus, ASTM-D638: 1.2 x 10^6 psi.
e. Barcol Hardness, ASTM-D2583: 55.
f. Izod Impact, ASTM-D256: 14.0 ft-lb/in.
g. Gardner Impact Strength, ASTM-D5420: 120 in-lb.
h. Water Absorption, ASTM-D570: 0.20%/24hrs at 77°F.
i. Surface Burning, ASTM-E84: Flame Spread ≤ 200, Smoke Developed ≤ 450.
j. Taber Abrasion Resistance, Taber Test: 0.007% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.
k. Chemical Resistance.

1) Excellent Rating.
   (a) Acetic Acid, Concentrated.
   (b) Acetic Acid, 5%.
   (c) Bleach Solution.
   (d) Detergent Solution.
   (e) Distilled Water.
   (f) Ethyl Acetate.
   (g) Formaldehyde.
   (h) Heptane.
   (i) Hydrochloric Acid, 10%.
   (j) Hydrogen Peroxide, 3%.
   (k) Isooctane.
   (l) Lactic Acid, 10%.

l. USDA/FSIS Requirements.
   1) FRP face sheet with surfaseal is a finished outer surface material that is rigid; durable; non-toxic; non-corrosive; moisture resistant; a light, solid color such as white; easily inspected; smooth or an easily cleaned texture.
   2) FRP face sheet with surfaseal does not contain any known carcinogen, mutagen, or teratogen classified as hazardous substances; heavy metals or toxic substances; antimicrobials; pesticides or substances with pesticidal characteristics.

2. Interior Face Only Class A 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
   a. Flexural Strength, ASTM-D790: 13 x 10^3 psi.
   b. Flexural Modulus, ASTM-D790: 0.57 x 10^6 psi.
   c. Tensile Strength, ASTM-D638: 6.8 x 10^3 psi.
   d. Tensile Modulus, ASTM-D638: 0.90 x 10^6 psi.
   e. Barcol Hardness, ASTM-D2583: 40.
   f. Izod Impact, ASTM-D256: 12.0 ft-lb/in notched.
   g. Gardner Impact Strength, ASTM-D3029: 45 in-lb.
   h. Water Absorption, ASTM-D570: 0.32%/24hrs at 77°F.
   i. Surface Burning, ASTM-E84: Flame Spread ≤ 25, Smoke Developed ≤ 450.
   j. Taber Abrasion Resistance, Taber Test: 0.02% Max Wt. Loss, cs-17 wheels, 1000g. Wt., 25 cycles.

B. Door Core.
   1. Density, ASTM-D1622: ≤ 5.0 pcf.
   2. Compressive Properties, ASTM-D1621: Compressive Strength ≥ 60 psi, Compressive Modulus ≥ 1948 psi.
   3. Tensile and Tensile Adhesion Properties, ASTM-D1623: Tensile Adhesion, 3” x 3” FRP Facers ≥ 53 psi, Tensile Adhesion, 1” x 1” Foam ≥ 104 psi.
   4. Thermal and Humid Aging, ASTM-D2126: Volume Change at 158 °F, 100% humidity, 14 days ≤ 13%.
   5. Thermal Conductivity, ASTM-C518, Thermal Resistance ≥ 0.10 m^2K/W.

C. Door Panel.
   1. Thermal Transmittance, AAMA 1503-98: U-Factor = 0.29 Btu/hr·ft^2·°F, CRFp = 55.
   2. Indoor Air Quality, ASTM-D5116, ASTM-D6607: GreenGuard, GreenGuard Gold.

D. Door and Thermally Broken Aluminum Frame Assembly.

1. Thermal Transmittance, NFRC 100.
    a. Opaque Swinging Door (< than 50% glass)
        1) U-Factor = 0.31 Btu/hr·ft²·°F.
    b. Commercially Glazed Swinging Entrance Door (> than 50% glass)
        1) U-Factor = 0.64 Btu/hr·ft²·°F.
2. Air Leakage, NFRC 400, ASTM-E283.
    a. Opaque Swinging Door (< than 50% glass)
        1) 0.01 cfm/sqft @ 1.57 psf.
        2) 0.01 cfm/sqft @ 6.24 psf.
    b. Commercially Glazed Swinging Entrance Door (> than 50% glass)
        1) 0.38 cfm/sqft @ 1.57 psf.
        2) 0.73 cfm/sqft @ 6.24 psf.
3. Sound Transmission, ASTM-E90: STC = 30, OITC = 29.

2.06 MATERIALS

A. Aluminum Members.
    1. Aluminum extrusions made 6061 or 6063 aluminum alloys.
    2. Sheet and plate to conform to ASTM-B209.
    3. Alloy and temper to be selected by manufacturer for strength, corrosion resistance, and application of required finish, and control of color.

B. Fiberglass.
    1. See Article 2.03.C.5.

C. Fasteners.
    1. All exposed fasteners will have a finish to match material being fastened.
    2. 410 stainless steel or other non-corrosive metal.
    3. Must be compatible with items being fastened.

2.07 FABRICATION

A. Factory Assembly.
    1. Door and frame components from the same manufacturer.
    2. Required size for door and frame units, shall be as indicated on the drawings.
    3. Complete cutting, fitting, forming, drilling, and grinding of metal before assembly.
    4. All cut edges to be free of burs.
    5. Welding of doors or frames is not acceptable.
    6. Maintain continuity of line and accurate relation of planes and angles.
    7. Secure attachments and support at mechanical joints with hairline fit at contact surfaces.

B. Shop Fabrication
    1. All shop fabrication to be completed in accordance with manufactures process work instructions.
    2. Quality control to be performed before leaving each department.

2.08 FINISHES

A. Door.
    1. Aluminum.
        a. Mill.
            1) AA-M10C22A21-Flash.
        b. Paint.

1) Aluminum.
(a) KYNAR®.
(1) Topcoat: 70% KYNAR or HYLAR 5000 Coating, meets or exceeds all AAMA 2605 specifications, 2.5 to 4.0 wet mils, 1.00 to 1.20 dry mils.
(2) Color: As selected by Architect from manufacturer's full range of colors.

2. FRP Face Sheets
a. Through color.
1) Color: As selected by Architect from manufacturer's full range of colors.

B. Frame
1. Aluminum.
a. Mill.
1) AA-M10C22A21-Flash.
b. Paint.
1) Aluminum.
(a) KYNAR®.
(1) Topcoat: 70% KYNAR or HYLAR 5000 Coating, meets or exceeds all AAMA 2605 specifications, 2.5 to 4.0 wet mils, 1.00 to 1.20 dry mils.
(2) Color: As selected by Architect from manufacturer's full range of colors.

2.09 ACCESSORIES

A. Vision Lites.
1. Factory Glazing.
a. Model: FL Standard.
b. Glazing Thickness: 1".
c. Rectangular Lites.
(a) Size, as indicated on drawings.

B. Hardware.
1. Pre-machine doors in accordance with templates from specified hardware manufactures and hardware schedule.
2. Factory install hardware.
3. Hardware Schedule: See Section 08 7100.

C. Architectural Panels.
1. FRP Panels.
a. SL-37.
1) Size, as indicated on drawings.
2) Thickness: 1-3/4".
3) Face Sheet.
(a) Material.
(1) Standard exterior and interior face, Class C 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
(2) Interior face, Class A 0.120” thick, pebble texture, through color with integral surfaseal film FRP sheet.
(b) Color: As selected by Architect from manufacturer's full range of standard colors.
4) Performance.

(a) Face Sheet.
  (1) See 2.02.C.5.
(b) 1-3/4" Thick Panel.
  (1) Wood or aluminum frame perimeter.
  (2) Poured-in-place Polyurethane Foam Core.
  (3) Thermal Performance, AAMA 1503-98: U-Factor = 0.10 Btu/hr·ft²·°F; CRFp=87.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas to receive doors.

B. Notify architect of conditions that would adversely affect installation or subsequent use.

C. Do not proceed with installation until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Ensure openings to receive frames are plumb, level, square, and in tolerance.

3.03 ERECTION

A. Install doors in accordance with manufacturer's instructions.

B. Install doors plumb, level, square, true to line, and without warp or rack.

C. Anchor frames securely in place.

D. Separate aluminum from other metal surfaces with bituminous coatings or other means approved by architect.

E. Set thresholds in bed of mastic and back seal.

F. Install exterior doors to be weathertight in closed position.

G. Repair minor damages to finish in accordance with manufacturer's instructions and as approved by architect.

H. Remove and replace damaged components that cannot be successfully repaired as determined by architect.

3.04 FIELD QUALITY CONTROL

A. Manufacture's Field Services.
  1. Manufacturer's representative shall provide technical assistance and guidance for installation of doors.

3.05 ADJUSTING

A. Adjust doors, hinges, and locksets for smooth operation without binding.

3.06 CLEANING

A. Clean doors promptly after installation in accordance with manufacturer's instructions.

B. Do not use harsh cleaning materials or methods that would damage finish.

3.07 PROTECTION

A. Protect installed doors to ensure that, except for normal weathering, doors will be without damage or deterioration at time of substantial completion.

END OF SECTION

SECTION 083323
OVERHEAD COILING DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Exterior coiling doors.

B. Electric operators and control stations.

C. Wiring from electric circuit disconnect to operators and control stations.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 079200 - JOINT SEALANTS: Sealing joints between frames and adjacent construction.

C. Division 26 Sections: Conduit from electric circuit to operator and from operator to control station, conduit from fire alarm system and power to disconnect.

1.03 REFERENCE STANDARDS

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

B. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

D. ASTM E2226 - Standard Practice for Application of Hose Stream; 2015b (Reapproved 2019).

E. FBC TAS 203 - Criteria for Testing Products Subject To Cyclic Wind Pressure Loading; Testing Application Standard; 1994.

F. ITS (DIR) - Directory of Listed Products; Current Edition.

G. NEMA EN 10250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2024.

H. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts; 2008 (Reaffirmed 2020).

I. NEMA MG 00001 - Motors and Generators; 2024.

J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

L. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2022.

M. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; 2022.

N. UL (DIR) - Online Certifications Directory; Current Edition.

O. UL 10B - Standard for Fire Tests of Door Assemblies; Current Edition, Including All Revisions.

P. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

Q. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide general construction, electrical equipment, and component connections and details.

C. Shop Drawings: Indicate pertinent dimensioning, anchorage methods, hardware locations, and installation details.

D. Samples: Two slats, 6 inches in length illustrating shape, color and finish texture.

E. Manufacturer's Installation Instructions: Indicate installation sequence and procedures, adjustment and alignment procedures.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Maintenance Data: Indicate lubrication requirements and frequency and periodic adjustments required.

I. Specimen warranty.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least three years documented experience.

C. Products Requiring Electrical Connection: Listed and classified by ITS (DIR), UL (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for purpose specified and indicated.

1.06 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 2-year manufacturer warranty for roller shaft counterbalance assembly. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Overhead Coiling Metal Doors:
   1. Cornell Iron Works, Inc; Thermiser ESD20: www.cornelliron.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 COILING DOORS

A. Exterior Coiling Doors: Steel slat curtain.
   1. Capable of withstanding positive and negative wind loads of 20 psf without undue deflection or damage to components.

2. Single Thickness Slats: Manufacturer's standard.
3. Sandwich Slats: Manufacturer's standard, with core of foamed-in-place polyurethane insulation; minimum R-value of 8.1.
4. Nominal Slat Size: 3 inches wide by required length.
5. Finish: Factory painted, color as selected.
6. Guide, Angles: Galvanized steel.
7. Electric operation.
8. Mounting: Surface mounted.

2.03 MATERIALS AND COMPONENTS

A. Metal Curtain Construction: Interlocking slats.
1. Slat Ends: Alternate slats fitted with end locks to act as wearing surface in guides and to prevent lateral movement.
2. Curtain Bottom for Slat Curtains: Insulated bottom bar reinforced extruded aluminum interior face with full depth insulation and exterior skin to match curtain material to provide reinforcement and positive contact in closed position.
3. Weatherstripping for Exterior Doors: Moisture and rot proof, resilient type, located at jamb edges, bottom of curtain, and where curtain enters hood enclosure of exterior doors.
4. Steel Slats: Minimum thickness, 22 gauge, 0.03 inch; ASTM A653/A653M galvanized steel sheet.

B. Guides - Angle: ASTM A36/A36M metal angles, size as required for wind loading.
1. Hot-dip galvanized in compliance with ASTM A123/A123M.

C. Hood Enclosure and Trim: Internally reinforced to maintain rigidity and shape.
1. Minimum thickness; 24 gauge, 0.024 inch.

D. Roller Shaft Counterbalance: Steel pipe and helical steel spring system, capable of producing torque sufficient to ensure smooth operation of curtain from any position and capable of holding position at mid-travel; with adjustable spring tension; requiring 25 lb nominal force to operate.

2.04 ELECTRIC OPERATION

A. Operator, Controls, Actuators, and Safeties: Comply with UL 325; provide products listed by ITS (DIR), UL (DIR), or testing agency acceptable to authorities having jurisdiction.
1. Provide interlock switches on motor operated units.

B. Electric Operators:
1. Mounting: Side mounted.
2. Motor Enclosure:
   a. Exterior Coiling Doors: NEMA MG 00001, Type 4; open drip proof.
3. Motor Rating: 1/2 HP; continuous duty.
4. Motor Voltage: 120 volts, single phase, 60 Hz.
5. Motor Controller: NEMA ICS 2, full voltage, reversing magnetic motor starter.
6. Controller Enclosure: NEMA EN 10250, Type 4.
7. Opening Speed: 12 inches per second.
8. Brake: Manufacturer's standard type, activated by motor controller.
9. Manual override in case of power failure.
10. See Section 260583 for electrical connections.

C. Control Station: Provide standard three button, 'Open-Close-Stop' continuous-constant control device for each operator complying with UL 325.
1. 24 volt circuit.

2. Surface mounted, at interior door jamb.
3. Entrapment Protection Devices: Provide sensing devices and safety mechanisms complying with UL 325.
    a. Secondary Device: Provide electric sensing edge with wireless edge kit or non-monitored safety edge as an option along with continuous-constant control device.

D. Safety Edge: Located at bottom of coiling door, full width, electro-mechanical sensitized type, wired to stop and reverse door direction upon striking object, hollow neoprene covered.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that adjacent construction is suitable for door installation.

B. Verify that electrical services have been installed and are accessible.

C. Verify that door opening is plumb, header is level, and dimensions are correct.

D. Notify Architect of any unacceptable conditions or varying dimensions.

E. Commencement of installation indicates acceptance of substrate and door opening conditions.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components suspended from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Coordinate installation of electrical service with Section 260583.

F. Complete wiring from disconnect to unit components.

G. Install enclosure and perimeter trim.

3.03 TOLERANCES

A. Maintain dimensional tolerances and alignment with adjacent work.

B. Maximum Variation From Plumb: 1/16 inch.

C. Maximum Variation From Level: 1/16 inch.

D. Longitudinal or Diagonal Warp: Plus or minus 1/8 inch per 10 feet straight edge.

3.04 ADJUSTING

A. Adjust operating assemblies for smooth and noiseless operation.

3.05 CLEANING

A. Clean installed components.

B. Remove labels and visible markings.

END OF SECTION

SECTION 083343
OVERHEAD COILING SMOKE CURTAINS FOR ELEVATOR DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Overhead Coiling Smoke Curtains for Elevator Doors.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 142100 – Electric Traction Elevators.

C. Section 211300 - Fire-Suppression Sprinkler Systems.

D. Section 260533.13 - Conduit for Electrical Systems.

E. Section 260583 - Wiring Connections.

F. Section 284600 - Fire Detection and Alarm.

1.03 REFERENCE STANDARDS

A. ASME A17.1 - Safety Code for Elevators and Escalators Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters with Automatic Transfer Devices; 2022.

B. ASTM A240/A240M - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications; 2025a.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

D. ICC-ES AC77 - Acceptance Criteria for Smoke-Containment Systems Used with Fire-Resistance-Rated Elevator Hoistway Doors and Frames and at the Intersection of Elevator Lobby and Corridor; 2021.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives; 2022.

G. UL 864 - Control Units and Accessories for Fire Alarm Systems; Current Edition, Including All Revisions.

H. UL 1784 - Standard for Air Leakage Tests of Door Assemblies; Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate smoke curtain assemblies with power, signal, fire-alarm, and smoke-detection systems specified in Division 26 and Division 28.
   2. Coordinate elevator smoke-protective curtain assemblies with elevator hoistway door frames specified in Division 14.
   3. Coordinate smoke-protective curtain assemblies with ceilings for operational clearances and maintenance access requirements.

4. Coordinate smoke-protective curtain assemblies with walls for support requirements, rating continuity above ceilings, and recessed wall switches.
5. Coordinate requirements for metal supports required for smoke-protective curtain assemblies.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's product information and data sheets for each product specified in this section, including the following:
   1. Substrate preparation instructions and recommendations.
   2. Installation means and methods.
   3. Recommendations and requirements for proper storage and handling.

C. Shop Drawings:
   1. Submit Manufacturer’s approved shop drawings detailing the section and elevation views of each product to be installed.
   2. Coordinate with locations indicated on drawings.

D. Certificate: Certify that products of this section meet or exceed specified requirements.

E. Evaluation Service Reports: Show compliance with specified requirements.

F. Manufacturer's Instructions:
   1. Substrate preparation instructions and recommendations.
   2. Installation means and methods.
   3. Recommendations and requirements for proper storage and handling.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Testing agency's qualification statement.

J. Operation and Maintenance Data: For smoke-protective curtain assemblies to include in emergency, operation, and maintenance manuals.

K. Field quality-control reports for required testing.

L. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least seven years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience and approved by manufacturer.

C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of type specified in this section.

D. Documents at Project Site: Maintain at project site one copy of manufacturer's instructions, shop drawings, and reference standard documents containing execution requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver, store and handle materials and products in accordance with the manufacturer's instructions and recommendations and industry standards.

C. Store all materials in the manufacturer’s original packaging until ready for installation. Protect all products from damage or exposure to adverse weather conditions.

1.08 FIELD CONDITIONS

A. Prior to fabrication, verify that dimensions are consistent with those found in the construction drawings. Where discrepancies exist, confirm the proper dimensions with the Architect before proceeding with work.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 1-year manufacturer warranty for parts and labor costs to repair or replace parts that fail to perform, commencing on the Date of Substantial Completion. Complete forms in Owner's name and register with manufacturer.

C. Installer Warranty: Correct defective work within 2-year period commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 MANUFACTURERS

A. Substitutions: See Section 016000 - Product Requirements.
   1. Substitution Limitations:
      a. Single manufacturer to provide, from a single source, a fully integrated smoke-and-draft containment system consisting of smoke-and-draft-protective curtains and the following components:
         1) Smoke-and-Draft-Protective Curtain Operators.
         2) Smoke-and-Draft-Protective Curtain Controls.

2.03 SMOKE-PROTECTIVE CURTAIN ASSEMBLIES FOR ELEVATOR ENTRANCES

A. Alarm-activated transparent-film smoke curtain assembly complying with ICC-ES AC77 and NFPA 105.

B. Smoke-Protective Curtain Assemblies: Provide smoke-protective curtains listed and labeled with the letter "S" by a qualified testing agency for smoke- and draft-control based on testing in accordance with UL 1784 without an artificial bottom seal; with maximum air-leakage rate of 3.0 cfm/sq. ft. (0.01524 cu. m/s x sq. m) of opening at 0.10 inch wg (24.9 Pa) for both ambient and elevated temperature tests in accordance with ICC-ES AC77.

C. Curtain Materials: Provide manufacturer’s standard curtain complying with each of the following:

1. Flame-Spread and Smoke-Developed Indexes: No greater than 25 and 50, respectively, when tested in accordance with ASTM E84.
2. Transparent-Film Curtain: Provide curtain of transparent film in compliance with vision panel requirements of ASME A17.1.
3. Screen Reinforcement: Provide film with reinforcement to limit deflection or tearing.

D. Curtain Egress: Provide curtain that is operable from the egress side without use of keys, tools, special knowledge, or effort in excess of the opening force requirements of authorities having jurisdiction.
   1. Egress Switch: Include switch to rewind screen into housing to comply with egress requirements of ASME A17.1.
      a. Switch Size and Color: Provide switch no less than 4 by 4 inches and in contrasting color with curtain.
      b. Switch Operation: Provide switch operable with a closed fist or a loose grip, not requiring finger movements in compliance with the requirements of authorities having jurisdiction.
      c. Switch Location: Between 15 and 48 inches above finished floor level in compliance with forward reach requirements of authorities having jurisdiction.
   2. Manual Egress: Provide curtain allowing fail-safe manual egress with less than 15 pounds release pressure in the direction of travel.
      a. Opening Size: Provide curtain with manual egress opening of at least 32 inches in compliance with the requirements of authorities having jurisdiction.

E. Curtain Attachment: Provide curtain that forms a pressure-resisting seal by magnetic adhesion with flexible multi-pole magnetic strips attached to longitudinal edges of film with low modulus silicone adhesive.
   1. Curtain Installation: Provide curtain attachment systems that do not require modification of the elevator jamb including direct or mechanical attachment.
   2. Elevator Door Frames: Type 430 ferritic stainless steel elevator door frames to create seal with curtain by magnetic adhesion.
      a. Auxiliary Rails: Provide 16-gauge ASTM A240/A240M, Type 430, ferritic stainless steel vertical rails above elevator door head to create seal with curtain by magnetic adhesion no less than 2 inches (51 mm) wide, 1 inch (25 mm) deep.
   3. Auxiliary Rails: Provide vertical rails to create seal with curtain by magnetic adhesion.
      a. Material: 16-gauge ASTM A240/A240M, Type 430, ferritic stainless steel.
      b. Size: At least 2 inches (51 mm) wide, 1 inch (25 mm) deep.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

G. Curtain Housing: Provide sheet metal housings containing support rollers and associated electronics.
   1. Coordinate operator wiring requirements and electrical characteristics with building electrical system.
   2. Housing includes electrical junction box that does require the removal of any part of the building in accordance with NFPA 70.
   3. Provide electrical junction box access through housing in the open condition.
   4. Curtain housing to contain all components required for operation.
   5. Housing Finish: Manufacturer’s standard powder coat finish in white.

H. Curtain Operation: Controlled descent automatically by fail-safe, gravity-closing deployment and motorized rewind.
   1. Curtain deploys on activation of one of the following:
      a. Local Smoke Detector.
      b. Testing Key Switch
   2. Release Mechanism: Labelled as defined by UL 864.

2.04 SOURCE QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for additional requirements.

B. Coordination of Other Tests and Inspections: Provide access to accommodate tests and inspections by independent testing agency employed by Owner.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates upon which work will be installed.
   1. Verify related work performed under other sections is complete and in accordance with Shop Drawings.
   2. Verify wall surfaces and elevator door frames are acceptable for installation of smoke containment system components.

B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Verify that locations of concealed reinforcements have been clearly marked for the installer.

E. Locate reinforcement points and clearly mark their locations if not already done.

3.02 PREPARATION

A. Protect all adjacent construction from damage during installation of smoke containment system.

B. Clean surfaces prior to installation.

C. Prepare surfaces as recommended by the manufacturer for achieving optimal results.

3.03 INSTALLATION

A. Install in accordance with manufacturer's written instructions and industry recognized best practices.

B. Install in accordance with all code bodies having jurisdiction.

3.04 REPAIR

A. Damaged products must be repaired or replaced prior to substantial completion.

3.05 FIELD QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for additional requirements.

B. Field Test: Follow manufacturer’s cycle test procedures.
   1. Notify Owner’s Representative, local Fire Marshal, alarm sub-contractor and elevator sub-contractor or service company minimum one week in advance of scheduled testing.
   2. Complete maintenance service record.

C. Coordination of Other Tests and Inspections: Provide access to accommodate tests and inspections by independent testing agency employed by Owner.

3.06 SYSTEM STARTUP

A. Manufacturer Services: Provide services of manufacturer's field representative to perform systems startup.

B. Prepare and start equipment and systems in accordance with manufacturers' instructions and recommendations.

3.07 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Clean and remove all stains, grime, or other soils using soap and water. Only use detergents approved by the manufacturer for use on the finishes specified. Do not use acid solutions, steel wool, and other harsh abrasives.

3.08 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures, for additional submittals.

B. See Section 017900 - Demonstration and Training for additional requirements.

C. Demonstrate proper operation of equipment to Owner's designated personnel.

D. Training: Train Owner's personnel on operation and maintenance of system.
   1. Training Reference: Operation and maintenance manual and additional training materials as required.
   2. Provide minimum of two hours of training.
   3. Instructor: Manufacturer's training personnel.

3.09 PROTECTION

A. Protect installed products until completion of work specified in this section and from subsequent construction operations until substantial completion.

3.10 DEMONSTRATION

A. Demonstrate required testing and maintenance procedures to Owner’s Representative.

B. Reference Section 017900 - Demonstration and Training for demonstration and training requirements.

3.11 MAINTENANCE AND TESTING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Perform minimum semi-annual maintenance and testing on each smoke containment system as required by the manufacturer’s warranty, code agency evaluation reports, and as required by local authority having jurisdiction.
   1. Retain permanent record of tests.

C. Future Painting: Paint elevator door frame and/or auxiliary rails in accordance with Operation and Maintenance Manual.

D. Fire Event: Owner shall engage a qualified inspector to assess unit(s) after exposure to a fire event.

END OF SECTION

SECTION 083600
OVERHEAD STACKING DOORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior mounted, aluminum, full view, overhead stacking doors.

B. Motorized door operators.

C. Accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 042000 - Unit Masonry. Prepared opening(s) in masonry.

C. Section 055000 - Metal Fabrications. Door opening jamb and head members.

D. Section 079200 - Joint Sealants. Sealing joints between frames and adjacent construction.

E. Section 087100 - Door Hardware.

F. Division 26. Electrical wiring and conduit, fuses, disconnect switches, connection of operator to power supply, wiring connections for motorized operators and installation of control station and wiring.

G. Products That May Be Supplied, But Are Not Installed Under This Section:
   1. Control Station

1.03 REFERENCE STANDARDS

A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

B. ASTM D3363 - Standard Test Method for Film Hardness by Pencil Test; 2022.

C. ICC (IECC)-2021 - International Energy Conservation Code; 2021.

D. ISO 9001 - Quality Management Systems — Requirements; 2015, with Amendment (2024).

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer’s data sheets for each product specified.

C. Shop Drawings: Include special conditions not detailed in Product Data. Show interface with adjacent work. Include opening dimensions, connection details, anchorage spacing, hardware locations, and installation details.

D. Certificate: Certify products of this section meet or exceed specified requirements.

E. Manufacturer's Installation Instructions.

F. Designer's qualification statement.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Operation and Maintenance Data: Include Operation and Maintenace Manual. Reference Section 017823 - Operation and Maintenance Data.

J. Specimen warranty.

K. Project Record Documents: Indicate actual locations of overhead stacking doors and electrical operators.

L. Maintenance Materials: Furnish the following for Owner's use in project maintenance:
   1. See Section 016000 - Product Requirements for additional provisions.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with minimum 5 years of documented experience and ISO 9001 registered.

B. Installer Qualifications: Company specializing in performing work of type specified, with minimum 5 years of documented experience and approved by manufacturer.

C. Documents at Project Site: Maintain at project site one copy of manufacturer's instructions, shop drawings, and reference standard documents containing execution requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. See Section 016000 - Product Requirements, for additional requirements.

B. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

C. Follow manufacturer's delivery, storage and handling instructions.

1.07 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide standard manufacturer warranty for failure of parts or workmanship. Complete forms in Owner's name and register with manufacturer.

C. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacing units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Furnish products produced by single manufacturer and obtained from single supplier.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 MANUFACTURERS

A. Overhead Stacking Doors:
   1. (Basis of Design) Clopay Corporation; VertiStack Clear, uninsulated, Model No. VS904: www.clopaydoor.com/#sle.
   2. Cookson, a subsidiary of Cornell Iron Works: www.cooksondoor.com/#sle.
   3. Cornell Iron Works: www.cornelliron.com/#sle.

B. Substitutions: See Section 016000 - Product Requirements.

2.03 MATERIALS

A. Panel Sections:
   1. Sections are 2-1/8 inches thick extruded 6053-T5 aluminum, consisting of center stiles, end stile, intermediate rails, and top and bottom rails with solid or glazing panels. Panel widths are equally spaced.
   2. Full-vision sections include glass held in place with snap-in glazing bead and hot melt adhesive.
   3. Panel Glazing:
   4. Aluminum Finish:
      a. Anodized finish: Color as selected by Architect from manufacturer's full range.

B. Wall angles:
   1. Fabrication: Steel wall angles, powder coated to match guide covers and bracket plates.

C. Track:
   1. Vertical continuous angle mounted, 2'' galvanized full tapered steel track, which must not require ceiling mount.
   2. Track and rollers must be concealed by guide covers when door is fully installed.

D. Guide Covers:
   1. Fabrication: Steel guide covers.
   2. Guide covers are to be installed without the need for visible fasteners.
   3. Finish:
      a. Powder Coat: Zirconium pre-treatment followed by baked-on polyester powder coat. Minimum 2.5 mils 0.003 inch cured film thickness; ASTM D3363 pencil hardness: H or better. Color: Black, RAL9005 (standard).

E. Locking:
   1. Section locking devices: Manually operated locking mechanism mounted on both sides of the door, positioned between wall angle and guide cover. Locks impede opening of door and/or separating of sections while door is in the closed position. Lock handles have the ability to be padlocked in place if desired.
   2. Interlock: Includes interlock for use with motor to prevent operation while locked.

F. Weatherstripping:
   1. Vinyl top weather seal and reverse angle jamb weather seal.
   2. Top weather seal must be affixed to top section and not at the header.

G. Spring Counterbalance:
   1. Spring Balance: torsion spring counterbalance mechanism sized to weight of the door.

2. Include 25,000-cycle torsion springs.
3. Strap assembly: high-strength strap assembly.
4. Provide tension wheel for applying and adjusting spring torque.

H. Brackets: Fabricate from minimum 7 gauge steel plate with permanently lubricated ball or roller bearings at rotating support points to support counterbalance shaft assembly and form end closures.
1. Finish:
a. Powder Coat: Zirconium pre-treatment followed by baked-on polyester powder coat. Minimum 2.5 mils 0.003 inch cured film thickness; ASTM D3363 pencil hardness: H or better. Color: Black, RAL9005 (standard).

I. Hood: three-sided hood fabricated from 24-gauge steel with reinforced top and bottom edges.
1. Finish:
a. Powder Coat: Zirconium pre-treatment followed by baked-on polyester powder coat. Minimum 2.5 mils 0.003 inch cured film thickness; ASTM D3363 pencil hardness: H or better. Color: Black, RAL9005 (standard) Standard Black RAL9005

J. Motor Cover: Motor cover fabricated from 24-gauge steel.
1. Finish:
a. Powder Coat: Zirconium pre-treatment followed by baked-on polyester powder coat. Minimum 2.5 mils 0.003 inch cured film thickness; ASTM D3363 pencil hardness: H or better. Color: Black, RAL9005 (standard).

2.04 PERFORMANCE REQUIREMENTS

A. Wind Loading:
1. Design doors to withstand positive and negative wind loads as calculated in accordance with applicable building code and detailed in structural documents.
2. Doors to withstand up to 25 PSF design wind load.
3. Doors tested to a pressure of 37.5 PSF.

B. Air Infiltration:
1. Meets ASHRAE Std 90.1 I-P and ICC (IECC)-2021 IECC®, Section C406.9 Air Infiltration requirements with an independently tested value of 0.2 cfm/ft2.
2. Design includes a gasket between sections and a specialized field-installed header seal on top section to reduce air infiltration.

C. Design Requirements:
1. Life Cycle:
a. Life expectancy of up to 25,000 cycles.
b. Standard construction for normal use of up to 20 cycles per day maximum.

2.05 OPERATION

A. Motor Operation:
1. VSH Standard Series Operator – 1/2 horsepower UL listed gear head motor:
a. The operator is to include a totally enclosed non ventilated (TENV) gear head motor, reversing magnetic controller in NEMA 1 enclosure, spur gearbox for drive reduction, and an electric brake.

b. The controller shall include UL listed thermal overload protection, rotary limit switches, safety edge circuit and transformer with 24 volt control secondary, and delay on reverse.
c. All components of the motor controller are to be pre-wired to a terminal block using color coding of the wires to facilitate troubleshooting.
d. The operator must not extend above or below the door coil when mounted front-of-coil.
e. Rated for a maximum of 20 cycles per hour
f. Supply motor with the following configuration:
   1) 120 Volts, 1-phase, 60 Hertz
g. Operator shall be equipped with an emergency manual chain hoist assembly that safely cuts operator power when engaged. A disconnect chain shall not be required to engage or release the manual chain hoist.
h. Operator to be supplied with 72” minimum of #50 roller chain.
i. The electrical contractor shall mount the control station(s) and supply the appropriate disconnect switch, all conduit and wiring per the motor operator wiring instructions.

B. Control Station:

C. Safety Devices:

2.06 ACCESSORIES

A. Strap brake safety system: engages guide mounted engagement teeth to effectively stop the door in the event of strap failure.

2.07 SOURCE QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for additional requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates upon which work will be installed and verify conditions are in accordance with approved shop drawings.

B. Coordinate with responsible entity to perform corrective work on unsatisfactory substrates.

C. Commencement of work by installer is acceptance of substrate.

3.02 INSTALLATION

A. Install in accordance with manufacturer's written instructions.

B. General: Install door and operating equipment with necessary hardware, anchors, inserts, hangers and supports.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - BSD Quality Requirements for additional requirements.

B. Site Test: Test doors for normal operation.

3.04 SYSTEM STARTUP

A. Prepare and start equipment and systems in accordance with manufacturers' instructions and recommendations.

3.05 ADJUSTING

A. Following completion of installation, including related work by others, lubricate, test, and adjust doors for ease of operation, free from warp, twist, or distortion.

3.06 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Clean surfaces soiled by work as recommended by manufacturer.

C. Remove surplus materials and debris from the site.

3.07 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures, for additional submittals.

B. See Section 017900 - Demonstration and Training for additional requirements.

C. Demonstrate operation of equipment to Owner's designated personnel.

3.08 PROTECTION

A. Protect installed doors and operators from subsequent construction operations.

3.09 MAINTENANCE

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

3.10 DEMONSTRATION AND TRAINING

A. Demonstrate proper operation, testing and reset procedures to Owner's personnel.

B. Instruct Owner's personnel in maintenance procedures.

END OF SECTION

SECTION 084313
ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed storefront, with vision glass.

B. Aluminum doors and frames.

C. Weatherstripping.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 055000 - METAL FABRICATIONS: Steel attachment devices.

C. Section 072500 - Weather Barriers: Sealing framing to water-resistive barrier installed on adjacent construction.

D. Section 079200 - JOINT SEALANTS: Sealing joints between frames and adjacent construction.

E. Section 084413 - Glazed Aluminum Curtain Walls.

F. Section 085113 - Aluminum Windows: Operable sash within glazing system.

G. Section 087100 - Door Hardware: Hardware items other than specified in this section.

H. Section 088000 - Glazing: Glass and glazing accessories.

1.03 REFERENCE STANDARDS

A. AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems; 2015.

B. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2014.

C. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum; 2025.

D. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

E. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

F. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

G. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

H. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.

I. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

J. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

K. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

L. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.

M. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes; 2023.

N. SSPC-Paint 20 - Zinc-Rich Coating (Type I - Inorganic, and Type II - Organic); 2019.

O. TDI (PED) - Product Evaluation Directory - Texas Department of Insurance; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, glass and infill, door hardware, and internal drainage details.

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related work, expansion and contraction joint location and details, and field welding required.
   1. Include design engineer's licensed to wo stamp or seal on shop drawings for attachments and anchors.

D. Samples: Submit two samples 6 x 6 inches in size illustrating finished aluminum surface, glass, infill panels, glazing materials.

E. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

F. Design Data: Provide framing member structural and physical characteristics, engineering calculations, and dimensional limitations.

G. Hardware Schedule: Complete itemization of each item of hardware to be provided for each door, cross-referenced to door identification numbers in Contract Documents.

H. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

I. Designer's qualification statement.

J. Manufacturer's qualification statement.

K. Installer's qualification statement.

L. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State in which the Project is located.

B. Manufacturer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.
   1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.

C. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.
   1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.
      a. North American Contractor Certification (NACC) for glazing contractors.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Aluminum-Framed Storefronts:
   1. Kawneer North America; Trifab 451 UT: www.kawneer.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 ALUMINUM-FRAMED STOREFRONT

A. Aluminum-Framed Storefront: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Glazing Position: Centered (front to back).
   2. Finish: Class I color anodized.
      a. Factory finish all surfaces that will be exposed in completed assemblies.
   3. Finish Color: As selected by Architect from manufacturer's standard line.
   4. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors and hardware; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   5. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   6. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   7. Expansion/Contraction: Provide for expansion and contraction within system components caused by cycling temperature range of 170 degrees F over a 12 hour period without causing detrimental effect to system components, anchorages, and other building elements.
   8. Movement: Allow for movement between storefront and adjacent construction, without damage to components or deterioration of seals.
   9. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
   10. Maintain continuous air barrier and/or vapor retarder seal throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel, and heel bead of glazing compound.
   11. Preparation for Window Treatments: Provide reinforced interior horizontal head rail.

B. Performance Requirements
   1. Wind Loads: Design and size components to withstand the specified load requirements without damage or permanent set, when tested in accordance with ASTM E330/E330M, using loads 1.5 times the design wind loads and 10 second duration of maximum load.
      a. Design Wind Loads: Comply with requirements of ASCE 7.
      b. Member Deflection: Limit member deflection to flexure limit of glass in any direction, with full recovery of glazing materials.
   2. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on interior face, when tested in accordance with ASTM E331 at pressure differential of 8 psf.
   3. Air Leakage: 0.06 cfm/sq ft maximum leakage of storefront wall area when tested in accordance with ASTM E283/E283M at 1.57 psf pressure difference.
   4. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.

2.03 COMPONENTS

A. Aluminum Framing Members: Tubular aluminum sections, drainage holes and internal weep drainage system.
   1. Glazing Stops: Flush.
   2. Cross-Section: As indicated on drawings.
   3. Structurally Reinforced Members: Extruded aluminum with internal reinforcement of structural steel member.

B. Glazing: See Section 088000.

C. Infill Panels: Insulated, aluminum, with edges formed to fit glazing channel and sealed.
   1. Total Nominal Thickness: 1 inch.
   2. Core: Rigid expanded polystyrene insulation core with R-value of 24.
   3. Regulatory Compliance:
      a. Missile Impact Rating: Large and small missile impact resistant.
   4. Finish: Same as storefront.
   5. Products:
      a. Nudo Products, Inc; Endurex 500: www.nudo.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

D. Swing Doors: Glazed aluminum.
   1. Thickness: 1-3/4 inches.
   2. Top Rail: 6 inches wide.
   3. Vertical Stiles: 6 inches wide.
   4. Bottom Rail: 12 inches wide.
   5. Glazing Stops: Square.
   6. Finish: Same as storefront.

E. SunShade: Shop fabricated, shop finished, extruded aluminum outriggers, louvers, and fascia, free of defects impairing strength, durability or appearance.
   1. Products:
      a. Same as manufacturer of storefront system.
      b. Substitutions: See Section 016000 - Product Requirements
   2. SunShade Basis of Design Product:
      a. Kawneer Company, Inc.
         1) Versoleil® Sunshade - Outrigger System
   3. Anchored directly to the vertical curtain wall mullions.
   4. Finish: Same as storefront mullion sections.
   5. Profile & Sizes: As indicated on drawings.
   6. Fasteners and Accessories:
      a. Nonmagnetic stainless steel to be non-corrosive and compatible with aluminum members, anchors, and other components.
      b. Where exposed, fasteners and accessories must be stainless steel.
   7. Perimeter Anchors:
      a. When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M).

B. Sheet Aluminum: ASTM B209/B209M.

C. Structural Steel Sections: ASTM A36/A36M; galvanized in accordance with requirements of ASTM A123/A123M.

D. Structural Steel Sections: ASTM A36/A36M; shop primed.

E. Fasteners: Stainless steel.

F. Exposed Flashings: Aluminum sheet, 20 gauge, 0.032 inch minimum thickness; finish to match framing members.

G. Concealed Flashings: Stainless steel, 26 gauge, 0.0187 inch minimum thickness.

H. Sill Flashing Sealant: Elastomeric, silicone or polyurethane, compatible with flashing material.

I. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

J. Shop and Touch-Up Primer for Steel Components: Zinc oxide, alkyd, linseed oil primer appropriate for use over hand cleaned steel.

K. Touch-Up Primer for Galvanized Steel Surfaces: SSPC-Paint 20, zinc rich.

2.05 FINISHES

A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils thick.

B. Color: As indicated on drawings.

C. Color: As selected by Architect from manufacturer's standard range.

2.06 HARDWARE

A. For each door, include weatherstripping and sill sweep strip.

B. Other Door Hardware: See Section 087100.

C. Weatherstripping: Wool pile, continuous and replaceable; provide on all doors.

D. Sill Sweep Strips: Resilient seal type, retracting, of neoprene; provide on all doors.

E. Threshold: Extruded aluminum, one piece per door opening, ribbed surface; provide on all doors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other work.

B. Verify that storefront wall openings and adjoining water-resistive and/or air barrier seal materials are ready to receive work of this section.

3.02 INSTALLATION

A. Install wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Where fasteners penetrate sill flashings, make watertight by seating and sealing fastener heads to sill flashing.

H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Set thresholds in bed of sealant and secure.

J. Install hardware using templates provided.
   1. See Section 087100 for hardware installation requirements.

K. Install glass using glazing method required to achieve performance criteria; see Section 088000.

L. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet non-cumulative or 0.06 inch per 10 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

3.04 FIELD QUALITY CONTROL

A. Provide services of storefront manufacturer's field representative to observe for proper installation of system and submit report.

B. See Section 014000 – Quality Requirements, for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.

C. Water-Spray Test: Provide water spray quality test of installed storefront components in accordance with AAMA 501.2 during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as indicated on drawings.
   2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.

D. Provide field testing of installed storefront system by independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as indicated on drawings.
   2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
   3. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf.
      a. Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.
   4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.
      a. Maximum allowable rate of air leakage is 0.09 cfm/sq ft.

E. Repair or replace storefront components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

A. Adjust operating hardware and sash for smooth operation.

3.06 CLEANING

A. Remove protective material from pre-finished aluminum surfaces.

B. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, and take care to remove dirt from corners and to wipe surfaces clean.

C. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.07 PROTECTION

A. Protect installed products from damage until Date of Substantial Completion.

END OF SECTION

SECTION 084413
GLAZED ALUMINUM CURTAIN WALLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Aluminum-framed curtain wall, with vision glazing and infill panels.

B. Column covers.

C. Firestopping between curtain wall and edge of floor slab.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Weld plates embedded in concrete for attachment of anchors.

C. Section 051200 - STRUCTURAL STEEL FRAMING: Steel attachment members.

D. Section 055000 - METAL FABRICATIONS: Steel attachment devices.

E. Section 072500 - Weather Barriers: Sealing framing to water-resistive barrier installed on adjacent construction.

F. Section 078400 - FIRESTOPPING: Firestop at system junction with structure.

G. Section 079200 - JOINT SEALANTS: Sealing joints between frames and adjacent construction.

H. Section 085113 - Aluminum Windows: Operable sash within glazing system.

I. Section 088000 - Glazing.

1.03 REFERENCE STANDARDS

A. AAMA 501.1 - Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure; 2017.

B. AAMA 501.4 - Recommended Static Test Method for Evaluating Window Wall, Curtain Wall and Storefront Systems Subjected to Seismic and Wind-Induced Inter-Story Drift; 2018.

C. AAMA 503 - Voluntary Specification for Field Testing of Newly Installed Storefronts, Curtain Walls and Sloped Glazing Systems; 2014.

D. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum; 2025.

E. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

F. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

A. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

B. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

C. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

D. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

E. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

F. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2015 (Reapproved 2022).

G. ASTM C793 - Standard Test Method for Effects of Laboratory Accelerated Weathering on Elastomeric Joint Sealants; 2023.

H. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

I. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2023.

J. ASTM C1135 - Standard Test Method for Determining Tensile Adhesion Properties of Structural Sealants; 2019 (Reapproved 2024).

K. ASTM C1184 - Standard Specification for Structural Silicone Sealants; 2023.

L. ASTM C1249 - Standard Guide for Secondary Seal for Sealed Insulating Glass Units for Structural Sealant Glazing Applications; 2018 (Reapproved 2023).

M. ASTM C1401 - Standard Guide for Structural Sealant Glazing; 2023.

N. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

O. ASTM E283/E283M - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Skylights, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen; 2019.

P. ASTM E330/E330M - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference; 2014 (Reapproved 2021).

Q. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

R. ASTM E413 - Classification for Rating Sound Insulation; 2022.

S. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

T. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate with installation of other components that comprise the exterior enclosure.

B. Preinstallation Meeting: Conduct a preinstallation meeting one week before starting work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide component dimensions, describe components within assembly, anchorage and fasteners, internal drainage details, glazing, and infill.

C. Shop Drawings: Indicate system dimensions, framed opening requirements and tolerances, affected related Work, expansion and contraction joint location and details, and field welding required.

D. Shop Drawings: Provide details of proposed structural sealant glazing (SSG) and weather sealant joints indicating dimensions, materials, bite, thicknesses, profile, and support framing.

E. Samples: Submit two samples 12" by 12" inches in size illustrating finished aluminum surface, glazing, infill panels, and glazing materials.
   1. Full-size components must indicate details of joinery and glazing.

F. Manufacturer's Certificate: Certify that the products supplied meet or exceed the specified requirements.

G. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.

H. Structural Sealant Glazing (SSG): Submit product data and calculations showing compliance with performance requirements.

I. Test Reports: provide test results for glazed aluminum curtain walls. Submit results of full-size mock-up testing. Test reports must be based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency.
   1. Test reports must indicate compliance with performance requirements.

J. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

K. Manufacturer's Qualification Statement.

L. Installer's Qualification Statement.

M. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Design curtain wall and its structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the State in which the Project is located.

B. Verify that each component is appropriate for use in structural sealant glazing (SSG) application in regards to at least the following properties: size, shape, dimensions, material, durability, storage conditions, and color.

C. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with not less than five years of documented experience.
   1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
      a. Insulating Glass Certification Council (IGCC).

D. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

E. Pre-installation Conference:
   1. Conduct conference at project site to comply with requirements in Division 01 Project management and coordination section. Attendence by general contractor and curtain wall installation sub-contractor is required.

1.07 MOCK-UPS

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Construct mock-up indicating each component being used on the project. Assemble to illustrate component assembly including glazing materials, weep drainage system, attachments, anchors, and perimeter sealant.

C. Locate where directed.

D. Mock-up may remain as part of work.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Handle products of this section in accordance with AAMA CW-10.

B. Protect finished aluminum surfaces with wrapping. Do not use adhesive papers or sprayed coatings that bond to aluminum when exposed to sunlight or weather.

1.09 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F. Maintain this minimum temperature during and 48 hours after installation.

1.10 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units. Complete forms in Owner's name and register with installer.

C. Finish Warranty: Provide 5-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with warrantor.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

C. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

D. Glazed Aluminum Curtain Walls Manufacturers:
   1. Kawneer North America: www.kawneer.com/#sle.
   2. Basis-of-Design Product.
      a. Kawneer Company Inc.
         1) CW 1: 1600 Wall System™1 Curtain Wall
            (a) Sightline: 2-1/2" (63.5)
            (b) Outside glazed pressure plate format.
            (c) System depth: 6” (152.4) for 1" (25.4) insulating glazing.
      b. Subject to compliance with requirements, provide a comparable product by the following.
         1) YKK AP Corp.
         2) EFCO Corporation.
      c. Substitutions: Refer to Section 01 6000 for procedures and submission requirements.
   3. Substitutions: See Section 016000 - Product Requirements.

