PROPOSED
MAIN FIREHOUSE FACILITY
ELLENVILLE FIRE DISTRICT
203 S. MAIN STREET, NYS RT. 209
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO BOX 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS, PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
(631) 727-5352

PROJECT MANUAL
APPLIES TO ALL TRADES

ISSUED FOR BIDDING September 17, 2026

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ELLEVVILLE FIRE DISTRICT
PROPOSED MAINHOUSE FACILITY
SPECIFICATION NO. 2501

PROJECT MANUAL

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REFER TO SPECIFICATION INDEX FOR ALL WORK AS FOLLOWS:

BID 2501 GC **GENERAL CONSTRUCTION**
BID 2501 M **MECHANICAL WORK (as sub-contractor to general contractor)**
BID 2501 P **PLUMBING WORK (as sub-contractor to general contractor)**
BID 2501 FS **FIRE SPRINKLER (as sub-contractor to general contractor)**
BID 2501 E **ELECTRICAL WORK (as sub-contractor to general contractor)**

AMENDED NOTICE TO BIDDERS
ELLENVILLE FIRE DISTRICT
Bid 2501 GC General Construction

PLEASE TAKE NOTICE that pursuant to a resolution of the Board of Fire Commissioners of the Ellenville Fire District, Village of Ellenville, Ulster County, New York, sealed bids for a single General Construction prime contract which includes a Local Union Project Labor Agreement. The contract shall include all sub-contracts required for sitework, general building construction (all trades), mechanical, plumbing, fire sprinkler and electrical work for the construction of a new firehouse facility located at 203 S. Main Street, Ellenville, New York 12428. Bids will be received at the office of the Board of Fire Commissioners at the firehouse located at 7025 NY Rt. 52, Greenfield Park, New York 11435 until 7:00 p.m. (prevailing time) on Tuesday the 3rd day of November 2026, at which time they will be publicly opened and read aloud.

Detailed plans, specifications and addenda (if any) regarding the project will be available from the project Architect by email request only at the address listed below as of September 17, 2026. All bid inquires and request for access to bid documents shall be directed to the project Architect, Jeffrey Sendlewski, RA, via e-mail at jeffs@firehouseplanner.com. Documents will only be provided to bidders in PDF electronic format via drop box access which will be provided to bidders upon request.

The award of contract shall be determined within forty-five (45) days of the bid opening. The award of contracts is subject to approval of a referendum vote for funding for the project by the voters of the fire district after receipt of bids.

A Bid Bond (A.I.A. Document A310 or equivalent) in the amount of at least five (5%) of the base bid must accompany each bid. A full performance bond, together with labor and material payment bonds, shall be required upon execution of the contract by the successful Bidder.

Bids shall be submitted in sealed envelopes at the above Fire District address and shall bear on the face thereof the name and address of the Bidder as well as the specific contract(s) bid on, as set forth above. All bids must be submitted on forms furnished by the Fire District, in accordance with the specifications and Instructions to Bidders, and shall be submitted as follows: if by regular mail to: Ellenville Fire District, PO Box 268, Ellenville, NY 12428, and if by overnight (FedEx) certified mail, courier or delivery service to Angela Burburan, Ellenville Fire District Secretary, 742 Irish Cape Road, Ellenville, NY 12428 and shall be received on or before 5:00 pm., November 3, 2026. Bids may also be delivered in person at the place of the published bid opening by 7:00 pm. on November 3, 2026. The sole responsibility for having the bid delivered and received at the time and place of the bid opening is the sole responsibility of the bidder without exception.

All bids must meet the requirements of the General Municipal Law of the State of New York and all other applicable statutes and have a statement of non-collusion in the form

as required by Section 103-d of General Municipal Law. All documents submitted in connection with this bid will become the property of the Ellenville Fire District, and the Fire District shall not return bid documents.

The contract for the above item(s) may be awarded by the Board of Fire Commissioners only to the lowest responsible bidder. In cases where two or more responsible Bidders submit identical bids as to price, the Board of Fire Commissioners may award the contract to either of such bidders. The Board of Fire Commissioners, however, reserves the right to reject all bids and re-advertise new bids in its discretion and/or to waive any informality in any bid which it deems immaterial in nature.

There will be a mandatory informational pre-bid conference for the above-mentioned bids starting at the Ellenville Fire District firehouse facility located at 5 Maple Avenue, Ellenville, NY 12428 on Wednesday October 14, 2026, at 1:00 pm followed by a site visit. All requests for information and clarifications regarding the bid must be received by the architect at the above noted email address on or before Tuesday October 20, 2026.

BY ORDER OF THE BOARD OF FIRE
COMMISSIONERS OF THE
ELLENVILLE FIRE DISTRICT
Village of Ellenville, Ulster County, New York

AIA® Document A701® – 2018

Instructions to Bidders

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

New Main Firehouse Facility
203 S. Main Street NYS Rt. 209
Ellenville, NY 12428

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

Ellenville Fire District
PO Box 268
Ellenville, NY 12428

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

Sendlewski Architects PC
215 Roanoke Avenue
Roverhead, NY 11901

Owners Construction Advisor TBD

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ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes 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 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, 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, 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 Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and

.6 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.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)

VIA REQUEST FOR DROP BOX ACCESS

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§ 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 ten days after receipt of 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.

§ 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 is conferred by distribution of the Bidding Documents.

§ 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 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 and shall be received by the Architect at least seven days prior to the date for receipt of Bids.
(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)

AT PRE BID CONFERENCE

§ 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 shall not be binding, and Bidders shall not rely upon them.

§ 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 at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that 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; and (4) 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.

§ 3.3.3 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.

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§ 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.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

VIA DROP BOX

§ 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.

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 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 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.

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

§ 4.2 Bid Security

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

(Insert the form and amount of bid security.)

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FIVE PERCENT (5%) BID BOND

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 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 Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 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.)

REFER TO NOTICE TO BIDDERS

§ 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 a 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. 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.

§ 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.

§ 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 two 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, 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 attended to as follows:

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(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)

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. 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.

§ 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

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

§ 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 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

.1 a designation of the Work to be performed with the Bidder's own forces;

.2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and

.3 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.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect 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 will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner 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

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bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner 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 and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 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.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

§ 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 three days following 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.

§ 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 A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.~~
~~*(Insert the complete AIA Document number, including year, and Document title.)*~~

~~.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.~~
~~*(Insert the complete AIA Document number, including year, and Document title.)*~~

~~.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise~~

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stated below.
(Insert the complete AIA Document number, including year, and Document title.)

.4 Building Information Modeling Exhibit, if completed:

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.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	Date	Pages

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

DRAFT

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SUPPLEMENTAL INSTRUCTIONS TO BIDDERS
ELLENVILLE FIRE DISTRICT, PROPOSED MAIN FIREHOUSE FACILITY
SPECIFICATION 2501

1. The award of contract shall be subject to a bond authorization resolution to be approved by the voters of the Ellenville Fire District. Should said bond issue be denied by the voters, all bids will be considered rejected without prejudice. The schedule for issuance of contracts after the bid shall be as follows:

   - 11-3-26 Bid opening.
   - 11-12-26 notice of bond vote to be published & filed.
   - 12-15-26 Bond vote (33 days after publication).
   - 12-17-26 Award of contracts (within 45 days of bid per GML).
     - January 6, 2027; Project kick off meeting.
     - January 15, 2027; Payment application No. 1 for bond and insurance.
     - February 1, 12027, Anticipated date of notice to proceed and commencement of construction schedule and schedule of values.

2. All bids submitted shall remain in effect for a period of forty-five (45) days beyond the bid opening date during which time the contract will either be awarded or rejected.

3. The schedule of values and costs shall remain in effect for a period of ninety (90) days beyond the bid opening date.

4. A five percent bid bond shall be required to be submitted with each bid. The bidders who bid more than one contract may include one bond covering all contracts' bid.

5. The bid form shall be filled out in ink or shall be typed. All applicable blank spaces for bid prices must be filled in, both in words and figures. In case of any discrepancy in the price or amount bid for any item in the proposal, the price as expressed in word shall govern. No bid will be accepted, which contains any changes, additions, alterations, omissions, erasures or items not called for in the proposal. Conditional Bids will not be accepted.

6. All bids shall be made upon the forms contained in this bid package and shall be contained in sealed envelopes clearly marked with the name of the project and Contract #. Sealed Bids shall be delivered as indicated in the Notice to Bidders.

7. During evaluation of bid requested bidders will promptly provide within 7 days of the bid opening, the following:
   - List of all material suppliers.
   - List of all subcontractors.

8. The following are the minimum items to be submitted with the bid:
   - ✓ Completed bid form.
   - ✓ Contractors' qualification form.
   - ✓ Complete schedule of values for all work including sub trades.
   - ✓ Five percent (5%) bid bond.
   - ✓ Insurance and indemnification form.