2.02 CURTAIN WALL

A. Aluminum-Framed Curtain Wall: Factory fabricated, factory finished aluminum framing members with infill, and related flashings, anchorage and attachment devices.
   1. Inside glazed, with pressure plate and mullion cover.
   2. Fabrication Method: Field fabricated stick system.
   3. Glazing Method: Field glazed system.
   4. Finish: Class I natural anodized.
      a. Factory finish surfaces that will be exposed in completed assemblies.
      b. Coat concealed metal surfaces that will be in contact with cementitious materials or dissimilar metals with bituminous paint.
   5. Provide flush joints and corners, weathersealed, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for imposed loads.
   6. Construction: Eliminate noises caused by wind and thermal movement, prevent vibration harmonics, and prevent "stack effect" in internal spaces.
   7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   8. Maintain continuous air barrier and/or vapor retarder seal throughout assembly, primarily in line with inside pane of glazing and inner sheet of infill panel and heel bead of glazing compound.

B. Structural Performance Requirements: Design and size components to withstand the following load requirements without damage or permanent set.
   1. Design Wind Loads: Comply with Design Crieria as indicated on drawings .
      a. Measure performance by testing in accordance with ASTM E330/E330M, using test loads equal to 1.5 times the design wind loads and 10 second duration of maximum pressure.
      b. Member Deflection: For spans less than 13 feet 6 inches, limit member deflection to flexure limit of glass in any direction, and maximum of 1/175 of span or 3/4 inch, whichever is less and with full recovery of glazing materials.
      c. Member Deflection: For spans over 13 feet 6 inches and less than 40 feet, limit member deflection to flexure limit of glass in any direction, and maximum of 1/240 of span plus 1/4 inch, with full recovery of glazing materials.
   2. Seismic Loads: Design and size components to withstand seismic loads and sway displacement in accordance with requirements of ASCE 7.
   3. Interstory Differential Lateral Movement: Meeting pass/fail criteria of AAMA 501.4 for Use Group I, Standard Occupancy, when tested at design displacement of 0.010 times greater adjacent story height, maximum, and 1.5 times design displacement, through three complete cycles.
   4. Wind-Borne-Debris Resistance: Identical full-size glazed assembly without auxiliary protection tested in accordance with ASTM E1886 and in formation in ASTM 1996. for Large and Small Missile impact and pressure cycling at design wind pressure
      a. Large missile impact ; for aluminum framed system located within 30 feet of grade.
      b. Small missle impact; for aluminum framed systesms located above 30 feet of grade.
   5. Movement: Accommodate the following movement without damage to components or deterioration of seals:
      a. Expansion and contraction caused by 180 degrees F surface temperature.

b. Expansion and contraction caused by cycling temperature range of 170 degrees F over a 12 hour period.
c. Movement of curtain wall relative to perimeter framing.
d. Deflection of structural support framing, under permanent and dynamic loads.

6. Test Performance: No buckling, stress on glass; sealant failure; excess stress on framing, anchors and fasteners; or reduction of performance when tested in accordance with AAMA 501.5.

C. Water Penetration Resistance on Manufactured Assembly: No uncontrolled water on indoor face when tested as follows:
1. Test Pressure Differential: 15 psf.
2. Test Method: ASTM E331.
3. Test Method: AAMA 501.1.

D. Air Leakage: 0.06 cfm/sq ft maximum leakage of wall area when tested in accordance with ASTM E283/E283M at 6.24 psf pressure difference across assembly.

E. Thermal Performance Requirements:
1. Condensation Resistance Factor of Framing: 50, minimum, measured in accordance with AAMA 1503.

F. Thermal Transmittance (U-factor) Physical Test
1. Thermal transmittance test reuslts in accoradance with AAMA 1503 are based on 1-1/8" (28.6 mm) low- emissivity coated glass insulating unit, e=0.04 #2, air filled with aluminum spacer.

G. Thermal Transmittance (U-Factor) Simulation
1. When simulated using NFRC 100 or AAMA 507, the U-factor shall not be more than 0.27 Btu/(hr-ft2x deg F)

H. Condensation Resistance Factor (CRF)
1. When tested using AMA 1503, the CRF frame and the CRF Glass (with low-emissivity glazing) shall not be less than 78 and 61 respectively.

I. Solar Heat Gain Coefficient
1. Fixed glazing and framing areas shall have a solar heat gain coefficient of no greater than 0.33 as determined according to NFRC 200 and the ECCNY 2025.

J. Acoustical Performance Requirements:
1. Sound Attenuation: STC of 37, minimum, from exterior to interior.
2. Test Method: ASTM E90, with calculation in accordance with ASTM E1425.

2.03 COMPONENTS

A. Aluminum Framing Members:
1. Manufacturer's standard extruded or formed aluminum members of thikness required and reinforced as required to support imposed loads.

B. Glazing: See Section 088000.

C. Curtain Wall Cover: Part No. 832-985

2.04 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M) 6063-T6 alloy and temper.

B. Sheet Aluminum: ASTM B209/B209M.

C. Fasteners: Stainless steel; type as required or recommended by curtain wall manufacturer.

D. Anchors, Clips, and Accessories:
   1. Aluminum, nonmagnetic stainless steel or zinc-coated steel or iron comlying with ASTM B633 for SC 3 severe service conditions.

E. Reinforcing Members:
   1. Aluminum, nonmagnetic stainless steel ornickel/chrome-plated steel comlying with ASTM B456 for SC 3 severe service conditions or zinc-coated steel or iron comlying with ASTM B633 for SC 3 severe service conditions.

F. Firestopping: See Section 078400.

G. Structural Sealant Glazing (SSG) Adhesive: Neutral curing, silicone sealant formulated for SSG applications in compliance with ASTM C1184 and structural glazing industry guidelines, ASTM C1401.
   1. SSG adhesive in compliance with ASTM C920; Type S - Single-component, Grade NS, Class 50, Use NT, G, and A.
   2. Ultimate Tensile Strength: Minimum of 50 psi as determined by test method ASTM C1135 under the following conditions.
      a. Exposure to air temperatures of 190 degrees F and minus 20 degrees F.
      b. Water immersion for seven (7) days, minimum.
      c. Exposure to weathering for 5,000 hours, minimum.
   3. Sealant Design Tensile Strength: 20 psi, maximum.
   4. Hardness: 20 to 60 with Type A-2 durometer in compliance with test method ASTM C661.
   5. Shelf Life: Six (6) months, minimum.
   6. Color: Black.
   7. Volatile Organic Compound (VOC) Content: Less than 20 g/l.
   8. SSG sealant tested for compatibility with glazing accessories in compliance with ASTM C1087, tested for accelerated weathering in compliance with ASTM C793, and in compliance with insulating glass secondary sealant design standards of ASTM C1249.
   9. Manufacturers:
      a. Dow; DOWSIL 121 Structural Glazing Sealant: www.dow.com/#sle.
      b. Dow; DOWSIL 983 Structural Glazing Sealant: www.dow.com/#sle.
      c. Tremco Inc: www.tremcosealants.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.

H. Glazing Gaskets: Type to suit application to achieve weather, moisture, and air infiltration requirements.

I. Glazing Accessories: See Section 088000.

2.05 FINISHES

A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

B. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42 Integrally colored anodic coating not less than 0.7 mils thick.

C. Color: To be selected by Architect from manufacturer's standard range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify dimensions, tolerances, and method of attachment with other related work.

B. Verify that curtain wall openings and adjoining water-resistive and air barrier seal materials are ready to receive work of this section.

C. Verify that anchorage devices have been properly installed and located.

3.02 INSTALLATION

A. Install curtain wall system in accordance with manufacturer's instructions.

B. Attach to structure to permit sufficient adjustment to accommodate construction tolerances and other irregularities.

C. Provide alignment attachments and shims to permanently fasten system to building structure.

D. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.

E. Provide thermal isolation where components penetrate or disrupt building insulation.

F. Install sill flashings. Turn up ends and edges; seal to adjacent work to form water tight dam.

G. Install firestopping at each floor slab edge.

H. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Pressure Plate Framing: Install glazing and infill panels using exterior dry glazing method; see Section 088000.

J. Structural Sealant Glazing (SSG) Adhesive: Install structural sealant glazing adhesive and weatherseal sealant in accordance with manufacturer's instructions.

K. Touch-up minor damage to factory applied finish; replace components that cannot be satisfactorily repaired.

3.03 TOLERANCES

A. Maximum Variation from Plumb: 0.06 inch per 3 feet noncumulative or 0.5 inches per 100 feet, whichever is less.

B. Maximum Misalignment of Two Adjoining Members Abutting in Plane: 1/32 inch.

C. Sealant Space Between Curtain Wall Mullions and Adjacent Construction: Maximum of 3/4 inch and minimum of 1/4 inch.

3.04 FIELD QUALITY CONTROL

A. Provide services of curtain wall manufacturer's field representative to observe for proper installation of system and submit report.

B. See Section 014000 – Quality Requirements, for independent field testing and inspection requirements, and requirements for monitoring quality of specified product installations.

C. Provide field testing of installed curtain wall system by AAMA accredited independent laboratory in accordance with AAMA 503 during construction process and before installation of interior finishes.
   1. Perform a minimum of two tests in each designated area as directed by Architect.
   2. Conduct tests in each area prior to 10 percent and 50 percent completion of this work.
   3. Field test for water penetration in accordance with ASTM E1105 with uniform static air pressure difference (Procedure A) not less than 4.18 psf.
      a. Maximum allowable rate of water penetration in 15-minute test is 0.5 ounce that is not contained in an area with provisions to drain to exterior, or collected on surface of interior horizontal framing member.

4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.
    a. Maximum allowable rate of air leakage is 1.5 times specified rate of 0.09 cfm/sq ft.

D. Repair or replace curtain wall components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures for additional requirements.

B. Remove protective material from pre-finished aluminum surfaces.

C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths, take care to remove dirt from corners, and wipe surfaces clean.

D. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

3.06 PROTECTION

A. Protect installed products from damage untils substantial completion is determined by the Architect.

END OF SECTION

SECTION 085113
ALUMINUM WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Extruded aluminum windows with fixed sash, operating sash, infill panels, and double hung.

B. Factory glazing.

C. Operating hardware.

D. Insect screens.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 055000 - METAL FABRICATIONS: Steel lintels.

C. Section 061000 - ROUGH CARPENTRY: Wood perimeter shims.

D. Section 072500 - Weather Barriers: Sealing frame to water-resistive barrier installed on adjacent construction.

E. Section 079200 - JOINT SEALANTS: Sealing joints between window frames and adjacent construction.

F. Section 088000 - Glazing.

1.03 REFERENCE STANDARDS

A. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products; 2021.

B. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document); 2015.

C. AAMA 611 - Specification for Anodized Architectural Aluminum; 2024.

D. AAMA 612 - Voluntary Specification, Performance Requirements, and Test Procedures for Combined Coatings of Anodic Oxide and Transparent Organic Coatings on Architectural Aluminum; 2020, with Errata (2022).

E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections; 2009.

F. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site; 2015.

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights; 2022, with Errata (2023).

B. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

C. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

D. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

E. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

F. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

G. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

H. ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference; 2000 (Reapproved 2016).

I. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors; 2002 (Reapproved 2018).

J. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference; 2015 (Reapproved 2023).

K. ASTM E1332 - Standard Classification for Rating Outdoor-Indoor Sound Attenuation; 2022.

L. ASTM E2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights; 2023.

M. ASTM F588 - Standard Test Methods for Measuring the Forced Entry Resistance of Window Assemblies, Excluding Glazing Impact; 2017 (Reapproved 2023).

N. Energy Conservation Code of New York State - 2025

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Include component dimensions, information on glass and glazing, internal drainage details, and descriptions of hardware and accessories.

C. Shop Drawings: Indicate opening dimensions, elevations of different types, framed opening tolerances, anchorage locations, and installation requirements.

D. Samples:
   1. Framing: Two samples, 12 by 12 inch in size illustrating typical corner construction, accessories, and finishes.
   2. Sashes: Two samples, 12 by 12 inch in size illustrating typical corner construction, accessories, and finishes.
   3. Operating Hardware: Two samples of each type and finish.

E. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
   1. Evidence of AAMA Certification.
   2. Evidence of CSA Certification.
   3. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.

F. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.

G. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.

H. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.

I. Manufacturer's qualification statement.

J. Installer's qualification statement.

K. Specimen warranty.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of type specified and with at least five years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of AAMA CW-10.

B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.08 FIELD CONDITIONS

A. Do not install sealants when ambient temperature is less than 40 degrees F.

B. Maintain this minimum temperature during and 24 hours after installation of sealants.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Manufacturer Warranty: Provide 5-year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units. Complete forms in Owner's name and register with manufacturer.

D. Manufacturer Warranty: Provide 20-year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

C. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

D. Basis of Design:

E. Aluminum Window Manufacturers:
   1. Kawneer Architectural Aluminum Windows; Series AA 4325 Ultra Thermal Windows: www.kawneer.com - fixed, casement, projected and infill panels.

2. Kawneer Architectural Aluminum Window; Series AA5450 Ultra Thermal Standard Face - Double hung, fixed and infill panels.
3. Substitutions: See Section 016000 - Product Requirements.

2.02 BASIS OF DESIGN - AW PERFORMANCE CLASS WINDOWS

A. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 having Performance Class of AW, and Performance Grade of 80. AP-AW80

B. Fixed, Thermally-Broken: 3-1/4" deep frame
   1. Basis of Design: Kawneer Series AA 4325 Ultra Thermal.

C. Projected, Face of Sash and Frame in Approximately Same Plane:3-1/4" deep frame
   1. Basis of Design: Kawneer AA 4325 Ultra Thermal.

D. Hung Windows, Vertically Sliding; with Matching Fixed Units: AW-PG65-H, 4-5/8" frame depth, thermally broken.
   1. Basis of Design: Kawneer Series AA 5450 Ultra Thermal.

E. Substitutions: See Section 016000 - Product Requirements.
   1. For any product not identified as "Basis of Design", submit information as specified for substitutions.

2.03 ALUMINUM WINDOWS

A. Aluminum Windows: Extruded aluminum frame and sash, factory fabricated, factory finished, with operating hardware, related flashings, and anchorage and attachment devices.
   1. Frame Depth: 3 1/4 inch. and 4-5/8 for double hung.
   2. Operable Units: Double weatherstripped.
   3. Provide factory-glazed units.
   4. Fabrication: Joints and corners flush, hairline, and weatherproof, accurately fitted and secured; prepared to receive anchors; fasteners and attachments concealed from view; reinforced as required for operating hardware and imposed loads.
   5. Perimeter Clearance: Minimize space between framing members and adjacent construction while allowing expected movement.
   6. Movement: Accommodate movement between window and perimeter framing and deflection of lintel, without damage to components or deterioration of seals.
   7. System Internal Drainage: Drain to the exterior by means of a weep drainage network any water entering joints, condensation occurring in glazing channel, and migrating moisture occurring within system.
   8. Thermal Movement: Design to accommodate thermal movement caused by 180 degrees F surface temperature without buckling stress on glass, joint seal failure, damaging loads on structural elements, damaging loads on fasteners, reduction in performance or other detrimental effects.

B. Fixed, Non-Operable Type:
   1. Construction: Thermally broken.
   2. Glazing: Double; clear; low-e.

C. Outswinging Casement Type:
   1. Construction: Thermally broken.
   2. Provide screens.
   3. Glazing: Double; clear; low-e.

D. Double-Hung Type:

1. Construction: Thermally broken.
2. Provide screens.
3. Glazing: Double; clear; low-e.

2.04 PERFORMANCE REQUIREMENTS

A. Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:
   1. Performance Class (PC): AW.
   2. Performance Grade (PG): 80-C, with minimum design pressure (DP) of 80 psf.

B. Member Deflection: Limit member deflection to 1/175 in any direction, with full recovery of glazing materials.

C. Water Leakage: No uncontrolled leakage on interior face when tested in accordance with ASTM E331 at differential pressure of 15 psf.

D. Air Leakage: 0.1 cfm/sq ft maximum leakage per unit area of outside window frame dimension when tested at 6.24 psf pressure difference in accordance with ASTM E283/E283M.

E. Condensation Resistance Factor of Frame: 50, measured in accordance with AAMA 1503.

F. Overall Thermal Transmittance (U-value): 0.34 for fixed assemblies,, 0.43 for operable assemblies maximum, including glazing, measured on window sizes required for this project as per the ECCNY 2025.

G. Fenestration Assembly Thermal Transmittance (U-value): Comply with ASHRAE Std 90.1 I-P for building envelope requirements for applicable climate zone.

H. Forced Entry Resistance: Tested to comply with ASTM F588 requirements for performance level of Grade 10 for specific window style required.

I. Acoustic Performance: Minimum outdoor-indoor transmission class (OITC) rating of 34, when tested in accordance with ASTM E90 and ASTM E1332.

2.05 COMPONENTS

A. Aluminum Extrusions: Alloy and temper recommended by aluminum window manufacturer for strength, corrosion resistance, and application of required finish.

B. Thermal Barrier: Structural thermal break made with glass-reinforced nylon strips, (closed cell pvc foam strips) installed by the window manufacturer in teh frame and vent members.

C. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strenght to withstand design pressure indicated.

D. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors and other components..

E. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/shrome-plated steel complying with ASTM B 456 for Type SC3 servere srevice conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strenght to withstand design pressure indicated.

F. Glazing: See Section 088000.

G. Insulated Infill Panel:
   1. Outer Face: 3/32 inch thick aluminum.
   2. Core: Glass fiber insulation core 2.5 inch thick with R-value of ____.
   3. Inner Face: 3/32 inch thick aluminum.

H. Insect Screens: Extruded aluminum frame with mitered and reinforced corners; screen mesh taut and secure to frame; secured to window with adjustable hardware allowing screen removal without use of tools.
   1. Hardware: Spring loaded steel pins; four per screen unit.
   2. Screen Mesh: Vinyl-coated fiberglass, window manufacturer's standard mesh.
   3. Frame Finish: Same as frame and sash.

I. Operable Sash Weatherstripping: As recommended by manufacturer for; permanently resilient, profiled to achieve effective weather seal.

J. Fasteners: Stainless steel.

K. Glazing Materials: Factore glazing as required and specified in Section 088000.

L. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.

2.06 MATERIALS

A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.

B. Sheet Aluminum: ASTM B209/B209M, 5005 alloy, H12 or H14 temper.

C. Concealed Steel Items: Profiled to suit mullion sections; galvanized in accordance with ASTM A123/A123M.

2.07 HARDWARE

A. General: Provide manufacture's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum; designed to smoothly operate, tightly close, and securely lock aluminum windows, and sized to accomodate sash weight and dimensions.

B. Sash lock: Lever handle with cam lock. and keeper.

C. Operator: Lever action handle fitted to projecting sash arms with limit stops.

D. Projecting Sash Arms: Cadmium plated steel, friction pivot joints with nylon bearings, removable pivot clips for cleaning.

E. Window Opening Control Devices (WOCD): Provide operable window sash hardware that limits openings to only allow passage of 4 inch diameter rigid sphere or less, and are easily releasable to fully open without use of keys, tools, or special knowledge.

F. Pulls: Manufacturer's standard type.

G. Bottom Rollers: Stainless steel, adjustable.

H. Limit Stops: Resilient rubber. Limit clear opening to 4" for ventilation. Opening of Rescue Windows shall not be limited.

2.08 ACCESSORIES

A. Spacers, setting Blocks, Gaskets adn Bond Breakers: Manufacturer's standard permanent, non-migrating types in hardness recommended by manufacture, compatible with sealants, and suitable for system performance requiremetns.

B. Framing system gaskets, sealant, and jont fillers as recommended by manufacturer for joint type.

C. Perimieter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic actin.

D. Trim:

1. Material: Extruded aluminum; nominal .062" wall with exposed surfaces finished to match window color and finish performance; concealed fasteners, required weather seals, designed for unrestricted expansion and contraction.
2. Exterior: wrap around panning
3. Interior: two-piece snap trim.

2.09 FABRICATION

A. Framing Members, Generaal: Fabricate components that when assembled have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fit joints, make joints flush, hairlaine and weatherproof.
   3. Means to drain water passiong joints, condensation within framing members, and moisture migration within the system to exterior.
   4. Physical and thermal isolation of glazing from framing members.
   5. Accomodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   6. Provisions for field replacement of glazing.
   7. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

B. Frame and Vent: All members double tubular; corners miters, double gusset reinforced, factory-sealed sith sealant conforming to AAMA 800-07, and crimped.

C. Fabricate aluminum windows in sizes indicated. Include a complete system for assembling components and anchoring windows.

D. Fabricate aluminum windows that are re-glazable without dismantling sash or framing.

E. Thermally Improved Construction: Fabricate aluminum windows with an integral, concealed, low-conductance thermal barrier; located between exterior materials and window members exposed on interior side; in a manner that eliminates metal-to-metal contact. Thermal barriers shall be designed in accordance wtih AAMA TIR A8.
   1. Structural thermal break made with glass-reinforced nylon strips installed by the window manufacturer in the frame and vent members.

F. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tollerances and provide for movement of window units due to thermal expanstion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.

G. Sub Frames: Provide sub frames with anchors for window units as shown, of profile and dimensions indicated but not less than 0.093-inch thick extruded aluminum. Miter or cope corners and join with concealed mechanical joint fasteners. Finish to match window units. Provide sub frames capable of withstanding design loads of window units.

H. Factory-Glazed Fabrication: Glaze aluminum windows in the factory where practical and possible for applications indicated. Comply with requiremetns in Division 08 and with AAMA/WDMA/CSA 101/I.S.2/A440 (NAFS).

I. Glazing Stops: Provide snap-on glazing stops coordinated with Division 08 adn glazing system indicated. Provide glazing stops to match frame.

2.10 FINISHES

A. Class I Color Anodized Finish: AAMA 611 AA-M12C22A42, integrally colored anodic coating not less than 0.7 mil thick.

B. Finish Color: As selected by Architect from manufacturer's full range.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that wall openings and adjoining water-resistive barrier materials are ready to receive aluminum windows; see Section 07.

3.02 PRIME WINDOW INSTALLATION

A. Install windows in accordance with manufacturer's instructions.

B. Install window assembly in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.

C. Install windows in accordance with ASTM E2112.

D. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

E. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

F. Install sill and sill end angles.

G. Set sill members and sill flashing in continuous bead of sealant.

H. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

I. Install operating hardware not pre-installed by manufacturer.

J. Install glass and infill panels in accordance with requirements; see Section 088000.

3.03 TOLERANCES

A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10 ft, whichever is less.

3.04 FIELD QUALITY CONTROL

A. Provide services of aluminum window manufacturer's field representative to observe for proper installation of system and submit report.

B. Provide field testing of installed aluminum windows by independent laboratory in accordance with AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation of interior finishes.
   1. Perform tests on three individual windows in designated locations as directed by Architect.
   2. Conduct tests on individual windows prior to 5 percent, 50 percent, and 90 percent completion of this work.
   3. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static air pressure difference; test pressure shall not be less than 1.9 psf.
   4. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure difference of 1.57 psf.

C. Repair or replace fenestration components that have failed designated field testing, and retest to verify performance complies with specified requirements.

3.05 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight closure.

3.06 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal for additional requirements.

B. Remove protective material from factory finished aluminum surfaces.

C. Wash surfaces by method recommended and acceptable to window manufacturer; rinse and wipe surfaces clean.

D. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 & 610.

E. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant and window manufacturer.

END OF SECTION

SECTION 087100
DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Requirements:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
2. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
3. Division 06 Section "Rough Carpentry"
4. Division 06 Section "Finish Carpentry"
5. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
6. Division 08 Sections:
   a. "Metal Doors and Frames"
   b. "Flush Wood Doors"
   c. "Stile and Rail Wood Doors"
   d. "Interior Aluminum Doors and Frames"
   e. "Aluminum-Framed Entrances and Storefronts"
   f. "Special Function Doors"
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
   a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
   b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
   a. Wiring Diagrams: For power, signal, and control wiring and including:
      1) Details of interface of electrified door hardware and building safety and security systems.
      2) Schematic diagram of systems that interface with electrified door hardware.
      3) Point-to-point wiring.
      4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.

a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:
   a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
   b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
   c. Indicate complete designations of each item required for each opening, include:
      1) Door Index: door number, heading number, and Architect's hardware set number.
      2) Quantity, type, style, function, size, and finish of each hardware item.
      3) Name and manufacturer of each item.
      4) Fastenings and other pertinent information.
      5) Location of each hardware set cross-referenced to indications on Drawings.
      6) Explanation of all abbreviations, symbols, and codes contained in schedule.
      7) Mounting locations for hardware.
      8) Door and frame sizes and materials.
      9) Degree of door swing and handing.
      10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:
   a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
   b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
   c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
   d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
   e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
   f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:
   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
   b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:

a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
b. Catalog pages for each product.
c. Final approved hardware schedule edited to reflect conditions as installed.
d. Final keying schedule
e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
   a. Fire door assemblies, in compliance with NFPA 80.
   b. Required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
   a. For door hardware: DHI certified AHC or DHC.
   b. Can provide installation and technical data to Architect and other related subcontractors.
   c. Can inspect and verify components are in working order upon completion of installation.
   d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
   a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.

b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:
   a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
   b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware
   a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

4. Accessibility Requirements:
   a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
   a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
      1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
      2) Preliminary key system schematic diagram.
      3) Requirements for key control system.
      4) Requirements for access control.
      5) Address for delivery of keys.

2. Pre-installation Conference
   a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   b. Inspect and discuss preparatory work performed by other trades.
   c. Inspect and discuss electrical roughing-in for electrified door hardware.
   d. Review sequence of operation for each type of electrified door hardware.
   e. Review required testing, inspecting, and certifying procedures.
   f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:
   a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.

C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.

D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.07 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer’s recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with “Metal Doors and Frames”, “Flush Wood Doors”, “Stile and Rail Wood Doors” to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Ives 5BB series

2. Acceptable Manufacturers and Products:

a. Stanley

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
   a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
   a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
   a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
   a. Steel Hinges: Steel pins
   b. Non-Ferrous Hinges: Stainless steel pins
   c. Out-Swinging Exterior Doors: Non-removable pins
   d. Out-Swinging Interior Lockable Doors: Non-removable pins
   e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives
2. Acceptable Manufacturers:
   a. Select
   b. Roton

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.

5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. DCI

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide dust-proof strikes at each bottom flush bolt.

2.06 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Schlage ND series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
   a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
   b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
   c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
   d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
   e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.

3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.

2.07 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. Von Duprin 99/33A series

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturer's approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.
12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.08 ELECTRONIC ACCESS CONTROL LOCKSETS AND EXIT DEVICE TRIM

A. Manufacturers:

1. Scheduled Manufacturer and Product:
   a. Schlage AD Series

B. Requirements:

1. Provide adaptable electronic access control products that comply with the following requirements:
   a. Listed, UL 294 - The Standard of Safety for Access Control System Units.
   b. Compliant with ANSI/BHMA A156.25 Grade 1 Operation and Security.
   c. Certified to UL10C, FCC Part15, Florida Building Code Standards TAS 201 large missile impact, TAS 202 and TAS 203.
   d. Compliant with ASTM E330 for door assemblies.
   e. Compliant with ICC / ANSI A117.1, NFPA 101, NFPA 80, and Industry Canada IC.

2. Functions: Provide functions as scheduled that are field configurable without taking the adaptable electronic product off the door.
3. Emergency Override: Provide mechanical key override; cylinders: Refer to "KEYING" article, herein.
4. Levers:
   a. Provide non-handed lever trim that operates independently of non-locking levers.
   b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.

5. Features:
   a. Audible feedback that can be enabled or disabled.
   b. Tamper-Resistant Screws: Tamper torx screws on inside escutcheon for increased security.
   c. Visual tri-colored LED indicators that indicate activation, additional PIN code credential required, operational systems status, system error conditions and low power conditions.
   d. Door Position Switch
   e. Interior Cover Tamper Guard
   f. Mechanical Key Override
   g. Request to Exit
   h. Request to Enter
   i. Lock/Unlock Status

6. Credential Reader
   a. Credential Reader Configuration: Provide credential reader modules in the following configurations as indicated in door hardware sets.
   b. Credential Reader Capabilities: Provide credential readers capable of operating with the following integrated software partners.
      1) 13.56 MHz Smart card credentials:
         a) Secure section (Multi-Technology and Smartcard): Schlage MIFARE Classic, Schlage MIFARE DESFire EV1/EV3, PIV and PIV-I Compatible
         b) 13.56 MHz Serial number only (Multi-Technology and Smartcard): MIFARE, DESFire, HID iClass, MIFARE DESFire EV1/EV3
         c) 125 kHz Proximity card credentials: Schlage, XceedID, HID, GE/CASI ProxLite and AWID.
      2) Multi-Technology readers that read both 13.56 MHz Smart Cards and 125 kHz Prox cards.
      3) Dual credential reading capabilities credential card or fob and PIN.
      4) 12 button keypad with backlit buttons.

5) Magnetic Card Reader:
   a) Full insertion or swipe reader capable of reading information along full length of magnetic stripe.
   b) Magnetic card triple track reader capable of reading tracks 1, 2 or 3 per configuration in field.

7. Operation:
   a. Offline – access control rights stored on device
      1) Provide adaptable electronic access control products with the ability to be configured at door by handheld programming device the length of time device is unlocked upon access grant.
      2) Provide adaptable electronic access control products with the ability to communicate identifying information such as firmware versions, hardware versions, serial numbers, and manufacturing dates by handheld programming device.
   b. Networked – wireless
      1) Adaptable electronic access control product system interface:
      2) Adaptable electronic access control products to have real-time bidirectional communication between access control system and lock.
      3) Remote Commanding By Partner Integrated Access Control Network Software: Battery-powered lockset shall have "Wake on Radio" feature causing activation of remote, wireless access control devices, enabling activated devices to be configured, locked or unlocked from a centralized location within 10 seconds or less without user interface at the device.
      4) Local Commanding: Provide adaptable electronic access control product with the ability to be configured, locked or unlocked locally by handheld programming device, in real-time.
      5) When Utilized with Access Control Network Software with Remote Commanding Capability: Provide adaptable electronic access control product with the ability to be remotely locked down or unlocked within 10 seconds or less while battery powered without user interface at the device.
      6) Real-time response of battery powered device capable of being configured at door by handheld programming device and remotely by Partner integrated software.
      7) Upon Loss of Power to Device: Provide adaptable electronic access control product with the ability to manage access control offline in one of three methods below that can be configured in the field at device by handheld programming device and remotely by Partner integrated software:
         a) Fail locked (secured)
         b) Fail unlocked (unsecured)
         c) Fail As-Is
      8) Upon Loss of Communication Between Device and Network: Provide adaptable electronic access control product with the ability to manage access control offline in one of four methods below that can be configured in the field at lockset by handheld programming device and remotely by Partner integrated software:
         a) Fail locked (secured)
         b) Fail unlocked (unsecured)
         c) Fail As-Is
         d) Fail to Degraded/cache mode utilizing cache memory with following selectable options:
            i. Grant access up to the last 1,000 unique previously accepted User IDs.
            ii. Grant access up to the last 1,000 unique previously accepted facility/site codes
            iii. Remove from cache previously stored User IDs or facility/site codes that have not been presented to lock within the last 5 days.

9) Provide adaptable electronic access control product with the ability to be configured at door by handheld programming device and remotely by Partner integrated software the length of time device is unlocked upon access grant.
10) Provide adaptable electronic access control product with the ability to communicate identifying information such as firmware versions, hardware versions, serial numbers, and manufacturing dates by handheld programming device and remotely by Partner integrated software.
11) Wireless Transmission:
    a) Modulation: 900 MHz spread spectrum, direct sequence, 10 channels.
    b) Encryption: AES-128-bit Key minimum.

C. Components

1. Provide Panel Interface for adaptable electronic access control products.

2.09 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer and Product:
   a. Schlage to match existing master key system

2. Acceptable Manufacturers and Products:
   a. No Substitute

B. Requirements:

1. Provide cylinders/cores to match Owner’s existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.

2.10 KEYING

A. Scheduled System:

1. Existing factory registered system:
   a. Provide cylinders/cores keyed into Owner’s existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:
   a. Replaceable Construction Cores.
      1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
         a) 3 construction control keys
         b) 12 construction change (day) keys.
      2) Owner or Owner’s Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:
   a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

1) Master Keying system as directed by the Owner.

b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.

c. Provide keys with the following features:
   1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
   2) Patent Protection: Keys and blanks protected by one or more utility patent(s).

d. Identification:
   1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
   2) Identification stamping provisions must be approved by the Architect and Owner.
   3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
   4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
   5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.

e. Quantity: Furnish in the following quantities.
   1) Permanent Control Keys: 3.
   2) Master Keys: 6.
   3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
   4) Key Blanks: Quantity as determined in the keying meeting.

2.11 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Telkee

2. Acceptable Manufacturers:
   a. HPC
   b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
   a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
   b. Provide hinged-panel type cabinet for wall mounting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN 4010/4110/4020 series

2. Acceptable Manufacturers and Products:

a. No Substitute

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. Certify surface mounted mechanical closers to meet fifteen million (15,000,000) full load cycles. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers. When closers are parallel arm mounted, provide closers which mount within 6-inch (152 mm) top rail without use of mounting plate so that closer is not visible through vision panel from pull side.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI/BHMA Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 ELECTROMECHANICAL AUTOMATIC OPERATORS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
   a. LCN Senior Swing

2. Acceptable Manufacturers and Products:
   a. Horton 4000LE series
   b. Stanley Access Technologies M-Force

B. Requirements:

1. Provide low energy automatic operator units that are electromechanical design complying with ANSI/BHMA A156.19.
   a. Opening: Powered by DC motor working through reduction gears.
   b. Closing: Spring force.
   c. Manual, hydraulic, or chain drive closers: Not permitted.
   d. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
   e. Cover: Aluminum.

2. Provide automatic operator units complying with 2022 California Building Code Section 11B-404.2.9, Exception 2.

3. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 1 to 32 seconds, and logic terminal to interface with accessories, mats, and sensors.
4. Provide drop plates, brackets, and adapters for arms as required to suit details.
5. Provide motion sensors and/or actuator switches, and receivers for operation as specified. Provide weather-resistant actuators at exterior applications.
6. Provide key switches, with LED's, recommended and approved by manufacturer of automatic operator as required for function as described in operation description of hardware sets. Cylinders: Refer to "KEYING" article, herein.
7. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Elmes
   b. Burns

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:
   a. Glynn-Johnson

2. Acceptable Manufacturers:
   a. Rixson
   b. ABH

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.17 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.18 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
   a. Ives

2. Acceptable Manufacturers:
   a. Burns
   b. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.19 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

B. Scheduled Manufacturer:

1. Zero International

C. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.

1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
   a. Provide non-corrosive fasteners for all exterior applications.
   b. Provide security fasteners where indicated.

2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

D. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.

E. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.

1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.

F. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.

G. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.

H. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.

1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.

I. Automatic Door Bottoms:

1. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as specified in hardware sets.
2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.

J. Rain Drips:

1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.

2. Door sweeps or shoes with integral rain drip must meet ADA requirements

K. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.

1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
2. Custom Steel Doors and Frames: HMMA 831.
3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.

C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.

I. Lock Cylinders:

1. Install construction cores to secure building and areas during construction period.
2. Replace construction cores with permanent cores as indicated in keying section.
3. Furnish permanent cores to Owner for installation.

J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:

1. Conduit, junction boxes and wire pulls.
2. Connections to and from power supplies to electrified hardware.
3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
5. Connections to panel interface modules, controllers, and gateways.
6. Testing and labeling wires with Architect's opening number.

K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.

N. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

P. Thresholds:

1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.

Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

R. Perimeter Gasketing:

1. Apply to head and jamb, forming seal between door and frame.

2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.

S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items per manufacturer's instructions to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.

D. Hardware Sets:

Abbreviation	Name
GLY	Glynn-Johnson Corp
IVE	H.B. Ives
LCN	LCN Commercial Division
SCE	Schlage Electronic Security
SCH	Schlage Lock Company
VON	Von Duprin
ZER	Zero International Inc

145256 OPT0465513 Version 4

Hardware Group No. 01

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 01-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 CUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 01-2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 01-3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 01-4

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 01-5

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 01-6

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD EPT		628	IVE
1	EA	POWER TRANSFER	EPT10 CON	✓	689	VON
1	EA	STOREROOM LOCK	ND80TD TLR RX CON	✓	626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	ELECTRIC STRIKE	4211 FSE 12/24 VDC	✓	630	VON
1	EA	LOCK GUARD	LG1		630	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	SET	GASKETING	328AA-S		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED	✓		SCH
1	EA	WIRE HARNESS	CON-6W			SCH
1	EA	CARD READER	BY SECURITY	✓		
1	EA	POWER SUPPLY	BY SECURITY	✓		

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED
2.ACCESS BY KEY OR CREDENTIAL
3. KEY UNLOCKS LOCKSET
4. CARD READER RELEASES ELECTRIC STRIKE
5. DOOR CONTACT CONNECTED TO BUILDING SECURITY SYSTEM.

Hardware Group No. 01-7

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		628	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	DOOR CONTACT	7764	✓	628	SCE

Hardware Group No. 01-8

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		628	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	SET	GASKETING	328AA-S		AA	ZER
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	DOOR CONTACT	679-05HM	✓	BLK	SCE

Hardware Group No. 02

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ELEC OFFICE LOCK	AD-400-CY-50-MT-TLR-J 4AA BATTERY	✓	626	SCE
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	FSIC CORE	23-030 ICX		ORG	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 02-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ELEC OFFICE LOCK	AD-400-CY-50-MT-TLR-J 4AA BATTERY		626	SCE
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	FSIC CORE	23-030 ICX		ORG	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 03

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ELEC OFFICE LOCK	AD-400-CY-50-MT-TLR-J 4AA BATTERY		626	SCE
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	FSIC CORE	23-030 ICX		ORG	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 03-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ELEC OFFICE LOCK	AD-400-CY-50-MT-TLR-J 4AA BATTERY		626	SCE
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	FSIC CORE	23-030 ICX		ORG	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S TLR OS-OCC		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S TLR OS-OCC		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 05

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	PUSH PLATE	8200 4" X 16"		630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"		630	IVE
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 06

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 06-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	CLASSROOM LOCK	ND70TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 06-2

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	CLASSROOM LOCK	ND70TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	OH STOP	90S		652	GLY
1	EA	SURFACE CLOSER	4011		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 06-3

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	CLASSROOM LOCK	ND70TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 CUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 07

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	FIRE EXIT HARDWARE	99-L-BE-F-03		626	VON
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	FIRE/LIFE WALL MAG	SEM7840 AS REQ (12/24/120V AC/DC TRI-VOLT)	✓	689	LCN
1	EA	GASKETING	188SBK PSA		BK	ZER

OPERATIONAL DESCRIPTION: MAGNETIC HOLD OPEN TIED INTO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM ACTIVATION.

Hardware Group No. 07-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
1	EA	FIRE EXIT HARDWARE	99-L-BE-F-03		626	VON
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 08

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	112HD		628	IVE
1	EA	PANIC HARDWARE	LD-99-EO		626	VON
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER			
1	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A		A	ZER
1	EA	DOOR CONTACT	7764		628	SCE

Hardware Group No. 08-1

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	FIRE EXIT HARDWARE	99-EO-F		626	VON
1	EA	SURFACE CLOSER	4111 EDA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 09

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
1	EA	CONT. HINGE	112HD EPT			628	IVE
1	EA	POWER TRANSFER	EPT10 CON			689	VON
1	EA	ELEC PANIC HARDWARE	LD-RX-LC-99-NL-OP-110MD			626	VON
1	EA	ELECTRIC STRIKE	6111 FSE (SPECIFY VOLTAGE)			630	VON
1	EA	DOOR PULL	VR910 NL STD			630	IVE
1	EA	SURFACE CLOSER	4111 SCUSH			689	LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER				
1	EA	DOOR SWEEP	39A			A	ZER
1	EA	THRESHOLD	655A			A	ZER
1	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED				SCH
1	EA	WIRE HARNESS	CON-6W				SCH
1	EA	CARD READER	BY SECURITY				
1	EA	DOOR CONTACT	7764			628	SCE
1	EA	POWER SUPPLY	BY SECURITY				

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED
2.ACCESS BY KEY OR CREDENTIAL
3. KEY UNLOCKS LOCKSET
4. CARD READER RELEASES ELECTRIC STRIKE
5. DOOR CONTACT CONNECTED TO BUILDING SECURITY SYSTEM.

Hardware Group No. 10

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
2	EA	MANUAL FLUSH BOLT	FB358		626	IVE
1	EA	DUST PROOF STRIKE	DP2		626	IVE
1	EA	STOREROOM LOCK	ND80TD TLR		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
2	EA	OH STOP	90S		652	GLY
2	EA	SILENCER	SR64		GRY	IVE

OUT STOREROOM X MFB NO CLOSER OH

Hardware Group No. 11

Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP		652	IVE
1	EA	FIRE EXIT HARDWARE	99-L-NL-F-03		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	SURFACE CLOSER	4111 CUSH		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 12 - Not Used

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-03-499F		626	VON
2	EA	SURFACE CLOSER	4111 CUSH		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 12-1

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-03-499F		626	VON
2	EA	FIRE/LIFE CLOSER	4040SE WMS 24V/120V AC/DC AS REQ	✓	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

OPERATIONAL DESCRIPTION: HOLD OPEN CLOSER TIED INTO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM ACTIVATION.

Hardware Group No. 12-2

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-03-499F		626	VON
2	EA	SURFACE CLOSER	4111 EDA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	FIRE/LIFE WALL MAG	SEM7840 AS REQ (12/24/120V AC/DC TRI-VOLT)	✓	689	LCN
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 12-3

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-03-499F		626	VON
2	EA	SURFACE CLOSER	4111 EDA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	FIRE/LIFE WALL MAG	SEM7840 AS REQ (12/24/120V AC/DC TRI-VOLT)	✓	689	LCN
2	EA	MAGNET PART	SEM7810-517		689	LCN
1	EA	GASKETING	188SBK PSA		BK	ZER

OPERATIONAL DESCRIPTION: HOLD OPEN CLOSER TIED INTO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM ACTIVATION.

Hardware Group No. 13

Provide each DE door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5		652	IVE
2	EA	FIRE EXIT HARDWARE	9927-L-BE-F-LBRAFL-03-499F		626	VON
2	EA	SURFACE CLOSER	4111 EDA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	FIRE/LIFE WALL MAG	SEM7840 AS REQ (12/24/120V AC/DC TRI-VOLT)	✓	689	LCN
2	EA	MAGNET PART	SEM7810-517		689	LCN
1	EA	GASKETING	188SBK PSA		BK	ZER

OPERATIONAL DESCRIPTION: HOLD OPEN CLOSER TIED INTO FIRE ALARM SYSTEM TO RELEASE UPON FIRE ALARM ACTIVATION.

Hardware Group No. 14

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	CONT. HINGE	112HD EPT			628	IVE
2	EA	POWER TRANSFER	EPT10 CON			689	VON
1	EA	REMOVABLE MULLION	KR4854 STAB			689	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-EO			626	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-NL-OP-110MD			626	VON
1	EA	RIM CYLINDER	20-057 ICX FOR TRIM			626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 36-082-037 FOR MULLION			626	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037 FOR DOGGING			626	SCH
4	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM			626	SCH
1	EA	ELECTRIC STRIKE	6111 FSE (SPECIFY VOLTAGE)			630	VON
1	EA	DOOR PULL	VR910 DT STD			630	IVE
1	EA	DOOR PULL	VR910 NL STD			630	IVE
2	EA	SURFACE CLOSER	4111 SCUSH			689	LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER				
2	EA	DOOR SWEEP	39A			A	ZER
1	EA	THRESHOLD	655A			A	ZER
2	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED				SCH
2	EA	WIRE HARNESS	CON-6W				SCH
1	EA	CARD READER	BY SECURITY				
2	EA	DOOR CONTACT	7764			628	SCE
1	EA	POWER SUPPLY	BY SECURITY				

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED
2.ACCESS BY KEY OR CREDENTIAL
3. KEY UNLOCKS LOCKSET
4. CARD READER RELEASES ELECTRIC STRIKE
5. DOOR CONTACT CONNECTED TO BUILDING SECURITY SYSTEM.

Hardware Group No. 14-1

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	112HD EPT		628	IVE
2	EA	POWER TRANSFER	EPT10 CON		689	VON
1	EA	REMOVABLE MULLION	KR4854 STAB		689	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-EO		626	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-NL-OP-110MD		626	VON
1	EA	RIM CYLINDER	20-057 ICX FOR TRIM		626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 36-082-037 FOR MULLION		626	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037 FOR DOGGING		626	SCH
4	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
1	EA	ELECTRIC STRIKE	6111 FSE (SPECIFY VOLTAGE)		630	VON
1	EA	DOOR PULL	VR910 DT STD		630	IVE
1	EA	DOOR PULL	VR910 NL STD		630	IVE
1	EA	SURFACE CLOSER	4111 SCUSH		689	LCN
1	EA	SURF. AUTO OPERATOR	9542IQ NO TRACK COV RSA		ANCLR	LCN
1	EA	WEATHER RING	8310-801			LCN
2	EA	ACTUATOR, TOUCH	8310-853TWP		630	LCN
2	EA	MOUNT BOX	8310-867F			LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER			
2	EA	DOOR SWEEP	39A		A	ZER
1	EA	THRESHOLD	655A		A	ZER
2	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED			SCH
2	EA	WIRE HARNESS	CON-6W			SCH
1	EA	CARD READER	BY SECURITY			
1	EA	VIDEO INTERCOM	BY SECURITY			
2	EA	DOOR CONTACT	7764		628	SCE
1	EA	POWER SUPPLY	BY SECURITY			

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED.
2. ACCESS BY KEY OR CARD READER.
3. CARD READER RELEASED ELECTRIC STRIKE AND ENABLES EXTERIOR ACTUATOR.
4. DOOR CAN BE MANUALLY PULLED OPEN OR AUTOMATICALLY OPERATED BY PUSHING ACTUATOR WHICH SIGNALS AUTOMATIC OPERATOR TO OPEN DOOR.
5. INTERIOR ACTUATOR TO RELEASE ELECTRIC STRIKE AND SIGNAL AUTOMATIC OPERATOR TO OPEN DOOR.
6. LOCATE ACTUATORS AS DIRECTED BY ARCHITECT.

Hardware Group No. 14-2

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	CONT. HINGE	112HD EPT			628	IVE
2	EA	POWER TRANSFER	EPT10 CON		✓	689	VON
1	EA	REMOVABLE MULLION	KR4854 STAB			689	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-EO		✓	626	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-NL-OP-110MD		✓	626	VON
1	EA	RIM CYLINDER	20-057 ICX FOR TRIM			626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 36-082-037 FOR MULLION			626	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037 FOR DOGGING			626	SCH
4	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM			626	SCH
1	EA	ELECTRIC STRIKE	6111 FSE (SPECIFY VOLTAGE)		✓	630	VON
1	EA	DOOR PULL	VR910 DT STD			630	IVE
1	EA	DOOR PULL	VR910 NL STD			630	IVE
1	EA	SURFACE CLOSER	4111 SCUSH			689	LCN
1	EA	SURF. AUTO OPERATOR	9542IQ NO TRACK COV RSA		✓	ANCLR	LCN
1	EA	WEATHER RING	8310-801				LCN
2	EA	ACTUATOR, TOUCH	8310-853TWP		✓	630	LCN
2	EA	MOUNT BOX	8310-867F				LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER				
2	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED		✓		SCH
2	EA	WIRE HARNESS	CON-6W				SCH
1	EA	CARD READER	BY SECURITY		✓		
2	EA	DOOR CONTACT	7764		✓	628	SCE
1	EA	POWER SUPPLY	BY SECURITY		✓		

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED.
2. ACCESS BY KEY OR CARD READER.
3. CARD READER RELEASED ELECTRIC STRIKE AND ENABLES EXTERIOR ACTUATOR.
4. DOOR CAN BE MANUALLY PULLED OPEN OR AUTOMATICALLY OPERATED BY PUSHING ACTUATOR WHICH SIGNALS AUTOMATIC OPERATOR TO OPEN DOOR.
5. INTERIOR ACTUATOR TO RELEASE ELECTRIC STRIKE AND SIGNAL AUTOMATIC OPERATOR TO OPEN DOOR.
6. LOCATE ACTUATORS AS DIRECTED BY ARCHITECT.