End of Supplemental Instructions

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Ellenville Fire District
203 S. Main Street NYS Rt. 209
Ellenville, New York 12428

THE OWNER:
(Name, legal status and address)

Ellenville Fire District
7025 Route 52 West
Greenfield park, New York 12435

THE ARCHITECT:
(Name, legal status and address)

SENDLEWSKI ARCHITECTS, PC
215 ROANOKE AVENUE
Riverhead, New York 11901

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes 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 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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™–2017, Guide for Supplementary Conditions.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, 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, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 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 a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's 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 the Owner and by Separate Contractors.

§ 1.1.5 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.

§ 1.1.6 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.

§ 1.1.7 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.

§ 1.1.8 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. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 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 complementary, 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

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consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 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.

§ 1.2.2 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.

§ 1.2.3 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.

§ 1.3 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

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.

§ 1.5 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, 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, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 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 written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

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§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

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, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements,

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assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 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 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys 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.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish 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.

§ 2.3.6 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.

§ 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 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, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, 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, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments 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 or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

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 this 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.

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§ 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 Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 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.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion 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 2.3.4, 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 Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the 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.

§ 3.2.3 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 Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the 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, 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, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner 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 and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 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 Work already performed to determine that such portions are in proper condition to receive subsequent Work.

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§ 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 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 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.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new 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 may be considered defective. 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 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.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as 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.

§ 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.

§ 3.7.3 If the Contractor performs Work knowing 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 the 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 and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required

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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 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 the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 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 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.

§ 3.8 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. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 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. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect 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 or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information 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

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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.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect'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 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 perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 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.

§ 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 is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is 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 Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner 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.

§ 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 approved by the Architect.

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§ 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 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 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the 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 an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, 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 and the Architect 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.

§ 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 Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

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.

§ 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 or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

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§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises 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.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner 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 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 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 or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of 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, 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.

§ 3.18.2 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 Section 3.18.1 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.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

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§ 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. The 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.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 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. Review of such submittals 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 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. The 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.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and

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assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 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 Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 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 rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 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.

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. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 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 Owner 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 Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner 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 or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner 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.

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§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

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 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 and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner 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.

§ 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 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- **.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.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, 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.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with

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any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate 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.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify 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 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 Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 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 or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate 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 Architect will allocate the cost among those responsible.

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.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner 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.

§ 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.

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§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect 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.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner 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.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect 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 Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect 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 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, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
.5 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.

§ 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 Architect 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.

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§ 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 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 on the basis of net increase, if any, with respect to that change.

§ 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 Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the 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 Architect will 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. 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 Architect 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 Architect 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.

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.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 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 the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 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 or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, 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

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Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

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.

§ 9.2 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 Architect 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 Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, 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 or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, 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 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.

§ 9.3.2 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 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.

§ 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,

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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.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, 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. The foregoing representations 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 Architect. However, the issuance of a Certificate for Payment will not be a representation that the 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 Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor 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 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 Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, 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;
- **.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; or
- **.7** repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, 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

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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 Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a 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 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.

§ 9.6.3 The Architect 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 Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner 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 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.

§ 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.

§ 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. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

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§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work 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.

§ 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 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 Contractor's list, the Architect 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 Contractor's 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 to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare 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, 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 when such portion is designated by separate agreement with the Contractor, 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 a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. 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.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, 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.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and

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belief, and on the basis of the Architect's 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 Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (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 of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) 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 Architect so confirms, the Owner shall, upon application by the Contractor and certification by the 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 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; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 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.

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.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor 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; and

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.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.

§ 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.

§ 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 and 10.2.1.3 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 and 10.2.1.3. 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 or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either 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.

§ 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 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.

§ 10.3 Hazardous Materials and Substances

§ 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 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 the Owner 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 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. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or

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entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 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 negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 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.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 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.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by

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the Contract Documents, the Contractor shall provide notice to the Owner 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.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 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 Architect and Architect's consultants; and (3) 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 Architect, Architect's consultants, 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

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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 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. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§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. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the 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 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 Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect 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 Architect or 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 Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, 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, 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

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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. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after 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 or Separate Contractors, whether completed or partially completed, caused 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 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 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. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 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, 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.

§ 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.

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§ 13.3.2 No action or failure to act by the Owner, 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. 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, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the 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 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, the 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 Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, 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 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 Architect's services and expenses, shall be at the Contractor's expense.

§ 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 Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the 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.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

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;
- **.3** Because 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 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

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§ 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, 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 exists, the Contractor may, upon seven days' notice to the Owner 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 by reason of such termination.

§ 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 or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** 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 exist, and upon certification by the Architect that sufficient cause exists to justify such action, 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; 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, 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 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 be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 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.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

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.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 the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 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; and

.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.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties 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 term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file 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, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 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.

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§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect 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 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.

§ 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 shall be given. The Contractor's Claim shall 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.

§ 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.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- **.1** damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- **.2** damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, 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. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. 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 and 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 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.

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§ 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.

§ 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 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, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 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, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. 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. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 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, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 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.

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§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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Ellenville, New York 12428

Ellenville Fire District

7025 Route 52 West
Greenfield park, New York 12435

SENDLEWSKI ARCHITECTS, PC

215 ROANOKE AVENUE
Riverhead, New York 11901

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I, Sendlewski Architects, PC, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 11:37:10 EDT on 09/10/2026 under Order No. 20250115944 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ - 2017, General Conditions of the Contract for Construction, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

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(Title)

_____

(Dated)

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SPECIFICATION 2501
SUPPLEMENTAL CONDITIONS

1. Starting from the date of the official notice to proceed, the work of the contractor shall be substantially complete and accepted by the owner within eighteen (18) months plus two (2) months for close out and punch list completion (total duration twenty months). Liquidated damages in the amount of five hundred dollars ($500.00) per calendar day shall be assessed to prime contractors beyond the projected substantial completion date including agreed to extensions if any that are agreed to during construction.

2. In accordance with the instructions to bidders, the schedule is anticipated as follows:

   - December 17, 2026, Award of contracts if bond is approved.
   - January 5,2027; Kick off meeting @ 8:00 am.
   - January 15, 2027, Payment application No. 1 for bond and insurance.
   - February 1, 2027, Anticipated date of notice to proceed and commencement of twenty (20) month construction schedule and schedule of values durations.
   - July 31, 2028, substantial completion to be achieved by all trades and binding punch lists issued. Retainage shall be reduced to two- and one-half percent (2 ½%) upon substantial completion.
   - September 30, 2028, punch list complete and final payment application with lien releases from all subcontractors and material suppliers and consent of surety shall be submitted for final payment. It is agreed by virtue of each contract that any items remaining on the punch list will result in the final payment being withheld and that the owner will have said work completed. The cost for completed work, including additional fees necessary to be paid to the architect and construction administrator, shall be deducted from the amount due to the contractor upon final payment.

3. The Contractor shall maintain all insurances as indicated in the indemnification, hold harmless and insurance form that is required to be submitted with the bid.

4. The Contractor shall be liable for any theft or vandalism to his completed work and installations until acceptance of his work and issuance of the certificate of substantial completion. Any and all costs for on-site security measures and insurances shall be borne by the respective contractor.

5. Five Percent (5%) retainage will be withheld from each payment approved to the Contractor and shall be paid upon completion and final acceptance of all aspects of the work including submission of all Record Documents, Warranties, Lien Releases, etc. (see item 1 above for substantial completion reduction).

6. Payments shall be for work and materials completed and installed only except as permitted for materials secured and contracted for the project including; elevator, building materials, equipment, and fixtures. The contractor shall provide secure storage on site or at an agree to off-site location at their own cost. The following payment application must include partial lien releases for suppliers for stored materials. The contractor shall be liable for any theft or vandalism of stored materials at their own cost without exception.

7. A performance and material and labor payment bond in the amount of One Hundred Percent (100%) of the Contract amount will be required for each contract via AIA forms A312 with all supporting documentation.

8. If there is any conflict in the bidding documents related to items specified or required for the contractor to complete his work, the item of greater value shall prevail and shall be included in the contractor's bid.

9. Contract format shall be AIA Document A101 Standard Form of Agreement Between Owner and Contractor where the basis of payment is a stipulated sum.

10. The contractor shall be required to list the names of all employees, names of all subcontractors and the names of all subcontractor employees that will be working at the project site.

11. Any and all workers at the site shall be required to sign in and out of the project site upon entering and leaving with the contractors project superintendent. Copies of said sign-in sheets shall be provided along with the necessary signed payroll documentation for each billing period in conjunction with each payment request.