Hardware Group No. 15

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5 NRP		652	IVE
1	EA	FIRE EXIT HARDWARE	9927-EO-F-LBRAFL-499F		626	VON
1	EA	FIRE EXIT HARDWARE	9927-NL-OP-F-LBRAFL-110MD-499F		626	VON
1	EA	ELEC EXIT DEVICE TRIM	AD-400-993R-50-MT-TLR-J 4AA BATTERY		626	SCE
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM		626	SCH
2	EA	SURFACE CLOSER	4111 EDA		689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS		630	IVE
2	EA	WALL STOP	WS406/407 CCV/CVX AS REQUIRED		626	IVE
1	EA	GASKETING	188SBK PSA		BK	ZER

Hardware Group No. 16

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	CONST LATCHING BOLT	FB61P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	CLASSROOM LOCK	ND70TD TLR	626	SCH
1	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM	626	SCH
2	EA	OH STOP & HOLDER	90H	652	GLY
2	EA	SILENCER	SR64	GRY	IVE

Hardware Group No. 17

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	CONT. HINGE	112HD EPT			628	IVE
2	EA	POWER TRANSFER	EPT10 CON		✓	689	VON
1	EA	REMOVABLE MULLION	KR4854 STAB			689	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-EO		✓	626	VON
1	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-NL-OP-110MD		✓	626	VON
1	EA	RIM CYLINDER	20-057 ICX FOR TRIM			626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 36-082-037 FOR MULLION			626	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037 FOR DOGGING			626	SCH
4	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM			626	SCH
1	EA	ELECTRIC STRIKE	6111 FSE (SPECIFY VOLTAGE)		✓	630	VON
1	EA	DOOR PULL	VR910 DT STD			630	IVE
1	EA	DOOR PULL	VR910 NL STD			630	IVE
2	EA	SURFACE CLOSER	4111 SCUSH			689	LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER				
2	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED		✓		SCH
2	EA	WIRE HARNESS	CON-6W				SCH
2	EA	DOOR CONTACT	7764		✓	628	SCE
1	EA	POWER SUPPLY	BY SECURITY		✓		

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED.
2. ACCESS BY KEY OR CARD READER.
3. CARD READER RELEASED ELECTRIC STRIKE AND ENABLES EXTERIOR ACTUATOR.
4. DOOR CAN BE MANUALLY PULLED OPEN OR AUTOMATICALLY OPERATED BY PUSHING ACTUATOR WHICH SIGNALS AUTOMATIC OPERATOR TO OPEN DOOR.
5. INTERIOR ACTUATOR TO RELEASE ELECTRIC STRIKE AND SIGNAL AUTOMATIC OPERATOR TO OPEN DOOR.
6. LOCATE ACTUATORS AS DIRECTED BY ARCHITECT.

Hardware Group No. 18

Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER			FINISH	MFR
2	EA	CONT. HINGE	112HD EPT			628	IVE
2	EA	POWER TRANSFER	EPT10 CON			689	VON
1	EA	REMOVABLE MULLION	KR4854 STAB			689	VON
2	EA	ELEC PANIC HARDWARE	CD-RX-LC-99-EO			626	VON
1	EA	MORTISE CYLINDER	20-061 ICX 36-083 36-082-037 FOR MULLION			626	SCH
2	EA	MORTISE CYLINDER	20-061 X XQ11-948 36-083 36-082-037 FOR DOGGING			626	SCH
3	EA	FSIC CORE	LARGE FORMAT IC CORE TO MATCH EXISTING SYSTEM			626	SCH
2	EA	DOOR PULL	VR910 DT STD			630	IVE
2	EA	SURFACE CLOSER	4111 SCUSH			689	LCN
1	EA	PERIMETER GASKETING	BY DOOR MANUFACTURER				
2	EA	DOOR SWEEP	39A			A	ZER
1	EA	THRESHOLD	655A			A	ZER
2	EA	WIRE HARNESS	CON-XX-P LENGTH AS REQUIRED				SCH
2	EA	WIRE HARNESS	CON-6W				SCH
2	EA	DOOR CONTACT	7764			628	SCE
1	EA	POWER SUPPLY	BY SECURITY				

OPERATIONAL DESCRIPTION:
1. IMMEDIATE EGRESS ALWAYS ALLOWED.
2. ACCESS BY KEY OR CARD READER.
3. CARD READER RELEASED ELECTRIC STRIKE AND ENABLES EXTERIOR ACTUATOR.
4. DOOR CAN BE MANUALLY PULLED OPEN OR AUTOMATICALLY OPERATED BY PUSHING ACTUATOR WHICH SIGNALS AUTOMATIC OPERATOR TO OPEN DOOR.
5. INTERIOR ACTUATOR TO RELEASE ELECTRIC STRIKE AND SIGNAL AUTOMATIC OPERATOR TO OPEN DOOR.
6. LOCATE ACTUATORS AS DIRECTED BY ARCHITECT.

E. Hardware Index:

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Door Numbers	Hardware Group No.
060	01
060A	01-8
141	06-2
142	06-2
143	04
144	06-1
144A	03
144B	05

Door Numbers	Hardware Group No.
144C	06
145	06-1
145A	03
145B	05
145C	01-2
145D	06
146	14
146A	01-1
146B	01-1
146C	01-1
147	04
148	04
149	03-1
150	01-6
161	02
161A	01-7
161B	16
162	04-1
163	02-1
163A	01-7
163C	06-3
164	01-5
165	02-1
165A	09
166	01
251	15
251A	01-1
251B	10
251C	15
251D	01-3
251E	01-1
261	02
262	04-1
263	02-1
264	01
265	02-1
267	02-1
351	02-1
351A	06
353	02-1
353A	06
355	02-1
355A	01-4
361	02
362	04-1
363	02-1

Door Numbers	Hardware Group No.
364	01
365	02-1
367	02-1
C100	14
C200	13
C201	12-3
C300	13
C301	12-3
S1	08-1
S1A	07-1
S1B	11
S2	01
S2A	12-1
S2B	01
S2C	12-2
S2D	12-2
S3	12-2
S3A	08
S3B	07
S3C	07
V1	18
V1A	14-1
V1B	17
V1C	14-2

END OF SECTION

SECTION 088000
GLAZING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Insulating glass units.

B. Glazing units.

C. Glazing compounds.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 072726 - Fluid Applied Vapor Permeable Membrane Air Barriers.

C. Section 079200 - JOINT SEALANTS: Sealants for other than glazing purposes.

D. Section 081113 - Hollow Metal Doors and Frames: Glazed lites in doors and borrowed lites.

E. Section 081416 - Flush Wood Doors: Glazed lites in doors.

F. Section 084313 - Aluminum-Framed Storefronts

G. Section 084413 - Glazed Aluminum Curtain Walls

H. Section 085113 - Aluminum Windows

I. Section 088813 - Fire-Rated Glazing.

J. Section 102800 - Toilet, Bath, and Laundry Accessories: Mirrors.

1.03 REFERENCE STANDARDS

A. NFPA 80 - Standard for Fire Doors and Other Opening Protectives

B. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

C. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

D. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

E. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers; 2005 (Reapproved 2019).

F. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

G. ASTM C1036 - Standard Specification for Flat Glass; 2025.

H. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

I. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass; 2024.

J. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2025.

K. ASTM C1376 - Standard Specification for Pyrolytic and Vacuum Deposition Coatings on Flat Glass; 2021a.

L. ASTM E1300 - Standard Practice for Determining Load Resistance of Glass in Buildings; 2016.

M. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation; 2019.

N. GANA (SM) - GANA Sealant Manual; 2008.

O. ICC (IBC) - International Building Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

P. ITS (DIR) - Directory of Listed Products; Current Edition.

Q. NFRC 100 - Procedure for Determining Fenestration Product U-factors; 2023.

R. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence; 2023.

S. NFRC 300 - Test Method for Determining the Solar Optical Properties of Glazing Materials and Systems; 2023.

T. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by each of the affected installers.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data on Insulating Glass Unit and Glazing Unit Glazing Types: Provide structural, physical and environmental characteristics, size limitations, special handling and installation requirements.

C. Product Data on Glazing Compounds and Accessories: Provide chemical, functional, and environmental characteristics, limitations, special application requirements, and identify available colors.

D. Samples: Submit two samples 12 by 12 inch in size of glass units.

E. Samples: Submit 12 inch long bead of glazing sealant, color as selected.

F. Certificate: Certify that products of this section meet or exceed specified requirements.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Insulating Glass Units: One of each glass size and each glass type.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.
   1. Provide certified glass products through ANSI accredited certifications that include plant audits and independent laboratory performance testing.
      a. Insulating Glass Certification Council (IGCC).
      b. Safety Glazing Certification Council (SGCC).

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years documented experience.
   1. Provide company, field supervisors, and installers that hold active ANSI accredited certifications in appropriate categories for work specified.
      a. North American Contractor Certification (NACC) for glazing contractors.
      b. Equivalent independent third-party ANSI accredited certification.

C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

D. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

E. If retaining "Installer Qualifications" Paragraph below, verify, with prospective installers, that they can comply with certification requirements referenced.

F. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

G. Retain "Glass Testing Agency Qualifications" Paragraph below if retaining "Product Test Reports" Paragraph in "Informational Submittals" Article and it is known that glass products specified have been tested by NFRC-accredited testing agencies.

H. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.

I. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

J. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

K. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

1.07 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
   1. Do not install glazing when ambient temperature is less than 40 degrees F.
   2. Maintain minimum ambient temperature before, during and 24 hours after installation of glazing compounds.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
   1. Warranty Period: ten (10) years from date of Substantial Completion

C. Laminated Glass: Provide a five (5) year manufacturer warranty to include coverage for delamination, including providing products to replace failed units.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Float Glass Manufacturers:
   1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
   2. Guardian Glass, LLC: www.guardianglass.com/#sle.
   3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

D. Laminated Glass Manufacturers:
   1. Cardinal Glass Industries: www.cardinalcorp.com/#sle.
   2. Viracon, Architectural Glass segment of Apogee Enterprises, Inc: www.viracon.com/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

E. Mirrored Glass Manufacturers:

2.02 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.

C. Provide type and thickness of exterior glazing assemblies to support assembly dead loads, and to withstand live loads caused by positive and negative wind pressure acting normal to plane of glass.
   1. Design Pressure: Calculated in accordance with ASCE 7 based on heights above grade indicated on Drawings, and on the following:
      a. Risk Occupancy Category: III
      b. Basic Wind Speeds (3-second gust as measured 33 ft above ground):
         1) 120 mph ultimate
         2) 93 mph nominal
      c. Exposure Category: C.

2. Comply with ASTM E1300 for design load resistance of glass type, thickness, dimensions, and maximum lateral deflection of supported glass.
3. Provide glass edge support system sufficiently stiff to limit the lateral deflection of supported glass edges to less than 1/175 of their lengths under specified design load.
4. Glass thicknesses listed are minimum.

D. Weather-Resistive Barrier Seals: Provide completed assemblies that maintain continuity of building enclosure water-resistive barrier, vapor retarder, and/or air barrier.
1. In conjunction with weather barrier related materials described in other sections, as follows:
   a. Air Barriers: See Section 072726.
2. To utilize inner pane of multiple pane insulating glass units for continuity of vapor retarder and/or air barrier seal.
3. To maintain a continuous vapor retarder and/or air barrier throughout glazed assembly from glass pane to heel bead of glazing sealant.

E. Thermal and Optical Performance: Provide exterior glazing products with performance properties as indicated. Performance properties are in accordance with manufacturer's published data as determined with the following procedures and/or test methods:
1. Center of Glass U-Value: Comply with NFRC 100 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 7 computer program.
2. Center of Glass Solar Heat Gain Coefficient (SHGC): Comply with NFRC 200 using Lawrence Berkeley National Laboratory (LBNL) WINDOW 7 computer program.
3. Solar Optical Properties: Comply with NFRC 300 test method.

2.03 GLASS MATERIALS

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
1. GANA Publications: "Glazing Manual."
2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

B. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

C. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.
1. Minimum Glass Thickness for Exterior Lites: 6 mm.

D. Float Glass: Provide float glass based glazing unless otherwise indicated.
1. Annealed Type: ASTM C1036, Type I - Transparent Flat, Class 1 - Clear, Quality - Q3.
2. Kind FT - Fully Tempered Type: Complies with ASTM C1048.
3. Fully Tempered Safety Glass: Complies with ANSI Z97.1 or 16 CFR 1201 criteria for safety glazing used in hazardous locations.
4. Impact Resistant Safety Glass: Complies with ANSI Z97.1 - Class B, or 16 CFR 1201 - Category I criteria.
5. Thicknesses: As indicated; provide greater thickness as required for exterior glazing wind load design.

E. Laminated Glass: Float glass laminated in accordance with ASTM C1172.
1. Laminated Safety Glass: Complies with ANSI Z97.1 - Class B or 16 CFR 1201 - Category I impact test requirements.

2.04 INSULATING GLASS UNITS

A. Manufacturers:
   1. Guardian Glass, LLC: www.guardianglass.com/#sle.
   2. Pilkington North America Inc: www.pilkington.com/na/#sle.
   3. Vitro Architectural Glass (formerly PPG Glass): www.vitroglazings.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

B. Fabricator: Certified by glass manufacturer for type of glass, coating, and treatment involved and capable of providing specified warranty.

C. Insulating Glass Units: Types as indicated.
   1. Durability: Certified by an independent testing agency to comply with ASTM E2190.
   2. Coated Glass: Comply with requirements of ASTM C1376 for pyrolytic (hard-coat) or magnetic sputter vapor deposition (soft-coat) type coatings on flat glass; coated vision glass, Kind CV; coated overhead glass, Kind CO; or coated spandrel glass, Kind CS.
   3. Metal-Edge Spacers: Aluminum, bent and soldered corners.
   4. Spacer Color: Black.
   5. Edge Seal:
      a. Dual-Sealed System: Provide polyisobutylene sealant as primary seal applied between spacer and glass panes, and silicone, polysulfide, or polyurethane sealant as secondary seal applied around perimeter.
      b. Color: Black.
   6. Purge interpane space with dry air, hermetically sealed.

D. Type IGU1 Insulating Glass Units: Vision glass, double glazed.
   1. Applications: Exterior glazing unless otherwise indicated.
   2. Space between lites filled with argon.
   3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.
      b. Coating: Gaurdian Sunguard SNX 51/23, on #2 surface.
   4. Metal edge spacer.
   5. Inboard Lite: Annealed float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.
   6. Total Thickness: 1 inch.
   7. Thermal Transmittance (U-Value), Summer - Center of Glass: 0.27, nominal.
   8. Visible Light Transmittance (VLT): 51 percent, nominal.
   9. Solar Heat Gain Coefficient (SHGC): 0.23, nominal.
   10. Visible Light Reflectance, Outside: 14 percent, nominal.
   11. Glazing Method: Dry glazing method, gasket glazing.

E. Type IGU2 Insulating Glass Units: Spandrel glazing.
   1. Applications: Exterior spandrel glazing unless otherwise indicated.
   2. Space between lites filled with argon.
   3. Outboard Lite: Annealed float glass, 1/4 inch thick, minimum.
      a. Tint: Clear.
      b. Coating: Same as on vision units, on #2 surface.
   4. Metal edge spacer.
   5. Inboard Lite: Annealed float glass, 1/4 inch thick.
      a. Tint: Clear.
   6. Total Thickness: 1 inch.

7. Thermal Transmittance (U-Value), Summer - Center of Glass: .27, nominal.
8. Visible Light Reflectance, Outside: 14 percent, nominal.
9. Solar Heat Gain Coefficient (SHGC): 0.23, nominal.
10. Glazing Method: Dry glazing method, gasket glazing.

F. Type IGU3 Tempered Insulating Glass Units: Exterior door glazing.
1. Applications: Exterior door glazing.
2. Space between lites filled with argon.
3. Outboard Lite: Fully tempered float glass, 1/4 inch thick, minimum.
   a. Tint: Clear.
   b. Coating: Same as on vision units, on #2 surface.
4. Metal edge spacer.
5. Inboard Lite: Fully tempered float glass, 1/4 inch thick.
6. Total Thickness: 1 inch.
7. Thermal Transmittance (U-Value), Summer - Center of Glass: .27, nominal.
8. Visible Light Reflectance, Outside: 14 percent, nominal.
9. Visible Light Transmittance (VLT): 51 percent, nominal.
10. Solar Heat Gain Coefficient (SHGC): 0.23, nominal.
11. Glazing Method: Dry glazing method, gasket glazing.

2.05 GLAZING UNITS

A. Type: G2, G3 and G4 - Fire Resistance Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and blocks radiant heat, as required to achieve indicated fire-rating period exceeding 45 minutes.
1. Applications:
   a. Glazing in fire-rated door assembly.
   b. Glazing in fire-rated window assembly.
   c. Glazing in sidelites, borrowed lites, and other glazed openings in fire-rated wall assemblies.
   d. Other locations as indicated on drawings.
2. Glass Type: Multi-laminate annealed glass with intumescent fire retardant interlayers.
3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
4. Safety Glazing Certification: 16 CFR 1201 Category II.
5. Glazing Method: As required for fire rating.
6. Fire-Rating Period: 60 minutes As indicated on drawings.
7. Markings for Fire-Resistance-Rated Glazing Assemblies: Provide permanent markings on fire-resistance-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction.
   a. "W" - meets wall assembly criteria of ASTM E119 or UL 263 fire test standards.
   b. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
   c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire test standards.
   d. "T" - meets temperature rise of not more than 450 degrees F above ambient at end of 30 minutes fire exposure in accordance with NFPA 252, UL 10B, or UL 10C fire test standards.
   e. "XXX" - placeholder that represents fire-rating period, in minutes.
8. Manufacturers:

a. **(Basis of Design)** SAFTI*FIRST*, a division of O'Keeffe's Inc; SuperLite II-XL 45, 60 and 90: www.safti.com/#sle.
b. Technical Glass Products; Pilkington Pyrostop: www.fireglass.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

B. Type G1 and G5 - Fire-Protection-Rated Glazing: Type, thickness, and configuration of glazing that contains flame, smoke, and does not block radiant heat, as required to achieve fire-doors indicated fire-rating period of 60 minutes or less.
1. Applications:
a. Glazing in fire-rated door assembly.
b. Glazing in fire-rated window assembly.
c. Other locations as indicated on drawings.
2. Glass Type: Safety ceramic glass.
3. Provide products listed by ITS (DIR) or UL (DIR) and approved by authorities having jurisdiction.
4. Safety Glazing Certification: 16 CFR 1201 Category II.
5. Glazing Method: As required for fire rating.
6. Fire-Rating Period: As indicated on drawings.
7. Markings for Fire-Protection-Rated Glazing Assemblies: Provide permanent markings on fire-protection-rated glazing in compliance with ICC (IBC), local building code, and authorities having jurisdiction
a. "D" - meets fire door assembly criteria of NFPA 252, UL 10B, or UL 10C fire test standards.
b. "OH" - meets fire window assembly criteria including hose stream test of NFPA 257, or UL 9 fire test standards.
c. "H" - meets fire door assembly hose stream test of NFPA 252, UL 10B, or UL 10C fire tests standards.
d. "XXX" - placeholder that represents fire-rating period, in minutes.
8. Glazing material installed in Hazardous Locations, subject to human impact, shall be certified and permanently labeled as meeting applicable requirements referenced in NFPA 80
9. Maximum Sizes: Maximum clear view area for non-temperature rise 45 minute doors is 3,288 sq. in. (33 in width x 99-5/8 in. height). Maximum clear view area for 45-minute sidelites, openings and transoms when ASTM E-119/UL 263/ULC-S101 is not required is 3,880 sq. in. (96 in. width or height).
10. Manufacturers:
a. **(Basis of Design)** SAFTI*FIRST*, a division of O'Keeffe's Inc; SuperLite I-XL: www.safti.com/#sle.
b. **(Basis of Design)** SAFTI*FIRST*, a division of O'Keeffe's Inc; SuperLite X-45: www.safti.com/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

C. Type: TG1 - Tempered Safety Glazing: Non-fire-rated.
1. Applications:
a. Glazed lites in doors, except fire doors.
b. Glazed sidelights to doors, except in fire-rated walls and partitions.
c. Other locations required by applicable federal, state, and local codes and regulations.
d. Other locations indicated on drawings.
2. Glass Type: Fully tempered safety glass as specified.

3. Tint: Clear.
4. Thickness: 1/4 inch, nominal.

2.06 GLAZING COMPOUNDS

A. Butyl Sealant: Single component; ASTM C920 Grade NS, Class 12-1/2, Uses M and A, Shore A hardness of 10 to 20; black color.

B. Silicone Sealant: Single component; neutral curing; capable of water immersion without loss of properties; non-bleeding, non-staining; ASTM C920 Type S, Grade NS, Class 25, Uses M, A, and G; with cured Shore A hardness range of 15 to 25; color as selected.

C. Manufacturers:
1. Dow Corning Corporation: www.dowcorning.com/construction/#sle.
2. Substitutions: See Section 016000 - Product Requirements.

2.07 ACCESSORIES

A. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

B. Setting Blocks: Neoprene, with 80 to 90 Shore A durometer hardness; ASTM C864 Option II. Length of 0.1 inch for each square foot of glazing or minimum 4 inch by width of glazing rabbet space minus 1/16 inch by height to suit glazing method and pane weight and area.

C. Spacer Shims: Neoprene, 50 to 60 Shore A durometer hardness; ASTM C864 Option II. Continuous by one half the height of the glazing stop by thickness to suit application, self adhesive on one face.

D. Glazing Tape, Back Bedding Mastic Type: Preformed, butyl-based, 100 percent solids compound with integral resilient spacer rod applicable to application indicated; 5 to 30 cured Shore A durometer hardness; coiled on release paper; black color.
1. Width: As required for application.
2. Thickness: As required for application.
3. Spacer Rod Diameter: As required for application.

E. Glazing Splines: Resilient silicone extruded shape to suit glazing channel retaining slot; ASTM C864 Option II; color black.

F. Glazing Clips: Manufacturer's standard type.

G. Rescue Window / Glazing Unit Markings: Adhesive backed markings affixed to mannually operable windows in classrooms to identify units intended for emergency evacuation of students in compiance with New York State Requirements.

2.08 SOURCE QUALITY CONTROL

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Provide shop inspection and testing for all types of glass.

2.09 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
a. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that openings for glazing are correctly sized and within tolerances, including those for size, squareness, and offsets at corners.

B. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
   1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
   2. Presence and functioning of weep systems.
   3. Minimum required face and edge clearances.
   4. Effective sealing between joints of glass-framing members.

C. Verify that the minimum required face and edge clearances are being provided.

D. Verify that sealing between joints of glass framing members has been completed effectively.

E. Proceed with glazing system installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Clean contact surfaces with appropriate solvent and wipe dry immediately before glazing. Remove coatings that are not tightly bonded to substrates.

B. Seal porous glazing channels or recesses with substrate compatible primer or sealer.

C. Prime surfaces scheduled to receive sealant where required for proper sealant adhesion.

D. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.03 INSTALLATION, GENERAL

A. Install glazing in compliance with written instructions of glass, gaskets, and other glazing material manufacturers, unless more stringent requirements are indicated, including those in glazing referenced standards.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Install glazing sealants in accordance with ASTM C1193, GANA (SM), and manufacturer's instructions.

F. Do not exceed edge pressures around perimeter of glass lites as stipulated by glass manufacturer.

G. Set glass lites of system with uniform pattern, draw, bow, and similar characteristics.

H. Set glass lites in proper orientation so that coatings face exterior or interior as indicated.

I. Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm).
   1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
   2. Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

J. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

K. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

L. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

M. Prevent glass from contact with any contaminating substances that may be the result of construction operations such as, and not limited to the following; weld splatter, fire-safing, plastering, mortar droppings, and paint.
   1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

3.04 INSTALLATION - DRY GLAZING METHOD (GASKET GLAZING)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.05 INSTALLATION - DRY GLAZING METHOD (TAPE AND GASKET SPLINE GLAZING)

A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.

B. Cut glazing tape to length; install on glazing pane. Seal corners by butting tape and sealing junctions with butyl sealant.

C. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

D. Rest glazing on setting blocks and push against fixed stop with sufficient pressure to attain full contact.

E. Install removable stops without displacing glazing spline. Exert pressure for full continuous contact.

F. Carefully trim protruding tape with knife.

3.06 INSTALLATION - WET GLAZING METHOD (SEALANT AND SEALANT)

A. Application - Exterior Glazed: Set glazing infills from the exterior of the building.

B. Place setting blocks at 1/4 points and install glazing pane or unit.

C. Install removable stops with glazing centered in space by inserting spacer shims both sides at 24 inch intervals, 1/4 inch below sight line.

D. Fill gaps between glazing and stops with manufacturer recommended type sealant to depth of bite on glazing, but not more than 3/8 inch below sight line to ensure full contact with glazing and continue the air and vapor seal.

E. Apply sealant to uniform line, flush with sight line. Tool or wipe sealant surface smooth.

3.07 INSTALLATION - BUTT JOINT GLAZING METHOD (SEALANT ONLY)

A. Application - Exterior Glazed: Set glazing infills from exterior side of building.

B. Temporarily brace glass in position for duration of glazing process; mask edges of glass at adjoining glass edges and between glass edges and framing members.

C. Temporarily secure a small diameter nonadhering foamed rod on back side of joint.

D. Apply sealant to open side of joint in continuous operation; thoroughly fill joint without displacing foam rod, and then tool sealant surface smooth to concave profile.

E. Permit sealant to cure then remove foam backer rod, and then apply sealant to opposite side, tool smooth to concave profile.

F. Remove masking tape.

3.08 INSTALLATION - PRESSURE GLAZED SYSTEMS

A. Application - Exterior Glazed: Set glazing infills from exterior side of building.

B. Place setting blocks at 1/4 points with edge block no more than 6 inch from corners.

C. Rest glazing on setting blocks and push against fixed stop with sufficient pressure on gasket to attain full contact.

D. Install pressure plates without displacing glazing gasket; exert pressure for full continuous contact.

E. Install cover plate.

3.09 FIELD QUALITY CONTROL

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Glass and Glazing product manufacturers to provide field surveillance of the installation of their products.

C. Monitor and report installation procedures and unacceptable conditions.

3.10 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

B. Remove excess glazing materials from finish surfaces immediately after application using solvents or cleaners recommended by manufacturers.

C. Remove nonpermanent labels immediately after glazing installation is complete.

D. Clean glass and adjacent surfaces after sealants are fully cured.

E. Remove and replace glass that is damaged during construction period.

F. Clean glass on both exposed surfaces not more than 4 days prior to Date of Substantial Completion in accordance with glass manufacturer's written recommendations.

3.11 PROTECTION

A. After installation, mark pane with an 'X' by using removable plastic tape or paste; do not mark heat absorbing or reflective glass units.

B. Remove and replace glass that is damaged during construction period prior to Date of Substantial Completion.

END OF SECTION

SECTION 090561
COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This section applies to floors identified in Contract Documents that are receiving the following types of floor coverings:
   1. Resilient tile and sheet.
   2. Sheet carpet.
   3. Thin-set ceramic tile and stone tile.
   4. Epoxy Resinous Flooring

B. Removal of existing floor coverings.

C. Preparation of new and existing concrete floor slabs for installation of floor coverings.

D. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
   1. Contractor shall perform all specified remediation of concrete floor slabs. If such remediation is indicated by testing agency's report and is due to a condition not under Contractor's control or could not have been predicted by examination prior to entering into the contract, a contract modification will be issued.

E. Patching and leveling compound.

F. Remedial floor coatings.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 012100 - Allowances

C. Section 012200 - DO NOT USE BSD Unit Prices: Bid pricing for remediation treatments if required.

D. Section 014000 - BSD Quality Requirements: Additional requirements relating to testing agencies and testing.

E. Section 028000 - Facility Remediation: Asbestos, Lead, and other harmful material removal procedures.

F. Section 033000 - CAST-IN-PLACE CONCRETE: Moisture emission reducing curing and sealing compound for slabs to receive adhered flooring, to prevent moisture content-related flooring failures; to remain in place, not to be removed.

1.03 PRICE AND PAYMENT PROCEDURES

A. Unit Prices: See Section 012200 - DO NOT USE BSD Unit Prices.

1.04 REFERENCE STANDARDS

A. ASTM C109/C109M - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens); 2020a.

B. ASTM C472 - Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete; 2020.

C. ASTM D4259 - Standard Practice for Preparation of Concrete by Abrasion Prior to Coating Application; 2024.

D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

F. ASTM F3010 - Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings;2018.

G. ASTM F3513 - Standard Practice for Single Component, Fluid-Applied Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings; 2024.

H. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2011.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Coordinate scheduling of cleaning and testing, so that preliminary cleaning has been completed for at least 24 hours prior to testing.

1.06 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Visual Observation Report: For existing floor coverings to be removed.

C. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
   1. Moisture and alkalinity (pH) limits and test methods.
   2. Manufacturer's required bond/compatibility test procedure.

D. Remedial Materials Product Data: Manufacturer's published data on each product to be used for remediation.
   1. Manufacturer's qualification statement.
   2. Certificate: Manufacturer's certification of compatibility with types of flooring applied over remedial product.
   3. Test reports indicating compliance with specified performance requirements, performed by nationally recognized independent testing agency.
   4. Manufacturer's installation instructions.
   5. Specimen Warranty: Copy of warranty to be issued by coating manufacturer and certificate of underwriter's coverage of warranty.

E. Testing Agency's Report:
   1. Description of areas tested; include floor plans and photographs if helpful.
   2. Summary of conditions encountered.
   3. Moisture and alkalinity (pH) test reports.
   4. Copies of specified test methods.
   5. Recommendations for remediation of unsatisfactory surfaces.
   6. Submit report directly to Owner.
   7. Submit report not more than two business days after conclusion of testing.

F. Adhesive Bond and Compatibility Test Report.

G. Copy of RFCI (RWP).

1.07 QUALITY ASSURANCE

A. Moisture and alkalinity (pH) testing will be performed by an independent testing agency employed and paid by Owner.

B. Contractor's Responsibility Relating to Independent Agency Testing:
   1. Provide access for and cooperate with testing agency.
   2. Confirm date of start of testing at least 10 days prior to actual start.
   3. Allow at least 4 business days on site for testing agency activities.
   4. Achieve and maintain specified ambient conditions.
   5. Notify Owner when specified ambient conditions have been achieved and when testing will start.

C. Remedial Coating Installer Qualifications: Company specializing in performing work of the type specified in this section, trained by or employed by coating manufacturer, and able to provide at least 3 project references showing at least 3 years' experience installing moisture emission coatings.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, handle, and protect products in accordance with manufacturer’s instructions and recommendations.

B. Deliver materials in manufacturer’s packaging; include installation instructions.

C. Keep materials from freezing.

1.09 FIELD CONDITIONS

A. Maintain ambient temperature in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 65 degrees F (18 degrees C) or more than 85 degrees F (30 degrees C).

B. Maintain relative humidity in spaces where concrete testing is being performed, and for at least 48 hours prior to testing, at not less than 40 percent and not more than 60 percent.

PART 2 PRODUCTS

2.01 MATERIALS

A. Source Limitations: Obtain specified products from single source and from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

C. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

D. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
   1. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
   2. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
   3. Products:

a. ARDEX Engineered Cements; ARDEX Feather Finish: www.ardexamericas.com/#sle.
b. LATICRETE International, Inc; SKIM LITE: www.laticrete.com/#sle.
c. CMP; Level-1, Self Leveling Underlayment: www.cmpsp.com/#sle..

E. Remedial Floor Coating, Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
1. Thickness: As required for application and in accordance with manufacturer's installation instructions.
2. Products:
a. ARDEX Engineered Cements; ARDEX MC RAPID: www.ardexamericas.com/#sle.
b. LATICRETE International, Inc; LATICRETE NXT Vapor Reduction Coating with LATICRETE NXT Level Plus: www.laticrete.com/#sle.
c. CMP; LockDown EVB, Moisture Vapor Barrier Coating: www.cmpsp.com/#sle..

PART 3 EXECUTION

3.01 CONCRETE SLAB PREPARATION

A. Follow recommendations of testing agency.

B. Perform following operations in the order indicated:
1. Existing concrete slabs (on-grade and elevated) with existing floor coverings:
a. Visual observation of existing floor covering, for adhesion, water damage, alkaline deposits, and other defects.
b. Removal of existing floor covering.
2. New and Existing concrete slabs (on grade and elevated):
a. Preliminary cleaning.
b. Moisture vapor emission tests; 3 tests in the first 1000 square feet (100 square meters) and one test in each additional 1000 square feet (100 square meters), unless otherwise indicated or required by flooring manufacturer.
c. Internal relative humidity tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
d. Alkalinity (pH) tests; in same locations as moisture vapor emission tests, unless otherwise indicated.
e. Specified remediation, if required.
f. Patching, smoothing, and leveling, as required.
g. Other preparation specified.
h. Adhesive bond and compatibility test.
i. Protection.

C. Remediations:
1. Active Water Leaks or Continuing Moisture Migration to Surface of Slab: Correct this condition before doing any other remediation; re-test after correction.
2. Excessive Moisture Emission or Relative Humidity: If an adhesive that is resistant to the level of moisture present is available and acceptable to flooring manufacturer, use that adhesive for installation of the flooring; if not, apply remedial floor coating or remedial sheet membrane over entire suspect floor area.

3. Excessive Alkalinity (pH): If remedial floor coating is necessary to address excessive moisture, no additional remediation is required; if not, if an adhesive that is resistant to the level present is available and acceptable to the flooring manufacturer, use that adhesive for installation of the flooring; otherwise, apply a skim coat of specified patching compound over entire suspect floor area.

3.02 REMOVAL OF EXISTING FLOOR COVERINGS

A. Comply with local, State, and federal regulations and recommendations of RFCI (RWP), as applicable to floor covering being removed.

B. Dispose of removed materials in accordance with local, State, and federal regulations and as specified.

C. Comply with Asbestos Removal Specification Section 028200.

3.03 PRELIMINARY CLEANING

A. Clean floors of dust, solvents, paint, wax, oil, grease, asphalt, residual adhesive, adhesive removers, film-forming curing compounds, sealing compounds, alkaline salts, excessive laitance, mold, mildew, and other materials that might prevent adhesive bond.

B. Do not use solvents or other chemicals for cleaning.

3.04 PREPARATION

A. See individual floor covering section(s) for additional requirements.

B. Comply with recommendations of testing agency.

C. Comply with requirements and recommendations of floor covering manufacturer.

D. Fill and smooth surface cracks, grooves, depressions, control joints and other non-moving joints, and other irregularities with patching compound.

E. Do not fill expansion joints, isolation joints, or other moving joints.

3.05 ADHESIVE BOND AND COMPATIBILITY TESTING

A. Comply with requirements and recommendations of floor covering manufacturer.

3.06 APPLICATION OF REMEDIAL FLOOR COATING

A. Comply with requirements and recommendations of coating manufacturer.

B. Furnish and install floor coating throughout the entire slab scheduled to recieve new flooring.

3.07 PROTECTION

A. Cover prepared floors with building paper or other durable covering.

SECTION 092116
GYPSUM BOARD ASSEMBLIES - USG

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal stud wall framing.

B. Metal grid or channel ceiling framing.

C. Gypsum wallboard.

D. Gypsum sheathing.

E. Cementitious backing board.

F. Joint treatment and accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 054000 - COLD-FORMED METAL FRAMING: Structural steel stud framing.

C. Section 072500 - Weather Barriers: Water-resistive barrier over sheathing.

1.03 REFERENCE STANDARDS

A. AISI S100 - North American Specification for the Design of Cold-Formed Steel Structural Members; 2016, with Supplement (2020).

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

D. ASTM A1003/A1003M - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members; 2015.

E. ASTM C475/C475M - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board; 2017 (Reapproved 2022).

F. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing; 2003 (Reapproved 2017).

G. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2024.

H. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2020.

I. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board; 2024.

J. ASTM C954 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness; 2022.

K. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2022.

L. ASTM C1047 - Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base; 2019.

M. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing; 2017.

N. ASTM C1280 - Standard Specification for Application of Exterior Gypsum Panel Products for Use as Sheathing; 2018 (Reapproved 2023).

O. ASTM C1288 - Standard Specification for Fiber-Cement Interior Substrate Sheets; 2023.

P. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

Q. ASTM C1629/C1629M - Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels; 2024.

R. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

S. ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.

T. ASTM E2357 - Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies; 2024.

U. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

V. GA-216 - Application and Finishing of Gypsum Panel Products; 2024.

W. GA-226 - Application of Gypsum Board to Form Curved Surfaces; 2025.

X. GA-600 - Fire Resistance and Sound Control Design Manual; 2024.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Include data on metal framing, gypsum board, glass mat faced gypsum board, sheathing, accessories, and joint finishing system.

C. Product Data: Include manufacturer's data on partition head to structure connectors, showing compliance with requirements.

D. Test Reports: For stud framing products that do not comply with ASTM C645 or ASTM C754, provide independent laboratory reports showing maximum stud heights at required spacings and deflections.

PART 2 PRODUCTS

2.01 GYPSUM BOARD ASSEMBLIES

A. Provide completed assemblies complying with ASTM C840 and GA-216.

2.02 METAL FRAMING MATERIALS

A. Manufacturers - Metal Framing, Connectors, and Accessories:
   1. ClarkDietrich; ____: www.clarkdietrich.com/#sle.
   2. Marino; ____: www.marinoware.com/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

B. Structural Steel Framing for Application of Gypsum Board: See Section 054000.

C. Non-structural Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/120 at 5 psf (L/120 at 240 Pa).
   1. Studs: "C" shaped with knurled or embossed faces.
   2. Runners: U shaped, sized to match studs.
   3. Furring Members: Hat-shaped sections, minimum depth of 7/8 inch (22 mm).

4. Resilient Furring Channels: Single leg configuration; 1/2 inch (12 mm) channel depth.

D. Shaft Wall Studs and Accessories: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 and specified performance requirements.
   1. Products:
      a. Same manufacturer as other framing materials.

E. Partition Head to Structure Connections: Provide mechanical anchorage devices that accommodate deflection using slotted holes, screws, and anti-friction bushings, preventing rotation of studs while maintaining structural performance of partition.
   1. Structural Performance: Maintain lateral load resistance and vertical movement capacity required by applicable code, when evaluated in accordance with AISI S100.
   2. Material: ASTM A653/A653M steel sheet, SS Grade 50/340, with G60/Z180 hot-dipped galvanized coating.
   3. Provide components UL-listed for use in UL-listed fire-resistance-rated head of partition joint systems indicated on drawings.

F. Non-structural Framing Accessories:
   1. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.
   2. Partial Height Wall Framing Support: Provides stud reinforcement and anchored connection to floor.
      a. Materials: ASTM A36/A36M formed sheet steel support member with factory-welded ASTM A1003/A1003M steel plate base.
      b. Height: 35-3/4 inches (908 mm).
   3. Framing Connectors: ASTM A653/A653M G90 galvanized steel clips; secures cold rolled channel to wall studs for lateral bracing.
      a. Products:

G. Direct Suspension Systems: G40 galvanized steel grid system of main and cross tees, suspended from structure above.
   1. Products:
      a. USG Corporation; DGLW Drywall Suspension System - Flat Ceilings: www.usg.com/#sle.

2.03 BOARD MATERIALS

A. Manufacturers - Gypsum-Based Board:
   1. USG Corporation: www.usg.com/#sle.
   2. Georgia-Pacific Gypsum; ____: www.gpgypsum.com/#sle.
   3. National Gypsum Company: www.nationalgypsum.com/#sle.

B. Gypsum Board: Paper-faced gypsum panels as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
   1. Application: Use for vertical surfaces and ceilings, unless otherwise indicated.
   2. At Assemblies Indicated with Fire-Resistance Rating: Use type required by indicated tested assembly; if no tested assembly is indicated, use Type X board, UL or WH listed.
   3. Thickness:
      a. Vertical Surfaces: As indicated on drawings.
      b. Multi-Layer Assemblies: Thicknesses as indicated on drawings.
   4. Moisture- and Mold-Resistant Paper-Faced Board Products:

C. Impact-Resistant Wallboard:
   1. Application: High-traffic areas indicated.

2. Surface Abrasion: Level 3, minimum, when tested in accordance with ASTM C1629/C1629M.
3. Indentation: Level 2, minimum, when tested in accordance with ASTM C1629/C1629M.
4. Hard Body Impact: Level 3, minimum, when tested in accordance with ASTM C1629/C1629M.
5. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
6. Edges: Tapered.

D. Backing Board For Wet Areas:
1. Application: Surfaces behind tile in wet areas including tub and shower surrounds, shower ceilings, and Janitors Closets.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. ASTM Cement-Based Board: Non-gypsum-based, cementitious board complying with ASTM C1288, suitable for decoration using paint, wallpaper, natural stone, tile, or resilient flooring in internal wet and dry areas.
   a. Thickness: 1/2 inch (12.7 mm).

E. Ceiling Board: Special sag resistant gypsum ceiling board as defined in ASTM C1396/C1396M; sizes to minimize joints in place; ends square cut.
1. Application: Ceilings, unless otherwise indicated.
2. Thickness: 1/2 inch (13 mm).
3. Edges: Tapered.

F. Exterior Sheathing Board: Sizes to minimize joints in place; ends square cut.
1. Application: Exterior sheathing, unless otherwise indicated.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
3. Fungal Resistance: No fungal growth when tested in accordance with ASTM G21.
4. Glass Mat Faced Sheathing: Glass mat faced gypsum substrate as defined in ASTM C1177/C1177M.
5. Boards with Air and Water Barrier Coating:
   a. Type: Manufacturer's standard coating factory-applied at minimum 0.020 inch (0.5 mm) dry-film thickness.
   b. Air Permeance: Meet or exceed requirements of .
      1) Acceptable Test Results: 0.004 cfm/sq ft of surface area at 1.57 lbf/sq ft (0.02 L/s sq m of surface area at 75 Pa), maximum.
   c. Sheathing Assembly Air Leakage: Meet or exceed requirements of .
      1) Acceptable Test Results: 0.04 cfm/sq ft of surface area at 1.57 lbf/sq ft (0.2 L/s sq m of surface area at 75 Pa), maximum.
6. Core Type: Regular and Type X, as indicated.
7. Edges: Square.
8. Glass-Mat-Faced Products:
   a. USG Corporation; USG Securock Brand Glass-Mat Sheathing Regular 5/8 inch: www.usg.com/#sle.
   b. Substitutions: Not permitted.

G. Shaftwall and Coreboard: Type X; 1 inch (25 mm) thick by 24 inches (610 mm) wide, beveled long edges, ends square cut.
1. Paper-Faced Type: Gypsum shaftliner board or gypsum coreboard as defined ASTM C1396/C1396M; water-resistant faces.
2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.

3. Paper-Faced Products:
   a. USG Corporation; USG Sheetrock Brand Gypsum Liner Panels 1 inch. SLX: www.usg.com/#sle.
   b. USG Corporation; USG Sheetrock Brand Mold Tough Gypsum Liner Panels 1 inch. SLX: www.usg.com/#sle.
4. Framing: Gypsum Liner Panels attach to metal; CH studs. Refer to product data sheet for additional information.
   a. Same manufacturer as other framing materials.

2.04 GYPSUM WALLBOARD ACCESSORIES

A. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

B. Water-Resistive Barrier: See Section 072500.

C. Finishing Accessories: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
   1. Types: As detailed or required for finished appearance.
   2. Special Shapes: In addition to conventional corner bead and control joints, provide L-bead at exposed panel edges.

D. Beads, Joint Accessories, and Other Trim: ASTM C1047, galvanized steel or rolled zinc, unless otherwise indicated.
   1. Corner Beads: Low profile, for 90 degree outside corners.
   2. Expansion Joints:
      a. Type: V-shaped metal with factory-installed protective tape.

E. Joint Materials: ASTM C475/C475M and as recommended by gypsum board manufacturer for project conditions.
   1. Paper Tape: 2 inch (50 mm) wide, creased paper tape for joints and corners, except as otherwise indicated.
   2. Joint Compound: Setting type, field-mixed.

F. Finishing Compound: Surface coat and primer, takes the place of skim coating.

G. High Build Drywall Surfacer: Vinyl acrylic latex-based coating for spray application, designed to take the place of skim coating and separate paint primer in achieving Level 5 finish.

H. Drywall Ceiling Installation Accessories: Products recommended by gypsum board manufacturer.

I. Fasteners and Adhesives: Products recommended by gypsum board manufacturer.
   1. Screws for Fastening of Gypsum Panel Products to Cold-Formed Steel Studs Less than 0.033 inches (0.84 mm) in Thickness and Wood Members: ASTM C1002; self-piercing tapping screws, corrosion-resistant.
   2. Screws for Fastening of Gypsum Panel Products to Steel Members from 0.033 to 0.112 inch (0.84 to 2.84 mm) in Thickness: ASTM C954; steel drill screws, corrosion-resistant.

J. Air-and-Water Barrier-Faced Sheathing System Accessories: Products recommended by sheathing manufacturer.
   1. Detailing Sealant: High-performance, medium-modulus, low-VOC, UV stable, non-sag polyurethane sealant.
   2. Transition Membrane Adhesive: Ultra-low modulus, high-performance, one-part moisture curing silicone joint sealant.
   3. Transition Membrane: Flat, single-ribbed, pre-engineered silicone extrusion.

4. Impermeable Membrane: 0.022 inch (0.56 mm) thick, composite self-adhered sheet comprised of butyl and high-density polypropylene facer layers.
5. Reinforcing Mesh: Manufacturer's standard, designed for full embedment in fluid-applied air-barrier membrane.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

B. Suspended Ceilings and Soffits: Space framing and furring members at 16 inches on center (at 400 mm on center).
   1. Level ceiling system to a tolerance of 1/1200.
   2. Laterally brace entire suspension system.
   3. Install bracing as required at exterior locations to resist wind uplift.

C. Studs: Space studs as indicated.
   1. Extend partition framing to structure where indicated and to ceiling in other locations.
   2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
   3. Partitions Terminating at Structure: Attach top runner to structure, maintain clearance between top of studs and structure, and connect studs to track using specified mechanical devices in accordance with manufacturer's instructions; verify free movement of top of stud connections; do not leave studs unattached to track.

D. Openings: Reinforce openings as required for weight of doors or operable panels, using not less than double studs at jambs.

E. Standard Wall Furring: Install at _____ walls scheduled to receive gypsum board, not more than 4 inches (100 mm) from floor and ceiling lines and abutting walls. Secure in place on alternate channel flanges at maximum 24 inches (600 mm) on center.
   1. Orientation: Horizontal.
   2. Spacing: As indicated.

F. Acoustic Furring: Install resilient channels at maximum 24 inches (600 mm) on center. Locate joints over framing members.

G. Resilient Sound Isolation Clips: Install resilient sound isolation clips, and where applicable, associated furring sections and channels, in accordance with clip manufacturer's written instructions.

H. Furring for Fire-Resistance Ratings: Install as required for fire-resistance ratings indicated and to GA-600 requirements.

I. Blocking: Install mechanically fastened steel sheet blocking for support of:
   1. Wall-mounted cabinets.
   2. Plumbing fixtures.
   3. Toilet partitions.
   4. Toilet accessories.
   5. Wall-mounted door hardware.

3.03 ACOUSTIC ACCESSORIES INSTALLATION

A. Acoustic Insulation: Place tightly within spaces, around cut openings, behind and around electrical and mechanical items within partitions, and tight to items passing through partitions.

B. Acoustic Sealant: Install in accordance with manufacturer's instructions.
   1. Place continuous bead at perimeter of each layer of gypsum board.
   2. Seal around all penetrations by conduit, pipe, ducts, and rough-in boxes, except where firestopping is provided.

3.04 BOARD INSTALLATION

A. Comply with ASTM C840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.

B. Single-Layer Nonrated: Install gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Double-Layer, Nonrated: Use gypsum board for first layer, placed parallel to framing or furring members, with ends and edges occurring over firm bearing. Place second layer perpendicular to framing or furring members. Offset joints of second layer from joints of first layer.

D. Fire-Resistance-Rated Construction: Install gypsum board in strict compliance with requirements of assembly listing.

E. Exposed Gypsum Board in Interior Wet Areas: Seal joints, cut edges, and holes with water-resistant sealant.

F. Installation on Metal Framing: Use screws for attachment of gypsum board except face layer of nonrated double-layer assemblies, which may be installed by means of adhesive lamination.

G. Curved Surfaces: Apply gypsum board to curved substrates in accordance with GA-226.

3.05 SHAFT WALL INSTALLATION

A. Shaft Wall Framing: Install in accordance with manufacturer's installation instructions.
   1. Install studs at spacing required to meet performance requirements.

B. Shaft Wall Liner: Cut panels to accurate dimensions and install sequentially between special friction studs.
   1. On walls over sixteen feet high, screw-attach studs to runners top and bottom.