12. The contractor shall have a project superintendent designated for this project who will be present at the site when any work is completed in conjunction with the contract. Said representative shall attend all job meetings. A direct cell phone number for the project representative shall be provided to the owner's job clerk, the architect, and to the project representative of sub-contract trades for coordination purposes for the duration of the project.

13. Weekly attendance of job meetings by the project representative shall be mandatory and shall include two (2) hours duration. The contractor shall have representatives of his sub-contractors available for said meetings if required for coordination.

14. Weekly job meetings will be held at 8:00 am every Tuesday for the duration of construction through substantial completion.

15. The General Contractor shall be required to complete a coordinated project schedule and forward same to all of his sub-contract trades withing fourteen (14) days of notice of award of contract to insert their durations into the schedule and return to the GC withing seven (7) days. The GC shall subsequently update the schedule and shall distribute to all parties for review and approval or approval with modifications.

16. Within thirty (30) days of award of contract, the contractor shall provide a list of project coordination requirements involving sub-contract trades for review to all parties. Upon review between the contractor and sub-contractors, a copy of the coordination requirements shall be signed off by all parties. Any changes and additions to the coordination requirements must be made in writing and distributed to all parties.

17. The General Contractor shall remain fully responsible for the performance and maintaining the project schedule of all trade sub-contractors without exception.

End of Supplemental Conditions

PROJECT LABOR AGREEMENT

COVERING CONSTRUCTION

OF

ELLENVILLE FIRE DISTRICT

FINAL DRAFT 9.11.26
FOR EFD APPROVAL

PROJECT LABOR AGREEMENT

PREAMBLE

WHEREAS, ELLENVILLE FIRE DISTRICT ("EFD") desires to provide for the cost efficient, safe, quality, and timely completion of the NEW FIRE STATION project (“Project”) in a manner designed to afford the lowest reasonable costs to the EFD, and the public it represents, and the advancement of permissible statutory objectives;

WHEREAS, the ELLENVILLE FIRE DISTRICT engaged Arace & Company ("Arace") to undertake a study of which a copy is on file with the "EFD" of whether the use of a Project Labor Agreement will best serve the EFD's interest in obtaining the best work at the lowest possible price, preventing favoritism, fraud and corruption, and other considerations such as the impact of delay, the possibility of cost saving advantages, and any local history of labor unrest; and

WHEREAS, the Arace Project Labor Agreement Feasibility Study, (the "Study"), concluded that use of a Project Labor Agreement would provide the EFD with measurable economic benefits and would promote the City's interest in obtaining the best work at the lowest prices as well as preventing favoritism, fraud and corruption; and

WHEREAS, the EFD has carefully reviewed and considered the Study and determined, among other things, that EFD's interest in obtaining the best work at the lowest possible price, preventing favoritism, fraud and corruption, preventing the impact of delay owing to labor unrest, obtaining cost savings advantages, and gaining measurable management flexibility and benefits are best met by requiring a Project Labor Agreement and, therefore, directs that a Project Labor Agreement be made part of the Project; and

WHEREAS, this Project Labor Agreement will foster the achievement of these goals, inter alia, by:

(1) expediting the construction process and otherwise minimizing the disruption to the project;
(2) avoiding the costly delays of potential strikes, slowdowns, and walkouts arising from work disputes and promoting labor harmony and peace for the duration of the project;
(3) standardizing the terms and conditions governing the employment of labor on the project;
(4) permitting flexibility in work scheduling where necessary at affordable pay rates;
(5) permitting adjustments to work rules and staffing requirements from those which otherwise might apply;
(6) providing comprehensive and standardized mechanisms for the settlement of work disputes, including those relating to jurisdiction;
(7) promoting work opportunities for those within the District, Ulster County, and surrounding areas.
(8) ensuring a reliable source of skilled and experienced local labor;
(9) create potential apprenticeship opportunities for those within the district

WHEREAS, ELLENVILLE FIRE DISTRICT, has, through independent investigation and analysis, determined the likelihood of substantial cost savings to the Project will result from the application of this Agreement; and

WHEREAS, Hudson Valley Building & Construction Trades Council, and its affiliated Local Unions and their members, desire to provide for stability, security and work opportunities which are afforded by a Project Labor Agreement; and

others;

WHEREAS, the Parties desire to maximize project safety conditions for both workers and

NOW, THEREFORE, the Parties enter into this Agreement:

ARTICLE 1 - PARTIES TO THE AGREEMENT

SECTION 1.1 PARTIES TO THE AGREEMENT

This is a Project Labor Agreement ("Agreement") entered into for all Project construction, as defined herein, as part of the ELLENVILLE FIRE DISTRICT NEW FIRE STATION Project (as defined below) between (i) the ELLENVILLE FIRE DISTRICT ("EFD") (ii) the Hudson Valley Building and Construction Trades Council ("Council") on behalf of itself and its affiliated Local Unions ("Local Unions"); and (iii) the signatory Local Unions on behalf of themselves and their members.

ARTICLE 2 - GENERAL CONDITIONS SECTION

SECTION 2.1 DEFINITIONS

Throughout this Agreement:

(A) "**Architect/Engineer"** means the firm designated by the EFD in the Contract Project Documents as the Architect/Engineer for the Project.

(B) **"Contractor(s)"** means any contractor and subcontractors of whatever tier engaged in Project Work within the scope of this Agreement as defined in Article 3, subject to exclusions defined in Section 3.3; 20.3 and 20.4

(C) **"Council"** means the Hudson Valley Building & Construction Trades Council, AFL-CIO.

(D) **"Local Union(s)"** means the Local Unions signatory to this Agreement, individually and collectively.

(E) **"Owner"** means ELLENVILLE FIRE DISTRICT ("EFD").

(F) **"Owner's Representative"** means any individual or entity designated by the Owner to enter into this Agreement or otherwise act on its behalf.

(G) **"The Project"** means the work to be performed in connection with all construction of the ELLENVILLE FIRE DISTRICT NEW FIRE STATION project as more fully set forth in Article 3, Section 3.1, subject to exclusions defined in Sections 3.3, 20.3 and 20.4.

(H) "**Project Contract Documents**" means those documents so identified in the General Conditions governing Project Work, including any related addenda.

(H) **"Project Work"** means the work covered by this Agreement and fully defined in Article 3, Section 3.1, subject to exclusions defined in Section 3.3; 20.3 and 20.4.

(I) **"Schedule A"** means and refers to collective bargaining agreements of affiliated Local Unions.

(J) **"Union Parties"** and **"Unions"** means the Hudson Valley Building & Construction Trades Council, AFL-C10 and the signatory Local Unions to this Agreement, individually and collectively.

SECTION 2.2 CONDITIONS FOR AGREEMENT TO BECOME EFFECTIVE

This Agreement shall not become effective unless each of the following conditions are met: (1) the Agreement is signed by the Council and the Local Unions having jurisdiction over the Project Work; (2) the Agreement is approved by the NYS Building & Construction Trades Council (NYSBCTC); (3) the Agreement is approved by the Building & Construction Trades Department (BCTD); (4) the Agreement is authorized by the Owner and signed by the Owner's Representative.

SECTION 2.3 ENTITIES BOUND & ADMINISTRATION OF AGREEMENT

1) This Agreement shall be binding on all signatory Unions and their affiliates and all Contractors performing Project Work as defined in Article 3, subject to exceptions in Sections 3.3 and 20.3. The Contractors shall include in any subcontract that they let for performance during the term of this Agreement a requirement that their Subcontractors, of whatever tier, become bound by this Agreement with respect to that subcontracted Project Work performed within the scope of Article 3, and require that each Subcontractor, of whatever tier, sign a Letter of Assent (Schedule B). This Agreement shall be administered by the Designee(s) named by the Owner pursuant to Schedule C.

2) RELATIONSHIP TO PROJECT CONTRACT DOCUMENTS

   a. This Agreement is incorporated into the Project Contract Documents solely with respect to labor relations and the employment of labor on Project Work.

   b. Nothing in this Agreement shall modify, supersede, expand or diminish the Owner's rights, remedies, responsibilities or protections under the Project Contract Documents, except where this Agreement expressly and specifically provides otherwise.

c. In the event of a conflict concerning matters of construction administration, design, quality, payment, scheduling, insurance, bonding, indemnification, warranty, change orders, claims, damages or Owner remedies, the Project Contract Documents shall control.