3.06 INSTALLATION OF TRIM AND ACCESSORIES

A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
   1. Not more than 30 feet (9 meters) apart on walls and ceilings over 50 feet (15 meters) long.

B. Corner Beads: Install at external corners, using longest practical lengths.

C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

3.07 JOINT TREATMENT

A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
   1. Level 5: Walls and ceilings to receive semi-gloss or gloss paint finish and other areas specifically indicated.
   2. Level 4: Walls and ceilings to receive paint finish or wall coverings, unless otherwise indicated.
   3. Level 2: In utility areas, behind cabinetry, and on backing board to receive tile finish.
   4. Level 1: Fire-resistance-rated wall areas above finished ceilings, whether or not accessible in the completed construction.

B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
   1. Feather coats of joint compound so that camber is maximum 1/32 inch (0.8 mm).

C. _____ apply high build drywall surfacer over entire surface after joints have been properly treated; achieve a flat and tool mark-free finish.

D. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.08 SHEATHING INSTALLATION

A. Wall Sheathing: Comply with ASTM C1280. Install sheathing _____, with edges butted tight and ends occurring over firm bearing.
   1. At wall assemblies designed to achieve a fire-resistance rating install sheathing in accordance with reports of fire resistance tests, engineering evaluations, or listings from recognized fire-resistance laboratories.
   2. At wall assemblies designed to achieve specified sound transmission loss performance install sheathing in accordance with acoustical test report of an assembly that has met these requirements.
   3. Metal Framing Application: Install wall sheathing with long dimension perpendicular to wall studs, with ends over firm bearing and staggered, using self-tapping screws.

3.09 TOLERANCES

A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet (3 mm in 3 m) in any direction.

SECTION 093000
TILING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

C. Cementitious backer board as tile substrate.

D. Stone thresholds.

E. Ceramic trim.

F. Non-ceramic trim.

G. Setting Materials

H. Grout

I. Maintenance and Accessory Materials.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 071400 - Fluid-Applied Waterproofing.

C. Section 079200 - JOINT SEALANTS: Sealing joints between tile work and adjacent construction and fixtures.

D. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

E. Section 224000 - Plumbing Fixtures:

1.03 REFERENCE STANDARDS

A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2023.

B. ANSI A108.1b - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

C. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

D. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.

E. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.

F. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.

G. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2024).

H. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.

I. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).

J. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.

K. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.

L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).

M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2017.

N. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs; 2020.

A. ANSI A108/A118/A136 - American National Standard Specifications for the Installation of Ceramic Tile (Compendium); 2024.

B. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2021.

C. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2023.

D. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2023.

E. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014 (Reaffirmed 2024).

F. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.

G. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products; 2018.

H. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2023.

I. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2019.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures,for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Field Verified Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.

D. Samples for verification: Provide full size samples for verification for each tile specified. Provide manufacturers standard size and sample for each trim profile specified.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Installer's Qualification Statement:
   1. Submit documentation of National Tile Contractors Association (NTCA) or Tile Contractors' Association of America (TCAA) accreditation; www.tile-assn.com/#sle

G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Tile: 5 percent of each size, color, and surface finish combination, but not less than 1 box of each type.
   3. Extra Trim: 5 percent of each size, profile and finish specified, but not less than one piece at manufacturer's full standard length.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section, with minimum five years of documented experience.

B. Installer Qualifications:
   1. Company specializing in performing tile installation, with minimum of five years of documented experience.
      a. Accredited Five-Star member of the National Tile Contractors Association (NTCA) or Trowel of Excellence member of the Tile Contractors' Association of America (TCAA).

1.07 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective work within a 5-year period after Date of Substantial Completion.

C. Manufacturer's Warranty: Include coverage for degradation of color finish. Complete form in Owner's name and register with manufacturer.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

1.09 FIELD CONDITIONS

A. Maintain ambient and substrate temperature above 50 degrees F (10 degrees C) and below 100 degrees F (38 degrees C) during installation and curing of setting materials.

PART 2 PRODUCTS

2.01 TILE

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

B. Manufacturers: **Provided Basis-of-Design Product as listed on Interior Finish Schedule.**

1. Substitutions: See Section 016000 - Product Requirements.

C. Ceramic Mosaic Tile, Type TF: ANSI A137.1 standard grade.
1. Moisture Absorption: <3.0 percent as tested in accordance with ASTM C373.
2. Breaking Strength: >250 lbs as tested in accoedance with ASTM C648
3. Scratch Hardness: 8.0 as tested in accordance with ASTM MOHS
4. Chemical Resistant per ASTM C650
5. Size: As indicated on drawings.
6. Shape: As indicated on drawings.
7. Surface Finish: Matte.
8. Color(s): As indicated on drawings.
9. Pattern: As indicated on drawings.
10. Mounted Sheet Size: 12 by 24 inches (30.48 by 60.96 mm).
11. Products: Provide Basis-of-Design Product as listed on Interior Finish Schedule.
    a. Substitutions: See Section 016000 - Product Requirements.

D. Glazed Wall Tile, Type TW: ANSI A137.1 standard grade.
1. Moisture Absorption: <20.0 percent as tested in accordance with ASTM C373.
2. Breaking Strength: 120 - 230 lbs as tested in accordance with ASTM C648
3. Scratch Hardness: 4.0 - 6.0 as tested in accordance with ASTM MOHS
4. Chemical Resistant per ASTM C650
5. Size: As indicated on drawings.
6. Surface Finish: As indicated on drawings.
7. Color(s): As indicated on drawings.
8. Pattern: As indicated on drawings.
9. Trim Units: Matching cove shapes in sizes and finishes indicated on Interior Finish Schedule.
10. Products: Provide Basis-of-Design Product as listed on Interior Finish Schedule.
    a. Substitutions: See Section 016000 - Product Requirements.

2.02 TRIM AND ACCESSORIES

A. Ceramic Trim, Type (TB): Matching cove base ceramic shapes in sizes and finishes indicated on Interior Finish Schedule.
1. Applications:
    a. Floor to Wall Joints: Cove base, unless otherwise noted on drawings.
2. Manufacturers: Same as for tile, in locations specified.

B. Non-Ceramic Trim, Type (TR) and (TS): Satin natural anodized extruded aluminum, style and dimensions to suit application, set with tile mortar or adhesive.
1. Applications:
    a. Open edges of wall tile.
    b. Inside and outside wall corners.
    c. Transition between floor finishes of different heights.
    d. Floor and wall expansion and control joints.
    e. Floor-to-wall joints.
    f. Borders and other trim as indicated on drawings.
    g. Provide connectors and 90 degree corner trim pieces as required for complete instllation of non-ceramic trim system.
2. Manufacturers: Provide Basis-of-Design Product as listed in Interior Finish Schedule or comparable product by one of the following:

a. **(Basis of Design)** Schluter-Systems: www.schluter.com/#sle.
b. Kuberit USA: www.kuberitusa.com/#sle.
c. Profilitec: www.profilitec.com/#sle.
d. Substitutions: See Section 016000 - Product Requirements.

C. Thresholds, Type TS: 2 inches (51 mm) wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
1. Thickness: 1/2 inch (12.7 mm) maximum, overall thickness to fit application.
2. Material: Marble, honed finish.
3. Color and Pattern: As indicated on drawings.
4. Applications:
a. At doorways where tile terminates at restrooms.
5. Products: Provide Basis-of-Design Product as listed on Interior Finish Schedule.
a. Substitutions: See Section 016000 - Product Requirements.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Manufacturers:
1. Custom Building Products: www.custombuildingproducts.com/#sle.
2. LATICRETE International, Inc: www.laticrete.com/#sle.
3. Mapei Corporation: www.mapei.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

C. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
1. Products:
a. Custom Building Products; EBM-Lite Epoxy Bonding Mortar: www.custombuildingproducts.com/#sle.
b. **(Basis of Design)** LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: www.laticrete.com/#sle.
c. Mapei Corporation; Kerapoxy 410: www.mapei.com/#sle.
d. Substitutions: See Section 016000 - Product Requirements.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. Manufacturers: Provide Basis-of-Design Product as listed in Interior Finish Schedule or comparable product by one of the following:
1. Custom Building Products: www.custombuildingproducts.com/#sle.
2. LATICRETE International, Inc.; Spectralock Pro: www.laticrete.com/#sle.
3. Mapei Corporation: www.mapei.com/#sle.
4. Substitutions: See Section 016000 - Product Requirements.

C. Epoxy Grout: ANSI A118.3 chemical resistant and water-cleanable epoxy grout.
1. Color(s): As indicated on drawings.
2. Products:
a. Custom Building Products; CEG-IG 100% Solids Industrial Grade Epoxy Grout: www.custombuildingproducts.com/#sle.
b. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
c. Mapei Corporation; Kerapoxy CQ: www.mapei.com/#sle.
d. Substitutions: See Section 016000 - Product Requirements.

2.05 MAINTENANCE MATERIALS

A. Tile Sealant: Gunnable, silicone, siliconized acrylic, or urethane sealant; moisture and mildew resistant type.
   1. Applications: Between tile and plumbing fixtures.
   2. Color(s): As selected by Architect from manufacturer's full line.
   3. Products:
      a. Custom Building Products; Commercial 100% Silicone Caulk: www.custombuildingproducts.com/#sle.
      b. LATICRETE International, Inc; LATICRETE LATASIL: www.laticrete.com/#sle.
      c. Mapei Corporation; Mapesil T Plus: www.mapei.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.

B. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new Portland cement grout.
   1. Composition: Water-based colorless silicone.
   2. Products:
      a. STONETECH, a Division of LATICRETE International, Inc; STONETECH Heavy Duty Grout Sealer: www.laticrete.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.

2.06 ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
   1. Crack Resistance: No failure at 1/8 inch (3.2 mm) gap, minimum.
   2. Fluid or Trowel Applied Type:
      a. Material: Synthetic rubber or Acrylic.
      b. Thickness: 20 mils (0.5 mm), maximum.
      c. Products:
         1) LATICRETE International, Inc; LATICRETE FRACTURE BAN SC: www.laticrete.com/#sle.
         2) Mapei Corporation; Mapelastic CI: www.mapei.com/#sle.
         3) Substitutions: See Section 016000 - Product Requirements.

B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
   1. Crack Resistance: No failure at 1/16 inch (1.6 mm) gap, minimum; comply with ANSI A118.12.
   2. Fluid or Trowel Applied Type:
      a. Material: Synthetic rubber or Acrylic.
      b. Products:
         1) LATICRETE International, Inc; LATICRETE HYDRO BAN.
         2) Mapei Corporation; Mapelastic AquaDefense: www.mapei.com/#sle.
         3) Substitutions: See Section 016000 - Product Requirements.

C. Backer Board: Cementitious type complying with ANSI A118.9; high density, glass fiber reinforced, 5/8 inch (16 mm) thick; 2 inch (51 mm) wide coated glass fiber tape for joints and corners.
   1. Products:
      a. Custom Building Products; WonderBoard.
      b. C-Cure; C-Cure Board 990.

c. USG Corporation; DUROCK Cement Board.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 090561 - Common Work Results for Flooring Preparation.
   2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.
   3. Follow moisture and alkalinity remediation procedures in Section 090561.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

A. Install tile and thresholds and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.20, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles square.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep control and expansion joints free of mortar, grout, and adhesive.

J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

K. Grout tile joints unless otherwise indicated. Use epoxy grout unless otherwise noted.

L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F131, Epoxy mortar bond coat, with epoxy grout, unless otherwise indicated.
   1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
      a. Any levels above ground level scheduled to receive tile.

B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.05 INSTALLATION - WALL TILE

A. Over cementitious backer units on studs, install in accordance with TCNA (HB) Method W244 with epoxy grout unless otherwise indicated, using membrane at toilet rooms.

B. Over gypsum wallboard on wood or metal studs install in accordance with TCNA (HB) Method W243, thin-set with dry-set or latex-Portland cement bond coat, unless otherwise indicated.

C. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 095100
ACOUSTICAL CEILINGS - ARMSTRONG

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Acoustical units.

B. Suspension systems.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.

C. Section 072100 - THERMAL INSULATION.

1.03 REFERENCE STANDARDS

A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

C. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

D. ASTM C635/C635M - Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings; 2017.

E. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

F. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2024.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

H. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

I. ASTM E580/E580M - Standard Practice for Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions; 2024a.

J. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests; 2023.

K. ASTM E1264 - Standard Classification for Acoustical Ceiling Products; 2019.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Sequencing: Install acoustical ceilings after building is enclosed, sufficient heat is provided, dust-generating activities are terminated, and overhead work is completed, tested, and approved. Install acoustical units after interior wet work is dry.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Shop Drawings: Indicate grid layout and related dimensioning.

C. Product Data: Provide data on suspension system components and acoustical units.

D. Samples:
   1. Submit two samples 6" by 6" inches size illustrating material and finish of acoustical units. Provide manufacturers standard size sample for each suspension profile specified

E. Manufacturer's Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Designer's qualification statement.

G. Manufacturer's qualification statement.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements for additional provisions.
   2. Extra Acoustical Units: Quantity equal to 5 percent of total installed.
   3. Extra Suspension system: 5 percent of each size, profile, and finish specified, but not less than one piece at manufactura

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Perform seismic design under direct supervision of professional structural engineer experienced in design of this work and licensed in the State in which the Project is located.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

1.07 FIELD CONDITIONS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C), and maximum humidity of 40 percent before, during, and after acoustical unit installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

B. Acoustical Ceiling Tile: **Provide Basis of Design product listed on Interior Finish Schedule.**
   1. Substitutions: See Section 016000 - Product Requirements.

C. Suspension systems: same as for Acoustic Ceiling Tile Units. **Provide Basis-of-Design product listed on Interior Finish Schedule.**
   1. Substitutions: See Section016000-Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Rating: Tested in accordance with ASTM E119 and complying with the following:

B. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84.

2.03 ACOUSTICAL UNITS

A. Acoustical Panels, Type ACT: With the following characteristics:
   1. Classification: ASTM E1264, Type A.
      a. Form: A2.2, wet formed.
      b. Pattern: E - lightly textured.

2. Size: Refer to I000 Finish Schedule.
3. Thickness: 7/8 inch (22 mm).
4. Light Reflectance: .87 percent, in accordance with ASTM E1264.
5. Articulation Class (AC): 170, in accordance with ASTM E1264.
6. Ceiling Attenuation Class (CAC): bEST, in accordance with ASTM E1264.
7. Noise Reduction Coefficient (NRC): 0.80 when tested in accordance with ASTM C423 for Type E-400 mounting, in accordance with ASTM E795.
8. Panel Edge: Square.
9. Tile Edge: Square.
10. Color: Refer to I000 Finish Schedule.
11. Suspension System: Exposed grid.
12. Products: **Basis of Design; Refer to I000 Finish Schedule.**
    a. Substitutions: See Section016000-Product Requirements.
13. Warranty: 30-Year Performance Guarantee & Warranty When installed with Armstrong Suspension System.

B. Suspended Acoustical Panels, Type ACS: 100% polyester fiber, and 60% recycled PET polyester felt material, 40% new material.
1. Classification: Class A
2. Size: Refer to I000 Finish Schedule.
3. Thickness: 1 inch
4. Panel Edge: Refer to I000 Finish Schdule
5. Color: Refer to I000 Finish Schdule
6. Integrated Lighting: Refer to division 26 specifications & E-Series drawings.
7. Suspension System: 1/16” diameter, galvanized steel aircraft cable with adjustable and lockable nickel-plated cable grippers.
8. **Products: Basis of Design; Refer to I000 Finish Schedule.**
    a. Substitutions: See Section 016000 - Product Requirements.
9. Warranty: Two year limited warranty from date of shipment. Optional accessories are covered by their individual manufacturer warranties.

2.04 SUSPENSION SYSTEMS

A. Metal Suspension Systems - General: Complying with ASTM C635/C635M; die cut and interlocking components, with perimeter moldings, hold-down clips, stabilizer bars, clips, and splices as required.

B. Exposed Suspension System: Hot-dip galvanized steel grid with steel cap.
1. Structural Classification: Intermediate-duty, when tested in accordance with ASTM C635/C635M.
2. Profile: Tee; 15/16-inch (24 mm) face width.
3. Finish: Baked enamel.
4. Color: White.
5. Products: **Basis of Design; Refer to I000 Finish Schedule.**

2.05 ACCESSORIES

A. Support Channels and Hangers: Galvanized steel; size and type to suit application, seismic requirements, and ceiling system flatness requirement specified.

B. Hanger Wire: 12 gauge, 0.08 inch (2 mm) galvanized steel wire.

C. Hold-Down Clips: Manufacturer's standard clips to suit application.

D. Seismic Clips: Manufacturer's standard clips for seismic conditions and to suit application.

E. Face sleeve.

F. Perimeter Moldings: Same metal and finish as grid.
   1. Size: As required for installation conditions and specified Seismic Design Category.
   2. Angle Molding: L-shaped, for mounting at same elevation as face of grid.
   3. Shadow Molding: Shaped to create perimeter reveal.
   4. Channel Molding: U-shaped, for hold-down type installations.
   5. Acoustical Sealant for Perimeter Moldings: Nonhardening, nonskinning, for use with suspended ceiling system.

G. Metal Edge Trim for Suspension Systems: Extruded aluminum; provide attachment clips, splice plates, and preformed corner pieces for complete trim system.
   1. Trim Height: Refer to I000 Finish Schedule.
   2. Finish: Baked enamel.
   3. Color: Refer to I000 Finish schedule.
   4. Products: Basis of Design; Refer to I000 Finish Schedule.

H. Touch-Up Paint: Type and color to match acoustical and grid units.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that layout of hangers does not interfere with other work.

3.02 PREPARATION

A. Install after major above-ceiling work is complete.

B. Coordinate location of hangers with other work.

C. Provide hanger clips during steel deck erection. Provide additional hangers and inserts as required.

3.03 INSTALLATION - SUSPENSION SYSTEMS

A. Install suspension system in accordance with ASTM C636/C636M, ASTM E580/E580M, and manufacturer's instructions, as supplemented in this section.

B. Rigidly secure system, including integral mechanical and electrical components, for maximum deflection of 1:360.

C. Lay out system to balanced grid design with edge units no less than 50 percent of acoustical unit size.

D. Perimeter Molding: Install at intersection of ceiling and vertical surfaces and at junctions with other interruptions.
   1. Use longest practical lengths.
   2. Overlap and rivet corners.

E. Suspension System, Non-Seismic: Hang suspension system independent of walls, columns, ducts, pipes, and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.

F. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers and related carrying channels to span extra distance.

G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.

H. Support fixture loads using supplementary hangers located within 6 inches (152 mm) of each corner, or support components independently.

I. Do not eccentrically load system or induce rotation of runners.

J. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with fire-rated assembly requirements and light fixture ventilation requirements.

3.04 INSTALLATION - ACOUSTICAL UNITS

A. Install acoustical units in accordance with manufacturer's instructions.

B. Fit acoustical units in place, free from damaged edges or other defects detrimental to appearance and function.

C. Fit border trim neatly against abutting surfaces.

D. Install acoustical units level, in uniform plane, and free from twist, warp, and dents.

E. Cutting Acoustical Units:
   1. Make field cut edges of same profile as factory edges.

F. Where round obstructions, bullnose concrete block corners, and _____ occur, provide preformed closures to match perimeter molding.

3.05 REPAIR

A. Replace damaged or abraded components.

3.06 CLEANING

A. See Section 017000 - Execution and Closeout Requirements for additional requirements.

B. Clean surfaces.

SECTION 095111
ACOUSTICAL LINEAR CEILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Linear ceiling Beams.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 095100 - Acoustical Ceilings.

1.03 REFERENCE STANDARDS

A. ASCE 7 - Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Most Recent Edition Cited by Referring Code or Reference Standard.

B. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

C. ASTM C636/C636M - Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels; 2019.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests; 2023.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's printed data sheets for products specified.

C. Shop Drawings: Fabrication and installation details, including unit layout and woodprint orientation.

D. Samples:
   1. For Initial Selection: Manufacturer's color charts for PET Material, indicating full range of, colors, and patterns available.

E. Manufacturer's Instructions. Indicate specific installation requirements.

F. Manufacturer's qualification statement.

G. Installers qualification statement.

H. Specimen warranty.

I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements for additional provisions.
   2. Extra Panels: Quantity equal to 5 percent of total installed, but not less than one of each type.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of type specified in section, with at least five years of documented experience.

B. Documents at Project Site: Maintain at project site one copy of manufacturer's instructions and shop drawings.

1.06 MOCK-UPS

A. See Section 014000 - Quality Requirements, for additional mock-up requirements.

B. Construct one full-size mock-up of beam indicating installation method and orientation of finished surfaces.

C. Mock-up may remain as part of work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Protect acoustical units from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until units are needed for installation.

C. Store units flat, in dry, well-ventilated space; do not stand on end.

D. Protect edges from damage.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year manufacturer warranty for materials and fabrication. Complete forms in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

B. Manufacturers: **Provided Basis of Design product listed on Interior Finish Schedule.**
   1. Substitutions: See Section016000-Product Requirements.

C. Source Limitations: Furnish products obtained from single supplier and produced by single manufacturer.

2.02 LINEAR CEILING UNITS

A. Suspended Acoustical Beams General:
   1. Sound Absorption: Noise reduction coefficient (NRC) of 0.80 when tested in accordance with ASTM C423-17; For 'J' type mounting, @ 12" OC.

B. Suspended Acoustical Beams General; Type ACS: **Provide Basis of Design product listed on Interior Finish Schedule.**
   1. Size: Refer to I000 Finish Schedule.
   2. Felt Thickness: 11/32 inch (9 mm).
   3. Edges: Square.
   4. Configuration: As indicated on drawings.
   5. Surface Finish: Acoustic Perforations
   6. Perforations: Holes.
   7. Felt Color: Refer to I000 Finish Schedule.
   8. Mounting: Cable to deck

9. Products: **Provide Basis of Design product listed on Interior Finish Schedule.**
   a. Substitutions: See Section 016000 - Product Requirements.

2.03 ACCESSORIES

A. Ceiling-Suspended Accessories: Manufacturer's recommended accessories, sized appropriately for unit weight.

B. Cable Carrier System: Manufacturer's recommended accessories for mounting conditions and spans indicated on drawings. See Section 095100 for additional information.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates for conditions detrimental to installation of acoustical units. Proceed with installation only after unsatisfactory conditions are corrected.

3.02 INSTALLATION

A. Install acoustical units in locations indicated on drawings; follow manufacturer's installation instructions.

B. Install suspension system and stabilizer bars in accordance with ASTM C636/C636M and manufacturer's instructions.

C. Align Beams accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.

3.03 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.6 mm).

3.04 CLEANING

A. See Section 017000 - Execution and Closeout Requirements for additional requirements.

B. Follow manufacturer's instructions to clean sound-absorptive panels from dust and other foreign materials upon completion of installation.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures, for additional submittals.

3.06 PROTECTION

A. Protect installed acoustical units until Date of Substantial Completion.

B. Replace units that cannot be cleaned or repaired to satisfaction of Architect.

END OF SECTION

SECTION 096500
RESILIENT FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Resilient tile flooring.

B. Resilient base.

C. Resilient stair accessories.

D. Installation accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied resilient flooring.

C. Section 090561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

D. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

E. Section 260539 - Underfloor Raceways for Electrical Systems: Electrical floor cover plates for installation of resilient flooring specified in this section.

1.03 REFERENCE STANDARDS

A. ASTM D6329 - Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers; 1998 (Reapproved 2015).

B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2023.

C. ASTM E492 - Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine; 2009, with Editorial Revision (2016).

D. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2019a, with Editorial Revision (2020).

E. ASTM E2179 - Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors; 2025.

F. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

G. ASTM F1066 - Standard Specification for Vinyl Composition Floor Tile; 2004 (Reapproved 2018).

H. ASTM F1344 - Standard Specification for Rubber Floor Tile; 2015.

I. ASTM F1700 - Standard Specification for Solid Vinyl Floor Tile; 2020.

J. ASTM F1861 - Standard Specification for Resilient Wall Base; 2016.

K. ASTM F2169 - Standard Specification for Resilient Stair Treads; 2015, with Editorial Revision (2016).

L. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

M. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2019.

N. RFCI (RWP) - Recommended Work Practices for Removal of Resilient Floor Coverings; 2011.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Field verified shop drawings outlining layouts, patterns, and special conditions.

D. Verification Samples: For each type of product indicated, in manufacturer's standard-size sample of each resilient product color, texture, and pattern specified.

E. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

F. Certification: Prior to installation of flooring, submit written certification by flooring manufacturer and adhesive manufacturer that condition of subfloor is acceptable.

G. Manufacturer's Qualification Statement.

H. Installer's Qualification Statement.

I. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning, stripping, and re-waxing.

J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: Quantity equivalent to 5 percent of each type and color.
   3. Extra Wall Base: Quantity equivalent to 5 percent of each type and color.
   4. Extra Stair Materials: Quantity equivalent to 5 percent of each type and color.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified flooring with minimum five years documented experience.

B. Installer Qualifications: Company specializing in installing specified flooring with minimum five years documented experience.

C. Testing Agency Qualifications: Independent firm specializing in performing concrete slab moisture testing and inspections of the type specified in this section.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Upon receipt, immediately remove any shrink-wrap and check materials for damage and the correct style, color, quantity and run numbers.

B. Store all materials off of the floor in an acclimatized, weather-tight space.

C. Maintain temperature in storage area between 55 degrees F and 90 degrees F.

D. Do not double stack pallets.

1.07 FIELD CONDITIONS

A. Store materials for not less than 48 hours prior to installation in area of installation at a temperature of 70 degrees F to achieve temperature stability. Thereafter, maintain conditions above 55 degrees F.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective work within a [5-year] period after Date of Substantial Completion.

C. Manufacturer's Warranty: Include coverage for degradation of color finish. Complete form in Owner's name and register with manufacturer.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

2.02 TILE FLOORING

A. Vinyl Composition Tile: Homogeneous, with color extending throughout thickness.
   1. Manufacturers:
      a. **(Basis of Design)** Armstrong Flooring; Standard Excelon Imperial Texture: www.armstrongflooring.com/#sle.
      b. Johnsonite, a Tarkett Company: www.johnsonite.com/#sle.
      c. Substitutions: See Section 016000 - Product Requirements.
   2. Minimum Requirements: Comply with ASTM F1066, of Class corresponding to type specified.
   3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
   4. Size: 12 by 12 inch.
   5. Thickness: 0.125 inch.
   6. Pattern: As indicated on drawings.
   7. Color: As indicated on drawings.

B. Luxury Vinyl Tile - Type LVT: Printed film type, with transparent or translucent wear layer.
   1. Manufacturer: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
      a. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered when the bidder provides a written request for equivalency to the Architect prior to bidding.
         1) Johnsonite, a Tarkett Company; Contour Series and Contour Digital Custom: www.johnsonite.com/#sle.
         2) Substitutions: See Section 016000 - Product Requirements.
   2. Minimum Requirements: Comply with ASTM F1700, Class III, Type B performance.
   3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648.
   4. Static Load Limit: 250 psi, < 0.005 inch per ASTM F970.
   5. Residual Indentation: Passes per ASTM F1914.
   6. Dimensional Stability: Passes per ASTM F2199.
   7. Chemical Resistance: Passes per ATM F925.

8. Total Thickness: {CH#412729}.
9. Plank Tile Size: Varies, refer to Interior Finish Schedule on " I " series drawi.
10. Wear Layer Thickness: 32 mil (0.8mm).
11. Overall Thickness: 0.120 inch (3 mm).
12. Finish: Tectonic Factory Finish
13. Tile Edge: Straight.
14. Color: As indicated on drawings.
15. Pattern: As indicated on drawings.
16. Warranty: Manufacturers standard 25-year Limited Commercial Warranty.

C. Rubber Tile - Type RT: Homogeneous, color and pattern throughout thickness.
1. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
   a. **(Basis of Design)** Johnsonite, a Tarkett Company; Custom Pearl A: www.johnsonite.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.
2. Minimum Requirements: Comply with ASTM F1344, of Class corresponding to type specified.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
4. Hardness: Not less than 85 Shore A per ASTM D 2240.
5. Abrasion Resistance: <1.0 gram weight loss per ASTM D 3389
6. Slip Resistance: >0.5 SCOF per ASTM D 2047
7. Static Load Limit: Passes (250 psi load) per ASTM F 970
8. Chemical Resistant per ASTM F 925.
9. Size: As indicated on drawings nominal.
10. Total Thickness: 0.125 inch.
11. Texture: As indicated on drawings.
12. Color: As indicated on drawings.
13. Pattern: As indicated on drawings.
14. Warranty: Manufacturers standard 25-year Limited Commercial Warranty.

2.03 STAIR COVERING

A. Stair Treads with Integral Risers and Visually Impaired Grit Strip - Type (RST): Rubber; full height of riser, full width and depth of tread in one piece; tapered thickness.
1. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
   a. Johnsonite, a Tarkett Company; _____: www.johnsonite.com.
   b. Substitutions: See Section 016000 - Product Requirements.
2. Minimum Requirements: Comply with ASTM F2169, Type TS, rubber, vulcanized thermoset.
3. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
4. Hardness: Not less than 85 Shore A per ASTM D2240.
5. Abrasion Resistance: Passes per ASTM D 3389.
6. Nosing: Square.
7. Striping: 2 inch wide contrasting color abrasive strips.
8. Tread Texture: As indicated on drawings. .

9. Tread Pattern: As indicated on drawings..
10. Color: As indicated on drawings.
11. Warranty: Manufacturers standard 5-year Limited Commericall Warranty.

2.04 RESILIENT BASE

A. Resilient Base - Type RB: ASTM F1861, Type TP, rubber, thermoplastic; style as scheduled.
   1. Manufacturers:**Provide Basis-of-Design product as listed on Interior Finish Schedule.**
      a. Johnsonite, a Tarkett Company; Duracove: www.johnsonite.com/#sle.
      b. Substitutions: See Section 016000 - Product Requirements.
   2. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E648 or NFPA 253.
   3. Height: 4 inches.
   4. Thickness: 0.125 inch.
   5. Finish: Satin.
   6. Length: Roll.
   7. Color: As indicated on drawings.
   8. Accessories: Premolded external corners and internal corners.

2.05 ACCESSORIES

A. Subfloor Filler: White premix latex; type recommended by adhesive material manufacturer.

B. Primers, Adhesives, and Seam Sealer: Waterproof; types recommended by flooring manufacturer.

C. Moldings, Transition and Edge Strips: Metal.
   1. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
      a. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered when the bidder provides a written request for equivalency to the Architect prior to bidding.
         1) Schluter-Systems; ; Type (TS) as indicated on drawings: www.schluter.com/#sle.
         2) Substitutions: See Section 016000 - Product Requirements.

D. Filler for Coved Base: Plastic.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of flooring to substrate.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive resilient base.

C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 090561.
   2. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing resilient flooring and flooring adhesives; follow the recommendations of RFCI (RWP).

B. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

C. Remove subfloor ridges and bumps. Fill minor low spots, cracks, joints, holes, and other defects with subfloor filler to achieve smooth, flat, hard surface.

D. Prohibit traffic until filler is fully cured.

E. Clean substrate.

F. Apply primer as required to prevent "bleed-through" or interference with adhesion by substances that cannot be removed.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

C. Adhesive-Applied Installation:
   1. Spread only enough adhesive to permit installation of materials before initial set.
   2. Fit joints and butt seams tightly.
   3. Set flooring in place, press with heavy roller to attain full adhesion.

D. Where type of floor finish, pattern, or color are different on opposite sides of door, terminate flooring under centerline of door.

E. Install edge strips at unprotected or exposed edges, where flooring terminates, and where indicated.
   1. Metal Strips: Attach to substrate before installation of flooring using stainless steel screws.
   2. Resilient Strips: Attach to substrate using adhesive.

F. Scribe flooring and wall base to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.

G. Install flooring in recessed floor access covers, maintaining floor pattern.

H. At movable partitions, install flooring under partitions without interrupting floor pattern.

3.04 INSTALLATION - TILE FLOORING

A. Mix tile from container to ensure shade variations are consistent when tile is placed, unless otherwise indicated in manufacturer's installation instructions.

B. Lay flooring with joints and seams parallel to building lines to produce symmetrical pattern, unless otherwise noted.

C. Install plank tile with a random offset of at least 6 inches from adjacent rows.

3.05 INSTALLATION - RESILIENT BASE

A. Fit joints tightly and make vertical. Maintain minimum dimension of 18 inches between joints.

B. At external and internal corners, use premolded units. At exposed ends, use premolded units. Where premolded units cannot be obtained due to limitations in product and profile, miter internal corners.

C. Install base on solid backing. Bond tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other interruptions.

3.06 INSTALLATION - STAIR COVERINGS

A. Install stair coverings in one piece for full width and depth of tread.

B. Adhere over entire surface. Fit accurately and securely.

3.07 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean in accordance with manufacturer's written instructions.

3.08 PROTECTION

A. Prohibit traffic on resilient flooring for 48 hours after installation.

END OF SECTION

SECTION 096566
RESILIENT ATHLETIC FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Rubber tile, adhesively installed.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied flooring.

C. Section 090561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

D. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

E. Section 096500 - Resilient Flooring.

1.03 REFERENCE STANDARDS

A. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

C. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

D. ASTM F2772 - Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems; 2024.

E. DIN EN 14904 - Surfaces for Sports Areas – Indoor Surfaces for Multi-Sports Use – Specification; 2006.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by all affected installers; review preparation and installation procedures and coordination and scheduling necessary for related work.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; including sizes, patterns and colors available; and installation instructions.

C. Shop Drawings: Field verified shop drawing outlining fabrication and installation details, and layout, colors, and widths of game lines.

D. Verification Samples: For each type of product indicated, in manufacturer's standard-size sample of each resilient product color, texture, and pattern specified.

E. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

F. Manufacturer's Instructions: Indicate standard and special installation procedures.

G. Manufacturer's qualification statement.

H. Installer's qualification statement.

I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Flooring Material: 10 square yards (9 sq m) matching installed flooring.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience. Installer is to be trained, or certified by the flooring manufacturer specified or INSTALL (Internationl Standards & Training Alliance) resilient floor covering installer.

C. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of the type specified in this section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. See Section 017419 - Construction Waste Management and Disposal for packaging waste requirements.

B. Deliver materials to project site in unopened containers clearly labeled with manufacturer's name and identification of contents.

C. Store materials in dry and clean location until needed for installation. During installation, handle in a manner that will prevent marring and soiling of finished surfaces.

D. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.08 FIELD CONDITIONS

A. Maintain temperature in spaces to receive adhesively installed resilient flooring within range of 65 to 85 degrees F (18 to 29 degrees C) for not less than 48 hours before the beginning of installation and for not less than 48 hours after installation has been completed. Subsequently, do not allow temperature in installed spaces to drop below 50 degrees F (10 degrees C) or to go above 100 degrees F (38 degrees C).

PART 2 PRODUCTS

2.01 PREFORMED ATHLETIC FLOORING

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliane with requirements of products identified as basis-of-design, other manufactuers shall be considerd for bidding as an equivelant when the bidder provides a written request for equivalency to the Architect prior to bidding.

B. Manufacturers: **Provide Basis-of-Design Product as listed on Interior Finish Schedule.**
   1. Substitutions: See Section 016000 - Product Requirements.

C. Rubber Tile Flooring, Type RAF: Dual durometer layers composed of vulcanized 100% synthetic and nautral rubber, high quality additivies, and colorants to meet the perfromance eequirements of ASTM F1344, Type II,A - Solid and Type II, B - Mottled.
   1. Thickness: Minimum 3/8 inch (10 mm).
   2. Tile Edge/Installation: Straight, adhesive installation.

3. Size: As indicated on drawings.
4. Surface Texture: As indicated on drawings.
5. Color: As indicated on drawings.
6. Pattern: As indicated on drawings.
7. Performance Characteristics:
    a. Hardness: >70 Shore A per ASTM D2240
    b. Abrasion Resistance: Passes per ASTM D3389
    c. Impact Insulation Class: 59 IIC per ASTM E492
    d. Chemical Resistant per ASTM F925
    e. Static Load: 250 psi per ASTM F970
    f. Dimensional Stability: Passes per ASTM F2199
    g. Flamability: Class 1 per ASTM E648
8. Warranty: Limited 5 year commercial warranty
9. Products: Provide Basis-of-Design Product as listed on Interior Finish Schedudle.

2.02 ACCESSORIES

A. Leveling and Patching Compounds: Latex-modified, Portland cement based as recommended by flooring manufacturer for substrate conditions.

B. Flooring Adhesive: Waterproof; types recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates for conditions detrimental to installation of athletic flooring. Proceed with installation only after unsatisfactory conditions have been corrected.

B. Verify that surfaces are flat to tolerances acceptable to flooring manufacturer, free of cracks that might telegraph through flooring, clean, dry, and free of curing compounds, surface hardeners, and other chemicals that might interfere with bonding of athletic flooring to substrate.

C. Cementitious Subfloor Surfaces: Verify that substrates are ready for resilient flooring installation by testing for moisture and alkalinity (pH).
    1. Obtain instructions if test results are not within limits recommended by resilient flooring manufacturer and adhesive materials manufacturer.

3.02 PREPARATION

A. Prepare substrates according to manufacturers written instructions to ensure proper adhesion of Resilient Athletic Flooring.

B. Prepare concrete substrates in accordance with ASTM F710.

C. Fill cracks, holee, depressions and irregularities in the substrate with high quallity Portland cement based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth surface.

D. Remove coatings that are incompatible with flooring adhesives, using methods recommended by flooring manufacturer.

E. Do not install resilient products until they are the same temperature as the space in which they are to be installed.
    1. Move resilient products and installation materials into space where they will be installed at least 48 hours in advance of installation.

F. Broom clean areas to receive athletic flooring immediately before beginning installation.

3.03 INSTALLATION

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install in accordance with manufacturer's written instructions.

C. Rubber Tile Flooring:
   1. Lay out center lines in spaces to receive tile flooring, based on location of principal walls. Start tile installation from center, and adjust as necessary to avoid tiles less than one-half width at perimeter.
   2. Lay tiles square with room axis, matching for color and pattern by selecting from cartons and mixing as recommended by manufacturer.
   3. Spread only enough adhesive to permit installation of materials before initial set.
   4. Fit joints and butt seams tightly; press with heavy roller to attain full adhesion.

3.04 CLEANING

A. Clean flooring using methods recommended by manufacturer.

3.05 PROTECTION

A. Protect finished athletic flooring from construction traffic to ensure that it is without damage upon Date of Substantial Completion.

END OF SECTION

SECTION 096700
FLUID-APPLIED FLOORING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fluid-applied flooring and base.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.

C. Section 079200 - JOINT SEALANTS: Sealing joints between fluid-applied flooring and adjacent construction and fixtures.

D. Section 090561 - Common Work Results for Flooring Preparation: Removal of existing floor coverings, cleaning, and preparation.

E. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

F. Section 221006 - Plumbing Piping Specialties: Recessed plumbing access cover frames.

G. Section 260526 - Grounding and Bonding for Electrical Systems: Grounding and bonding of conductive flooring to building grounding system.

1.03 REFERENCE STANDARDS

A. ANSI/ESD STM7.1 - The Protection of Electrostatic Discharge Susceptible Items Flooring Systems Resistive Characterization; 2021.

B. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser; 2019.

C. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2019a, with Editorial Revision (2020).

D. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

E. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair; 2013.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns and colors available.

C. Samples: Submit two samples, 5 inch x 5 inch in size applied to ridgid backing illustrating color and pattern for each floor material for each color specified.

D. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

E. Manufacturer's Qualification Statement.

F. Applicator's Qualification Statement: Signed by manufacturer certifying installers comply with specified requirements.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, procedures for stain removal, repairing surface, and suggested schedule for cleaning.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Top Coat Materials: 2 gallons (8 liters).
   3. Any other necessary materials as recommended by manufacturer.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Engage an experienced installer (applicator) who is experienced in applying resinous flooring systems similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance, and who is acceptable to resinous flooring manufacturer.
   1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
   2. Contractor shall have completed at least 10 projects of similar size and complexity.

C. Manufacturer Field Technical Service Representatives: Resinous flooring manufacture shall retain the services of Field Technical Service Representatives who are trained specifically on
   1. Field Technical Services Representatives shall be employed by the system manufacture to assist in the quality assurance and quality control process of the installation and shall be available to perform field problem solving issues with the installer.

D. Pre-Installation Conference:
   1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
   2. Attendance: General Contractor, Architect/ Owner's Representative, Manufacturer/ Installer's representative.

1.06 MOCK-UPS

A. See Section 014000 - Quality Requirements for additional requirements.

B. Construct mock-up(s) of fluid applied flooring to serve as basis for evaluation of texture and workmanship.
   1. Number of Mock-Ups to be Prepared: One.
   2. Use same materials and methods for use in the work.
   3. Locate where directed; Over a 10 foot by 10 foot area.

C. Approved mock-up may remain as part of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

B. Store materials to prevent deterioration from moisture, heat, cold, direct sunlight, or other detrimental effects. Store material per product data sheet.

C. All materials used shall be factory pre-weighed and pre-packaged in single, easy to manage batches to eliminate on site mixing errors. No on site weighing or volumetric measurements allowed.

1.08 FIELD CONDITIONS

A. Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
   1. Maintain material and substrate temperature between 65 and 85 deg F (18 and 30 deg C) during resinous flooring application and for not less than 24 hours after application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application, unless manufacturer recommends a longer period.

D. Concrete substrate shall be properly cure. A vapor barrier must be present for concrete subfloors on or below grade. Otherwise, an osmotic pressure resistant grout must be installed prior to the resinous flooring.

1.09 WARRANTY

A. Manufacturer shall furnish a single, written warranty covering both material and workmanship for a period of (1) full years from date of installation, or provide a joint and several warranty signed on a single document by material manufacturer and applicator jointly and severally warranting the materials and workmanship for a period of (1) full year from date of installation. A sample warranty letter must be included with bid package or bid may be disqualified.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source and from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2.02 MANUFACTURERS

A. Fluid-Applied Flooring: **Basis of Design; Stonehard; Refer to I000 Finish schedule.**
   1. PPG Flooring: www.ppgpaints.com/#sle and www.ppgpmc.com/home.aspx/#sle.
   2. Sherwin-Williams Company: www.protective.sherwin-williams.com/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

2.03 FLUID-APPLIED FLOORING SYSTEMS

A. Fluid-Applied Flooring Type ERF: Must comply with troweled mortar base with broadcast topping.

B. General System Physical Properties: Provide a resinous flooring system with the following minimum property requirements when tested according to test methods indicated.
   1. Flammability: Class 1 per ASTM E648
   2. Compressive Strength: 10,000 psi after 7 days per ASTM C579
   3. Tensile Strength: 2,000 psi per ASTM C307
   4. Flexural Strength: 4,300 psi per ASTM C580
   5. Flexural Modulus of Elasticity: 2.0 x 106 psi per ASTM C580
   6. Hardness: 85 to 90 per ASTM D2240, Shore D
   7. Impact Resistance: > 160 in./lbs. per ASTM D2794
   8. Abrasion Resistance: 0.06 gm max. weight loss per ASTM D 4060, CS-17
   9. Flammability: Class 1 per ASTM E-648.

10. Thermal Coefficient of Linear Expansion: 1.3 x 10-5 in./in. oF
11. Water Absorption: 0.1% per ASTM C 413
12. VOC Content per ASTM D2369:
    a. Stonshield HRI Base – 40 g/l
    b. Stonshield Undercoat – 34 g/l
    c. Stonkote CE4 – 34 g/l
13. Cure Rate @ 77oF/25oC: 12 hours foot traffic, 24 hours normal operations

C. System Thickness: Nominal 3/16" inches

D. Integral Cove Base: 4" high unless noted otherwise on drawings

E. Color: Custom Broadcast percentages are specified. Refer to I000 Finish Schedule for all field and accent color identifications, and refer to drawings for locations.

F. System Materials:
1. Broadcast Aggregate: Refer to I000 Finish Schedule.
    a. Custom Broadcast percentages are specified. Refer to I000 Finish Schedule for all field and accent color identifications, and refer to drawings for locations.

G. System Components: Manufacturer's standard components that are compatible with each other and as follows.
    a. Primer:
        1) Material Basis: Stonhard Standard Primer
        2) Resin: Epoxy
        3) Formulation Description: (2) two component, 100 percent solids.
        4) Application Method: Squeegee and roller.
        5) Number of Coats: (1) one.
    b. Mortar Base:
        1)
        2) Material design basis: Stonshield HRI Base
        3) Resin: Epoxy.
        4) Formulation Description: (3) three component, 100 percent solids.
        5) Application Method: Metal Trowel.
            (a) Thickness of Coats: nominal 1/8” (inch).
            (b) Number of Coats: One.
        6) Aggregates: Pigmented Blended aggregate.
    c. Undercoat:
        1)
        2) Material Basis: Stonshield undercoat.
        3) Resin: Epoxy
        4) Formulation Description: (2) two-component, 100% solids, UV Stable.
        5) Type: Clear.
        6) Finish: Gloss.
        7) Number of Coats: one.
    d. Broadcast Media:
        1) Material Basis: Stonshield quartz aggregate
        2) Type: pigmented.
        3) Finish: standard.
        4) Number of Coats: one.
        5) Pattern: Tweed.

e. Sealer:
   1) Material Basis: Stonkote CE4.
   2) Resin: Epoxy
   3) Formulation Description: (2) two-component, 100% solids, UV Stable.
   4) Type: Clear.
   5) Finish: Gloss.
   6) Number of Coats: one.
   7) Texture level: Standard

H. **Basis of Design Product: Refer to I000 Finish Schedule**
   1. Substitutions: See Section 016000 - Product Requirements.

2.04 ACCESSORIES

A. Patching, Leveling and Fill Material: Resinous product of or approved by resinous flooring manufacturer and recommended by manufacturer for application indicated.

B. Joint Sealant: Type recommended or produced by resinous flooring manufacturer for type of service and joint condition indicated. Allowances should be included for Stonflex MP7 joint fill material.

C. Base Caps: Zinc with projecting base of 1/8 inch (3 mm); Refer to I000 finish schedule for color.

D. Primers: Type recommended by fluid-applied flooring manufacturer.

E. Include Stonproof ME7 Waterproof Membrane at all above grade locations

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive flooring.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive flooring.

C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of materials to subfloor surfaces.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for fluid-applied flooring installation by testing for moisture and alkalinity (pH).
   1. Test in accordance with Section 090561.
   2. Obtain instructions if test results are not within limits recommended by fluid-applied flooring manufacturer.
   3. Verify that concrete substrates meet the following requirements.
      a. Perform in situ probe test, ASTM F 2170. Proceed with application only after substrates do not exceed a maximum potential equilibrium relative humidity of 85 percent.
      b. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with application only after substrates have maximum moisture-vapor-emission rate of 6 lb of water/1000 sq. ft. of slab in 24 hours.
      c. Perform additional moisture tests recommended by manufacturer. Proceed with application only after substrates pass testing.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove subfloor ridges and bumps. Fill low spots, cracks, joints, holes, and other defects with subfloor filler per manufacturers instructions.

B. Apply, trowel, and float filler to achieve smooth, flat, hard surface. Grind irregularities above the surface level. Prohibit traffic until filler is cured.

C. Vacuum clean substrate.

D. Apply primer to surfaces required by flooring manufacturer.

3.03 INSTALLATION - ACCESSORIES

A. Install terminating cap strip at top of base; attach securely to wall substrate.

3.04 INSTALLATION - FLOORING

A. General: Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
   1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
   2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes. At substrate expansion and isolation joints, provide joint in resinous flooring to comply with resinous flooring manufacturer's written recommendations.

B. Integral Cove Base: Stonshield cove mortar, apply cove base mix to wall surfaces before applying flooring. Apply according to manufacturer's written instructions and details including those for taping, mixing, priming, troweling, sanding, of cove base. Round internal and external corners.
   1. Integral Cove Base: 6 inches high

3.05 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Test installed floor surface in accordance with ANSI/ESD STM7.1 .

3.06 PROTECTION

A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process. Close area of application for a minimum of 24 hours.

B. Protect resinous flooring materials from damage and wear during construction operation. Where temporary covering is required for this purpose, comply with manufacturer's recommendations for protective materials and method of application. General Contractor is responsible for protection and cleaning of surfaces after final coats.

C. Cleaning: Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer. General contractor is responsible for cleaning prior to inspection.

END OF SECTION

SECTION 096816
SHEET CARPETING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hybrid Resilient Sheet Carpeting

B. Removal of Existing Carpet.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 017419 - Construction Waste Management and Disposal: Reclamation/Recycling of new carpet scrap, new cushion scrap, removed carpet, and removed carpet cushion.

C. Section 033000 - CAST-IN-PLACE CONCRETE: Restrictions on curing compounds for concrete slabs and floors to receive adhesive-applied carpet.

D. Section 090561 - Common Work Results for Flooring Preparation: Independent agency testing of concrete slabs, removal of existing floor coverings, cleaning, and preparation.

E. Section 090561 - Common Work Results for Flooring Preparation: Concrete slab moisture and alkalinity testing and remediation procedures.

1.03 REFERENCE STANDARDS

A. ASTM D2859 - Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials; 2016 (Reapproved 2021).

B. ASTM E648 - Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source; 2019a, with Editorial Revision (2020).

C. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2019, with Editorial Revision (2020).

D. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.

E. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

F. CRI 104 - Standard for Installation of Commercial Carpet; 2018.

G. NFPA 253 - Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source; 2019.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on specified products, describing physical and performance characteristics; sizes, patterns, colors available, and method of installation.

C. Shop Drawings: Indicate seaming plan, method of joining seams, direction of carpet pile and pattern, location of edge moldings and edge bindings, and field verified dimensions..

D. Verification Samples: Submit two samples 12 by 12 inch in size illustrating color and pattern for each carpet and cushion material specified.

E. Manufacturer's Installation Instructions: Indicate special procedures.

F. Concrete Subfloor Test Report: Submit a copy of the moisture and alkalinity (pH) test reports.

G. Maintenance Data: Include maintenance procedures, recommended maintenance materials, and suggested schedule for cleaning.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional requirements.
   2. Extra Carpet: 5 percent of each type, color, and pattern installed.

I. Warranty: Provide manufacturers standard written warranty for each product outlined in this section.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum three years documented experience.

B. Installer Qualifications: Company specializing in installing carpet with minimum three years documented experience.

1.06 FIELD CONDITIONS

A. Storage:
   1. Store materials in area of installation for minimum period of 24 hours prior to installation.
   2. Cushion rolls must be stored by standing each roll on its end, or lying side by side. Do not stack Cushion rolls on top of one another.

B. Maintain minimum 65- 85 degrees fahrenheit and an ambient relative humidity of below 65% for 24 hours prior to, during and 24 hours after installation.

C. Ventilate installation area during installation and for 72 hours after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hybrid Resilient Sheet Carpeting:
   1. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
      a. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a witten request for equivalency to the Architect prior to bidding.
         1) Substitutions: See Section 016000 - Product Requirements.

B. Cushion:
   1. Manufacturers: Same as for Hybrid Resilient Sheet Carpeting
      a. Substitutions: See Section 016000 - Product Requirements.

2.02 CARPET

A. General Minimum Requirements:
   1. Surface Flammability Ignition: Pass ASTM D2859 (the "pill test").
   2. Critical Radiant Flux: Minimum of 0.22 watts/sq cm, when tested in accordance with ASTM E648 or NFPA 253.
   3. Antimicrobial Chemicals: No antimicrobials (EPA Registered pesticides) added to product (ASTM E2471-05).
   4. Electrostatic Propensity: <3.0 kV (AATCC 134); Permanent Conductive Fiber.
   5. Smoke Generation: Less than 450 (ASTM E-662).
   6. Surface Flammability: Passes CPSC FF 1-70 (ASTM D-2859).

7. Colorfastness to Light: > 4 after 100 hours (AATCC 16E).
8. Soil Protection: Application Rate: 2% of Face Weight.
9. NSF/ANSI 140 Carpet: Minimum of Gold; Conforms to the NSF/ANSI 140 - 2019 Sustainability Assessment for Carpet
10. Cradle to Cradle Certified: Minimum of Silver

B. Hybrid Resilient Sheet Carpeting, Type WOC: Solution dyed Nylon fiber with closed cell cushion.
1. Product and Manufacturer: **Provided Basis-of-Design product as listed on Interior Finish Schedule.**
2. Face Fiber: TDX 100% Solution Dyed.
3. Roll Width: As indicated on drawings.
4. Color: As indicated on drawings.
5. Pattern: As indicated on drawings.
6. Face Weight: 29 oz/sq yd (983.1) g/sq m
7. Stitches: 9.0 per inch
8. Primary Backing: Powerbond Cushion; Closed-cell cushion
   a. Material: Non-woven Synthetic content.
   b. Pre-Coat: Thermoplastic Polymer
   c. Nominal Thickness: [0.156] inch ([4.0] mm).
   d. Weight: [35.5] oz/sq yd ([1203] g/sq m).
   e. Density: [18.5] lb/cu ft ([296] kg/cu m).
   f. Seam Installation:Chemically welded seams.
9. Substitutions: See Section 016000 - Product Requirements.

2.03 ACCESSORIES

A. Portland Cement Subfloor Filler: Type recommended by carpet manufacturer.

B. Moldings and Edge Strips: Metal,
1. Products: **Provide Baiss-of-Design product as listed on Interior Finish Schedule.**
   a. Subject to compliance with requirements of product identified as Basis-of-Design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a witten request for equivalency to the Architect prior to bidding.

C. Seam Adhesive: Type recommended by carpet manufacturer.

D. Carpet Adhesive: Type recommended by carpet manufacturer; releasable type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive carpet. If floors have been chemically or mechanically abated, they must be leveled with Portland-based cement and ready to receive carpet; Per manufacturers written instructions.

B. All sub-floors should be level and the sub-floor should be flat to within 1/8” in 10 feet.

C. Verify that subfloor surfaces are dust-free and free of substances that could impair bonding of adhesives to subfloor surfaces.
1. Do not use solvents or any other chemical adhesive removers to remove the adhesive or clean the surface of the sub-floor. If complete removal of old existing adhesives is not possible, contact the manufacturer for their recommendation.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for flooring installation by testing for moisture and alkalinity (pH).
   1. Test as Follows:
      a. Alkalinity (pH): ASTM F710.
         1) Do not install Cushion products over a concrete substrate with surface pH measuring above 9.0.
      b. Internal Relative Humidity: ASTM F2170.
      c. Moisture Vapor Emission: ASTM F1869.
   2. Obtain instructions if test results are not within limits recommended by flooring material manufacturer and adhesive materials manufacturer.

E. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Remove existing carpet and carpet cushion as well as all existing adhesives.

B. Cracks, holes and depressions can be filled using Portland Cement/LatexFortified patching material. Do not install over loose tile (VAT, VCT or other loose existing flooring substrates).

C. Prepare floor substrates as recommended by flooring and adhesive manufacturers.

3.03 INSTALLATION - GENERAL

A. Starting installation constitutes acceptance of subfloor conditions.

B. Install carpet and cushion in accordance with manufacturer's instructions and CRI 104 (Commercial).

C. Verify carpet match before cutting to ensure minimal variation between dye lots.

D. Lay out carpet and locate seams in accordance with shop drawings.
   1. Locate seams in area of least traffic, out of areas of pivoting traffic, and parallel to main traffic.
   2. Do not locate seams perpendicular through door openings.
   3. Align run of pile in same direction as anticipated traffic and in same direction on adjacent pieces.
   4. Locate change of color or pattern between rooms under door centerline.
   5. Provide monolithic color, pattern, and texture match within any one area.

E. Install carpet tight and flat on subfloor, well fastened at edges, with a uniform appearance.

F. Allow a two inch serpentine cut overlap at the butt ends of all rolls and anywhere a seam is required.

3.04 DIRECT-GLUED CARPET

A. Double cut carpet seams, with accurate pattern match. Make cuts straight, true, and unfrayed. Apply seam adhesive to cut edges of woven carpet immediately.

B. Apply contact adhesive to floor uniformly at rate recommended by manufacturer. After sufficient open time, press carpet into adhesive.

C. Apply seam adhesive to the base of the edge glued down. Lay adjoining piece with seam straight, not overlapped or peaked, and free of gaps.

D. Roll with appropriate roller for complete contact of adhesive to carpet backing.

E. Trim carpet neatly at walls and around interruptions.

F. All seams should be seam-welded and sealed with the manufacturer's recommended product and installed according to the manufacturer's recommendations.

3.05 CLEANING

A. Remove excess adhesive from floor and wall surfaces without damage.

B. Clean and vacuum carpet surfaces.

END OF SECTION

SECTION 097210
VINYL WALL COVERINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Custom printed self-adhesive wall covering.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 099123 - Interior Painting: Preparation and priming of substrate surfaces.

C. Section 092116 - Gypsum Board Assemblies.

1.03 REFERENCE STANDARDS

A. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems; 2020.

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. ASTM F793/F793M - Standard Classification of Wall Coverings and Ceiling Coverings by Use Characteristics; 2025.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on wall covering, liner and adhesive..

C. Shop Drawings: Indicate wall elevations with seaming layout.

D. Samples:
   1. Submit two samples of wall covering, 8" x 8" in size illustrating color, finish, and texture.
   2. For digitally printed wall graphics, submit manufacturer's mock up and strike-off, illustrating color, pattern, finish, texture and field verified dimensions.

E. Test Reports: Indicate verification of flame and smoke ratings, when tested by UL.

F. Manufacturer's Installation Instructions: Indicate special procedures.

G. Maintenance Data: Submit data on cleaning, touch-up, and repair of covered surfaces.

H. Manufacturer's Qualification Statement.

I. Installer's Qualification Statement approved by manufacturer.

J. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Wall Covering Materials: 5% of each color and pattern of wall covering; store where directed.
   3. Package and label each roll by manufacturer, color and pattern, and destination room number.

K. Provide manufacturer's warranty against defects in materials and workmanship for minimum of 5 years.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

1.06 MOCK-UP

A. Provide panel, 1 panel drops wide, full height, illustrating installed wall covering and joint seaming technique.

B. Locate where directed.

C. Mock-up may remain as part of the Work.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Inspect roll materials at arrival on site, to verify acceptability.

B. Protect packaged adhesive from temperature cycling and cold temperatures.

C. Do not store roll goods on end.

1.08 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the adhesive or wall covering product manufacturer.

B. Maintain these conditions 24 hours before, during, and after installation of adhesive and wall covering.

C. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surfaces.

D. Confirm provided level 5 substrate on gypsum surface in preparation for wall covering.

PART 2 PRODUCTS

2.01 WALL COVERINGS

A. Manufacturers:
   1. The manufacturer and model number(s) or series listed below are Basis-of-Design.
      a. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

B. General Requirements:
   1. Surface Burning Characteristics: Flame spread/Smoke developed index of 20/85, maximum, when tested in accordance with ASTM E84.
   2. Chemical and Stain Resistance: No visible staining or discoloration and no damage to surface texture when tested in accordance with ASTM D1308.
   3. Vinyl finishes must comply with NFPA 701 or equal.

C. Custom Printed Self -Adhesive Wall Covering: Type DWG; **Basis-of-Design Product as listed on Digital Wall Graphic Schedule.** Vinyl with a protective overlam included, coated one side with a removable and repositionable acrylic pressure adhesive.
   1. Comply with ASTM F793/F793M, Category V, Type II.
   2. Thickness: 4 mil
   3. Roll Width: Refer to I000 Finish Schedule.
   4. Backing: Wall covering shall be printed with UV or latex ink.
   5. Color: Patterns and artwork as indicated on manufacturers drawings.
   6. Fire Rating: Wall covering shall have an ASTM E84 Class A/1 flame spread fire rating.

PART 3 EXECUTION

3.01 SITE VISITS

A. SIte visits in accordance with custom printed self adhesive wall covering - 3 site visits shall be required by the the signed contractor:
   1. Prior to submission of bid for a site assessment and evaluation.
   2. Post award for the purposes of meeting with owners and project manager.
   3. Final walk-through and punchlist.

3.02 EXAMINATION

A. Installer shall examine panels for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

B. Verify that substrate surfaces are ready to receive work, and comply with requirements of wall covering manufacturer.

C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply wall coverings if moisture content of substrate exceeds level recommended by wall covering manufacturer.

D. Verify flatness tolerance of surfaces does not vary more than 1/8 inch in 10 feet (3 mm in 3 m) nor vary at a rate greater than 1/16 inch/ft (1.5 mm/300 mm).

3.03 PREPARATION

A. General: preparation instructions shall be in accordance with manufacturers specifications per wall covering type.

B. Fill cracks in substrate and smooth irregularities with filler; sand smooth.

C. Wash impervious surfaces with tetra-sodium phosphate, rinse and neutralize; wipe dry.

D. Surface Appurtenances: Remove electrical plates, hardware, light fixture trim, escutcheons, and fittings prior to preparing surfaces or finishing.

E. Surfaces: Correct defects and clean surfaces that affect work of this section. Remove existing coatings that exhibit loose surface defects.

F. Marks: Seal with shellac those that may bleed through surface finishes.

G. Vacuum clean surfaces free of loose particles.

3.04 INSTALLATION

A. General: Installation instructions shall be in accordance with manufacturers specifications per wallcovering

B. Wall must be smooth, clean, and completley dry.

C. Wall coverings are to be applied with respective tools while being careful to minimize stretch while maximizing pressure.

D. Wall covering shall have a 1/2” overlap.

E. Apply adhesive and wall liner in accordance with manufacturer's instructions.

F. Apply adhesive to wall surface immediately prior to application of wall covering.

G. Use wall covering in roll number sequence.

H. Razor trim edges on flat work table. Do not razor cut on gypsum board surfaces.

I. Apply wall covering smooth, without wrinkles, or gaps. Eliminate air pockets and ensure full bond to substrate surface.

J. Butt edges as recommended by manufacturer.

K. Install wall covering before installation of bases and items attached to or spaced slightly from wall surface.

L. Do not install wall covering more than 1/4 inch (6 mm) below top of resilient base.

M. Cover spaces above and below windows, above doors, in pattern sequence from roll.

N. Where wall covering tucks into reveals, or metal wallboard or plaster stops, apply with contact adhesive within 6 inches (150 mm) of wall covering termination. Ensure full contact bond.

O. Remove excess adhesive while wet from seam before proceeding to next wall covering sheet. Wipe clean with dry cloth.

3.05 CLEANING

A. Clean wall coverings of excess adhesive, dust, dirt, and other contaminants.

B. Reinstall wall plates and accessories removed prior to work of this section.

C. Upon completion of the work, contractor shall remove unused or discarded materials, containers or debris.

3.06 PROTECTION

A. Do not permit construction activities at or near finished wall covering areas.

END OF SECTION

SECTION 097800
INTERIOR WALL PANELING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Decorative plastic wall paneling.

B. Accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

A. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2024.

B. ASTM D570 - Standard Test Method for Water Absorption of Plastics; 2022.

C. ASTM D638 - Standard Test Method for Tensile Properties of Plastics; 2014.

D. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials; 2017.

E. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor; 2013a.

F. ASTM D3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber; 2021.

G. ASTM D5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels; 2022.

H. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2020.

I. ISO 846 - Plastics - Evaluation of the Action of Microorganisms; 2019.

J. ISO 2812-1 - Paints and Varnishes -- Determination of Resistance to Liquids -- Part 1: Immersion in Liquids Other than Water; 2017.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Submit manufacturer's descriptive literature for each specified product. Include anchorage devices specific to project substrate types.

C. Shop Drawings: Submit elevations for each application and location. Indicate details of joints and attachments.
   1. Scale of Drawing Elevations: 1/4 inch to 1 foot (1:50), minimum.
   2. Scale of Drawing Details: 1-1/2 inches to 1 foot (1:8), minimum.

D. Samples: Submit two samples 12 by 12 inches (300 by 300 mm) in size, indicating finish, surface design, and color for each type of panel.

E. Samples: Submit two 12-inch (300 mm) long frames; finish as specified.

F. Certificates: Certify that products of this section meet or exceed specified requirements.

G. Manufacturer's Instructions: Provide manufacturer's installation instructions.

H. Manufacturer's qualification statement.

I. Installer's qualification statement.

J. Maintenance Data: Include recommended instructions, methods, and materials for cleaning FRP panels.

K. Specimen Warranty: Manufacturer warranty.

1.05 QUALITY ASSURANCE

A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with ASTM E84.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with at least five years of documented experience.

C. Installer Qualifications: Company specializing in installing work of the type specified in this section, and with at least five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project site, on strong pallets, in manufacturer's original packaging, marked with manufacturer's product identification.

B. Store panels and trim flat, indoors, on a clean, dry surface. Remove packaging and allow panels to acclimate to room temperature for 48 hours prior to installation.

1.07 FIELD CONDITIONS

A. Building shall be fully enclosed prior to installation with heat and ventilation consistent with good working conditions for finish work.

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.

C. Provide ventilation to disperse fumes during application of adhesive as recommended by adhesive manufacturer.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer's standard 1 year warranty against defects in material and workmanship.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Basis-Of-Design: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the products indicated by the Interior Finish Schedule indicated on the Interiors, “ I “ series, drawings.

2.02 MANUFACTURERS

A. Decorative Plastic Wall Paneling:

1. Marlite, Inc.; Symmetrix™ SmartSeam FRP Panels with BlueSky™ Advanced Finishing System and Sani-coat Sealer: www.marlite.com/#sle.
2. Substitutions: See Section 01 6000 - Product Requirements.

2.03 REGULATORY REQUIREMENTS

A. Surface Burning Classification: Provide wall paneling assemblies meeting Class C when tested in accordance with ASTM E84.

2.04 DECORATIVE PLASTIC WALL PANELING

A. Decorative Plastic Wall Paneling - Type (FRP):
   1. Dimensions:
      a. Panel Size: 4 by 4 feet and 4 by 8 feet (1.2 by 2.4 m).
      b. Panel Thickness: 0.090 inch.
   2. Tolerances:
      a. Length and Width: +/- 1/8 inch.
      b. Square: Not to exceed 1/8 inch for 4 foot and 8 foot panels or 5/32" for 10 foot panels.
   3. Surface Texture: Smooth.
   4. Material: Fiberglass reinforced plastic (FRP), complying with ASTM D5319.
      a. Resistant to rot, corrosion, denting, peeling, and splintering.
      b. Surface Burning Characteristics: Class A, when tested in accordance with ASTM E84.
      c. Flexural Strength: 0.9×10^4 psi per ASTM D790.
      d. Tensile Strength: 11.5×10^3 psi per ASTM D638.
      e. Hardness (scratch resistance): 28 per ASTM D2583.
      f. Impact Strength: Greater than 6 ft lbf/in (320 J/m), when tested in accordance with ASTM D256.
      g. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
      h. Chemical Cleanability: Excellent chemical resistance to common cleaners and detergents when tested in accordance with ISO 2812-1.
      i. Biological Resistance: Rating of 0, when tested in accordance with ISO 846.
      j. Water Absorption: 0.15 percent, maximum, when tested in accordance with ASTM D570.
      k. Panel Color and Groove Color:
         1) As indicated on drawings.
      l. Finish Gloss Level: Satin.
      m. Tile Pattern, Groove Direction and Tile Size: As indicated on drawings.
   5. Edges: Square.

B. Accessories:
   1. Trim:
      a. Material: As indicated on drawings.
      b. Color/Finish: Clear anodized.
      c. Inside Corner Trim: Standard angle.
      d. Outside Corner Trim: Standard angle.
      e. Edge Trim: Manufacturer's standard shape.
   2. Adhesive: Type recommended by panel manufacturer.
   3. Sealant: Type recommended by paneling manufacturer; clear.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions and substrate flatness before starting work.

B. Verify that substrate surfaces for adhered items are clean and smooth.
   1. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer.
   2. Comply with adhesive manufacturer's recommendations for remedial measures at locations and application conditions where adhesion test results are unsatisfactory.

C. Start of installation constitutes acceptance of project conditions.

3.02 INSTALLATION

A. Install panels in accordance with manufacturer's instructions.

B. Cut and drill holes in panels with carbide tipped saw blades, drill bits, or snips.

C. Apply adhesive to back side of panel using trowel recommended by adhesive manufacturer.

D. Apply panels to wall with vertical joints plumb and horizontal joints level and pattern aligned with adjoining panels.

E. Using a roller, apply pressure to panel face to ensure proper adhesion between surfaces.

F. Install panels with manufacturer's recommended gaps for panel field and corner joints.

G. Fill channels in trim with sealant before mounting to panel.

H. Install trim with adhesive.

I. Seal joints at wall base and between panels with approved sealant to prevent moisture intrusion.

J. Remove excess sealant after paneling is installed and prior to curing.

3.03 ADJUSTING

A. Replace paneling installed out of plumb and/or not aligned with adjacent panels or construction.

3.04 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Clean panel faces using cleaning agents and methods recommended by manufacturer to remove soiling.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures, for closeout submittals.

3.06 PROTECTION

A. Protect installed interior wall paneling from subsequent construction operations.

END OF SECTION

SECTION 098430
SOUND-ABSORBING WALL AND CEILING UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Sound-absorbing panels.

B. Mounting accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 095100 - Acoustical Ceilings: Ceiling suspension system.

C. Section 099000 - PAINTING AND COATING.

1.03 REFERENCE STANDARDS

A. ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method; 2023, with Editorial Revision (2024).

B. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

C. ASTM E795 - Standard Practices for Mounting Test Specimens during Sound Absorption Tests; 2023.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's printed data sheets for products specified.

C. Shop Drawings: Fabrication and installation details, panel layout, fabric orientation, and wood grain orientation.

D. Selection Samples: Manufacturer's color charts for fabric covering, indicating full range of fabrics, colors, and patterns available.

E. Verification Samples: Fabricated samples of each type of panel specified; 6 by 6 inch (152 by 152 mm), showing construction, edge details, and fabric covering.

F. Test Reports: Certified test data from an independent test agency verifying that panels meet specified requirements for acoustical and fire performance.

G. Manufacturer's qualification statement.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Panels: Quantity equal to 5 percent of total installed, but not less than one of each type.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section, with at least five years of documented experience.

B. Installer Qualifications: Company specializing in installing products of the type specified in this section, with at least five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect acoustical units from moisture during shipment, storage, and handling. Deliver in factory-wrapped bundles; do not open bundles until units are needed for installation.

B. Store units flat, in dry, well-ventilated space; do not stand on end.

C. Protect edges from damage.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Basis-Of-Design: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the products indicated by the Interior Finish Schedule indicated on the Interiors, " I " series, drawings.

2.02 FABRIC-COVERED SOUND-ABSORBING UNITS

A. Manufacturers:
   1. **(Basis of Design)** Autex Acoustics: www.autexacoustics.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

B. General:
   1. Prefinished, factory assembled fabric-covered panels.
   2. Surface Burning Characteristics: Flame spread index of 25 or less and smoke developed index of 450 or less, when tested in accordance with ASTM E84.

C. Fabric-Covered Acoustical Panels for Walls:
   1. Manufacturers:
      a. Type AWP, Autex Acoustics; Cube with Vertiface covering:
   2. Panel Core: Manufacturer's standard 100% polyester fiber core.
   3. Fire Rating: Class A , in compliance with ASTM E84.
   4. Sound Absorption: Noise Reduction Coefficient (NRC) of 0.70 when tested in accordance with ASTM C423 for Type A mounting, per ASTM E795.
   5. Panel Size: As indicated on drawings.
   6. Panel Thickness: 1 inch (24 mm).
   7. Edges: Perimeter edges beveled.
   8. Corners: Square.
   9. Fabric: Woven polyester.
   10. Color: As indicated on drawings.
   11. Mounting Method: Direct applied with adhesive.

2.03 FABRICATION

A. Fabric Wrapped, General: Fabricate panels to sizes and configurations as indicated, with fabric facing installed without sagging, wrinkles, blisters, or visible seams.
   1. Where radiused or mitered corners are indicated, install fabric to avoid seams or gathering of material.
   2. For panels suspended from ceiling, provide fabric covering both sides, with seams only at panel edges.

B. Tolerances: Fabricate to finished tolerance of plus or minus 1/16 inch (1.6 mm) for thickness, overall length and width, and squareness from corner to corner.

2.04 ACCESSORIES

A. Panel Adhesive: Acceptable to acoustical panel manufacturer for application as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates for conditions detrimental to installation of acoustical units. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install acoustical units in locations as indicated, following manufacturer's installation instructions.

B. Install mounting accessories and supports in accordance with shop drawings.

C. Align panels accurately, with edges plumb and top edges level. Scribe to fit accurately at adjoining work and penetrations.

D. Install acoustical units to construction tolerances of plus or minus 1/16 inch (1.6 mm) for the following:
   1. Plumb and level.
   2. Flatness.
   3. Width of joints.

3.03 CLEANING

A. Clean sound-absorptive panels upon completion of installation from dust and other foreign materials, following manufacturer's instructions.

3.04 PROTECTION

A. Provide protection of installed acoustical panels until Date of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired to satisfaction of the Architect.

END OF SECTION

SECTION 099000
PAINTING AND COATING - K-12 EDUCATION FACILITY GUIDE SPECIFICATION - SHERWIN-WILLIAMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Interior painting and coating systems.

C. Exterior painting and coating systems.

D. Scope:
   1. Finish surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
      a. Exterior:
         1) Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, and other ferrous metal.
      b. Interior:
         1) Concrete, Walls and Ceilings: Cast-in-place concrete, precast concrete, unglazed brick, fiber cement board, tilt-up, and plaster.
         2) Concrete Masonry Units: Concrete, split face, scored, smooth, high density, low density, and fluted.
         3) Metal: Aluminum and galvanized.
         4) Metal, Galvanized: Ceilings and ductwork.
         5) Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and other ferrous metal.
         6) Drywall: Walls, ceilings, gypsum board, and similar items.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 055000 - METAL FABRICATIONS: Shop-primed items.

C. Section 078123 - INTUMESCENT FIRE PROTECTION.

D. Section 099600 - High-Performance Coatings.

1.03 REFERENCE STANDARDS

A. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

B. CARB (SCM) - Suggested Control Measure for Architectural Coatings; California Air Resources Board; 2020.

C. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

D. SSPC-SP 1 - Solvent Cleaning; 2015, with Editorial Revision (2016).

E. SSPC-SP 2 - Hand Tool Cleaning; 2024.

F. SSPC-SP 3 - Power Tool Cleaning; 2024.

G. SSPC-SP 6/NACE No.3 - Commercial Blast Cleaning; 2006.

H. SSPC-SP 13/NACE No.6 - Surface Preparation of Concrete; 2018.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Product characteristics.
   2. Surface preparation instructions and recommendations.
   3. Primer requirements and finish specification.
   4. Storage and handling requirements and recommendations.
   5. Application methods.
   6. Clean-up information.

C. Samples: Submit two paper draw down samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.

D. Applicator's qualification statement.

E. Maintenance Data: Submit coating maintenance manual including product technical data sheets, safety data sheets (SDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements for additional provisions.
   2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
   3. Label each container with color and sheen in addition to manufacturer's label.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications: Company specializing in performing the type of work specified with minimum 3 years documented experience and approved by manufacturer.

1.06 MOCK-UPS

A. See Section 014000 - BSD Quality Requirements for general requirements for mock-ups.

B. Provide minimum 10 foot length to demonstrate color, finish and crafstmanship at all paint patterns within scope of work.

C. Locate where directed by Architect.

D. Mock-up may remain as part of the work pending approval by architect.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, product name, product code, color designation, VOC content, batch date, environmental handling, surface preparation, application, and use instructions.

C. Paint Materials: Store at a minimum of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not apply materials when environmental conditions are outside the ranges required by manufacturer.

B. Follow manufacturer's recommended procedures for producing the best results, including testing substrates, moisture in substrates, and humidity and temperature limitations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design. Other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architetct prior to bidding.

B. Manufacturers: **Provide Basis-of-Design Product as listed on Interior Finish Schedule.**

2.02 PAINTINGS AND COATINGS

A. General:
   1. Provide factory-mixed coatings unless otherwise indicated.
   2. Do not reduce, thin, or dilute coatings or add materials to coatings unless specifically indicated in manufacturer's instructions.

B. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

2.03 PAINT SYSTEMS - EXTERIOR

A. Metal, Miscellaneous: Iron, ornamental iron, structural iron and steel, ferrous metal.
   1. Latex Systems:
      a. Semi-Gloss Finish:
         1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
            (a) 5 to 10 mils wet, 1.8 to 3.6 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Acrylic Semi-Gloss, B66-650 Series: www.sherwin-williams.com/#sle.
            (a) 2 to 4 mils dry per coat.

2.04 PAINT SYSTEMS - INTERIOR

A. Concrete, Walls and Ceilings: Poured concrete, precast concrete, unglazed brick, cement board, tilt-up, cast-in-place concrete, and plaster.
   1. Latex Systems:
      a. Semi-Gloss Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams Loxon Concrete and Masonry Primer Sealer, LX02W50 Series: www.sherwin-williams.com/#sle.
            (a) 8 mils wet, 3.2 mils dry per coat.
         2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Latex Semi-Gloss, B31-1950 Series: www.sherwin-williams.com/#sle.
            (a) 4 mils wet, 1.6 mils dry per coat.

B. Masonry CMU: Concrete, split face, scored, smooth, high density, low density, and fluted.
   1. Latex Systems:
      a. Eg-Shel/Satin Finish High Performance (HP):
         1) 1st Coat: Sherwin-Williams PrepRite Block Filler, B25W25: www.sherwin-williams.com/#sle.
            (a) 75 to 125 sq ft/gal (1.8 to 3.1 sq m/L).

2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Eg-Shel, B20-1950 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.7 mils dry per coat.

2. Epoxy Systems, Water-Based:
a. Eg-Shel/Low Luster Finish:
1) 1st Coat: Sherwin-Williams Loxon Block Surfacer, LX01W200: www.sherwin-williams.com/#sle.
(a) 50 to 100 sq ft/gal (1.2 to 2.5 sq m/L).
2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.

C. Metal: Aluminum and galvanized.
1. Epoxy Systems, Water-Based:
a. Semi-Gloss Finish:
1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
(a) 5 mils wet, 2 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.

D. Metal, Galvanized: Ceilings and ductwork.
1. Dryfall Waterborne Topcoats:
a. Flat Finish:
1) 1st and 2nd Coat: Sherwin-Williams Pro Industrial Waterborne Acrylic Dryfall, B42-181 Series: www.sherwin-williams.com/#sle.
(a) 6 mils wet, 1.7 mils dry per coat.

E. Metal: Structural steel columns, joists, trusses, beams, miscellaneous and ornamental iron, structural iron, and ferrous metal.
1. Epoxy Systems, Water-Based:
a. Semi-Gloss Finish:
1) 1st Coat: Sherwin-Williams Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series: www.sherwin-williams.com/#sle.
(a) 5 mils wet, 2 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.

F. Drywall: Walls, ceilings, gypsum board, and similar items.
1. Latex Systems:
a. Eg-Shel Finish High Performance (HP):
1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 HP Zero VOC Eg-Shel, B20-1950 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.7 mils dry per coat.

b. Flat Finish:
1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams ProMar 200 Zero VOC Latex Flat, B30-2600 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.6 mils dry per coat.

2. Epoxy Systems, Water-Based:
a. Semi-Gloss Finish:
1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
b. Eg-Shel/Low Luster Finish:
1) 1st Coat: Sherwin-Williams ProMar 200 Zero VOC Interior Latex Primer, B28W2600: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.
2) 2nd and 3rd Coat: Sherwin-Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45 Series: www.sherwin-williams.com/#sle.
(a) 4 mils wet, 1.5 mils dry per coat.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

3.02 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Concrete:
1. Remove release agents, curing compounds, efflorescence, and chalk.
2. Fill bug holes, air pockets, and other voids with cement patching compound.
3. Prepare concrete in accordance with SSPC-SP 13/NACE No.6.

D. Masonry: Remove efflorescence and chalk.

E. Gypsum Board: Fill minor defects with filler compound; sand smooth and remove dust prior to painting.

F. Plaster: Fill hairline cracks, small holes, and imperfections with patching plaster. Make smooth and flush with adjacent surfaces. Treat textured, soft, porous, or powdery surfaces in accordance with manufacturer's instructions.

G. Aluminum: Remove surface contamination and oil; wash with solvent according to SSPC-SP 1.

H. Galvanized Surfaces:

1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.
2. Prepare surface according to SSPC-SP 2.

I. Ferrous Metal:
1. Solvent clean according to SSPC-SP 1.
2. Remove rust, loose mill scale, and other foreign substances using methods recommended by paint manufacturer and blast cleaning in accordance with SSPC-SP 6/NACE No.3. Protect from corrosion until coated.

3.03 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions.

C. Apply coatings at spread rate required to achieve manufacturer's recommended dry film thickness.

D. Regardless of number of coats specified, apply additional coats until complete hide is achieved.

3.04 PRIMING

A. Apply primer to all surfaces unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

B. Primers specified in painting schedules may be omitted on items factory primed or factory finished items if acceptable to top coat manufacturers.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.06 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

END OF SECTION

SECTION 099600
HIGH-PERFORMANCE COATINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. High performance coatings.

B. Surface preparation.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 016116 - Volatile Organic Compound (VOC) Content Restrictions.

C. Section 092116 - Gypsum Board Assemblies.

D. Section 096500 - Resilient Flooring.

E. Section 096700 - FLUID-APPLIED FLOORING: High performance fluid-applied flooring systems.

F. Section 099000 - Painting and Coating.

1.03 REFERENCE STANDARDS

A. ASTM 2486 - Standard Test method for Scrub resistance of interior Latex Flat Wall Paints.

B. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings; U.S. Environmental Protection Agency; Current Edition.

C. ASTM D4258 - Standard Practice for Surface Cleaning Concrete for Coating; 2023.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition.

F. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. SCAQMD 1113 - Architectural Coatings; 1977, with Amendment (2016).

H. SSPC-SP 13/NACE No.6 - Surface Preparation of Concrete; 2018.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide complete list of all products to be used, with the following information for each:

1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
2. MPI product number (e.g. MPI #47).
3. Cross-reference to specified coating system(s) product is to be used in; include description of each system.
4. Manufacturer's installation instructions.

C. Verification Samples: Submit two 4-inch (102 mm) by 5-ich (127 mm) samples of cardboard with specified or selected finish colors.

D. Manufacturer's Certificate: Certify that high-performance coatings comply with VOC limits specified.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

G. Maintenance Data: Include cleaning procedures and repair and patching techniques.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Extra Coating Materials: 1 gallon (4 liters) of each type and color.
   3. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.

1.05 QUALITY ASSURANCE

A. Maintain one copy of each referenced document that applies to application on site.

B. Manufacturer Qualifications: the manufacturers shall be a firm engaged in the manufacture of decorative finishes of types and sizes required, and whose products have been satisfactory use in similar service for a minimum of five years.
   1. Manufacturer is to certify that they make all materials in this section.
   2. All materials within the special coatings section, including, but not limited to, finishes and primers, shall be supplied by one manufacturer.

C. Applicator Qualifications: Company specializing in performing the work of this section approved by manufacturer.

D. Quality Control Submittals: Submit a letter from the manufacturer stating that the applicator has completed the manufacturer's training program.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of coating, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Coating Materials: Store at minimum ambient temperature of 50 degrees F (10 degrees C) and a maximum of 80 degrees F (27 degrees C), as required by manufacturer's instructions.
   1. Protect from freezing.

1.07 FIELD CONDITIONS

A. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

B. The temperature of air and substrate is between 50 degrees F (10 degrees C) and 80 degrees F (27 degrees C). Relative humidity shall be less than 50 percent.

C. Maintain this temperature range, 24 hours before, during, and 72 hours after installation of coating. Application areas shall be free of excessive dust.

D. Provide lighting level of 80 ft candles (860 lx) minimum, measured mid-height at substrate surface.

E. Restrict traffic from area where coating is being applied or is curing.

F. Provide adequate fresh air and ventilation during application.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for bond to substrate.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide high performance coating products from the same manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

C. Manufacturers: **Provide Basis-of-Design Product as listed on Interior Finish Schedule.**
   1. Substitutions: Section 016000 - Product Requirements.

2.02 HIGH-PERFORMANCE COATINGS

A. Provide coating systems that meet the following minimum performance criteria, unless more stringent criteria are specified:
   1. Surface Burning Characteristics: Flame spread/Smoke developed index of 0/0, maximum, when tested in accordance with ASTM E84.
   2. NFPA 101, Class A rated.
   3. Durability: +25,000 Scrubs, when tested in accordance with ASTM D-2486.

2.03 TOP COAT MATERIALS

A. Coatings - General: Provide complete multi-coat systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated; number of coats specified does not include primer or filler coat.

B. Urethane Coating Type HPC: Basis-of-Design Product as listed on Interior Finish Schedule.
   1. Number of Coats: Two.
   2. Top Coat(s): Polyurethane, Water Based, one - component.
      a. Sheen: Gloss.
      b. Products:
         1) **(Basis of Design)** Wolf Gordon Inc.; Scuffmaster "Scrubtough Series with Armor": www.wolfgordon.com/#sle.
         2) Substitutions: Section 016000 - Product Requirements.

C. Shellac: Pure, white type.

2.04 PRIMERS

A. Primers: Provide primer recommended by manufacturer for substrate. All surfaces must be primed prior to applying finish.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of coated surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Do not begin application of coatings until substrates have been properly prepared.

C. Verify that substrate surfaces are ready to receive work as instructed by the coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.

D. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

F. Proceed with coating application only after unacceptable conditions have been corrected.
   1. Commencing coating application constitutes Contractor's acceptance of substrates and conditions.

3.02 PREPARATION

A. Protect adjacent surfaces and materials not receiving coating from spatter and overspray; mask if necessary to provide adequate protection. Repair damage.

B. Clean surfaces of loose foreign matter.

C. Remove substances that would bleed through finished coatings. If unremovable, seal surface as recommended by manufacturer.

D. Remove finish hardware, fixture covers, and accessories and store.

E. Existing Painted and Sealed Surfaces:
   1. Strip existing paint and coatings from surface.
   2. Clean with mixture of trisodium phosphate and water to remove surface grease and foreign matter.
   3. Prepare surface as recommended by coating manufacturer.

F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Clean concrete according to ASTM D4258. Allow to dry.
   3. Prepare surface as recommended by coating manufacturer and in accordance with SSPC-SP 13/NACE No.6.

G. Masonry:
   1. Remove efflorescence and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces or if alkalinity of mortar joints exceed that permitted in manufacturer's written instructions. Allow to dry.
   2. Prepare surface as recommended by coating manufacturer.

3.03 PRIMING

A. Apply primer to all surfaces, unless specifically not required by coating manufacturer. Apply in accordance with coating manufacturer's instructions.

3.04 COATING APPLICATION

A. Apply coatings in accordance with manufacturer's written instructions, to thicknesses specified and recommendations in MPI - Architectural Painting and Specification Manual.

B. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

3.05 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

B. Clean surfaces immediately of overspray, splatter, and excess material.

C. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

D. See Section 017419 - Construction Waste Management and Disposal for additional requirements.

3.06 PROTECTION

A. Protect finished work from damage.

END OF SECTION

SECTION 101100
VISUAL DISPLAY UNITS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Porcelain enamel steel markerboards and writing surfacing.

B. Tackboards.

C. Tackable wall panels.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 061000 - Rough Carpentry: Blocking and supports.

C. Section 092116 - Gypsum Board Assemblies: Concealed supports in metal stud walls.

1.03 REFERENCE STANDARDS

A. ANSI A135.4 - Basic Hardboard; 2012 (Reaffirmed 2020).

B. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

C. ASTM A424/A424M - Standard Specification for Steel, Sheet, for Porcelain Enameling; 2025.

D. ASTM C208 - Standard Specification for Cellulosic Fiber Insulating Board; 2012, with Editorial Revision (2019).

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

F. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2017.

G. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide manufacturer's data on porcelain enamel steel markerboard, tackboard surface covering, trim, and accessories.

C. Shop Drawings: Indicate wall elevations, dimensions, joint locations , special anchor details.

D. Samples: Two, 2 by 2 inches (50 by 50 mm) in size illustrating materials and finish, color and texture of porcelain enamel steel markerboard, trim, and tackable surfaces.

E. Samples:
   1. Visual Display Panels: Not less than 8-1/2 by 11 inches (215 by 280 mm), with facing, core, and backing indirect from final work. Include one panel for each type, color, and texture required.
   2. Trim: 6 inch (150 mm) long sections of each trim profile specified.
   3. Display Rail: 6 inch (150 mm) long section of each type specified.
   4. Accessories: Fill-sized sample of each type of accessory specified.

F. Test Reports: Show compliance to specified surface burning characteristics requirements.

G. Manufacturer's printed installation instructions.

H. Maintenance Data: Include data on regular cleaning, stain removal .

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Entity that emplyes installers and supervisors who are trained and approved by manufscturer.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-fabricated visual display units completely assembled in one piece. If dimensions exceed maximum unit size, or it unit size is impracticable to ship in one pieve, provide two or more pieces with joines in locations indicated on approced Shop Drawings.

1.07 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install visual display units until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, HVAC system is operating and maintatining ambient temperature and humidty conditions at occupancy levels during the remainder of the construction period.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer's Standard Limited Lifetime Warranty: On porcelain writing surface, for life of building, under normal usage and maintenance and when installed in accordance with manufacturer's instructions and recommendations. Warranty covers replacement of defective material but does not include cost of removal and reinstallation.

C. Submit manufacturer's standard written warranty against failure in material or workmanship.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 VISUAL DISPLAY UNITS

A. Porcelain Enamel Steel Markerboards and Writing Surfacing:
   1. Manufacturers:
      a. **(Basis of Design)** ASI Visual Display Products; Type (WS-1) 9300 Series: www.asi-visualdisplayproducts.com/#sle.
      b. Claridge Products and Equipment, Inc: www.claridgeproducts.com/#sle.
      c. **(Basis of Design)** Wolf Gordon, Inc.; Type (WS-2) Wink Complete: www.wolfgordon.com/#sle.
      d. Substitutions: See Section 016000 - Product Requirements.
   2. Type (WS-1), Porcelain Enamel Markerboard:
      a. Color: White.
      b. Steel Face Sheet Thickness: 24 gauge, 0.0239 inch (0.61 mm).
      c. Face Sheet Gloss: High.

d. Core: Hardboard, manufacturer's standard thickness, laminated to face sheet.
e. Backing: Aluminum foil, laminated to core.
f. Size: As indicated on drawings.
g. Frame: 1-1/2" wide Extruded aluminum , with concealed fasteners.
h. Frame Finish: Anodized, natural.
i. Accessories: Provide marker tray, map rail, and (1) flag holder per classroom.

3. Type (WS-2), Writeable, adhesive applied wall covering:
   a. Content: 100% Polyethylene face with cloth backing.
   b. Color: White.
   c. Face Sheet Finish: Gloss sheen UV coating.
   d. Size: As indicated on drawings.
   e. Adhesive: As recommended by manufacturer.
   f. Accessories: Provide perimeter trim, Type (TR-2), as indicated by Interior Finish Schedule on the " I " series drawings.

B. Tackboards: Uni-color resilient homogeneous tackable linoleum laminated to cork.
1. Manufacturers:
   a. **(Basis of Design)** ASI Visual Display Products; (Type TAC-1) Series 9100: www.asi-visualdisplayproducts.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.
2. Cork Thickness: 1/4 inch (6 mm).
3. Fabric: Uni-color resilient homogeneous tackable linoleum.
4. Color: As selected from manufacturer's full range.
5. Backing: Hardboard, laminated to tack surface.
6. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
7. Pattern Match: Straight Match, Reverse Hung
8. Surface Gloss: Matte
9. Size: As indicated on drawings.
10. Frame: 9/32" wide Extruded aluminum , with concealed fasteners.
11. Frame Finish: Anodized, natural.
12. Adhesives: As determined by manufacturer.
13. Caulk: Coordinate with color of cork surface.

C. Tackable Wall Panels: Fabric laminated to fiberboard; Factory-fabricated.
1. Manufacturers:
   a. **(Basis of Design)** Autex Acoustics; (Type TAC-2 through TAC-6) Groove Duet with Cube Base: www.autexacoustics.com/#sle.
   b. Substitutions: See Section 016000 - Product Requirements.
2. Fabric: Non-woven, needle-punched, 100% polyester (PET).
3. Color, Pattern, and Texture: As indicated on drawings.
4. Surface Burning Characteristics: Flame spread index of 25, maximum, and smoke developed index of 450, maximum, when tested in accordance with ASTM E84.
5. Size: As indicated on drawings.
6. Height: As indicated on drawings; No horizontal seams.
7. Edge Treatment: 3/8" beveled edges unless detailed otherwise.
8. Adhesives: Provide manufacturer's recommended adhesive, primer, and sealer, produced for use on substrate shown on drawings. Provide materials which are mildew-resistant and non staining to wallcovering.

2.03 MATERIALS

A. Porcelain Enameled Steel Sheet: ASTM A424/A424M, Type I, Commercial Steel, with fired-on vitreous finish.

B. Burlap: Tightly woven, flame retardant treated.

C. Hardboard for Cores: ANSI A135.4, Class 1 - Tempered, S2S (smooth two sides).

D. Fiber Board: ASTM C208, cellulosic fiber board.
   1. Foil Backing: Aluminum foil sheet, 0.005 inch thick (0.13 mm thick).

E. Adhesives: Type used by manufacturer.

2.04 ACCESSORIES

A. Map Rail: Extruded aluminum, manufacturer's standard profile, with cork insert and runners for accessories; 2 inch wide (; 50 mm wide) , full width of frame.

B. Temporary Protective Cover: Sheet polyethylene, 8 mil (0.2 mm) thick.

C. Flag Holders: Cast aluminum bored to receive 1 inch (25 mm) diameter flag staff, bracketed to fit top rail of board.

D. Marker Tray: Aluminum, manufacturer's standard profile, one piece full length of markerboard, molded ends, concealed fasteners, anodized aluminum finish.

E. Mounting Brackets: Concealed.

F. Writable Surface Trim: Acrovyn Vertical Joint Trim, 0.040 inch, manufacturer's standard profile.

PART 3 EXECUTION

3.01 EXAMINATION

A. Complete finishing operations, including painting, before beginning installation of tacakable cork surface wallcovering materail.

B. Wall surface to recieve wallcovering materials shall be dry and free from dirt, grease, loose paint, and scale.

C. Verify that internal wall blocking is ready to receive work and positioning dimensions are as indicated on shop drawings.

D. Notify the contractor and architect in writing of any conditions detrminetal to the proper and timely completion of the installation.

E. Verify flat wall surface for frameless adhesive-applied boards.

3.02 PREPARATION

A. Acclimatize tackable wall panels by removing from packaging in installation area not less than 24 hours before application.

B. Remove switchplates, wall plates, and surface-mounted fixtures where tackable wall paneling is applied. Reinstall items on completion of installation.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Install visual display surfaces in location and at mounting heights indicated on Drawings. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, back materials, addhesives, brackets, anchors, trims, and accessories necessary for complete installation.

B. Field-Assumbled Visusal Dispaly Board Assemblies: Coordinate field-assembled units with grounds, trim, and accessories indicated. Joint parts with a neat, precision fit.
   1. Make joints only where total length exceeds maximum manufacturer length. Fabricate with minimum number of joints, balanced around center of board, as inidcated on shop drawings.
   2. Where size of visual display board assemblies or other conditions require support in addition to normal trim, provide structural supports or modify trim as indicated or as selected by Architect from manufacturer's standard structrual support accessories to suit conditions indicated.

C. Factory-Fabricated Visual Display Board Accessories: Attach manufacturer's standard concealed clips, hangers, and grounds to wall surfaces and to visual display board assemblies with fasteners at not more than 16 inches (400 mm) on center. Secure tops and bottoms of boards to walls.

D. Visual Display Board Assmebly Mounting Heights: Install Visual Display units as mounting heights indicated on drawings.

E. Install tackable cork surfaces in accordance with manufacturer's instructions.

F. Install with top of marker tray at 30 inches (760 mm) above finished floor.

G. Secure units level and plumb.

3.04 CLEANING

A. Clean board surfaces in accordance with manufacturer's instructions.

B. Cover with protective cover, taped to frame.

C. Remove temporary protective cover at Date of Substantial Completion.

END OF SECTION

SECTION 101419
DIMENSIONAL LETTER SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Dimensional letters.

B. Illumination system.

C. Decorative Metal Panel Signage.

D. Painted Acrylic Signage.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 REFERENCE STANDARDS

A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.

B. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

C. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

D. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 SUBMITTALS

A. See Section 013300 -Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's product literature for each type of dimensional letter sign, indicating style, font, colors, locations, and overall dimensions of each sign.