SECTION 2.4 SUPREMACY CLAUSE

This Agreement, together with the local Collective Bargaining Agreements appended hereto and referred to herein as "Schedule A," represents the complete understanding with respect to the Project and supersedes any national agreement, local agreement, or other collective bargaining agreement of any type which would otherwise apply to Covered Project Work, in whole or in part. Each Local Union agrees to provide any Contractor with a copy of the applicable Schedule A collective bargaining agreement immediately upon the Contractors request. The terms and conditions of each Local Union collective bargaining agreement (see Schedule A), as currently in effect, shall apply to Covered Project Work (to the extent not superseded by this Agreement) and only to Covered Project Work unless the Contractor is otherwise bound to such local collective bargaining agreement. Where a subject covered by the provisions of this Agreement is also covered by a Schedule A agreement, the provisions of this Agreement shall prevail. If this Agreement is silent on any matter addressed in the applicable Schedule A agreement, the Schedule A agreement shall govern. It is understood that by virtue of having become bound by this Agreement, no contractor will be obligated to sign any other local, area, or national agreement. No practice, understanding or agreement between a Contractor and the Union which is not explicitly set forth in this Agreement shall be binding on this Project or any Covered Project Work unless endorsed in writing by the General Contractor and the Contractor/subcontractor.

With respect to wages, fringe benefits, and trade-specific work rules applicable to Covered Project Work not expressly addressed by this Agreement, the applicable Schedule A collective bargaining agreement shall govern. However, no provision contained in any Schedule A agreement shall expand, modify, limit, negate, or supersede the scope of Covered Project Work or any exclusion set forth in this Agreement.

No practice, past practice, oral agreement, understanding, custom, course of dealing or interpretation shall bind the Owner unless expressly approved in writing by an authorized representative of Owner.

SECTION 2.5 LIABILITY

The liability of any Contractor and the liability of any Union under this Agreement shall be several and not joint. The Contractors, and Subcontractors shall not be liable for any violations of this Agreement by any other Contractor or Subcontractor; and the Council and Local Unions shall not be liable for any violations of this Agreement by any other Union.

SECTION 2.6 THE BID SPECIFICATIONS

The Owner shall require in its bid specifications for all Project Work within the scope of Article 3 that all successful bidders and their Subcontractors of whatever tier (unless otherwise excepted under this Agreement) become bound by this Agreement. Prior to entering into any subcontract agreement for Project Work, every Contractor shall require its Subcontractors, of whatever tier, to execute the Letter of Assent in Schedule B and to become bound by this Agreement.

SECTION 2. 7 AVAILABILITY AND APPLICABILITY TO ALL SUCCESSFUL BIDDERS

This Agreement shall be binding on all signatory Unions and their affiliates, and all Contractors, Unions and/or non-Unions performing Project Work, unless otherwise excepted under this Agreement. Unless expressly provided for in this Agreement, this Agreement shall not apply to the work of any Contractor which is performed at any location other than the site of Project Work.

ARTICLE 3 - SCOPE OF THE AGREEMENT

SECTION 3.1 PROJECT WORK

This Agreement shall only apply to Project Work as defined in this Article.

Subject to the exclusions in this Article, Project Work means solely that work performed in connection with construction of the ELLENVILLE FIRE DISTRICT NEW FIRE STATION Project located at 189-203 South Main Street (209) Ellenville, New York. Project Work, unless otherwise excepted under Sections 3.3, 20.3 or 20.4, shall include all sitework, utilities, demolition, environmental work, mechanical work, electrical work, plumbing, and all construction related to the NEW CENTRAL FIRE STATION project.

SECTION 3.2 TIME LIMITATIONS

A. To be covered by this Agreement, Project Work must be awarded after the effective date of this Agreement.

B. This Agreement commences as of [DATE] and shall remain in effect for the duration of the Project.

C. This Agreement may be extended only by written mutual agreement of the parties.

SECTION 3.3 EXCLUDED EMPLOYEES

Notwithstanding the provisions of Section 3.1 of this Article, the following person/entities are not subject to the provisions of this Agreement even though performing work on or in connection with the Project:

A. Superintendents, supervisors (excluding general and forepersons specifically covered by a craft's Schedule A), engineers, inspectors and testers, quality

control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards employed by Owner, technicians, non-manual employees, and all professional, engineering (except field surveyors), administrative and management persons, architect's office, owners' construction Clerk of Works, and their employees, consultants and associates;

B. Employees of the Project Owner;

C. Employees and entities engaged in off-site manufacture, modifications, repairs, maintenance, or painting, handling or fabrication of project components, materials, equipment, or machinery except not covered by NYS Labor Law 220.