C. Shop Drawings:
   1. Include dimensions, locations, elevations, materials, text and graphic layout, and attachment details.
   2. Show locations of electrical service connections.
   3. Include diagrams for power, signal, and control wiring.

D. Verification Samples: Submit one sample of each type of dimensional letter sign in size similar to that required for project,Indicate sign style, font, finish section & method of attachment.

E. Selection Samples: Where materials, colors, and finishes are not specified, submit two sets of selection charts or chips.

F. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

G. Manufacturer's qualification statement.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Package dimensional letter signs as required to prevent damage before installation.

B. Store under cover and elevated above grade.

C. Store tape adhesive at a normal room temperature of 68 to 72 degrees F.

1.07 FIELD CONDITIONS

A. Do not install tape adhesive when ambient temperature is lower than recommended by manufacturer.

B. Maintain minimum ambient temperature during and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Decorative Metal Panel Signage: **Provide Basis-of-Design Product as listed on Dimensional Signage Schedule.**
   1. Inpro Corporation: www.inprocorp.com/#sle.
   2. **(Basis of Design)** Takeform: www.takeform.net/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

D. Painted Acrylic Signage: **Provide Basis-of-Design Product as listed on Dimensional Signage Schedule.**
   1. Inpro Corporation: www.inprocorp.com/#sle.
   2. **(Basis of Design)** Takeform: www.takeform.net/#sle.
   3. Substitutions: See Section 016000 - Product Requirements.

2.02 REGULATORY REQUIREMENTS

A. Accessibility Requirements: Comply with ADA Standards and ICC A117.1 and applicable building codes, unless otherwise indicated; in the event of conflicting requirements, comply with the most restrictive requirements.

2.03 DIMENSIONAL LETTERS

A. Applications: Building identification.
   1. Use individual plastic letters.
   2. Mounting Location: Interior as indicated on drawings.

B. Decorative Metal Panel Signage:
   1. Material: Aluminum
   2. Thickness: Refer to Dimensional letter signage on sheet I001.
   3. Height: Refer to drawings.
   4. Finish: Refer to drawings.
   5. Color: As selected.
   6. Mounting: All fasteners shall be concealed. See manufacturers drawings for mounting position and method.
   7. Illumination As indicated on electrical drawings.
   8. Warranty: Provide manufacturer’s standard 5 year warranty against defects in materials and workmanship.
   9. Products: **ProvideBasis-of-Design Product as listed on Dimensional Signage Schedule.**
      a. Inpro Corporation: www.inprocorp.com/#sle.

b. **(Basis of Design)** Takeform; Ethos, backlit, laser cut logo on standoffs: www.takeform.net/#sle.
c. Substitutions: See Section 016000 - Product Requirements.

C. Painted Acrylic:
1. Material: Painted Acrylic
2. Thickness: Size varies: Refer to Dimensional letter signage on sheet I001.
3. Letter Height: As indicated on drawings.
4. Finish: Refer to drawings.
5. Text and Typeface:
a. Character: To be determined by architect and approved by the owner.
b. Character Case: Upper case, unless otherwise noted on drawings.
6. Finish: As indicated on drawings.
7. Color: As selected.
8. Mounting: All fasteners shall be concealed. See drawings for mounting position and method.
9. Products: Basis of Design - **Provide Basis-of-Design Product as listed on Dimensional Signage Schedule.**
a. Inpro Corporation: www.inprocorp.com/#sle.
b. **(Basis of Design)** Takeform; Ethos, painted acrylic letters on standoffs: www.takeform.net/#sle.
c. Substitutions: See Section 016000 - Product Requirements See Section 016000 - Product Requirements.

2.04 ACCESSORIES

A. Concealed Screws: Noncorroding metal; stainless steel, galvanized steel, chrome plated, or other.

B. Exposed Screws: Stainless steel.

C. Tape Adhesive: Double-sided tape, permanent adhesive.

D. Electrical Components and Devices: Listed and labeled as defined in NFPA 70 by a qualified testing agency.

PART 3 EXECUTION

3.01 SITE VISITS

A. Site visits – 3 site visits shall be required by the sign contractor:
1. Prior to submission of bid for site assessment and evaluation.
2. Final walk-through and punchlist.

B. Programming – contractor shall perform all programming. Programming shall include location plan, message schedule, and/or plots. All programming materials shall be submitted for approval.

3.02 EXAMINATION

A. Installer shall examine signs for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

B. Verify that substrate surfaces are ready to receive work.

C. Verify that electrical service is correctly sized and located to accommodate dimensional letter signs.

D. Notify Architect if conditions are not suitable for installation of signs; do not proceed until conditions are satisfactory.

3.03 INSTALLATION

A. General: Installation locations shall be in accordance with drawings. Locate signs where indicated using mounting methods in compliance with manufacturer's written instructions:
   1. The manufacturer shall coordinate installation schedules with the Owner and/or Construction Manager.
   2. Installation shall be performed by manufacturer’s personnel trained and certified in manufacturer’s methods and procedures.
   3. The manufacturer shall submit a CAD generated location plan noting the location of all signage and cross referenced to message schedule or plots for architect’s approval.
   4. Manufacturer to provide full scale plots prior to manufacturing to verify size, copy and letter location. Any location, message or mounting issue shall be submitted to architect for review.
   5. Letters shall be level, plumb, and at heights indicated with sign surfaces free from defects.
   6. Upon completion of the work, installer shall remove unused or discarded materials, containers and debris from site.

B. Locate dimensional letter signs and mount at heights indicated on drawings and in accordance with ADA Standards and ICC A117.1.

END OF SECTION

SECTION 101423
PANEL SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior Panel signage.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 DEFINITIONS

A. Accessible: Complies with the accessibility standard.

1.04 COORDINATION

A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: For each type of product specified.

C. Shop Drawings: For panel signs.
   1. Include fabrication and installation details and attachments to other work.
   2. Show sign mounting heights, locations of supplementary supports to be provided by other installers, and accessories.
   3. Show message list, type styles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.

D. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
   1. Include representative Samples of available type styles and graphic symbols.

E. Product Schedule: For panel signs. Use same designations indicated on Drawings or specified.

F. Qualification Data: For manufacturer and installer.

G. Sample Warranty: For special warranty.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: An employer of workers trained and approved by signage manufacturer.

B. Source Limitations: Obtain all sign types through one source from a single manufacturer.

C. Regulatory Requirements:
   1. Interior/Exterior Accessible Signs: Comply with the Americans with Disabilities Act (ADA) and with code provisions as adopted by authorities having jurisdiction.
   2. Accessible Toilet Rooms (Element): ADA, ICC/ANSI A117.1-1998, Comply with The Building Code of New York State, 1110.1.4, 1110.1.6, E107.1. Not resident room toilets.

1.07 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:

a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.
c. Separation or delamination of sheet materials and components.

2. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 PERFORMANCE REQUIREMENTS

A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.03 PANEL SIGNS

A. General: Provide panel signs that comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes, and details of construction.
1. Produce smooth panel sign surfaces constructed to remain flat under installed conditions within tolerance of plus or minus 1/16 inch measured diagonally.

B. Manufacturers: **Provide Basis-of-Design Product as listed on Interior Signage Schedule.**
1. Takeform; Fusion: www.takeform.net/#sle.
2. Substitutions: See Section 016000 - Product Requirements.

C. Signage Series - ADA Alternative
1. Color – Burgundy unless otherwise noted.

D. Graphic Content and Style:
1. Provide sign copy that complies with requirements indicated for size, style, spacing, content, mounting height and location, material, finishes, and colors of signage.
2. Color – Bright White, unless otherwise noted.

E. Tactile and Braille Copy: Manufacturer's standard process for producing copy complying with ADA Accessibility Guidelines and ICC/ANSI A117.1. Text shall be accompanied by Grade 2 braille. Produce precisely formed characters with square cut edges free from burrs and cut marks.
1. Panel Material: Non-glare acrylic, not less than 1/8-inch (3 mm). (1/4-inch for slot signs)
2. Raised-Copy Thickness: Not less than 1/32 inch (0.8 mm).

2.04 ACCESSORIES

A. Two-Face Tape: Manufacturer's standard high-bond, foam-core tape, 0.045 inch thick, with adhesive on both sides.

2.05 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Directional Finishes: Run grain with long dimension of each piece and perpendicular to long dimension of finished trim or border surface unless otherwise indicated.

D. Organic, Anodic, and Chemically Produced Finishes: Apply to formed metal after fabrication but before applying contrasting polished finishes on raised features unless otherwise indicated.

2.06 PANEL SIGN TYPES

A. Refer to drawings for signage schedule, signage locations and types.
   1. Text to be provided in both English and Spanish, as indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
   1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Install signs so they do not protrude or obstruct according to the accessibility standard.
   3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.

B. Accessible Signage: Install in locations on walls on latch side of door and according to the accessibility standard.

C. Mounting Methods:
   1. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.

3.03 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

END OF SECTION

SECTION 102113.17
PHENOLIC TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Phenolic toilet compartments.

B. Urinal screens.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 055000 - METAL FABRICATIONS: Concealed steel support members.

C. Section 061000 - ROUGH CARPENTRY: Blocking and supports.

D. Section 102800 - Toilet, Bath, and Laundry Accessories.

1.03 REFERENCE STANDARDS

A. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

B. NFPA 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate the work with placement of support framing and anchors in walls and ceilings.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Provide data on panel construction, hardware, and accessories.

C. Shop Drawings: Indicate partition plan, elevation views, dimensions, details of wall supports, door swings.

D. Samples: Submit two samples of partition panels, 4 by 4 inch in size illustrating panel finish, color, and sheen.

E. Manufacturer's Installation Instructions: Indicate special procedures.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Phenolic Toilet Compartments:
   1. All American Metal Corp - AAMCO: www.allamericanmetal.com/#sle.
   2. ASI Accurate Partitions: www.asi-accuratepartitions.com/#sle.
   3. ASI Global Partitions: www.asi-globalpartitions.com/#sle.
   4. **(Basis of Design)** Partition Systems International of South Carolina; Phenolic Toilet Partitions: www.psisc.com/#sle.

5. Substitutions: Section 016000 - Product Requirements.

2.02 PHENOLIC TOILET COMPARTMENTS

A. Toilet Compartments: Factory fabricated doors, pilasters, and divider panels made of solid phenolic core panels with integral melamine finish, floor-mounted headrail-braced.
   1. Color: Single color as selected.

B. Doors:
   1. Thickness: 3/4 inch.
   2. Width: 24 inch.
   3. Width for Handicapped Use: 36 inch, out-swinging.
   4. Height: 58 inch.

C. Panels:
   1. Thickness: 1/2 inch.
   2. Height: 58 inch.
   3. Depth: As indicated on drawings.

D. Pilasters:
   1. Thickness: 3/4 inch.
   2. Width: As required to fit space; minimum 3 inch.

E. Screens: Without doors; to match compartments; mounted to wall with two panel brackets with vertical support/bracing same as compartments.

2.03 ACCESSORIES

A. Pilaster Shoes: Formed ASTM A666 Type 304 stainless steel with No. 4 finish, 3 inch high, concealing floor fastenings.
   1. Provide adjustment for floor variations with screw jack through steel saddles integral with pilaster.

B. Head Rails: Hollow anodized aluminum, 1 inch by 1-1/2 inch size, with anti-grip profile and cast socket wall brackets.

C. Wall and Pilaster Brackets: Polished stainless steel; manufacturer's standard type for conditions indicated on drawings.

D. Attachments, Screws, and Bolts: Stainless steel , tamper proof type.
   1. For attaching panels and pilasters to brackets: Through-bolts and nuts ; tamper proof.

E. Hardware: Polished stainless steel:
   1. Pivot hinges, gravity type, adjustable for door close positioning; two per door.
   2. Nylon bearings.
   3. Door Latch: Slide type with exterior emergency access feature.
   4. Door strike and keeper with rubber bumper; mounted on pilaster in alignment with door latch.
   5. Coat hook with rubber bumper; one per compartment, mounted on door.
   6. Provide door pull for outswinging doors.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify correct spacing of and between plumbing fixtures.

C. Verify correct location of built-in framing, anchorage, and bracing.

3.02 INSTALLATION

A. Install partitions secure, rigid, plumb, and level in accordance with manufacturer's instructions.

B. Maintain 3/8 inch to 1/2 inch space between wall and panels and between wall and end pilasters.

C. Attach panel brackets securely to walls using anchor devices.

D. Attach panels and pilasters to brackets. Locate head rail joints at pilaster center lines.

E. Field touch-up of scratches or damaged finish will not be permitted. Replace damaged or scratched materials with new materials.

3.03 TOLERANCES

A. Maximum Variation From True Position: 1/4 inch.

B. Maximum Variation From Plumb: 1/8 inch.

3.04 ADJUSTING

A. Adjust and align hardware to uniform clearance at vertical edge of doors, not exceeding 3/16 inch.

B. Adjust hinges to position doors in partial opening position when unlatched. Return out-swinging doors to closed position.

C. Adjust adjacent components for consistency of line or plane.

END OF SECTION

SECTION 102600
WALL AND DOOR PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Corner guards.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 097210 - Vinyl Wall Coverings: Terminating wall covering at wall and door protection.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ASTM D256 - Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics; 2024.

C. ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents; 2021.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials; 2024.

F. ASTM F476 - Standard Test Methods for Security of Swinging Door Assemblies; 2023.

G. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

H. ASTM G22 - Standard Practice for Determining Resistance of Plastics to Bacteria; 2023.

I. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Indicate physical dimensions, features, wall mounting brackets with mounted measurements, anchorage details, and rough-in measurements.

C. Shop Drawings: Include plans, elevation, sections, and attachment details. Show design and spacing of supports for protective corridor handrails, required to withstand structural loads.

D. Samples: Submit samples illustrating component design, configurations, joinery, color and finish.
   1. Submit two samples of protective wall covering and door surface protection, 6 by 6 inches (152 by 152 mm) square.

E. Manufacturer's Instructions: Indicate special procedures, perimeter conditions requiring special attention.

F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project:
   1. See Section 016000 - Product Requirements, for additional provisions.

2. Extra Stock Materials: One package(s) of minimum 96 inches (2438 mm) long unit of each kind of covers for corner guards.

H. Maintenance Data: Manufacturer's instructions for care and cleaning of each type of product. Include information about both recommended and potentially detrimental cleaning materials and methods.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver wall and door protection items in original, undamaged protective packaging. Label items to designate installation locations.

B. Protect work from moisture damage.

C. Protect work from UV light damage.

D. Do not deliver products to project site until areas for storage and installation are fully enclosed, and interior temperature and humidity are in compliance with manufacturer's recommendations for each type of item.

E. Store products in either horizontal or vertical position, in compliance with manufacturer's instructions.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Provide manufacturer's Limited Lifetime Systems Warranty.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The manufacturer and model number(s) or series listed below are Basis-of-Design.

B. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

C. Corner Guards**:Provide Basis-of-Design Product as listed on Interior Finish Schedule.**
1. Construction Specialties, Inc; Acrovyn Corner Guards, TFC Series: www.c-sgroup.com/#sle.
2. Substitutions: See Section 016000 - Product Requirements.

2.02 PERFORMANCE CRITERIA

A. Impact Strength: Unless otherwise noted, provide protection products and assemblies that have been successfully tested for compliance with applicable provisions of ASTM D256 and/or ASTM F476.

B. Chemical and Stain Resistance: Unless otherwise noted, provide protection products and assemblies with chemical and stain resistance complying with applicable provisions of ASTM D543.

C. Fungal Resistance: Unless otherwise noted, provide protection products and assemblies which pass ASTM G21 testing.

2.03 PRODUCT TYPES

A. Corner Guards - Surface Mounted, Type (CG):
1. Material: High impact Acrovyn.
2. Thickness: 0.060 inch.
3. Adhesive mounted.

4. Resistant to bacterial and fungal growth per ASTM G21 and ASTM G22.
5. Chemical resistant per ASTM D543.
6. Impact resistant per ASTM F476.
7. UL Class A/1 fire rated and labeled.
8. Width of Wings: 2 inches (51 mm).
9. Corner: Square.
10. Color: As indicated by Interior Finish Schedule.
11. Length: One piece; manufacturer's standard length.

B. Adhesives and Primers: As recommended by manufacturer.

2.04 FABRICATION

A. Fabricate components with tight joints, corners and seams.

2.05 SOURCE QUALITY CONTROL

A. See Section 014000 - Quality Control, for additional requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings, concealed blocking, and anchors are correctly sized and located.

B. Verify that field measurements are as indicated on drawings.

C. Verify that substrate surfaces for adhered items are clean and smooth.
1. Test painted or wall covering surfaces for adhesion in inconspicuous area, as recommended by manufacturer. Follow adhesive manufacturer's recommendations for remedial measures at locations and/or application conditions where adhesion test's results are unsatisfactory.

D. Start of installation constitutes acceptance of project conditions.

3.02 INSTALLATION

A. Install components in accordance with manufacturer's instructions, level and plumb, secured rigidly in position to supporting construction.

B. Position corner guard 4 inches (102 mm) above finished floor to ceiling plane. See Drawings for Ceiling Heights

3.03 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

B. Clean wall and door protection items of excess adhesive, dust, dirt, and other contaminants.

END OF SECTION

SECTION 102800
TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Commercial toilet accessories.

B. Electric hand/hair dryers.

C. Utility room accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 061053 - MISCELLANEOUS ROUGH CARPENTRY: Placement of concealed anchor blocking devices.

C. Section 093000 - Tiling: Ceramic washroom accessories.

D. Section 102113.17 - PHENOLIC TOILET COMPARTMENTS.

E. Section 224000 - Plumbing Fixtures: Under-lavatory pipe and supply covers.

1.03 REFERENCE STANDARDS

A. ASTM A269/A269M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2024.

B. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

C. ASTM A666/A666M - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2024.

D. ASTM C1036 - Standard Specification for Flat Glass; 2025.

E. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

F. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2024.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Submit data on accessories describing size, finish, details of function, and attachment methods.

C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.

1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

C. Commercial Toilet, Shower, and Bath Accessories:
   1. AJW Architectural Products: www.ajw.com/#sle.
   2. American Specialties, Inc: www.americanspecialties.com/#sle.
   3. Bradley Corporation: www.bradleycorp.com/#sle.
   4. **(Basis of Design)** Bobrick Washroom Equipment Inc..

2.02 MATERIALS

A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
   1. Grind welded joints smooth.

B. Stainless Steel Sheet: ASTM A666/A666M, Type 304.

C. Stainless Steel Tubing: ASTM A269/A269M, Grade TP304 or TP316.

D. Galvanized Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.

E. Mirror Glass: Annealed float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.

F. Mirror Glass: Tempered safety glass, ASTM C1048; and ASTM C1036 Type I, Class 1, Quality Q2, with silvering as required.

G. Fasteners, Screws, and Bolts: Hot dip galvanized; tamper-proof; security type.

H. Expansion Shields: Fiber, lead, or rubber as recommended by accessory manufacturer for component and substrate.

2.03 COMMERCIAL TOILET ACCESSORIES

A. Toilet Paper Dispenser: Owner Furnished, Contractor Installed (OFCI).

B. Paper Towel Dispenser: Owner Furnished, Contractor Installed (OFCI).

C. Liquid Soap Dispenser: Owner Furnished, Contractor Installed (OFCI).

D. Mirrors: Stainless steel framed, 1/4 inch thick tempered safety glass; ASTM C1048.
   1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
   2. Size: As indicated on drawings.
   3. Frame: 0.05 inchchannel shapes, with mitered and welded and ground corners, and tamperproof hanging system; satin finish.
   4. Backing: Full-mirror sized, minimum 0.03 inch galvanized steel sheet and nonabsorptive filler material.
   5. Products:
      a. Bobrick, Model No. B-1658.
      b. Substitutions: Section 016000 - Product Requirements.

E. Grab Bars: Stainless steel, peened surface.
   1. Standard Duty Grab Bars:
      a. Push/Pull Point Load: 250 pound-force, minimum.
      b. Dimensions: 1-1/4 inch outside diameter, minimum 0.05 inch wall thickness, concealed flange mounting, 1-1/2 inch clearance between wall and inside of grab bar.
      c. Length and Configuration: As indicated on drawings.

d. Products:
1) Bobrick: B-5806 Series.
2) Substitutions: Section 016000 - Product Requirements.

F. Combination Sanitary Napkin/Tampon Dispenser: Stainless steel, surface-mounted.
1. Products:
a. Bobrick No. B-47069C.
b. Substitutions: Section 016000 - Product Requirements.

G. Sanitary Napkin Disposal Unit: Owner Furnished, Contractor Installed (OFCI).

H. Coat Hook and Bumper: Surface-Mounted Coat Hook with Bumper, Satin Finish Steel.
1. Products:
a. Bobrick No. B-9541

2.04 ELECTRIC HAND/HAIR DRYERS

A. Electric Hand Dryers:
1. Basis-of-Design: Excel hand dryer model: Xlerator.
2. Mounting: Surface Mounted.
3. Material and Finish: to be selected by Owner from manufacturer's full range of available material colors.
4. Automatic Sensor Operated.
5. 208-277 Volt.
6. HEPA Filtration System.
7. ADA-Compliant.
8. Provide where indicated on drawings.

2.05 UTILITY ROOM ACCESSORIES

A. Combination Utility Shelf/Mop and Broom Holder: 0.05 inch thick stainless steel, Type 304, with 1/2 inch returned edges, 0.06 inch steel wall brackets.
1. Products:
a. Bobrick No. B-239.
b. Substitutions: 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify exact location of accessories for installation.

C. For electrically-operated accessories, verify that electrical power connections are ready and in the correct locations.

D. Verify that field measurements are as indicated on drawings.

3.02 PREPARATION

A. Deliver inserts and rough-in frames to site for timely installation.

B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

A. Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.

B. Install plumb and level, securely and rigidly anchored to substrate.

C. Mounting Heights: As indicated on drawings and required by accessibility regulations, unless otherwise indicated.

3.04 PROTECTION

A. Protect installed accessories from damage due to subsequent construction operations.

END OF SECTION

SECTION 104413
FIRE PROTECTION CABINETS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fire-protection cabinets for the following:
   1. Portable fire extinguishers.

1.02 RELATED REQUIREMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 104416 "Fire Extinguishers."

1.03 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: For each type of product. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semi-recessed-, or surface-mounting method and relationships of box and trim to surrounding construction.

C. Shop Drawings: For fire-protection cabinets. Include plans, elevations, sections, details, and attachments to other work.

D. Product Schedule: For fire-protection cabinets. Indicate whether recessed, semi-recessed, or surface mounted. Coordinate final fire-protection cabinet schedule with fire-extinguisher schedule to ensure proper fit and function.

E. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.04 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

2.02 PERFORMANCE REQUIREMENTS

A. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements in ASTM E 814 for fire-resistance rating of walls where they are installed.

2.03 FIRE-PROTECTION CABINET

A. Cabinet Type: Suitable for fire extinguisher.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. **(Basis of Design)** JL Industries, Inc., a division of the Activar Construction Products Group; Ambassodor Series: www.activarcpg.com/#sle.
      b. Larsens Manufacturing Company: www.larsensmfg.com/#sle.

c. Potter Roemer LLC: www.potterroemer.com/#sle.

B. Cabinet Construction: 1-hour fire rated, UL Classified 7N43.
1. Fire-Rated Cabinets: Construct fire-rated cabinets with double walls fabricated from 0.043-inch- thick cold-rolled steel sheet lined with minimum 5/8-inch- thick fire-barrier material. Provide factory-drilled mounting holes.

C. Cabinet Material: Cold-rolled steel sheet.

D. Recessed Cabinet:
1. Exposed Flat Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).

E. Cabinet Trim Material: Steel sheet

F. Door Material: Steel sheet (duo-vertical panel with clear tempered safety glass).

G. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
1. Provide recessed door pull and friction latch.
2. Provide manufacturer's standard hinge permitting door to open 180 degrees.

H. Accessories:
1. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location.
a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
1) Location: Applied to cabinet door.
2) Application Process: Decals.
3) Lettering Color: Red.
4) Orientation: Vertical.

I. Materials:
1. Cold-Rolled Steel: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
a. Finish: Baked enamel or powder coat.
b. Color: As selected by Architect from full range of industry colors and color densities.

2.04 FABRICATION

A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
1. Weld joints and grind smooth.
2. Provide factory-drilled mounting holes.
3. Prepare doors and frames to receive locks.
4. Install door locks at factory.

B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
2. Fabricate door frames of one-piece construction with edges flanged.
3. Miter and weld perimeter door frames.

C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.05 GENERAL FINISH REQUIREMENTS

A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.

C. Finish fire-protection cabinets after assembly.

D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine walls and partitions for suitable framing depth and blocking where cabinets will be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Prepare recesses for fire-protection cabinets as required by type and size of cabinet and trim style.

3.03 INSTALLATION

A. General: Install fire-protection cabinets in locations and at mounting heights indicated.

B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
   1. Unless otherwise indicated, provide recessed fire-protection cabinets. If wall thickness is inadequate for recessed cabinets, provide semi-recessed fire-protection cabinets.
   2. Provide inside latch and lock for break-glass panels.
   3. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.

C. Identification: Apply decals at locations indicated.

3.04 ADJUSTING AND CLEANING

A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.

B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.

C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.

E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 104416
FIRE EXTINGUISHERS

1.01 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section includes portable, hand-carried fire extinguishers.

1.03 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

C. Product Schedule: For fire extinguishers. Coordinate final fire extinguisher schedule with fire protection cabinet schedule to ensure proper fit and function.

D. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

E. Warranty: Sample of special warranty.

1.04 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

1.05 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Failure of hydrostatic test according to NFPA 10.
      b. Faulty operation of valves or release levers.
   2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

2.02 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. Fire Extinguishers: Type, size, and capacity for each mounting bracket indicated.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. J. L. Industries, Inc.; a division of Activar Construction Products Group.
      b. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
      c. Larsen's Manufacturing Company.

d. **(Basis of Design)** Potter Roemer LLC; Model 3010 ABC Dry Chemical: www.potterroemer.com/#sle.

2. Valves: Manufacturer's standard.
3. Handles and Levers: Manufacturer's standard.
4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.

B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4A:80-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

2.03 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated finish (not required for fire extinguishers housed in fire extinguisher cabinets).

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.
1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
1. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated (not required for fire extinguishers housed in fire extinguisher cabinets).

END OF SECTION

SECTION 105113
METAL LOCKERS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal lockers.

B. Locker benches.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE: Concrete base construction.

1.03 REFERENCE STANDARDS

A. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

B. ICC A117.1 - Accessible and Usable Buildings and Facilities; 2017.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's published data on locker construction, sizes, and accessories.

C. Shop Drawings: Indicate locker plan layout, numbering plan and combination lock code.

D. Samples: Submit two samples six by six inches in size showing color and finish of metal locker material.

E. Manufacturer's Installation Instructions: Indicate component installation assembly.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Protect locker finish and adjacent surfaces from damage.

1.06 WARRANTY

A. One year Warranty.

B. Warranty applies to the original purchaser only and the purchaser’s sole remedy under this warranty is limited to the repair and replacement of the products and specifically excludes consequential, incidental or other damages directly or indirectly resulting from failure or loss of use of, or by, Lyon products. Damage from deliberate destruction and vandalism

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Metal Lockers: **Basis of Design: Refer to drawings for Locker Schedule.**
   1. **(Basis of Design)** Lyon Workspace Products: www.lyonworkspace.com/#sle.
   2. Substitutions: See Section 016000 - Product Requirements.

2.02 LOCKER APPLICATIONS

A. Athletic Lockers: (TYPE L1 & L2): Locker type composed of prime, high-grade cold-rolled steel, ventilated configuration, single tier (Type L1) & double tier (Type L2). Refer to drawings for locations and quantities. Provide ADA-compliant configurations at locations indicated on drawings.
   1. Refer to Locker Schedule on Drawings for locker sizes, configurations, and locations.
   2. Ventilation: Diamond perforated side panels and front with solid back.
   3. Lock: Provide with padlock hasp and strike.
   4. Fittings:
      a. Double prong coat hooks
      b. Shelves at single-tier lockers
      c. Name plate holder
      d. Sloped tops, end panels, expansion fillers and closure strips.
   5. Anchoring: Manufacturer's standard floor and wall anchors.
   6. Finish: Architect to select from manufacturers full range.
   7. Ventilation: Perforated doors.
   8. Locking: Padlock hasps, for padlocks provided by Owner.
   9. Provide sloped top.
   10. Color: To be selected from manufacturer's full range by Architect.
   11. Product: **Basis of Design: Refer to drawings for Locker Schedule.**
      a. **(Basis of Design)** Lyon Workspace Products; ; Ventilated Steel Locker: www.lyonworkspace.com/#sle.
      b. Substitutions: See Section; 016000-Product Requirements.

B. Team Lockers: (Type 3) Athletic team style lockers type composed of pime, high grade cold rolled steel, ventilated.
   1. Configuration: Single tier with security box and foot locker.
      a. Width: Refer to drawings for Locker Schedule.
      b. Depth: Refer to drawings for Locker Schedule.
      c. Height: Refer to drawings for Locker Schedule.
   2. Fittings:
      a. Upper shelf with lockable security box.
      b. Footlocker with hardwood Benchtop.
      c. Double prong coat hooks.
      d. 1" diameter coat rod
      e. Name Plate holder
      f. End panels expansion fillers & closure strips.
         1) Anchoring: manufacturer's standard floor and wall anchors.
         2) Finish: Architect to select from Manufacturers full range.
   3. Ventilation: Diamond perforated side panels with solid back.
   4. Locking: Provide with padlock hasp and strike.
   5. Color: To be selected from manufacturer's full range by Architect.
   6. Product: **Basis of Design: Refer to drawings for Locker Schedule.**
      a. **(Basis of Design)** Lyon Workspace Products; ; Sports Locker for Athletic Gear: www.lyonworkspace.com/#sle.
      b. Substitutions: See Section016000-Product Requirements.

2.03 METAL LOCKERS

A. Accessibility: Design units indicated on drawings as 'accessible' to comply with ICC A117.1 and ADA Standards.

B. Construction:
   1. Body: All tops, bottoms, sides, side extensions, upper shelves, reinforcements, and lower compartment bottom extension to be 16-gauge sheet. The lower shelf shall be 14-gauge steel, and backs shall be 18-gauge steel.
   2. Doors: one-piece, 14-gauge steel with manufacturers standard hinges no less than 2 inches high.
   3. Ventilation: Solid Back with diamond perforated sides.
   4. Shelves: 16 gauge shelf in manufacturers standard size and location.
   5. Hooks: Double prong hooks made with 3/16 inch diameter cold drawn wire with ball ends.
   6. Coat Rod: 1" diameter 18-gauge coat rod.
   7. Name plate holder 2" x 26" name plate holder constructed of 22-gauge stainless steel attached to locker using manufacturer's standard nuts and bolts or pop rivets.
   8. Finish: Exposed steel parts to receive rust inhibitive phosphate treatment and electrostatically sprayed with a powder coat.
   9. Lower storage compartment: Front assembly made of 14 gauge steel. LID assembly to be made of 14-gauge steel and 18-gauge continuous hinges.
      a. Lock: Padlock HASP and 24-gaugecontinuous hinges.
      b. Top: Hardwood seat finished with two coats of manufacturers standard clear acrylic finish glossy.
   10. Upper storage compartment: 16-gauge steel with a pull handle 18-gauge continuous hinges .
      a. Lock: Padlock HASP and 24-gauge stainless steel padlock strike.

C. Sloped Top: 16 gauge, with closed ends.

2.04 LOCKER BENCHES

A. Pedestal locker bench (Owner Furnished Contractor Installed - OFCI):
   1. Pedestal construction: SIngle piece case iron construction. 2-1/4 inch diameter post with 3/16 inch material thickness. Pedestals to be placed not more than 6 inches on center. Provide an ADA bench configuration at all ADA locations specified on plans.
   2. Bench Top: Hardwood top consisting of mixed hardwoods and finished two coats of clear crystallized lacquer on tops and sides and corners. Provide an ADA hard top at all ADA locations specified on plans.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that prepared bases are in correct position and configuration.

B. Verify bases and embedded anchors are properly sized.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Place and secure on prepared base and base anchors.

C. Install lockers plumb and square.

D. Secure lockers with anchor devices to suit substrate materials. Minimum Pullout Force: 190lbs pounds.

E. Bolt adjoining locker units together to provide rigid installation.

F. Install end panels, filler panels, and sloped tops.

G. Install fittings if not factory installed.

H. Replace components that do not operate smoothly.

3.03 CLEANING

A. Clean locker interiors and exterior surfaces.

END OF SECTION

SECTION 115313
LABORATORY FUME HOODS AND RELATED PRODUCTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Bench-top High-Performance Laboratory Fume Hoods.

B. Service fixtures (ie. water, gas, etc.) and electrical service fittings in fume hoods.

C. Piping and wiring within service fittings, light fixtures, switches, and other electrical devices.

D. Fume hood base support.

E. Work Surfaces within fume hoods.

F. Filler panels and ceiling enclosures for fume hoods.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 220500: Furnish and installation of plumbing utilities and final connections to fume hoods.

C. Section 230000 : Furnishing and installation of exhaust duct work and equipment, and final connection of hoods.

D. Section 260010: Furnishing and installation of electrical utilities and final connections to hoods.

1.03 REFERENCE STANDARDS

A. ANSI - American National Standards Institute; 2020.

B. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

C. ASTM C1036 - Standard Specification for Flat Glass; 2025.

D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

E. ISO 9001 - Quality Management Systems — Requirements; 2015, with Amendment (2024).

F. NFPA 30 - Flammable and Combustible Liquids Code; 2024, with Errata (2025).

G. NFPA 45 - Standard on Fire Protection for Laboratories Using Chemicals; 2019.

H. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. SEFA 1 - Laboratory Fume Hoods; 2010.

J. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

K. UL 1805 - Standard for Safety Laboratory Fume Hoods and Cabinets; Current Edition, Including All Revisions.

L. UL 61010-1 - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements; Current Edition, Including All Revisions.

1.04 SCOPE AND CLASSIFICATION

A. This specification covers the requirements for the purchase of bench mounted laboratory fume hoods for use with remote exhaust blower systems.

B. Bench-mounted laboratory fume hoods in 4 foot, internal depth of 23.3” and external depth of 31.7" is required.

C. This specification sets the intent for quality, performance and appearance.

1.05 REFERENCE STANDARDS

A. The laboratory hoods must conform to the following regulations and standards.
   1. SEFA 1, Scientific Equipment and Furniture Association, Recommended Practices for Laboratory Fume Hoods
   2. SEFA 8, Recommended Practices for Laboratory Grade Metal Casework, 8.0 Cabinet Surface Finish Tests
   3. NFPA 45, National Fire Protection Association, Fire Protection for Laboratories Using Chemicals
   4. ASTM E84-09C, ANSI 2.5, NFPA 255, UL 723, UBC 8-1 (42-1), Standard Test method for Surface Burning Characteristics of Building Materials
   5. ASHRAE 110, American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Method of Testing Performance of Laboratory Fume Hoods
   6. ANSI/AIHA Z9.5, American Industrial Hygiene Association, Laboratory Ventilation
   7. OSHA, Federal Register 29 CFR Part 1910, Occupational Safety & Health Administration, U.S. Department of Labor, Occupational exposures to hazardous chemicals in laboratories.

B. The laboratory fume hoods must carry the ETL listed mark for the following.
   1. UL 61010-1 (formerly 3101-1), Underwriters Laboratories Inc., Electrical Equipment for Laboratory Use
   2. CAN/CSA C22.2 No. 61010-1, Canadian Standards Association, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use
   3. UL 1805, Underwriters Laboratories Inc., Standard for Laboratory Hoods and Cabinets

C. 230 volt model fume hoods must carry the CE conformity marking as required by the Council of European Communities.

1.06 PERFORMANCE REQUIREMENTS

A. General Design Requirements (See Part 2 for details)
   1. Fume hoods shall function as ventilated, enclosed workspaces, designed to capture, contain and exhaust fumes, vapors and particulate matter produced or generated within the enclosure.
   2. Fume hood shall be factory designed to function as a by-pass fume hood.
   3. Structure and Materials of construction
      a. Hoods are of double-wall construction
      b. Powder-coated, cold rolled steel exterior
      c. Galvanized steel support members
      d. One-piece, monolithic, molded polyester resin liner
   4. Baffles
      a. One-piece, monolithic, molded polyester resin
      b. Moving or adjustable baffles are not acceptable
   5. Sash
      a. Maximum opening is 28".

b. Unobstructed viewing height is 37.5".
c. Hood incorporates a perforated sash handle to bleed air into the hood chamber directing fume concentrations away from the user's breathing zone.

6. Airfoil:
   a. Hoods are provided with an airfoil across the bottom of the sash area that allows airflow into the hood regardless of user's position.
7. Besides the exhaust blower, no additional blowers are required for specified containment.
8. Access for maintenance is from both the front and exterior sides of the hood.
9. Services:
   a. Hood manufacturer shall furnish and deliver all service outlets, accessory fittings, electrical receptacles and switches, as listed in these specifications, equipment schedules or as shown on drawings.
   b. Plumbing fittings mounted on the fume hood superstructures shall be pre-plumbed per section 2.03.
   c. Final plumbing and electrical connections are the responsibility of those contractors fulfilling requirements of Divisions 22 and 26.
   d. All electrical services are pre-wired to a single point internal junction box at the top right of the hood.
10. Hoods without service fixtures must pass through a 33” opening without disassembly.

B. Containment
1. The purpose of this section is to set a standard of performance for the bidder’s laboratory fume hood before award of contract, and may not necessarily represent the operating conditions of the hoods after installation. Before or after award of contract, owner may require representative witness to said testing at their option, with failure to meet passing criteria as grounds for rejection of the bidder. Test data shall be provided at no cost to the owner.
2. Evaluation of manufacturer’s standard product shall take place in manufacturer’s test facility meeting the following criteria.
   a. Lab to be located at manufacturer’s place of business for the testing of bench-mounted laboratory hoods in accordance with ASHRAE Standard 110.
   b. Room shall accommodate hoods up to 16’ wide, while maintaining sufficient area so that a minimum of 15 feet of clear space is available in front of and 5’ on both sides of hoods for viewing tests.
   c. The facility's ventilation system shall have adequate heating and air conditioning so that room air temperatures can be maintained within the desired ranges.
   d. One hundred percent non-recirculated air to be both carbon and HEPA filtered to ensure removal of contaminants that could interfere with containment testing before entering the lab.
   e. Make-up air to the test room shall be ceiling-supplied through any combination of multiple diffusers to either minimize adverse airflow, or increase it depending on test objectives.
   f. Exhaust volumes shall be computer controlled and measured via AMCA calibrated orifices and flow station at each exhaust trunk.
   g. Room pressurization must be digitally monitored, and variable depending on test objectives.
   h. All equipment must be properly calibrated.
   i. Qualified personnel familiar with the laboratory and its operation shall be available to perform the test.

j. Include the following instrumentation and test equipment:
   1) Properly calibrated hot wire thermal anemometer capable of measuring air velocities from 10 to 600 ft/minute; correlate with computer data acquisition format to provide simultaneous readings at all points.
   2) Theatrical smoke generator or other source of high volume smoke.
   3) Smoke tubes or other source of localized smoke.
   4) Leakmeter with traceable calibration, calibrated just before test, to indicated concentration of sulfur hexafluoride.
   5) Tracer gas: Sulfur hexafluoride supplied from a cylinder with two stage regulator.
   6) Adjustable mannequin, 5' 0' to 5'8" in height, with reasonable human proportions, clothed in a smock
   7) Inclined manometer with graduations no greater than 0.2 inch of water.
   8) Ejector system: Tracer gas ejector built to specific ASHRAE-110 requirements.
   9) Critical orifice: Sized to provide tracer gas at four or eight liters per minute at an upstream pressure sufficient to maintain release rate.
   10) Data acquisition software to include HoodPro™ and LabMeasurePro™ from Exposure Control Technologies, Inc. or equal.

3. Hood shall be tested to ASHRAE 110 modified test method as detailed below.
4. Some fume hoods may use face velocity controls, motorized baffles, integral auxiliary make up, or supply fans. Because all of these devices are subject to failure, containment testing shall show both operational containment and product containment with these systems off.
5. Fume hood sashes shall be placed in their full open position, at least 28” from the work surface, unless noted otherwise.
6. Ambient Temperature: 68 to 74 degrees Fahrenheit
7. Average Face Velocity: Face velocity average shall be 60 fpm, as noted below in subsection 8.d, parts 1 and 2, plus or minus 5%.
   a. An imaginary grid is formed comprised of equal 12” by 12” squares, or smaller, across the face opening of the laboratory hood. Airflow velocity readings are taken at the intersections of these grids with calibrated hot wire anemometer over a twenty second period of time. Probes shall communicate readings to a computer data acquisition package, which will provide an average of each reading over the one-minute period and also an overall average upon completion of data acquisition. Face velocity shall be determined by averaging readings at the hood face.
   b. Average face velocity must be achieved without exceeding the CFM noted in part C.
8. Tracer Gas Detection: Hood shall achieve a rating of 4.0AM0.00 maximum average and 4.0AM0.01 maximum spike (unless specifically otherwise noted), wherein:
   a. 4.0 = tracer gas release in liters/minute, AM = as manufactured, 0.01 = tracer gas in parts per million (PPM)
   b. With the ejector body 6" from the rear of the sash plane, the test shall be conducted for each ejector position noted.
      1) Left position with ejector 12" from the left interior wall.
      2) Center position with ejector equidistant from the sidewalls.
      3) Right position with ejector 12" from the right interior wall.
   c. Install mannequin positioned in front of the hood, centered on the ejector.
   d. Detector probes shall be placed 3” in front of the sash plane. The test shall be conducted for each detector probe position and corresponding face velocity.

1) Detector probe in the region of the nose and mouth of the mannequin. Test with average face velocity of 60 fpm.
2) With the mannequin height reduced 4", place detector probe in the chest of the mannequin, and even with the height of the ejector. Test with average face velocity of 60 fpm.

e. Open tracer gas valve, and collect readings with a computer data acquisition package, which is capable of monitoring and visually recording a minimum of one reading per second for a minimal five minute time period for each position.
f. The single control rating of the fume hood shall be the results of the test position yielding the highest average levels of tracer gas in any of the six mannequin/ejector configurations.
g. With the ejector and mannequin in the center position, detector probe in the region of the nose and mouth of the mannequin, average face velocity of 60 fpm, tracer gas released, and concentration recorded, open and close the sash in a smooth motion. Test to be repeated three times, with peak values of 0.01 PPM or less.
h. With the mannequin removed, the periphery of the hood is traversed by the probe at 1" in front of the hood opening at a rate of 3 inches per second. The hood shall have a maximum perimeter reading of 0.03 PPM or less.

9. Flow Visualization:
a. Test the operation of the lower air bypass airflow opening and hood periphery by introducing light smoke under the airfoil, and around the perimeter of the sash opening. If any smoke that enters the hood reverses directions and escapes from any of these locations, the hood fails this portion of the test and receives no rating.
b. Introduce smoke along both walls and the hood floor in a line parallel to the hood face and 6 inches back into the hood. Define air movement toward the face of the hood as reverse airflow and define lack of movement as dead air space. All smoke should be carried to the back of the hood and out.
c. Introduce a large volume of smoke at the work surface in the center of the hood, and 6" inside the plane of the sash. Define air movement toward the face of the hood as reverse airflow and define lack of movement as dead air space. All smoke should be carried to the back of the hood and out.
d. All data on the above, including instrumentation and equipment, and test conditions shall be provided on a report, including the average face velocities, and a separate graph-type performance curve on all tracer gas tests for all required fume hood widths. Performance test data for a 6' representative hood shall be conducted by an independent testing agency and by a specific individual certified to perform such tests by the National Environmental Balancing Bureau (NEBB).

C. Efficiencies
1. The fume hood shall maintain constant volumetric rate (+/- 5 CFM) and static pressure losses (+/- 0.01" H2O) across all sash positions, unless the hood has a restricted by-pass for use with a variable air volume (VAV) system.
2. The fume hood shall demonstrate a minimization of the volumetric rate of air (CFM) requirement at any given face velocity. Required CFM to achieve desired face velocity shall not exceed that which is noted in the chart below.
3. The fume hood shall demonstrate a minimization of static pressure loss (inches of H2O) at any given CFM. Static pressure loss at desired face velocity, and corresponding CFM, shall not exceed that which is noted in the chart below.
a. *There is not a written standard that would suggest a design face velocity below 60 fpm. This data is for informational purposes only.

D. Noise Criterion: The hood shall have a Noise Criterion (NC) rating of less than 50; measured 36” in front of the hood with full open sash, at 100 fpm face velocity. NC is a factor of sound pressure level (dB) and frequency.

E. Illumination: Shall be a minimum average of 80 foot-candles inside the work area. Work area is defined as the area inside the lined portion of the fume hood, from the face of baffle to sash plane, from interior left to interior right, and from the work surface to a height of 28 inches.

F. Materials of Construction: Interior and Exterior materials of construction and finishes shall meet the requirements in Part 2 of this specification.

1.07 QUALITY ASSURANCE

A. Fume hoods shall be designed, including comprehensive engineering analysis, by a qualified, licensed Professional Engineer.

B. Manufacturer’s Qualifications
   1. ISO 9001 Certified manufacturing plant and processes.
   2. Ten installations of equal or larger size and requirements. Provide contact at each.
   3. Only hood manufacturers who have had fume hoods as a principal product for 30 years are considered.

C. Fume hoods shall be Made in America
   1. 95% or more of raw material and component suppliers shall be United States based.
   2. Stainless and cold rolled steel used in manufacturing shall be sourced from United States steel mills.
   3. Final product must be fabricated and assembled within the United States of America.
   4. Owner reserves the right to evaluate Made in America claims for compliance with the Bureau of Consumer Protection.

D. Supply all equipment in accordance with this specification. Offering a product differing in materials, construction, or performance from this specification requires written approval obtained seven days or more before the proposal deadline.

E. The owner/architect reserves the right to reject qualified or alternate proposals and to award based on product value where such action assures the owner greater integrity of product.

F. Manufacturer's warranty against defects in material or workmanship on its fume hoods will be for 1 year from date of installation or 2 years from date of purchase, whichever is sooner, and includes replacement of parts (except lamps) and labor.

1.08 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Laboratory hood specification sheets and product manuals shall be submitted by the hood manufacturer upon request, and include safe and proper operation and maintenance information.

C. Shop Drawings: Include plans, elevations, sections, and details.
   1. Indicate details for anchoring fume hoods to permanent building construction including locations of blocking and other supports.
   2. Indicate locations and types of service fittings together with associated service supply connection required.
   3. Indicate duct connections, electrical connections, and locations of access panels.
   4. Include roughing-in information for mechanical, plumbing, and electrical connections.
   5. Provide face opening, volumetric rates, and static pressure drop data.

D. Submit a document detailing the information supplied on the Hood Safety Practices Label to verify compliance to specifications.

E. Product Test Reports: Showing compliance with specified performance requirements, including NEBB representative test report as defined previously.

F. Independent validation:
   1. Written verification that the laboratory fume hoods carry the ETL listed mark for the following.
      a. UL 61010-1 (formerly 3101-1), Underwriters Laboratories Inc., Electrical Equipment for Laboratory Use
      b. CAN/CSA C22.2 No. 61010-1, Canadian Standards Association, Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use
      c. UL 1805, Underwriters Laboratories Inc., Standard for Laboratory Hoods and Cabinets
   2. Written verification that 230 volt model fume hoods carry the CE conformity marking as required by the Council of European Communities.
   3. Written verification from an outside testing agency confirming coating compliance to SEFA 8-2010, Recommended Practices for Laboratory Grade Metal Casework, 8.0 Cabinet Surface Finish Tests

G. Documentation of ISO 9001 Certified manufacturing plant and processes.

H. List of five installations (of equal or larger size and requirements) is available upon request. Provide contact at each.

I. Declaration of Made in America. Owner reserves the right to evaluate Made in America claims for compliance with the Bureau of Consumer Protection.

J. Material Submittals
   1. Samples for Verification: of the hood exterior wall material, interior liner and baffle material, epoxy work surface material, and color selection chips are available from the hood manufacturer upon request.

1.09 DELIVERY, STORAGE, AND HANDLING

A. Protect finished surfaces during handling and installation with protective covering of polyethylene film or another suitable material.

B. Schedule delivery of equipment so that spaces are sufficiently complete that equipment can be installed immediately following delivery.

1.10 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install fume hoods until building is enclosed, wet work and utility roughing-in are complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.

2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 MANUFACTURERS

A. **(Basis of Design)** Labconco Corporation; Protector Premier Series: www.labconco.com/#sle.

B. Substitutions: See Section 016000 - Product Requirements.

2.03 MATERIALS

A. Hood Interior Liner and Baffle
1. Liner material must comply with UL 1805, and be listed within NRTL test report as proof of compliance.
2. General Material Properties
   a. Nonflammable, corrosion and chemical-resistant
   b. Fiberglass reinforced polyester resin
   c. Minimum thickness is 3/16"
   d. Smooth, white finish
3. Method of Construction
   a. Liner shall be one continuous molded component, and of monolithic construction, including the left and right side walls, rear, ceiling, and duct collar. Liners that are bonded together, do not include the duct collar within the continuous structure, or are of panelized construction are not acceptable.
4. Flame and Smoke Characteristics
   a. Flame retardant, self-extinguishing, with a flame spread rating of 25 or less in accordance with ASTM E84
5. Chemical Resistance
   a. Splash and Spill Resistance:
      1) Suspend sample panel in a vertical plane
      2) Apply five drops of each reagent listed with an eyedropper
      3) Apply liquid reagents at top of panel and allow to flow down full panel height
   b. Fume Resistance:
      1) Place 25 milliliters of reagent into 100 milliliters beakers and position panel over beaker tops in the proper sequence. Ensure beaker pouring lip permits air to enter the interior atmosphere.
      2) After 24 hours remove panel, flush with water, clean with detergent, rinse, wipe dry and evaluate
   c. Evaluation ratings: Change in surface finish and function shall be described by the following ratings
      1) E: Excellent for intended service with expected long and economic life.
      2) G: Some staining may result with prolonged usage. Satisfactory for limited service. Tests under actual conditions suggested.
      3) F: Surface deterioration may be experienced with prolonged usage. Test under actual conditions.
      4) NR: Not Recommended
   d. Required minimum results for each reagent (Reagent, Rating)

1)	Acetic Acid G	2)	Acetone G
3)	Acrylic Acid G	4)	Aluminum Fluoride E
5)	Aluminum Sulfate E	6)	Ammonia E
7)	Ammonium Bicarbonate E	8)	Ammonium Carbonate G

9) Ammonium Chloride E	10) Ammonium Fluoride F
11) Ammonium Hydroxide G	12) Ammonium Nitrate E
13) Ammonium Persulfate E	14) Ammonium Sulfate E
15) Ammonium Thiocyanate E	16) Amyl Acetate E
17) Amyl Alcohol E	18) Aniline F
19) Aniline Sulfate E	20) Antimony Pentachloride E
21) Antimony Trichloride E	22) Aqua Regia (HNO3-HCl) Aromatic Hydrocarbon E
23) Arsenious Acid E	24) Barium Carbonate E
25) Barium Chloride E	26) Barium Hydroxide F
27) Benzaldehyde F	28) Benzene G
29) Benzene Sulfonic Acid E	30) Benzoic Acid E
31) Bleach - Hypochlorite E	32) Bromine, liquid F
33) Butyl Acetate E	34) Butyl Alcohol E
35) Butyric Acid E	36) Calcium Chlorate E
37) Calcium Chloride E	38) Calcium Hydroxide E
39) Calcium Hypochlorite E	40) Calcium Sulfate E
41) Caprylic Acid(n-Octanoic Acid) E	42) Carbon Dioxide E
43) Carbon Disulfide Vapor F	44) Hydrocyanic Acid E
45) Hydrofluoric Acid G	46) Hydrofluorosilic Acid F
47) Hydrogen E	48) Hydrogen Chloride, Anhydrous E
49) Hydrogen Fluoride, Wet F	50) Hydrogen Peroxide E
51) Hydrogen Sulfide E	52) Hypochlorous Acid E
53) Kerosene E	54) Lactic Acid E
55) Lead Acetate E	56) Lime Slurry E
57) Linseed 0il E	58) Lithium Chloride E
59) Magnesium Carbonate E	60) Magnesium Chloride E
61) Magnesium Sulfate E	62) Malic Acid E
63) Mercaptan, 0rganic, H2S, H20, Butanol E	64) Mercuric Chloride E
65) Mercurous Chloride E	66) Mercury E
67) Alcohol E	68) Methyl Chloride F
69) Methyl Ethyl Ketone G	70) Methyl Isobutyl Ketone E
71) Moisture E	72) Naptha E
73) Napthalene E	74) Nickel Chloride E
75) Nickel Nitrate E	76) Nickel Sulfate E
77) Nitric Acid E	78) Nitrobenzene G
79) Nitrogen E	80) Nitrous Acid E
81) 0leic Acid E	82) 0xalic Acid E

83) Perchloric Acid NR	84) Phenol F
85) Phosphate Salts E	86) Phosphonitrilic Chloride, Cl2, HCl, benzene, H20 Vapors E
87) Phosphoric Acid E	88) Phosphoric Vapor & Condensate E
89) Phosphoric: Nitric Vapor E	90) Phosphoric: HCl, Saturated with phosphorous E
91) Phosphoric: HCl, Sat. with Cl2 E	92) Phosphorous 0xychloride, CHl, Cl2, H20 Vapors E
93) Phosphorous Trichloride, HCl, Cl2, H20 Vapors E	94) Phosphorous Sesquisulfide E
95) Phthalic Anhydride E	96) Picric Acid in Alcohol E
97) Potassium Bicarbonate E	98) Potassium Carbonate E
99) Potassium Chloride E	100) Potassium Dichromate E
101) Potassium Ferrocyanide E	102) Potassium Hydroxide F
103) Potassium Nitrate E	104) Potassium Permanganate G
105) Potassium Persulfate E	106) Potassium Sulfate E
107) Propylene Glycol E	108) PVA Emulsion E
109) Pyridine F	110) Silver Nitrate E
111) Sodium Acetate G	112) Benzoate E
113) Sodium Bicarbonate E	114) Sodium Bisulfate E
115) Sodium Borate E	116) Sodium Bromide E
117) Sodium Carbonate E	118) Sodium Chloride E
119) Sodium Cyanide F	120) Sodium Ferricyanide E
121) Sodium Hydroxide G	122) Sodium Hypochlorite E
123) Sodium Nitrate E	124) Sodium Sulfate E
125) Sodium Sulfide E	126) Sodium Sulfite E
127) Sodium Tetraborate E	128) Sodium Xylene Sulfonate E
129) Stannic Chloride E	130) Stannous Chloride E
131) Stearic Acid E	132) Styrene G
133) Sulfite Liquors E	134) Sulfur, molten, vapors E
135) Sulfur Chloride E	136) Sulfur Dioxide E
137) Sulfonated Aliphatics, HCl, H2S, Butanol vapors E	138) Sulfur Dioxide Saturated H20; trace HF, H2S04, H2S, F2 E
139) Sulfur Dioxide: S03 wet vapor F	140) Sulfur Trioxide E
141) Sulfuric Acid G	142) Sulfuric Acid + Dichromate G
143) Sulfuric + Chromic G	144) Sulfuric Acid vapor G
145) Sulfuric-Nitric Acids G	146) Sulfuric - HCl G
147) Sulfurous Acid G	148) Tannic Acid E
149) Tartaric Acid E	150) Tetropotassium

			Pyrophosphate E
151)	Toluene G	152)	Toluene Diisocyanate E
153)	Trichloroacetic Acid E	154)	Trichloroethylene G
155)	Trichloroethylene, HCl, Cl2, H20 vapors G	156)	Trichlorophenol F
157)	Trisodium Phosphate F	158)	Waste, 0rganic, H20, HCl, Cl2, vapors E
159)	Water E	160)	Zinc Chloride E
161)	Zinc Sulfate E	162)	

B. Sheet Steel
   1. Side panels and access panels 20-gauge (or heavier) sheet steel.
   2. Hood corner posts are 18-gauge sheet steel.
   3. Ceiling enclosure panels are 18 gauge sheet steel.
   4. Cold-rolled, commercial steel (CS) sheet, complying with ASTM A1008/A1008M.

C. Chemical Resistant Finish
   1. General: Prepare, treat, and finish welded assemblies after welding. Prepare, treat, and finish components that are to be assembled with mechanical fasteners before assembling.
   2. Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8. Third party validation required.
   3. Powder-coat process required. Paint processes that release Volatile Organic Compounds (VOC) are not acceptable
   4. Color for Fume Hood Finish:
      a. As selected by architect from Manufacturer’s full range

D. Safety Glass
   1. Tempered
      a. Clarity and temper test to be as specified in latest edition of Glass Tempering Association, Engineering Standards Manual, Section 8.1.
      b. Surface and interior visible quality to be as specified per ASTM C1036, Standard Specification for Flat Glass, Table 4, Quality level Q3.

2.04 CONSTRUCTION

A. Superstructure:
   1. Self-supporting, rigid structural assembly, to support inner wall consisting of fume hood liner and outer wall of sheet metal exterior.
   2. Fabricated from galvanized steel.
   3. Space shall accommodate fume hood wiring and plumbing components for service fixtures.
   4. Access to fixture valves concealed in wall provided by exterior removable access panels or through removable access panels on the front posts.

B. Exterior
   1. Fabricate from steel sheet with component parts screwed together.
   2. Apply chemical-resistant finish to interior and exterior surfaces of component parts before assembly.

3. Interchangeable side panels shall lift off without the use of tools to allow access to plumbing lines, service fittings, electrical wiring, counterbalance sash weights, and light fixtures. Exposed fasteners or hardware, and Velcro type fasteners, are not acceptable.
4. Corner posts
   a. Pre-punched and plugged to accommodate up to 4 service fixtures per side
   b. All services are accessible from the front of the hood.
   c. Aerodynamic shape
   d. Accommodate two electrical duplexes per side.
   e. Right hand corner post includes electrical switches and pre-cut for Airflow monitor installation.
   f. Un-used penetrations shall be plugged.
5. Top and sides of face opening to provide an aerodynamic shape to ensure smooth, even flow of air into fume hood.
6. Panel above header shall be removable without the use of tools to allow access to mechanical connection, electrical wiring, counterbalance sash weights, and light fixtures. Exposed fasteners or hardware, and “hook-and-loop” type fasteners, are not acceptable.

C. Dimensions
1. Overall exterior dimensions are as follows:
   a. 4 foot nominal width: 48” w x 59” h x 31.7”d
2. Overall interior dimensions are as follows:
   a. 4 foot nominal width: 38.1” w x 48” h x 23.3”d

D. Hood Liner
1. Adhere interior liner components to superstructure.
2. Stainless steel fasteners shall be used on the interior ceiling for structural integrity.
3. Fasteners exposed to chemical environment are not acceptable.
4. Punch fume hood lining side panels to receive four service fittings, for use with remote controls, per side. Provide removable plug buttons for holes not used for indicated fittings.

E. Hood Baffle
1. Baffle system shall be designed to capture a wide range of gaseous densities without adjustment or moving components.
2. Shall provide a continuous horizontal slot at the work surface, vertical openings running the interior height of the hood on the left and right sides, and an opening at the ceiling running left to right.
3. The baffle system shall be constructed with the same material as the fume hood liner.
4. The baffles shall be removable for cleaning.
5. Exposed components to be non-metallic. Metal components exposed to chemical environment are not acceptable.
6. Moving parts or adjustment of any kind is not acceptable.

F. Exhaust Connection
1. Fiberglass reinforced polyester resin, and a continuous component of the fume hood liner. Duct collars attached with fasteners, adhesive, or varying in material of construction from the liner are not acceptable.
2. 12.81" ID to accommodate any 12” nominal duct without the need for a transition adapter. 4, 5, and 6-foot hoods have one exhaust connection, 8-foot hoods have two exhaust connections. Additional components required to accommodate 12” nominal mechanical system are not acceptable.

3. Ducting shall go inside the duct collar to ensure condensate travels into the hood and evaporates. Duct collars that allow duct connection over the collar are not acceptable.

G. Airfoil
1. 316 Stainless Steel with Chemical-Resistant Finish.
2. Airfoil shall have an aerodynamic radius to sweep the air into the hood with minimal turbulence. Airfoil directs airflow across work top to remove heavier-than-air gases.
3. Must have 5 rows of perforations to allow the air to bypass underneath and through the foil and sweep across the work surface to prevent any back flow of fumes escaping from the front of the hood opening. This airflow continues even if blocked by the presence of the operator.
4. Foil must extend back under the sash to prevent closure of the lower by-pass opening when the sash is in the fully closed position, directly on top of the airfoil.

H. Sash Assembly
1. Glass: Fully tempered safety glass with unobstructed, side-to-side view of fume hood interior and service fixture connections.
2. Dimensions: The full sash opening height is 28", the total unobstructed viewing height is 37.5" measured from the work surface.
3. Sash Tracks: Steel with Chemical Resistant Finish. Shall include bump stops for opening and closing.
4. Sash Handle: extruded aluminum with Chemical Resistant Finish. Sash handle includes a perforated air passage directly atop the handle to bleed air into the hood chamber and direct chemical fumes away from the user's breathing zone. The handle is ergonomic in design and is easy to grasp when operating
5. Sash guides: Corrosion resistant extruded poly-vinyl chloride.
6. Sash System
   a. Vertical Sash (Chain and Sprocket)
      1) Hoods have a single vertical sash counterbalanced by a single weight.
      2) Sash and weight to be connected via #35 chains.
      3) Rear sprockets shall be connected via timing shaft to prevent sash tilting and permit one finger operation at any point along full width sash handle. Maximum 7 pounds pull required to raise or lower sash throughout its full length of travel.
      4) Design system to hold sash at any position without creep and to prevent sash drop in the event of chain failure.
      5) Include a defeatable, and automatically resetting sash stop positioned for an 18” sash height.

I. Electrical Components
1. Lighting
   a. Provide UL Listed, high-efficiency, quick-start, T8 LED lighting systems, including bulbs.
      1) 4 Foot Hoods - 2 each, 12-watt LED lamps
   b. Vapor-Proof: all electrical components shall be outside of the contaminated air space. Lighting shall be located behind a laminated safety glass shield, sealed to the top of the hood liner.
   c. The LED light assemblies shall be serviceable from outside the fume hood cavity, without the use of tools.
   d. Light switch to be included on the lower right corner post, at heights compliant with the Americans with Disabilities Act (ADA).

2. Blower Switch Pick one
   a. Hoods shall be provided with blower switch, on the lower right corner post, at heights compliant with the Americans with Disabilities Act (ADA).
3. Electrical Receptacles
   a. The hoods shall accommodate up to four (two per corner post) electrical receptacles as indicated in schedule or drawings. Options to include:
      1) 115 volt, 60 Hz, three-wire polarized and grounded electrical duplex
      2) 115 volt, 60 Hz, three-wire polarized and grounded electrical duplex, with Ground Fault Circuit Interruption (GFCI)
      3) 230volt, 60 Hz, three-wire polarized and grounded electrical duplex
   b. Receptacles shall be individually wired to field wiring box, and each rated at 20 Amperes.
   c. Cover plates shall be acid resistant thermoplastic.
4. Wiring
   a. Every electrical component shall be individually wired to a single point internal field wiring box (including individual duplexes/receptacles).
   b. Field wiring box to be 7” x 4” x 2.5”, grounded, and have (12) 7/8” diameter knock out penetrations.
   c. Final wiring and circuit dedication is to be by others.
   d. Each receptacle circuit shall accommodate being wired to a dedicated building circuit rated at 20A, or the receptacles wired to a single circuit with the total load not exceeding 20 Amperes.
5. Fume hood to have third party validation of compliance to UL 1805 and UL 61010-1 by a Nationally Recognized Testing Laboratory (NRTL)

J. By-Pass Opening
   1. The size of the by-pass opening is controlled by sash position for use with a constant volume mechanical system. The hood shall not have a change in static pressure or exhaust volume across all sash positions.

K. Hood Safety Practices Label: Corrosion resistant plate attached to the corner post of the fume hood with the following Hood Safety Practices:
   1. For use with substances that produce hazardous levels of airborne chemicals: gas, fumes, vapors, dust
   2. Do not put your head in the hood.
   3. Minimize drafts and sudden movements in front of the hood.
   4. Work a minimum of six inches inside the hood.
   5. Elevate equipment above the work surface.
   6. Keep sill and baffle unobstructed.
   7. Do not use the hood for storage.
   8. Adjust the sash to smallest opening possible when in use.
   9. Close sash when unattended.
   10. Do not remove any of the hood components.
   11. Do not place flammable solvents near heat, flame or sparks.
   12. Do not evaporate large amounts of flammable liquids.
   13. Wipe up spills immediately.
   14. Routinely validate airflow.
   15. If the ventilation system malfunctions, or airflow alarm indicates unsafe condition, close sash and discontinue hood operation immediately-call for help.

16. Do not use with Biohazards or Perchloric Acid

L. Fume Hood Accessories
1. Service Fixtures: Color-coded hose nozzle outlets and valves mounted inside the fume hood and controlled from the exterior with color-coded index handles
   a. The hoods are equipped without service fixtures or will be provided with a total of up to 8 service fixtures as indicated in schedule.
   b. Hose connectors located inside the fume hood cavity are chemically-resistant, glass-filled polypropylene with 6 serrations.
   c. Service lines shall be factory installed from valve to outlet
      1) Copper tubing unless otherwise noted
      2) Brass service lines for gas
      3) Connections shall be made with quick-connect compression fittings on the inlet and outlet of the valve body, soldered and brazed connections not easily disassembled are not acceptable.
      4) Inlet tubing not included or services include a coil of tubing to be routed below the hood at time of installation
   d. Valves
      1) Extruded brass valve and rotating seat, TFE-coated silicone bronze stem and TFE packing.
      2) Fixture handles are plastic and color coded as well as labeled for the designated type of service.
      3) Fixtures are rated at maximum pressure of 200 psi.
      4) Coefficient of flow for the valve, Cv=0.43.
2. Tissue Screen: Provide epoxy-coated, stainless-steel screen at bottom baffle opening to prevent paper from being drawn into the exhaust plenum behind baffles.
3. Rear Finish Panel: Shall be the same materials and coating as the hood exterior.
4. Ceiling Enclosure Panels:
   a. Provide filler panels matching fume hood exterior to enclose space above fume hoods at front and sides of fume hoods and extending from tops of fume hoods to ceiling.
   b. Exposed fasteners are not acceptable.
   c. Height adjustment to be within the following ranges as specified in the schedule.
      1) 11.0 - 14.0”
      2) 14.0 – 18.6”
      3) 18.6 – 24.4”
5. Distillation Grid: Include stainless steel rods and connectors for field installation, and factory drilled liner.
6. Face Velocity Monitor/Alarm
   a. Audio/Visual Airflow Monitor
      1) Provide audible and visual alarm in the event of an unsafe face velocity.
      2) Alarm must sit flush with the fume hood corner post.
      3) Based on a thermally compensated thermistor in the alarm module, and air passing through a separate airstream into the hood interior.
      4) LED lights display red for alarm and green for normal operation.
      5) Must include external alarm and night setback functions.
      6) Alarm mute shall be accessible from the front of the monitor; visual alarm must remain activated until alarm condition is corrected.

7) UL Listed electrical components
8) Calibration shall be through a front located potentiometer.
9) Calibration is the responsibility of the owner, following a complete balancing of the mechanical system, and concurrently with As-Installed testing.

M. Work Surface
1. 1.25” thick, molded from solid modified epoxy resin, with smooth, non-specular, black finish.
2. One inch radius front edge for optimal fume hood performance.
3. 3/8” dished area to match the fume hood interior work space and form a water tight pan for spill containment.
4. Include a 2.5” diameter hole on each side for service pass-through and piping. Hole to be covered by hood superstructure upon installation.
5. Include two 1.5” diameter penetrations to accommodate base cabinet venting. Holes to be located outside of dished area and under the fume hood baffles. Include plugs.
6. Physical Properties:
   a. Flexural Strength: Not less than 10,000 psi.
   b. Modulus of Elasticity: Not less than 2,000,000 psi.
   c. Hardness (Rockwell M): Not less than 100.
   d. Water Absorption (24 Hours): Not more than 0.02 percent.
   e. Heat Distortion Point: Not less than 260 deg F (127 deg C).
   f. Flame-Spread Index: 25 or less per ASTM E84.

N. Supporting Base Cabinets
1. Base cabinets shall be in depths of 22", widths, quantities, and types called out in the equipment schedule or drawings, and meet the requirements of this specification.
2. Construction requirements for all cabinets
   a. Exterior construction is 18 gauge (or heavier) cold rolled sheet steel with Chemical Resistant Finish.
   b. Hinges are 10 gauge (or heavier) plate with self-clinching pilot pin. Knuckle, bullet, or piano type hinges are not accepted.
   c. The rear panel will feature a 12" x 8" removable plumbing access panel.
   d. Units 24" wide or less have only one door.
   e. Each cabinet includes four leveling feet.
   f. Capable of supporting up to 800 pounds.
   g. An 8" filler panel is required to increases the cabinet depth to 30".
3. Standard Storage
   a. Overall exterior dimensions:
      1) 48" 48" w x 22" d x 35.5"-36.75"
   b. Flush pull handles are ABS, low gloss black.
4. Acid Storage
   a. Overall exterior dimensions:
      1) 48" 48" w x 22" d x 35.5"-36.75"
   b. Completely lined with a polyethylene corrosion resistant liner. The liner is 3/16" thick, with a vacuum formed PVC liner pan at the bottom to contain spills. Each door has a 3/16" sheet polyethylene liner.
   c. The cabinet is labeled: "ACID".
   d. Flush pull handles are ABS, low gloss black.

e. Each cabinet is vented into the fume hood with a 1-1/2" vent pipe. It should provide a positive airflow directly into the fume hood exhaust system.
f. Supply an epoxy coated steel shelf with PVC liner pan if indicated in the schedule.
g. Acid cabinets with louvers are not acceptable

5. Solvent Storage
   a. Overall exterior dimensions:
      1) 48" 48" w x 22" d x 35.5"-36.75"
   b. Solvent storage cabinets are specifically designed for the storage of flammable and combustible liquids.
   c. Solvent Storage Cabinet must be compliant with NFPA 30 “Flammability and Combustible Liquids Code.”
   d. Cabinets 30" wide and greater shall be tested and approved by Factory Mutual to meet Factory Mutual Approval Standard 6050.
   e. The bottoms, top, sides, and doors are fabricated of 18 gauge steel and are all double panel construction with a 1-1/2" air space between panels.
   f. All joints are welded or screwed to provide a rigid enclosure. A 2" deep liquid tight pan that covers the entire bottom of the cabinet is furnished to contain liquid leaks and spills.
   g. A full-depth, 18 gauge steel, adjustable shelf is also provided. Shelves are sealed leak tight.
   h. Two diametrically opposed flame arrestor vents with spark screens are provided in the back of the cabinet, as well as a grounding screw.
   i. The cabinet has an interior finish same as the exterior.
   j. The cabinet is labeled: "FLAMMABLE - KEEP FIRE AWAY".
   k. The right hand door shall have a three point latching device.
   l. Door handles include a key lock. Solvent storage handles are locking lever handles with bright chrome finish.
   m. If noted on the schedule, self-closing/self-latching models shall be provided with a fusible-link feature to ensure the doors will close if the temperature outside the cabinet exceeds 165 degrees Fahrenheit. The doors are synchronized so that both doors will fully close.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of fume hoods.

B. Coordinate with other trades for the proper and correct installation of plumbing and electrical rough-in and for rough opening dimensions required for the installation of the hood.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Install fume hoods according to shop drawings and manufacturer's written instructions.

B. Install level, plumb, and true; shim as required, using concealed shims, and securely anchor to building and adjacent laboratory casework.

C. Securely attach access panels, but provide for easy removal and secure reattachment. Where fume hoods abut other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

D. Neighboring splash blocks shall not be attached directly to the hood.

E. Install according to standards required by authority having jurisdiction.

F. Sequence installations to ensure utility connections are achieved in an orderly and expeditious manner.

G. Touch up minor damaged surfaces caused by installation. Replace damaged components as directed by Architect.

3.03 FIELD QUALITY CONTROL

A. NFPA 45 requires that fume hoods be field tested when installed.

B. Field test installed fume hoods according to ASHRAE 110 to verify compliance with performance requirements.
   1. Adjust fume hoods, hood exhaust fans, building's HVAC system, and make other corrections until tested hoods perform as specified in fume hood schedule.
   2. After making corrections, retest fume hoods that failed to perform as specified.

3.04 ADJUSTING AND CLEANING

A. Adjust moving parts for smooth, near silent, accurate sash operation with one hand. Adjust sashes for uniform contact of rubber bumpers. Verify that counterbalances operate without interference.

B. Clean finished surfaces, including both sides of glass; touch up as required; and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

C. Clean adjacent construction and surfaces that may have been soiled in the course of installation of work in this section.

D. Provide all necessary protective measures to prevent exposure of equipment and surfaces from exposure to other construction activity.

E. Advise contractor of procedures and precautions for protection of material and installed equipment and casework from damage by work of other trades.

END OF SECTION

SECTION 122400
WINDOW SHADES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Interior manual roller shades.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 042000 - Unit Masonry: Installation requirements for unit masonry walls.

C. Section 061000 - Rough Carpentry: Concealed wood blocking for attachment of headrail brackets.

D. Section 079200 - Joint Sealants: Sealing the perimeter of installation accessories for light-blocking shades.

E. Section 092116 - Gypsum Board Assemblies: Installation requirements for metal stud and gypsum board walls.

F. Section 095100 - Acoustical Ceilings.

1.03 REFERENCE STANDARDS

A. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

B. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films; 2023, with Errata.

C. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems; Current Edition, Including All Revisions.

D. WCMA A100.1 - Standard for Safety of Window Covering Products; 2022.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work related to products of this section; require attendance of affected installers.

B. Sequencing:
   1. Do not fabricate shades until field dimensions for each opening have been taken with field conditions in place.
   2. Do not install shades until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets, including materials, finishes, fabrication details, dimensions, profiles, mounting requirements, and accessories.

C. Shop Drawings: Include shade schedule indicating size, location and keys to details, head, jamb and sill details, mounting dimension requirements for each product and condition, and operation direction.

D. Certificates: Manufacturer's documentation that line voltage components are UL listed or UL recognized.

E. Source Quality Control Submittals: Provide test reports indicating compliance with specified fabric properties.

F. Selection Samples: Include fabric samples in full range of available colors and patterns.

G. Verification Samples: Minimum size 10 inches (___ mm) square, representing actual materials, color and pattern.

H. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

I. Project Record Documents: Record actual locations of control systems and show interconnecting wiring.

J. Operation and Maintenance Data: List of all components with part numbers, sources of supply, and operation and maintenance instructions; include copy of shop drawings.

K. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

B. Installer Qualifications: Company specializing in performing work of this type with minimum five years of documented experience with shading systems of similar size and type.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver shades in manufacturer's unopened packaging, labeled to identify each shade for each opening.

B. Handle and store shades in accordance with manufacturer's recommendations.

1.08 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.09 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Provide manufacturer's warranty from Date of Substantial Completion, covering the following:
   1. Shade Hardware: five years.
   2. Fabric: five years.
   3. Aluminum and Steel Coatings: One year.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
   2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

2.02 MANUFACTURERS

A. Interior Manually Operated Roller Shades:
   1. Draper, Inc.: www.draperinc.com/#sle.
   2. **(Basis of Design)** Drapery Industries, Inc.; Architectural CM Series: www.draperyindustries.com/#sle.
   3. Hunter Douglas Architectural: www.hunterdouglasarchitectural.com/#sle.
   4. MechoShade Systems LLC: www.mechoshade.com/#sle.
   5. Substitutions: See Section 016000 - Product Requirements.

2.03 ROLLER SHADES

A. General:
   1. Provide shade system components that are easy to remove or adjust without removal of mounted shade brackets.
   2. Provide shade system that operates smoothly when shades are raised or lowered.

B. **(Basis of Design)** Drapery Industries, Inc.; Architectural CM Series: www.draperyindustries.com/#sle.
   1. Description: Single roller, manually operated fabric window shade system complete with mounting brackets, roller tubes, hembars, hardware, and other components necessary for complete installation.
      a. Drop Position: Regular roll.
      b. Mounting: Window jamb mounted - inside, between jambs.
      c. Size: As indicated on drawings.
      d. Fabric: Reference Interior Finish Schedule on " I " series drawings.
   2. Mounting Hardware: As recommended by manufacturer for mounting indicated and to accommodate shade fabric roll-up size and weight.
      a. Hardware Type: Mounting end caps with fascia.
   3. Roller Tubes: As required for type of shade operation; designed for removal without removing mounting hardware.
      a. Material: Extruded aluminum, clear anodized finish, with wall thickness and material selected by manufacturer.
      b. Size: As recommended by manufacturer; selected for suitability for installation conditions, span, and weight of shades.
      c. Fabric Attachment: Utilize extruded channel in tube to accept vinyl spline welded to fabric edge.
      d. Roller tubes to be capable of being removed and reinstalled without affecting roller shade limit adjustments.
   4. Hembars: Designed to maintain bottom of shade straight and flat, selected from manufacturer's standard options.
      a. Style: Full fabric wrapped bottom bar, flat profile with heat sealed, closed ends.
   5. Manual Operation:
      a. Clutch Operator Location: Right side.
      b. Clutch Operator: Manufacturer's standard material and design.
         1) Clutch shall stop shade movement when bead chain is released.
         2) Clutch shall be permanently adjusted and lubricated.
      c. Drive Chain: Continuous loop stainless steel beaded ball chain, 95 pounds (43 kg) minimum breaking strength. Provide upper and lower limit stops.

d. Shade Lift Assistance: Manufacturer's standard spring device contained in the idler end of roller tube to reduce force required to lift shades; as required based on shade weight.
e. Chain Retainer:
1) Chain tensioning device complying with WCMA A100.1.
2) Manufacturer's standard clip.
f. Idler Assembly: Molded nylon with adjustable length idler pin or spring-loaded idler to facilitate easy installation and removal of shade for service.

6. Accessories:
a. Light Gap Reduction Channels: Provide extruded aluminum channels to reduce light leakage at sides of shades.
b. Fascia: Extruded aluminum, size as required to conceal shade mounting, attachable to mounting end caps, without exposed fasteners; powder coat finish.
1) Profile: L shaped.
2) Size: As indicated on drawings.
3) Color: As indicated on drawings.
c. Fasteners: Noncorrosive, and as recommended by shade manufacturer.

2.04 SHADE FABRIC

A. Fabric for Light-Filtering Shades: Nonflammable, color-fast, impervious to heat and moisture, and able to retain its shape under normal operation.
1. Manufacturers:
a. **Basis of Design: Refer to I000 Finish Schedule.**
1) **(Basis of Design)** Mermet Corporation; E-Screen - 3%: www.mermetusa.com/#sle.
2) Substitutions: See Section 016000 - Product Requirements.
2. Material: Vinyl coated fiberglass.
3. Material Certificates and Product Disclosures:
a. Health Product Declaration (HPD): Complete, published declaration with full disclosure of known hazards.
4. Performance Requirements:
a. Flammability: Pass NFPA 701 large and small tests.
b. Fungal Resistance: No growth when tested according to ASTM G21.
c. Solar Transmittance (Ts): Between 4 and 16; color dependent.
d. Visible Light Transmittance (Tv): Between 3 and 13; color dependent.
e. Solar Absorption (As): Between 11 and 91; color dependent.
f. Solar Reflectance (Rs): Between 5 and 70; color dependent.
5. Openness Factor: As indicated on drawings.
6. Weight: 11.60 ounces per square yard (_____ grams per square meter).
7. Roll Width: 78 inches (1981 mm).
8. Color: As indicated on drawings.

2.05 ROLLER SHADE FABRICATION

A. Field measure finished openings prior to ordering or fabrication.

B. Dimensional Tolerances: Fabricate shades to fit openings within specified tolerances.
1. Vertical Dimensions: Fill openings from head to sill with 1/2 inch (13 mm) space between bottom bar and window stool.
2. Horizontal Dimensions - Inside Mounting: Fill openings from jamb to jamb.

C. At openings requiring continuous multiple shade units with separate rollers, locate roller joints at window mullion centers; butt rollers end-to-end.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine finished openings for deficiencies that may preclude satisfactory installation.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Start of installation shall be considered acceptance of substrates.

3.02 PREPARATION

A. Prepare surfaces using methods recommended by manufacturer for achieving best result for substrate under the project conditions.

B. Coordinate with window installation and placement of concealed blocking to support shades.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions and approved shop drawings, using mounting devices as indicated.

B. Replace shades that exceed specified dimensional tolerances at no extra cost to Owner.

C. Adjust level, projection, and shade centering from mounting bracket. Verify there is no telescoping of shade fabric. Ensure smooth shade operation.

3.04 SYSTEM STARTUP

A. Motorized Shade System: Provide services of a manufacturer's authorized representative to perform system startup.

3.05 CLEANING

A. Clean soiled shades and exposed components as recommended by manufacturer.

B. Replace shades that cannot be cleaned to "like new" condition.

C. See Section 017419 - Construction Waste Management and Disposal for additional requirements.

3.06 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures, for closeout submittals.

B. See Section 017900 - Demonstration and Training, for additional requirements.

C. Training: Train Owner's personnel on operation and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of two hours training by manufacturer's authorized personnel at location designated by the Owner.

3.07 PROTECTION

A. Protect installed products from subsequent construction operations.

B. Touch-up, repair, or replace damaged products before Substantial Completion.

3.08 MAINTENANCE

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements relating to maintenance service.

END OF SECTION

SECTION 123100
MANUFACTURED METAL CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel casework - painted and stainless steel.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 061053 - Miscellaneous Rough Carpentry: Blocking and nailers for anchoring casework.

C. Section 079200 - JOINT SEALANTS: Sealing joints between casework and countertops and adjacent walls, floors, and ceilings.

D. Section 092116 - Gypsum Board Assemblies: Reinforcements in metal-framed partitions for anchoring casework.

E. Section 096500 - Resilient Flooring: Resilient wall base.

F. Section 123600 - Countertops.

1.03 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

B. BHMA A156.9 - Cabinet Hardware; 2020.

C. NFPA 30 - Flammable and Combustible Liquids Code; 2024, with Errata (2025).

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Keying Conference: Conduct conference prior to ordering keys. Incorporate conference decisions into keying submittal.

1.05 SUBMITTALS

A. See Section 013300 - Submittal Procedures for submittal procedures.

B. Product Data: For each type of product indicated.

C. Shop Drawings: For metal casework. Include field verified plans, elevations, sections, details, and attach to adjacent.
   1. Include locations of blocking and reinforcements required for installing metal casework. Indicate locations and types of service sittings, together with associated service supply connections required. Include details of support framing system. Include details of exposed conduits, if required, for service fittings.
   2. Indicate location of clearances from adjacent walls, doors, windows, other building components and equipment.
   3. Samples for verification: for each type of finish including countertop materials , in manufacturers standard sizes.

D. Manufacturer's Installation Instructions: Indicate special installation requirements .

E. Manufacturer's qualification statement.

F. Installer's qualification statement.

G. Maintenance Data: Manufacturer's recommendations for care and cleaning.

H. Maintenance Materials: Furnish the following for Owner's use in maintenance of project:
   1. See Section 016000 - Product Requirements, for additional provisions.
   2. Finish touch-up kit for each type and color of materials provided.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than three years of documented experience.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect items provided by this section during handling and installation, including finished surfaces and hardware items. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.

B. Accept casework on site. Inspect on arrival for damage.

C. Coordinate size of access and route to place of installation.

1.08 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Manufacturer Warranty: Provide 5-year warranty against defects. Complete forms in Owner's name and register with manufacturer. Covered defects include, but are not limited to:
   1. Ruptured, cracked, or stained finish coating.
   2. Discoloration or lack of finish integrity.
   3. Cracking or peeling of finish.
   4. Failure of hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Casework: **Provide Basis-of-Design Product as listed on Casework Schedule.**
   1. Kewaunee Scientific Corp{CH#73305}: www.kewaunee.com/#sle.
   2. MultiLab LLC: www.multilab.net/#sle.
   3. **(Basis of Design)** ICI Scientific; ICI Painted Steel: www.iciscientific.com/#sle.
   4. Substitutions: See Section 016000 - Product Requirements.

2.02 FABRICATION

A. Assembly: Shop assemble casework items for delivery to site in units easily handled and to permit passage through building openings.

B. Casework: Die-formed metal sheet; each unit self-contained and not dependent on adjacent units or building structure for rigidity; factory-fabricated, factory-assembled, and factory-finished.
   1. Style: inset steel fronts 3/32 inch (2.4mm) square edge.
   2. Primary Cabinet Material: Cold-rolled steel. ASTM A 1008
      a. Mild carbon, cold rolled and hot dipped galvanized steel.
   3. Typical sheet steel used in the construction of cases and related products:
      a. Mild carbon, cold rolled and leveled unfinished steel, ASTM A 1008

b. Stainless steel, #4 finish one side, ASTM A 666
c. Mild carbon, cold rolled and hot dipped galvanized steel

4. Typical gauge of steel used in the construction of cases and related products shall be 18 GA. Exceptions listed below:
   a. 11-gauge table leg stretcher and leg rail support brackets. Top & bottom corner gussets
   b. 16 gauge –table cross rails, apron rails and end rails.
   c. 20 gauge – inner door panels, filler stiles, fixed back panels, drawer bodies and removable back panels.
5. Steel Doors: Outer and inner pans that nest into box formation, with horizontal channel reinforcements within the door. Doors with sound-deadening material.
6. Steel Drawers: Fronts made from outer and inner pans that nest into box formation, with no raw metal edges at top. Sides, back, and bottom fabricated in one piece with rolled or formed top of sides for stiffening and comfortable grasp for drawer removal. Fasten drawer front to sides and bottom to form a single, integral unit. provide with ball bearing slides and positive stops to prevent metal-to -metal contact.
7. Adjustable Shelves: 1 inch front, back, and ends formed down, with edges returned horizontally at front and back for reinforcement.
   a. To be supported by steel shelf brackets, powder coated, finish complying with BHMA A156.9.
8. Toe kicks: filly enclosed with flush overlay heads, 4-inches high with no open gaps.
9. Legs: Welded tubing, 2.125 inches (75 mm) nominal, square with stretchers where needed to comply with product standards. Provide leveling device welded to bottom of each leg. Provide with slip-on stype rubber leg shoes.
10. Filler Strips and closure panels: Provide as needed to close spaces between cabinets and walls, ceilings, and indicated equipment. Fabricate from same material and with same finish as cabinets and with hemmed or flanged edges.
11. Components to safely support the following minimum loads , without deformation or damage.
    a. Base units: 500 pounds per linear foot across the cabinet ends.
    b. Drawers: 125 pounds.
    c. Hanging upper cases: 300 pounds
    d. Shelves 100 pounds.
12. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with the following front-to-back dimensions:
    a. Base Cabinets: Refer to drawings.
    b. Tall Cabinets: Refer to drawings.
    c. Wall Cabinets: Refer to drawings.
13. Structural Performance: Provide components that safely support the following minimum loads, without deformation or damage:
    a. Base Units: 500 pounds per linear foot across the cabinet ends.
    b. Suspended Units: 300 pounds, minimum, static load.
    c. Drawers: 125 pounds.
    d. Hanging Upper Cases: 300 pounds.
    e. Shelves: 100 pounds.
14. Corners and Joints: Without gaps or inaccessible spaces or areas where dirt or moisture could accumulate.

15. Edges and Seams: Smooth. Form counter tops, facing, and shelves from continuous sheets.
16. Ends: Close open ends with matching construction.
17. Welding: Electric spot welded; joints ground smooth and flush.
18. Drawers and Doors: Fabricate drawer and door fronts of sandwiched sheets of sheet steel welded together and reinforced for hardware.
19. Fittings and Fixture Locations: Cut and drill countertops, backs, and other casework components for service outlets and fixtures.
20. Filler Panels: Flanged on both sides, of matching construction and finish, for locations where cabinets do not fit tight to adjacent construction.
21. Separation: Use bituminous paint or non-conductive tape to coat metal surfaces in contact with cementitious materials, and to separate dissimilar metals.

2.03 CASEWORK SYSTEM

A. Construct to NFPA 30 and applicable OSHA requirements.

B. Provide casework manufacturer's standard integrated system that includes support framing, suspended modular cabinets, filler and closure panels, wall panels, under cabinet task-lighting fixtures, countertops, and fittings needed to assemble system.

C. System includes hardware and fasteners for securing support framing to permanent construction

D. Minimum height, including corner gussets, leveler fully retracted:
   1. Base Standing: 35.125 inches
   2. Base Sitting: 27.565 inches
   3. Base ADA: 32.605 inches
   4. Tall: 83.750 inches

E. Cabinets shall be fabricated as sectional units and be capable of being removed and reinstalled without use of special tools for relocation within system.

F. System includes filler and closure panels to close spaces between support framing, cabinets, shelves, countertops, floors, and walls, unless otherwise indicated. Fabricate panels from same material and with same finish as cabinets and with hemmed or flanged edges.

G. Hardware:
   1. Wire pulls offering comfortable hand grip, and to be secure fastened to doors and drawers.
   2. Hinges: Brushed stainless steel type, 5-knuckle, frictionless, not less than 2 inch long with fast pin and rounded legs, door over 36 inches in height should be hung with 3-hindges.
      a. Extension Slides: soft close, full extension.
      b. Locks: 5-pin tumbler keying to be determined by owner and architect.
      c. Door catches: Adjustable nylon roller type with strike.
      d. Leveling devices: Zinc plated threaded bolt type
      e. Shelf clips: Die formed steel, zinc plated, designed to provide shelf support and adjustment in manufacturers standard increments.

2.04 CABINET HARDWARE

A. Manufacturer's standard types, styles and finishes, and as indicated below.

B. Comply with BHMA A156.9 requirements.

C. Locks: Provide locks on casework drawers and doors where indicated. Lock with 5 pin cylinder and 2 keys per lock.
   1. Hinged Doors: Cam type lock, bright chromium plated over nickel on base material.
   2. Framed Sliding Doors: Plunger-type sliding showcase lock, bright chromium plated over nickel on base material.
   3. Tall Hinged Doors: Three-point latching system.
   4. Keying: Key locks alike within a space; key each room separately.
   5. Master Key System: All locks operable by master key.

D. Shelves in Cabinets:
   1. Shelf Standards and Rests: Vertical standards with rubber button fitted rests, satin chromium plated over nickel on base material.

E. Swinging Doors: Hinges, pulls, and catches.
   1. Hinges: Semi-concealed, number as required by referenced standards for width, height, and weight of door.
      a. Semi-Concealed Hinges: Installed as required by hinge design, bright chromium plated over nickel on base material.
   2. Pulls: Chrome wire pulls, 4 inches wide.
      a. Pull design to comply with project's referenced accessibility requirements.
   3. Catches: Mechanical catch.

F. Drawers: Pulls and slides.
   1. Pulls: Chrome wire pulls, 4 inches wide.
      a. Pull design to comply with project's referenced accessibility requirements.
   2. Slides: Steel, full extension arms, ball bearings; self-closing; capacity as recommended by manufacturer for drawer height and width.

2.05 MATERIALS

A. General: Manufacturer's standard materials for units specified, unless otherwise indicated.

B. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, CS or FS Type B, with G90/Z275 coating; stretcher leveled.

2.06 FINISHES

A. Metal (Except Stainless Steel): Degrease and phosphate etch followed by primer; minimum two coats baked epoxy; Finish color as selected by Architect from manufacturer's standard range.

B. Shop finish all components.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of support framing and anchors.

B. Verify that service connections are correctly located and of proper characteristics.

3.02 INSTALLATION

A. Install casework, components and accessories in accordance with manufacturer's instructions.

B. Large Components: Ensure that large components can be moved into final position without damage to other construction.

C. Use anchoring devices to suit conditions and substrate materials encountered.

D. Set casework items plumb and square, securely anchored to building structure, with no distortion.
   1. Base Cabinets: Examine floor levelness and flatness of installation space. Do not proceed with installation if encountered floor conditions require more than 3/4 inch leveling adjustment. When installation conditions are acceptable, for each space, establish the high point of the floor. Set and make level and plumb first cabinet in relation to this high point.
   2. Wall Cabinets: Examine wall surfaces in installation space. Do not proceed with installation if the following conditions are encountered:
      a. Maximum variation from plane of masonry wall exceeds 1/4 inch in 10 feet and 1/2 inch in 20 feet or more, and/or maximum variation from plumb exceeds 1/4 inch per story.
      b. Maximum variation of finished gypsum board surface from true flatness exceeds 1/8 inch in 10 feet in any direction.

E. Align cabinets to adjoining components.

F. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch. In addition, do not exceed the following tolerances:
   1. Variation of tops of Base Cabinets from Level: 1/16 inch in 10 feet.
   2. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
   3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
   4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.

G. Secure upper and floor cabinets to concealed reinforcement at gypsum board assemblies.

H. Separate dissimilar metals to prevent galvanic action.

I. Field touch-up blemishes to original finish.

3.03 ADJUSTING

A. Adjust operating parts, including doors, drawers, hardware, fixtures to function smoothly.

3.04 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal, for additional requirements.

B. Clean casework, counters, shelves, glass, legs, hardware, fittings and fixtures.

3.05 PROTECTION

A. Do not permit finished casework to be exposed to continued construction activity.

B. Protect casework and countertops from ongoing construction activities. Prevent installers from standing on or storing tools and materials on casework or countertops.

C. Repair damage that occurs prior to Date of Substantial Completion, including finishes, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

END OF SECTION

SECTION 123200
MANUFACTURED WOOD CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Manufactured Standard and custom casework, with cabinet hardware.

B. Sinks, faucets, and plumbing accessories.

C. Electrical fixtures and accessories.

1.02 RELATED REQUIREMENTS

A. Drawings and general provision of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 061063 - MISCELLANEOUS ROUGH CARPENTRY: Blocking and nailers for anchoring casework.

C. Section 079200 - JOINT SEALANTS: Sealing joints between casework and countertops and adjacent walls, floors, and ceilings.

D. Section 092116 - Gypsum Board Assemblies: Reinforcements in metal-framed partitions for anchoring casework.

E. Section 096500 - Resilient Flooring: Resilient wall base.

F. Section 123600 - Countertops: Additional requirements for countertops.

G. Section 224000 - Plumbing Fixtures: Sinks and fittings installed in casework.

1.03 DEFINITIONS

A. Exposed: Portions of casework visible when drawers and cabinet doors are closed, including end panels, bottoms of cases more than 42 inches above finished floor, tops of cases less than 72 inches above finished floor and all members visible in open cases or behind glass doors.

B. Semi-Exposed: Portions of casework and surfaces behind solid doors, tops of cases more than 72 inches above finished floor and bottoms of cabinets more than 30 inches but less than 42 inches above finished floor.

C. Concealed: Sleepers, web frames, dust panels and other surfaces not generally visible after installation and cabinets less than 30 inches above finished floor.

1.04 REFERENCE STANDARDS

A. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018 (Reapproved 2024).

B. AWI (QCP) - Quality Certification Program; Current Edition.

C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

D. BHMA A156.9 - Cabinet Hardware; 2020.

E. HPVA HP-1 - American National Standard for Hardwood and Decorative Plywood; 2024.

F. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.

B. Keying Conference: Conduct conference prior to ordering keys. Incorporate conference decisions into keying submittal.

1.06 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Component dimensions, configurations, construction details, joint details, attachments.

C. Shop Drawings: Indicate casework types, sizes, and locations, using large scale plans, elevations, and cross sections. Include rough-in and anchors, reinforcements, and blocking, placement dimensions and tolerances, clearances required, and keying information.

D. Samples for Finish Selection: Fully finished, for color selection. Minimum sample size: 2 inches by 3 inches.
   1. Wood samples for color and species selection.
   2. Plastic laminate samples, for color, texture, and finish selection.

E. Manufacturer's Installation Instructions.

F. Manufacturer's Qualification Statement.

G. Installer's Qualification Statement.

H. Maintenance Data: Manufacturer's recommendations for care and cleaning.

I. Certificate of Origin: Manufacturer must supply with first submittal, an example of their Certificate of Origin declaring casework is wholly manufactured and assembled specifically in the United States, including city, county, and state locations. A notarized Certificate of Origin must be provided with closeout documents.

J. Finish touch-up kit for each type and color of materials provided.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years of documented experience.

B. Quality Certification: Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section.
   1. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.
   2. Provide designated labels on shop drawings as required by certification program.
   3. Provide designated labels on installed products as required by certification program.
   4. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.
   5. Replace, repair, or rework all work for which certification is refused.

C. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than five years of documented experience and approved by manufacturer.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Protect items provided by this section, including finished surfaces and hardware items during handling and installation. For metal surfaces, use polyethylene film or other protective material standard with the manufacturer.

B. Acceptance at Site:

1. Do not deliver or install casework until the conditions specified under Part 3, Examination Article of this section have been met. Products delivered to sites that are not enclosed and/or improperly conditioned will not be accepted if warping or damage due to unsatisfactory conditions occurs.

C. Storage:
1. Store casework in the area of installation. If necessary, prior to installation, temporarily store in another area, meeting the environmental requirements specified under Part 3, "Site Verification of Conditions" Article of this section.

1.09 MOCK-UPS

A. Provide full size base cabinet and upper cabinet complete with drawers, door, adjustable shelf and countertop.

B. See Section 014000 – Quality Requirements, for additional requirements.

C. Locate where directed.

D. Mock-up may remain as part of the work.

1.10 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Correct defective Work within a three year period after Date of Substantial Completion, at no additional cost to Owner. Defects include, but are not limited to:
1. Ruptured, cracked, or stained finish coating.
2. Discoloration or lack of finish integrity.
3. Cracking or peeling of finish.
4. Delamination of components.
5. Failure of hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer that is listed below is the Basis-of-Design.
1. Subject to compliance with requirements of product identified as basis-of-design, other manufacturers shall be considered for bidding as an equivalent when the bidder provides a written request for equivalency to the Architect prior to bidding.
2. Follow all instructions as indicated in Section 012519 - Equivalent Procedures.

C. Plastic Laminate Casework: **Provide Basis-of-Design Product as listed on Casework Schedule.**
1. **(Basis of Design)** Institutional Casework Inc., manufacturer of CampbellRhea; Spectrum Decor Series: www.iciscientific.com/#sle.
2. Substitutions: See Section 016000 - Product Requirements.

2.02 CASEWORK, GENERAL

A. Quality Standard: AWI/AWMAC/WI (AWS), unless noted otherwise.

B. Types: More than one type is required. See drawings for location of each type of casework.

C. Plastic Laminate Faced Cabinets: Custom Grade.

2.03 FABRICATION

A. Assembly: Shop assemble casework items for delivery to site in units easily handled and to permit passage through building openings.

B. Construction: As required for selected grade.

C. Structural Performance: Safely support the following minimum loads:
   1. Base Units: 500 pounds per linear foot across the cabinet ends.
   2. Suspended Units: 300 pounds static load.
   3. Drawers: 125 pounds, minimum.
   4. Hanging Wall Cases: 300 pounds.
   5. Shelves: 100 pounds, minimum.

D. Fittings and Fixture Locations: Cut and drill components for fittings and fixtures.

E. Hardware Application: Factory-machine casework members for hardware that is not surface applied.

F. Access Panels: Where indicated, for maintenance of utility service and mechanical and electrical components.

G. Edging: Fit shelves, doors, and exposed edges with specified edging. Do not use more than one piece for any single length.

H. Scribes and Fillers: Panels of matching construction and finish, for locations where cabinets do not fit tight to adjacent construction.

I. Sloped tops for wall and floor cabinets: With closed ends, of matching construction and finish. Concealed anchorages for attachment to cabinet(s) below.

J. Apron Frames: Construction similar to other cabinets, with modifications.

2.04 PLASTIC-LAMINATE-CLAD CASEWORK

A. Plastic-Laminate-Clad Casework: Solid wood and wood panel construction; each unit self-contained and not dependent on adjacent units or building structure for rigidity; in sizes necessary to avoid field cutting except for scribes and filler panels. Include adjustable levelers for base and tall cabinets.
   1. Style: Flush overlay. Ease doors and drawer fronts slightly at edges.
   2. Cabinet Nominal Dimensions: Unless otherwise indicated, provide cabinets of widths and heights indicated on drawings, and with following front-to-back dimensions:
      a. Base Cabinets: As indicated on drawings.
      b. Tall Cabinets: As indicated on drawings.
      c. Wall Cabinets: As indicated on drawings.
   3. Plastic Laminate: Apply plastic laminate finish in full uninterrupted sheets consistent with manufactured sizes. Fit corners and joints hairline.
      a. Finish: Matte or suede, gloss rating of 5 to 20.
      b. Surface Color and Pattern: As indicated by Interior Finish Schedule on " I " series drawings.
      c. Exposed Interior Surfaces: Thermally fused laminate.
         1) Color: White.
      d. Cap exposed plastic laminate finish edges with material of same finish and pattern.

2.05 COUNTERTOPS

A. Countertops: See Section 123600.

B. Types: More than one type is required. See drawings for location of each type of countertop.

2.06 CABINET HARDWARE

A. Manufacturer's standard types, styles and finishes, and as indicated below.

B. Comply with BHMA A156.9 requirements.

C. Locks: Provide locks on casework drawers and doors where indicated. Lock with 5 pin cylinder and 2 keys per lock.
   1. Hinged Doors: Cam type lock, satin chromium plated over nickel on base material.
   2. Tall Hinged Doors: Three-point latching system.
   3. Keying: Key locks alike within a space; key each room separately.
   4. Master Key System: All locks operable by master key.

D. Shelves in Cabinets:
   1. Shelf Standards and Rests: Vertical standards with rubber button fitted rests, satin chromium plated over nickel on base material.

E. Swinging Doors: Hinges, pulls, and catches.
   1. Hinges: Visible, number as required by referenced standards for width, height, and weight of door.
      a. Visible Hinges: Installed on framed cabinet face, and on door face, satin chromium plated over nickel on base material.
   2. Pulls: Chrome wire pulls, 4 inches wide.
      a. Pull design to comply with project's referenced accessibility requirements.
   3. Catches: Mechanical catch.

F. Drawers: Pulls and slides.
   1. Pulls: Chrome wire pulls, 4 inches wide.
      a. Pull design to comply with project's referenced accessibility requirements.
   2. Slides: Steel, full extension arms, ball bearings; self-closing; capacity as recommended by manufacturer for drawer height and width.

2.07 MATERIALS

A. Wood-Based Materials:
   1. Solid Wood: Air-dried to 4.5 percent moisture content, then tempered to 6 percent moisture content before use.

B. Hardwood Plywood: Veneer core; HPVA HP-1 Grade as indicated; same species as exposed solid wood, clear, compatible grain and color, no defects. Band exposed edges with solid wood of same species as veneer.

C. Concealed Solid Wood or Plywood: Any species and without defects affecting strength or utility.

D. High Pressure Decorative Laminate (HPDL): NEMA LD 3, types as recommended for specific applications. complying with Grade requirements, and standard with the manufacturer.

E. Thermally Fused Laminate (TFL): Melamine resin, NEMA LD 3, Type VGL laminate panels.

2.08 ACCESSORIES

A. Plastic Edge Banding: Extruded PVC, flat shaped; smooth finish; self locking serrated tongue; of width to match component thickness.
   1. Color: As selected by Architect from manufacturer's standard range.
   2. Use only at edges indicated; use plastic laminate cladding at all other edges.

B. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application; galvanized finish in concealed locations and stainless steel finish in exposed locations.

C. Concealed Joint Fasteners: Corrosion-resistant, standard with manufacturer.

D. Grommets: Standard plastic grommets for cut-outs, in color as selected by Architect from manufacturer's full range.

E. Sealant for Use in Casework Installation:
   1. One component, clear silicone base sealant, chemical curing complying with ASTM C920, Type S, Grade NS, Class 25, Use NT, when tested to glass and aluminum, anti-fungus composition.

2.09 SERVICE FIXTURES

A. Electrical Components, Devices, and Accessories shall be labeled to comply with NFPA 70, Article 100 and marked for its intended use.

B. Provide service fixtures and fittings that comply with SEFA 7.

C. Electrical Fixtures are 3-wire grounded, 20 A, 125V AC, with stainless steel cover plates and cadmium-plated steel boxes. Pedestal boxes are black, cast aluminum with conduit nipples and lock nuts. When specified, G.F.C.I., ground fault circuit interrupter fixtures are available. G.F.C.I. fixtures are 20 A, 125V AC, with black nylon faceplate.
   1. Receptacles: Comply with NEMA WD 1, NEMA WD 6, FS W-C-596, and UL 498. Duplex type, Configuration 5 20R.
   2. Outlets integrated with Epoxy resin countertops shall be polypropylene with 1 1/2 inch (38 mm) NPS threads.

D. Gas, Air and Vacuum Cocks: Ground key cocks, made from high grade, brass forgings, have integral ten-serration, non-slip hose end. Wing or knob handle has color-coded index, is one-piece construction, precision ground, and lapped to fit cock chamber. Handle operates with a 1/4 turn, and is spring-loaded for constant pressure and automatic take up. Provide needlepoint valves for high pressures and oxygen service where scheduled.

E. Vacuum Breakers: Watts NLF-9, or comparable, vacuum breakers archromee brass with polished chrome plating, screw-in type with stainless steel working parts, and durable rubber diaphragm and disc. Vacuum breaker is for hot or cold faucet and has a primary valve with a soft disc that seat against mating part. The secondary check valve utilizes a soft disc to metal seating. Breaker is tapped 3/8-inch (10 mm) N.P.T. Vacuum breaker is not intended for constant high pressures. Vacuum breakers shall be furnished where scheduled.

PART 3 EXECUTION

3.01 PREPARATION

A. Large Components: Ensure that large components can be moved into final position without damage to other construction.

3.02 EXAMINATION

A. Site Verification of Environmental Conditions:
   1. Do not deliver casework until the following conditions have been met:
      a. Building has been enclosed (windows and doors sealed and weather-tight).
      b. An operational HVAC system that maintains temperature and humidity at occupancy levels has been put in place.
      c. Ceiling, overhead ductwork, piping, and lighting have been installed.
      d. Installation areas do not require further “wet work” construction.

B. For Base Cabinets Installation: Examine floor levelness and flatness of installation space. Do not proceed with installation if encountered floor conditions require more than 1/2 inch leveling adjustment. When installation conditions are acceptable, for each space, establish the high point of the floor. Set and make level and plumb first cabinet in relation to this high point.

C. For Wall Cabinets Installation: Examine wall surfaces in installation space. Do not proceed with installation if the following conditions are encountered:
   1. Maximum variation from plane of masonry wall exceeds 1/4 inch in 10 ft and 1/2 inch in 20 ft or more, and/or maximum variation from plumb exceeds 1/4 inch per story.
   2. Maximum Variation of finished gypsum board surface from true flatness: 1/8 inch in 10 feet in any direction.

D. Verify adequacy of support framing and anchors.

E. Verify that service connections are correctly located and of proper characteristics.

3.03 INSTALLATION

A. Perform installation in accordance with manufacturer's instructions.

B. Use anchoring devices to suit conditions and substrate materials encountered. Use concealed fasteners to the greatest degree possible. Use exposed fasteners only where allowed by approved shop drawings, or where concealed fasteners are impracticable.

C. Set casework items plumb and square, securely anchored to building structure.

D. Align cabinets to adjoining components, install filler and/or scribe panels where necessary to close gaps.

E. Fasten together cabinets in continuous runs, with joints flush, uniform and tight. Misalignment of adjacent units not to exceed 1/16 inch. In addition, do not exceed the following tolerances:
   1. Variation of Tops of Base Cabinets from Level: 1/16 inch in 10 feet.
   2. Variation of Faces of Cabinets from a True Plane: 1/8 inch in 10 feet.
   3. Variation of Adjacent Surfaces from a True Plane (Lippage): 1/32 inch.
   4. Variation in Alignment of Adjacent Door and Drawer Edges: 1/16 inch.

F. Secure wall and floor cabinets to concealed reinforcement and blocking at gypsum board assemblies.

G. Base Cabinets: Fasten cabinets to service space framing and/or wall substrates, with fasteners spaced not more than 16 inches on center. Bolt adjacent cabinets together with joints flush, tight, and uniform.
   1. Where base cabinets are installed away from walls or service space framing, anchor to floor at toe space at not more than 24 inches on center, and at sides of cabinets with not less than two fasteners per side.

H. Wall Cabinets: Fasten to hanging strips, and/or wall substrates. Fasten each cabinet through back, near top, at not less than 16 inches on center.

I. Install hardware uniformly and precisely.

J. Countertops: Install countertops intended and furnished for field installation in one true plane, with ends abutting at hairline joints, and no raised edges.

K. Replace units that are damaged, including those that have damaged finishes.

3.04 ADJUSTING

A. Adjust operating parts, including doors, drawers, hardware, and fixtures to function smoothly.

3.05 CLEANING

A. See Section 017419 - Construction Waste Management and Disposal for additional requirements.

B. Clean casework and other installed surfaces thoroughly.

3.06 PROTECTION

A. Do not permit finished casework to be exposed to continued construction activity.

B. Protect casework and countertops from ongoing construction activities. Prevent workmen from standing on, or storing tools and materials on casework or countertops.

C. Repair damage, including to finishes, that occurs prior to Date of Substantial Completion, using methods prescribed by manufacturer; replace units that cannot be repaired to like-new condition.

END OF SECTION

SECTION 123600
COUNTERTOPS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Countertops for manufactured casework.

B. Wall-hung counters and vanity tops.

C. Solid Surface Sills.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 115313 - Laboratory Fume Hoods: Work surfaces inside fume hoods.

C. Section 123100 - Manufactured Metal Casework.

D. Section 123200 - Manufactured Wood Casework.

E. Section 224000 - Plumbing Fixtures: Sinks.

1.03 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2022.

B. ASTM B211/B211M - Standard Specification for Aluminum and Aluminum-Alloy Rolled or Cold Finished Bar, Rod, and Wire; 2019.

C. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2024.

D. AWI (QCP) - Quality Certification Program; Current Edition.

E. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014, with Errata (2018).

F. AWMAC/WI (NAAWS) - North American Architectural Woodwork Standards; 2021, with Errata.

G. ISFA 2-01 - Classification and Standards for Solid Surfacing Material; 2013.

H. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

I. PS 1 - Structural Plywood; 2009.

1.04 SUBMITTALS

A. See Section 013300 - Submittal Procedures, for submittal procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Specimen warranty.

C. Shop Drawings: Complete details of materials and installation ; combine with shop drawings of cabinets and casework specified in other sections.

D. Verification Samples: For each finish product specified, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

E. Test Reports: Chemical resistance testing, showing compliance with specified requirements.

F. Certificate: Submit labels and certificates required by quality assurance and quality control programs.

G. Installation Instructions: Manufacturer's installation instructions and recommendations.

H. Maintenance Data: Manufacturer's instructions and recommendations for maintenance and repair of countertop surfaces.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing work of the type specified in this section, with not less than five years of documented experience.

B. Quality Certification:
1. Comply with AWI (QCP) woodwork association quality certification service/program in accordance with requirements for work specified in this section: www.awiqcp.org/#sle.
2. Provide labels or certificates indicating that the installed work complies with AWI/AWMAC/WI (AWS) requirements for grade or grades specified.
3. Provide designated labels on shop drawings as required by certification program.
4. Provide designated labels on installed products as required by certification program.
5. Submit certifications upon completion of installation that verifies this work is in compliance with specified requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 PRODUCTS

2.01 COUNTERTOPS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Plastic Laminate Countertops, Type (HPL): High-pressure decorative laminate sheet bonded to substrate.
1. Laminate Sheet: NEMA LD 3, Grade HGS, 0.048 inch (1.2 mm) nominal thickness.
a. Manufacturers: **Provide Basis-of-Design Product as listed on Interior Finish Schedule.**
1) **(Basis of Design)** Formica Corporation: www.formica.com/#sle.
2) Wilsonart: www.wilsonart.com/#sle.
3) Substitutions: See Section 016000 - Product Requirements.
b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
c. Wear Resistance: In addition to specified grade, comply with NEMA LD 3 High Wear Grade requirements for wear resistance.
d. Finish: Matte or suede, gloss rating of 5 to 20.
e. Surface Color and Pattern: Refer to Interior Finish Schedule on " I " series drawings.
2. Exposed Edge Treatment: Postformed laminate; front edge substrate built up to minimum 1-1/4 inch (32 mm) thick with raised radiused edge, integral coved backsplash with radiused top edge.

3. Back and End Splashes: Same material, same construction.
4. Fabricate in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 11 - Countertops, Custom Grade.

C. Wood Countertops, Type (WDC): One-piece, glued-laminated under pressure.
1. Thickness: 1-1/4 inch (32 mm), minimum.
2. Construction (Butcher Block): Maximum 1/2 inch (12 mm) thick strips glued perpendicular to surface.
3. Species: Maple; clear grade.
4. Exposed Edges: Rounded to approximately 3/8 inch (9 mm) radius.
5. Back and End Splashes: Same material, same construction; 3/4 inch (19 mm) thick, square edges.
6. Finish: Sanded smooth; two coat boiled linseed oil rubbed in with 48 hours between coats.
7. Fabricate in accordance with AWI/AWMAC/WI (AWS), Section 11 - Countertops, Custom Grade.

D. Solid Surfacing Countertops: Type (SSM), solid surfacing sheet or plastic resin casting over continuous substrate.
1. Flat Sheet Thickness: 1/2 inch (12 mm), minimum.
2. Solid Surfacing Sheet and Plastic Resin Castings: Complying with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard woodworking tools; no surface coating; color and pattern consistent throughout thickness.
   a. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
      1) Formica Corporation, Type (SSM-2); Trespa Toplab Vertical: www.formica.com/#sle.
      2) Substitutions: See Section 016000 - Product Requirements.
   b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
   c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
   d. Color and Pattern: Refer to Interior Finish Schedule on " I " series drawings.
3. Other Components Thickness: 1/2 inch (12 mm), minimum.
4. Exposed Edge Treatment: Built up to minimum 1-1/4 inch (32 mm) thick; square edge.
5. Back and End Splashes: Same sheet material, square top; minimum 4 inches (102 mm) high.
6. Skirts: As indicated on drawings.
7. Fabricate in accordance with manufacturer's standard requirements.

2.02 SOLID SURFACE SILLS

A. Quality Standard: Custom Grade, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), unless noted otherwise.

B. Solid Surface Sills: Solid surfacing sheet or plastic resin casting over Continuous substrate.
1. Flat Sheet Thickness: 1/2 inch, minimum.
2. Solid Surface Sheet and Plastic Resin Casting: Comply with ISFA 2-01 and NEMA LD 3; acrylic or polyester resin, mineral filler, and pigments; homogenous, non-porous and capable of being worked and repaired using standard tools; not surface coating; color and pattern consistent throughout thickness.

a. Manufacturers: **Provide Basis-of-Design product as listed on Interior Finish Schedule.**
   1) Wilsonart, Type (SSM-1); Solid Surface: www.wilsonart.com/#sle.
   2) Substitutions: See Section 016000 - Product Requirements.
b. Surface Burning Characteristics: Flame spread index of 25, maximum; smoke developed index of 450, maximum; when tested in accordance with ASTM E84.
c. Finish on Exposed Surfaces: Matte, gloss rating of 5 to 20.
d. Color and Pattern: Refer to Interior Finish Schedule on " I " series drawings.

3. Other Component Thickness: 1/2 inch, minimum.
4. Exposed Edge Treatment: Built up to minimum 1-1/4 thick; square edge.

2.03 MATERIALS

A. Extruded Aluminum: ASTM B211/B211M, 6463 alloy, T5 temper.

B. Plywood for Supporting Substrate: PS 1 Exterior Grade, A-C veneer grade, minimum 5-ply; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.

C. Particleboard for Supporting Substrate: ANSI A208.1 Grade 2-M-2, 45 pcf (20 kg/cu m) minimum density; minimum 3/4 inch (19 mm) thick; join lengths using metal splines.

D. Adhesives: Chemical resistant waterproof adhesive as recommended by manufacturer of materials being joined.

E. Joint Sealant: Mildew-resistant silicone sealant, clear.

2.04 ACCESSORIES

A. Fixed Top-Mounted Countertop Support Brackets:
   1. Material: Steel.
   2. Finish: Manufacturer's standard, factory-applied, textured powder coat.
   3. Color: Light Grey.

B. Products: Basis of Design; As indicated on drawings.
   1. Substitutions: See Section 016000 - Product Requirements.

2.05 FABRICATION

A. Fabricate tops and splashes in the largest sections practicable, with top surface of joints flush.

B. Join lengths of tops using best method recommended by manufacturer.

C. Fabricate to overhang fronts and ends of cabinets 1 inch (25 mm) except where top butts against cabinet or wall.

D. Prepare all cutouts accurately to size; replace tops having improperly dimensioned or unnecessary cutouts or fixture holes.

E. Provide back/end splash wherever counter edge abuts vertical surface unless otherwise indicated.

F. Secure to countertop with concealed fasteners and with contact surfaces set in waterproof glue.

G. Height: 4 inches (102 mm), unless otherwise indicated.

H. Solid Surfacing: Fabricate tops and wall panels up to 144 inches (3657 mm) long in one piece; join pieces with adhesive sealant in accordance with manufacturer's recommendations and instructions.

I. Wall-Mounted Counters: Provide skirts, aprons, brackets, and braces as indicated on drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Verify that wall surfaces have been finished and mechanical and electrical services and outlets are installed in proper locations.

3.02 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. Securely attach countertops to cabinets using concealed fasteners. Make flat surfaces level; shim where required.

B. Attach plastic laminate countertops using screws with minimum penetration into substrate board of 5/8 inch (16 mm).

C. Attach wood countertops using screws with minimum penetration into substrate board of 5/8 inch (16 mm).

D. Apply sealer products in accordance with manufacturer's written instructions.

E. Seal joint between back/end splashes and vertical surfaces.

3.04 TOLERANCES

A. Variation From Horizontal: 1/8 inch in 10 feet (3 mm in 3 m), maximum.

B. Offset From Wall, Countertops: 1/8 inch (3 mm) maximum; 1/16 inch (1.5 mm) minimum.

C. Field Joints: 1/8 inch (3 mm) wide, maximum.

3.05 CLEANING

A. Clean countertops surfaces thoroughly.

3.06 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Date of Substantial Completion.

END OF SECTION

SECTION 142100
ELECTRIC TRACTION ELEVATORS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electric traction elevator systems.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 033000 - CAST-IN-PLACE CONCRETE.

C. Section 042000 - UNIT MASONRY.

D. Section 096500 - Resilient Flooring.

E. Section 211300 - Fire-Suppression Sprinkler Systems.

F. Section 220513 - Common Motor Requirements for Plumbing Equipment.

G. Section 260533.13 - Conduit for Electrical Systems: Electrical conduit requirements.

H. Section 260583 - Wiring Connections: Wiring connection requirements.

1.03 REFERENCE STANDARDS

A. 16 CFR 1201 - Safety Standard for Architectural Glazing Materials; Current Edition.

B. ADA Standards - 2010 ADA Standards for Accessible Design; 2010.

C. AISC 360 - Specification for Structural Steel Buildings; 2016.

D. ANSI Z97.1 - American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test; 2015 (Reaffirmed 2020).

E. ASME A17.1 - Safety Code for Elevators and Escalators Includes Requirements for Elevators, Escalators, Dumbwaiters, Moving Walks, Material Lifts, and Dumbwaiters with Automatic Transfer Devices; 2022.

F. ASME A17.2 - Guide for Inspection of Elevators, Escalators, and Moving Walks Includes Inspection Procedures for Electric Traction and Winding Drum Elevators, Hydraulic Elevators, Inclined Elevators, Limited-Use/Limited-Application Elevators, Private Residence Elevators, Escalators, Moving Walks, Dumbwaiters, and Material Lifts; 2023.

G. ASME QEI-1 - Standard for the Qualification of Elevator Inspectors; 2024.

H. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

I. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2025.

J. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2025.

K. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2024.

L. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.

M. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2021.

N. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric); 2021.

O. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass; 2025.

P. AWS B2.1/B2.1M - Specification for Welding Procedure and Performance Qualification; 2014 (Amended 2015).

Q. AWS D1.1/D1.1M - Structural Welding Code - Steel; 2020.

R. NEMA LD 3 - High-Pressure Decorative Laminates; 2005.

S. NEMA MG 00001 - Motors and Generators; 2024.

T. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

U. NFPA 80 - Standard for Fire Doors and Other Opening Protectives; 2022.

V. PS 1 - Structural Plywood; 2009.

W. UL (DIR) - Online Certifications Directory; Current Edition.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:
   1. Coordinate work with other installers to provide necessary conduits for proper installation of wiring, including but not limited to the following:
      a. Elevator equipment devices remote from elevator machine room or hoistway.
      b. Elevator pit for lighting, sump pump, and pit ladder.
      c. Automatic transfer switch from controller cabinet.
      d. Fire alarm panel from controller cabinet.
   2. Coordinate work with other installers for equipment provisions necessary for proper elevator operation, including but not limited to the following:
      a. Automatic transfer switches with auxiliary contacts for emergency power transfer status indication.
      b. Shunt trip devices for automatic disconnection of elevator power prior to fire suppression system activation; include provisions for shunt trip power monitoring.

B. Preinstallation Meeting: Convene meeting at least one week prior to start of this work.
   1. Review schedule of installation, proper procedures and conditions, and coordination with related work.

C. Construction Use of Elevator: Not permitted.

1.05 SUBMITTALS

A. See Section 013300 – Submittal Procedures, for submittal procedures.

B. Product Data: Submit data on following items:
   1. Signal and operating fixtures, operating panels, and indicators.
   2. Car design, dimensions, layout, and components.
   3. Car and hoistway door and frame details.
   4. Electrical characteristics and connection requirements.

C. Shop Drawings: Include appropriate plans, elevations, sections, diagrams, and details on following items:
   1. Elevator Equipment and Machines: Size and location of driving machines, power units, controllers, governors, and other components.

2. Hoistway Components: Size and location of car machine beams, guide rails, buffers, ropes, and other components.
3. Rail bracket spacing; maximum loads imposed on guide rails requiring load transfer to building structural framing.
4. Individual weight of principal components; load reaction at points of support.
5. Loads on hoisting beams.
6. Clearances and over-travel of car and counterweight.
7. Locations in hoistway and machine room of traveling cables and connections for car lighting and telephone.
8. Location and sizes of hoistway and car doors and frames.
9. Electrical characteristics and connection requirements.
10. Indicate arrangement of elevator equipment and allow for clear passage of equipment through access openings.

D. Samples: Submit samples illustrating car floor material, car interior finishes, car and hoistway door and frame finishes, and handrail material and finish in the form of cut sheets or finish color selection brochures.

E. Designer's qualification statement.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Welders' Qualification Statement: Welders' certificates in accordance with AWS B2.1/B2.1M and dated no more than 12 months before start of scheduled welding work.

I. Testing agency's qualification statement.

J. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

K. Initial Maintenance Contract.

L. Maintenance Contract: Submit proposal to Owner for standard one year continuing maintenance contract agreement in accordance with ASME A17.1 and requirements as indicated, starting on date initial maintenance contract is scheduled to expire.
1. Indicate in proposal the services, obligations, conditions, and terms for agreement period and for renewal options.

M. Operation and Maintenance Data:
1. Parts catalog with complete list of equipment replacement parts; identify each entry with equipment description and identifying code.
2. Operation and maintenance manual.
3. Schematic drawings of equipment and wiring diagrams of installed electrical equipment with list of corresponding symbols to identify markings on machine room and hoistway apparatus.

1.06 QUALITY ASSURANCE

A. Designer Qualifications: Design guide rails under direct supervision of a licensed Professional Structural Engineer experienced in design of this type of work and licensed in the State in which the Project is located.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum ten years documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified and with at least five years of documented experience.

D. Welder Qualifications: Welding processes and welding operators qualified in accordance with AWS D1.1/D1.1M and no more than 12 months before start of scheduled welding work.

E. Testing Agency Qualifications: Independent firm specializing in performing testing and inspections of type specified in this section.

F. Products Requiring Electrical Connection: Listed and classified by UL (DIR) or testing agency acceptable to authorities having jurisdiction as suitable for the purpose indicated in construction documents.

1.07 WARRANTY

A. See Section 017700 - Closeout Procedures, for additional warranty requirements.

B. Provide manufacturer's warranty for elevator operating equipment and devices for one year from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 GENERAL

A. Source Limitations: Obtain specified products from single source from single manufacturer.

B. The manufacturer and model number(s) or series listed below are Basis-of-Design.
   1. Subject to compliance with all specified requirements, provide products by one of the following, for each type of product listed, or equivalent:

2.02 MANUFACTURERS

A. Electric Traction Elevators:
   1. **(Basis of Design)** KONE; KONE MonoSpace 500 DX: www.kone.us/#sle.
   2. Otis Elevator Company: www.otis.com/#sle.
   3. Schindler Elevator Corporation: www.us.schindler.com/#sle.

B. Substitutions: See Section 016000 - Product Requirements.

C. Source Limitations: Provide elevator and associated equipment and components produced by the same manufacturer as the other elevator equipment used for this project and obtained from a single supplier.

2.03 ELECTRIC TRACTION ELEVATORS

A. Electric Traction Passenger Elevator:
   1. Electric Traction Elevator Equipment:
      a. Provide AC gearless machine room-less elevator system subject to compliance with the design and performance requiremetns of this specifications.
   2. Drive System:
      a. Variable voltage, variable frequencey, alternating current (AC) drive system to develop high starting torque with low starting current.
   3. Operation Control Type:
      a. Selective Collective Automatic Operation Control.
   4. Service Control Type:
      a. Standard service control only.
   5. Interior Car Height: 93 inch.
   6. Electrical Power: 208 volts; alternating current (AC); three phase; 60 Hz.
   7. Rated Net Capacity: 3500 pounds.

8. Rated Speed: 150 feet per minute.
9. Hoistway Size: As indicated on drawings.
10. Interior Car Platform Size: 6'-5" inch wide by 5'-6" inch deep.
11. Elevator Pit Depth: 60 inch.
12. Overhead Clearance at Top Floor: 160 inch.
13. Travel Distance: As indicated on drawings.
14. Number of Stops: 5.
15. Number of Openings: 4 Front; 1 Rear.
16. Traction Machine Location: As indicated on drawings.

2.04 COMPONENTS

A. Elevator Equipment:
1. Motors, Controllers, Controls, Buttons, Wiring, Devices, and Indicators: Comply with NFPA 70 requirements; see Section 260583 for additional information.
2. Guide Rails, Cables, Counterweights, Sheaves, Buffers, Attachment Brackets, and Anchors: Design criteria for components includes safety factors in accordance with applicable requirements of Elevator Code, ASME A17.1.
3. Controller: Provide microcomputer-based control system to perform all functions.
   a. All high voltage (110V or above) contact points inside the controller cabinet shall be protected from accidental contact in a situation where the controller doors are open.
   b. Controller shall be separated into two distinct halves, Motor Drive side and Control side. High voltage motor power conductors shall be routed and physically segregated from the rest of the controller.
   c. Provide a serial cardrack and main CPU board containing a non- erasable EPROM and operating system firmware.
   d. Variable field parameters and adjustments shall be contained in a non- volatile memory module.
4. Drive: Provide Variable Voltage Variable Frequency AC drive system to develop high starting torque with low starting current.
5. Controller Location: Locate controller{s} in the front wall integrated with the top landing entrance frame, machine side of the elevator. One non-fused three phase permanent power in hoist way at top landing. A separate control space should not be required.

B. Hoistway Components
1. Machine: AC gearless machine, with permanent magnet synchronous motor, direct current electro-mechanical disc brakes and integral traction drive sheave, mounted to the car guide rail at the top of the hoistway
2. Hoisting: Elevator must utilize traditional steel hoist cables that do not require a monitoring device.
3. Governor: Friction type over-speed governor rated for the duty of the elevator specified.
4. Buffers, Car and Counterweight: Polyurethane buffer.
5. Hoistway Operating Devices:
   a. Emergency stop switch in the pit
   b. Terminal stopping switches.
   c. Emergency stop switch on the machine
6. Positioning System: System consisting of magnets and proximity switches.
7. Guide Rails and Attachments: Steel rails with brackets and fasteners.

C. Car Components

1. Car Frame: Provide car frame with adequate bracing to support the platform and car enclosure.
2. Car Safeties: Device will be provided and mounted under the car platform, securely bolted to the Car Frame. The safety will be actuated by a centrifugal governor mounted at the top of the hoistway. The Safety is designed to operate in case the car attains excessive descending speed.
3. Platform: Platform shall be all steel construction.
4. Car Guides: Provide guide-shoes mounted to top and bottom of both car and counterweight frame. Each guide-shoe assembly shall be arranged to maintain constant contact on the rail surfaces. Provide retainers in areas with Seismic design requirements.
5. Emergency Car Signals
6. Emergency Siren: Siren mounted on top of cab that is activated when the alarm button in the car operating panel is engaged. Siren shall have rated sound pressure level of 80 dB(A) at a distance of three feet from device. Siren shall respond with a delay of not more than one second after activation of alarm button.
7. Emergency Car Lighting: Provide emergency power unit employing a 12- volt sealed rechargeable battery and totally static circuits shall illuminate the elevator car and provide current to the alarm bell in the event of building power failure.
8. Emergency Exit Contact: An electrical contact shall be provided on the car-top exit.
9. Ventilation: Fan

D. Signal Devices and Fixtures
   1. Car Operating Panel: Provide car operating panel with all push buttons, key switches, and message indicators for elevator operation. Fixture finish to be Brushed Stainless Steel
   2. Main Flush mounted car operating panel shall contain a bank of round, mechanical, illuminated buttons marked to correspond to landings served, emergency call button, door open button, door close button, and key switches for lights, inspection, and exhaust fan. Buttons have Amber Dot Matrix illumination (halo). All buttons to have raised text and Braille marking on left hand side. The car operating display panel shall be Amber Dot Matrix. All texts, when illuminated, shall be Amber Dot Matrix. The car operating panel shall have a Brushed Stainless Steel finish.
   3. Additional features of car operating panel shall include:
      a. Car Position Indicator within operating panel Brushed Stainless Steel
      b. Elevator Data Plate marked with elevator capacity and car number on car top.
      c. Help buttons with raised markings.
      d. In car stop switch per local code.
      e. Call Cancel Button.
      f. Access Control via momentary keyswitch adjacent to the corresponding floor button in the car operating panel.
         1) Keyswitch requried for access to basement level.
   4. Hall Fixtures: Wall mounted hall fixtures shall be provided with necessary push buttons and key switches for elevator operation. Wall mounted hall fixtures shall have a Brushed Stainless Steel finish.
      a. Hall fixtures shall feature round, mechanical, buttons in applied mount face frame. Hall fixtures shall correspond to options available from that landing. Buttons shall be in a vertically mounted fixture.
      b. Software provisions for hall card reader access restriction, provided and installed by security subcontractor.

5. Car Lantern and Chime: A directional lantern visible from the corridor shall be provided in the car entrance. When the car stops and the doors are opening, the lantern shall indicate the direction in which the car is to travel, and a chime will sound. The chime will sound once for up and twice for down. The car riding lantern face plate shall have a Brushed Stainless Steel finish.
6. Combination Hall Position Indicator and Hall Lantern located at Lobby. Hall lanterns and hall indicators shall feature Amber illumination, all numbers will be Dot Matrix display.

E. Lubrication Equipment:
1. Provide grease fittings for periodic lubrication of bearings.
2. Grease Cups: Automatic feed type.
3. Lubrication Points: Visible and easily accessible.

F. Electrical Equipment:
1. Motors: NEMA MG 1.
2. Boxes, Conduit, Wiring, and Devices: Comply with NFPA 70 requirements; see Sections 260533.13 and 260583 for additional information.
3. Sump Pump in Pit: See Section 220513 for additional information.
4. Spare Conductors: Provide ten percent in extra conductors and two pairs of shielded audio cables in traveling cables.
5. Include wiring and connections to elevator devices remote from hoistway. Provide additional components and wiring to suit machine room layout. See Section 260583.

2.05 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with ASME A17.1, applicable local codes, and authorities having jurisdiction (AHJ).

B. Accessibility Requirements: Comply with ADA Standards.

C. Perform structural steel design, fabrication, and installation in accordance with AISC 360.

D. Perform welding of steel in accordance with AWS D1.1/D1.1M.

E. Fabricate and install door and frame assemblies in accordance with NFPA 80 and complying with requirements of authorities having jurisdiction (AHJ).

F. Perform electrical work in accordance with NFPA 70.

2.06 OPERATION CONTROLS

A. Elevator Controls: Provide landing operating panels and landing indicator panels.
1. Landing Operating Panels: Metallic type, one for originating "Up" and one for originating "Down" calls, one button only at terminating landings; with illuminating indicators.
2. Landing Indicator Panels: Illuminating.
3. Comply with ADA Standards for elevator controls.

B. Interconnect elevator control system with building security, fire alarm, card access, smoke alarm, and building management control systems.

C. Door Operation Controls:
1. Program door control to open doors automatically when car arrives at floor landing.

2. Door Operator: A closed loop permanent magnet VVVF high-performance door operator shall be provided to open and close the car and hoistway doors simultaneously. Door movement shall be cushioned at both limits of travel. Electro-mechanical interlock shall be provided at each hoistway entrance to prevent operation of the elevator unless all doors are closed and locked. An electric contact shall be provided on the car at each car entrance to prevent the operation of the elevator unless the car door is closed.
3. The door operator shall be arranged so that, in case of interruption or failure of electric power, the doors can be readily opened by hand from within the car, in accordance with applicable code. Emergency devices and keys for opening doors from the landing shall be provided as required by local code.
4. Doors shall open automatically when the car has arrived at or is leveling at the respective landings. Doors shall close after a predetermined time interval or immediately upon pressing of a car button. A door open button shall be provided in the car. Momentary pressing of this button shall reopen the doors and reset the time interval.
5. Door hangers and tracks shall be provided for each car and hoistway door. Tracks shall be contoured to match the hanger sheaves. The hangers shall be designed for power operation with provisions for vertical and lateral adjustment. Hanger sheaves shall have polyurethane tires and pre-lubricated sealed-for-life bearings.
6. Electronic Door Safety Device. The elevator car shall be equipped with an electronic protective device extending the full height of the car. When activated, this sensor shall prevent the doors from closing or cause them to stop and reopen if they are in the process of closing. The doors shall remain open as long as the flow of traffic continues and shall close shortly after the last person passes through the door opening.
7. Render "Door Close" button inoperative when car is standing at dispatch landing with doors open.
8. Door Safety Devices: Moveable, retractable safety edges, quiet in operation; equipped with photo-electric light rays.

D. Provide "Firefighter's Emergency Operation" in accordance with ASME A17.1, applicable building codes, and authorities having jurisdiction (AHJ).
   1. Designated Landing: At first floor.

2.07 OPERATION CONTROL TYPE

A. Selective Collective Automatic Operation Control: Applies to car in single elevator shaft.
   1. Refer to description provided in ASME A17.1.
   2. Automatic operation by means of one button in the car for each landing served and by "UP" and "DOWN" buttons at the landings.
   3. Stops are registered by momentary actuation of landing car buttons without consideration of the number of buttons actuated or the sequence buttons actuated, but the stops are made in the order that landings are reached in each direction of travel.
   4. All "UP" landing calls are made when car is traveling in the up direction.
   5. All "DOWN" landing calls are made when car is traveling in the down direction.
   6. Uppermost and lowermost calls are answered as soon as they are reached without consideration of the car travel direction.

2.08 MATERIALS

A. Rolled Steel Sections, Shapes, Rods: ASTM A36/A36M.

B. Steel Sheet: ASTM A1008/A1008M, Designation CS (commercial steel), with matte finish.

C. Sheet Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M, with G90/Z275 coating.

D. Stainless Steel Bars, Shapes and Moldings: ASTM A276/A276M, Type 304.

E. Extruded Aluminum: ASTM B221 (ASTM B221M), natural anodized finish unless otherwise indicated.

F. Aluminum Sheet: ASTM B209/B209M, 3105 alloy, O temper.

G. Plywood: PS 1, Structural I, Grade C-D or better, sanded.

H. Tempered Glass: 3/8 inch minimum thickness, fully tempered in compliance with ASME A17.1, 16 CFR 1201, ANSI Z97.1, and ASTM C1048 tempered glass requirements.

I. Resilient Flooring: {CH#384183}, see Section {CH#384182}{CH#384181}.

J. Plastic Laminate: NEMA LD 3, Type HGS, color as selected by Architect from manufacturer's standard line of colors.

2.09 CAR AND HOISTWAY ENTRANCES

A. Elevator, :
   1. Car and Hoistway Entrances, Each Elevator Floor Lobby:
      a. Hoistway Fire Rating: 2 Hours.
      b. Elevator Door Fire Rating: 1-1/2 Hours.
      c. Framed Opening Finish and Material: Brushed stainless steel.
      d. Car Door Material: Brushed stainless steel, with reinforced panel construction.
      e. Hoistway Door Material: Powder coat on steel, with rigid sandwich panel construction.
      f. Door Type: Single leaf.
      g. Door Operation: Side opening, single speed.
      h. Door Width: 42 inch.
      i. Door Height: 84 inch.
      j. Sills: Extruded aluminum.

B. Sills/Thresholds: Configure to align with frame return and coordinate with floor finish.

C. Gasketing: Provide acoustic-type gasketing at hoistway doors and frames to eliminate audible noise due to car activities in the hoistway and air pressure differential between hoistway and landing floors.

2.10 CAR EQUIPMENT AND MATERIALS

A. Elevator Car:
   1. Car Operating Panel: Provide main and auxiliary; flush-mounted applied face plate, with illuminated call buttons corresponding to floors served with "Door Open" button, "Door Close" button, alarm button, and emergency call.
      a. Panel Material: Integral with front return; one per car.
      b. Car Floor Position Indicator: Above door with illuminating position indicators.
      c. Locate alarm button where it is unlikely to be accidentally actuated; not more than 54 inch above car finished floor.
      d. Provide matching service cabinet integral with front return panel, with hinged door and keyed lock in each car.
   2. Flooring: by others.
   3. Wall Base: by others, 4 inch high.
   4. Front Return Panel: Match material of car door.
   5. Door Wall: 304 brushed stainless steel (4SS).
   6. Side Walls: 304 brushed stainless steel (4SS).

7. Rear Wall: 441 brushed stainless steel (4SS).
8. Hand Rail: Stainless steel, at rear and side walls. Provide open clearance space 1-1/2 inch (38 mm) wide to face of wall.
   a. Flat Bar Stock, Solid: 1/4 inch thick by 3 inch high.
   b. Stainless Steel Finish: No. 4 Brushed.
9. Ceiling:
   a. Lay-in Panel: Aluminum sheet.
   b. Lighting: Round LED spotlights.

B. Car Accessories:
   1. Certificate Frame: Stainless steel frame glazed with clear tempered glass, and attached with tamper-proof screws.

2.11 FINISHES

A. Powder Coat on Steel: Clean and degrease metal surface; apply one coat of primer; two coats of powder coat.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting this work.

B. Verify that hoistway, pit, and machine room are ready for work of this section.

C. Verify hoistway shaft and openings are of correct size and within tolerance.

D. Verify location and size of machine foundation and position of machine foundation bolts.

E. Verify that electrical power is available and of correct characteristics.

3.02 PREPARATION

A. Arrange for temporary electrical power for installation work and testing of elevator components. See Section 015000 - Temporary Facilities and Controls for additional requirements.

B. Maintain elevator pit excavation free of water.

3.03 INSTALLATION

A. Coordinate this work with installation of hoistway wall construction.

B. Install system components, and connect equipment to building utilities.

C. Provide conduit, electrical boxes, wiring, and accessories; see Sections 260533.13 and 260583.

D. Mount machines and motors on vibration and acoustic isolators.
   1. Place on structural supports and bearing plates.
   2. Securely fasten to building supports.
   3. Prevent lateral displacement.

E. Install hoistway, elevator equipment, and components in accordance with approved shop drawings.

F. Install guide rails to allow for expansion and contraction movement of guide rails.

G. Accurately machine and align guide rails, forming smooth joints with machined splice plates.

H. Bolt brackets to inserts placed in concrete form work.

I. Field Welds: Chip and clean away oxidation and residue with wire brush; spot prime with two coats.

J. Install hoistway door sills, frames, and headers in hoistway walls; grout sills in place, set hoistway floor entrances in alignment with car openings, and align plumb with hoistway.

K. Structural Metal Surfaces: Clean surfaces of oil, or grease; wipe clean with solvent; factory painted baked enamel.

L. Adjust equipment for smooth and quiet operation.

3.04 TOLERANCES

A. Guide Rail Alignment: Plumb and parallel to each other in accordance with ASME A17.1 and ASME A17.2.

B. Car Movement on Aligned Guide Rails: Smooth movement, without any objectionable lateral or oscillating movement or vibration.

3.05 FIELD QUALITY CONTROL

A. See Section 014000 – Quality Requirements, for additional requirements.

B. Testing and inspection by regulatory agencies will be performed at their discretion.
   1. Schedule tests with agencies and notify Owner and Architect.
   2. Obtain permits as required to perform tests.
   3. Document regulatory agency tests and inspections in accordance with requirements.
   4. Perform tests required by regulatory agencies.
   5. Furnish test and approval certificates issued by authorities having jurisdiction (AHJ).

C. Perform testing and inspection in accordance with requirements.
   1. Inspectors shall be certified in accordance with ASME QEI-1.
   2. Perform tests in accordance with ASME A17.2.
   3. Provide at least two weeks written notice of date and time of tests and inspections.
   4. Supply instruments and execute specific tests.

D. Operational Tests:
   1. Perform operational tests in the presence of Owner and Architect.
   2. Test single elevator system by transporting at least three persons up from main floor to top floor landings during a five minute period.
   3. At an agreed time, and the building occupied with normal building traffic, conduct tests to verify performance.
      a. Furnish event recording of each landing call registrations, time initiated, and response time throughout entire working day.

3.06 ADJUSTING

A. Adjust for smooth acceleration and deceleration of car to minimize passenger discomfort.

B. Adjust with automatic floor leveling feature at each floor landing to reach 1/4 inch maximum from flush with sill.

3.07 CLEANING

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements.

B. Remove protective coverings from finished surfaces.

C. Clean surfaces and components in accordance with manufacturers written instructions.

3.08 CLOSEOUT ACTIVITIES

A. See Section 017700 - Closeout Procedures for closeout submittals.

B. See Section 017900 - Demonstration and Training for additional requirements.

C. Demonstrate proper operation of equipment to Owner's designated representative.

D. Demonstration: Demonstrate operation of system to Owner's personnel.
   1. Use operation and maintenance data as reference during demonstration.
   2. Conduct walking tour of project.
   3. Briefly describe function, operation, cleaning, and maintenance of each component.

E. Training: Train Owner's personnel on cleaning, operation and emergency procedures.
   1. Use operation and maintenance manual as training reference, supplemented with additional training materials as required.
   2. Provide minimum of 1 hour of training.
   3. Instructor: Manufacturer's training personnel.
   4. Location: At project site, unless otherwise indicated.

3.09 PROTECTION

A. Do not permit construction traffic within car after cleaning.

B. Protect installed products until Date of Substantial Completion.

C. Leave factory-applied film on finished sufaces until turnover of elevator.

D. Touch up, repair, or replace damaged products and materials before Date of Substantial Completion.

3.10 MAINTENANCE

A. See Section 017300 - Execution and 017700 - Closeout Procedures, for additional requirements relating to initial maintenance service.

B. Provide Initial Maintenance Contract of elevator system and components in accordance with ASME A17.1 and requirements as indicated for twelve months from Date of Substantial Completion.

C. Submit proposal for continuation of Maintenance Contract in accordance with ASME A17.1 and requirements as indicated for installed elevator equipment.

D. Perform maintenance contract services using competent and qualified personnel under the supervision and direct employ of the elevator manufacturer or installer.

E. Maintenance contract services shall not be assigned or transferred to any agent or other entity without prior written consent of Owner.

F. Examine system components every three months.

G. Include systematic examination, adjustment, and lubrication of elevator equipment.

H. Maintain and repair or replace parts whenever required using parts produced by original equipment manufacturer.

I. Replace wire ropes when necessary to maintain the required factor of safety.

J. Perform work without removing cars from use during peak traffic periods.

K. Provide emergency call back service during regular working hours throughout period of this maintenance contract.

L. Maintain an adequate stock of parts for replacement or emergency purposes, and have personnel available to ensure the fulfillment of this maintenance contract without unreasonable loss of time.

END OF SECTION