D. Employees engaged in onsite equipment warranty work;

E. Employees engaged in geophysical testing (whether land or water) other than boring for core samples;

F. Employees engaged in laboratory or specialty testing or inspections, unless ordinarily done by a member of a Trade Union;

G. Employees engaged in ancillary Project Work performed by third parties such as electric utilities, gas utilities, telephone companies, and railroads. Utility work provided by gas, electric, and cable companies, which is not performed by utility company employees, shall be subject to the terms of this Agreement.

H. All deliveries, except for local deliveries of fill, ready mix concrete, asphalt and other aggregates which shall be covered work under this agreement.

ARTICLE 4 - UNION RECOGNITION AND EMPLOYMENT

SECTION 4.1 PRE-HIRE RECOGNITION

The Contractors recognize the signatory Unions as the sole and exclusive bargaining representatives of all craft employees who are performing Project Work within the scope of Article 3 of this Agreement.

SECTION 4.2 UNION REFERRAL

A. The Contractors agree to hire craft employees for Project Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions' area collective bargaining agreements (attached as Schedule A to this Agreement), where those referrals meet the qualifications set forth in items 1, 2, and 4 of subparagraph B. The Unions agree to provide such craft employees (including apprentices) to all Contractors on a non-discriminatory basis. Notwithstanding this, Contractors shall have sole right to determine the competency of all referrals; the number of employees required; and the selection of employees for layoff (subject to Article 5, Section 5.3). In the event that a Local Union is unable to fill any request for qualified employees within a 48-hour period after such requisition is made by a Contractor (Saturdays, Sundays and holidays

excepted), a Contractor may employ qualified applicants from any other available source. In the event that the Local Union does not have a job referral system, the Contractor shall give the Local Union first preference to refer applicants, subject to the other provisions of this Article. The Contractor shall notify the Local Union of craft employees hired for Project Work within its jurisdiction from any source other than referral by the Union. The Local Unions will cooperate with Contractor requests for minority, women, or economically disadvantaged referrals to meet the goals of Article 4, Section 4.4. These workers may be delivered under a "Direct Entry" designation or by use of a Department of Labor waiver.

B. A Contractor may request by name, and the Local Union will honor, referral of persons who have applied to the Local Union for Project Work and who meet the following qualifications:

(1) possess any license required by New York State law for the Project Work to be performed;
(2) Have worked a total of at least 1000 hours in the construction craft during the prior two years, and
(3) Were on the Contractor's active payroll for at least 60 out of the 180 calendar days prior to the contract award.
(4) Have the ability to safely perform the basic functions of the applicable trade.
(5) Have not committed a felony or misdemeanor, or other violation that would render such person unfit to work on property.

C. With the exception of Section 4.2(f) below, no more than twelve and a half(12.5%) per centum of the employees covered by this Agreement, per Contractor by craft, shall be hired through the provisions of Paragraph B of this section (any fraction shall be rounded to the next highest whole number). Craft forepersons and/or general forepersons shall be included in these twelve and a half (12.5%) percent. If requested by the appropriate Union, a Contractor utilizing this provision for byname referrals shall furnish the Union with a written certification that the individuals requested for referral meet the requirements of (1) - (5) above.

D. The Local Unions shall exert their utmost efforts to recruit sufficient numbers of skilled craft workers to fulfill the manpower requirements of the Contractor. When a Contractor of any tier is contracted to perform Project Work and such Contractor is not signatory to a Schedule A agreement (not including signatory through this Agreement) and the Union cannot provide ample labor to support the construction schedule or project, then the Contractor shall hire outside the Union hiring halls and the Contractor shall, at their discretion, replace the non-Union or non-dispatched employee when notified by the Union that labor has become available through the Union. The Contractor shall use other employees affiliated with the Council before hiring except, where specifically addressed in this Agreement if those employees from the other Unions have the required trade skills to perform the Project Work. Those hired through this provision shall be laid off before those of an affiliated Union.

E. Notwithstanding the foregoing, the "EFD" shall have the sole discretion to request that a person be removed from working on this Project.

SECTION 4.3 NON-DISCRIMINATION IN REFERRALS

A. The Local Unions represent that their hiring halls and referral systems shall be operated in a non-discriminatory manner and in full compliance with all applicable federal, state and local laws and regulations which require equal employment opportunities. Referrals shall not be affected in any way by the rules, regulations, bylaws, constitutional provisions or any other aspects or obligations of Union membership, policies, or requirements and shall be subject to such other conditions as are established in this Article. No employment applicant shall be discriminated against by any referral system or hiring hall because of the applicant's Union membership, or lack thereof.

B. All parties to this Agreement acknowledge that funding for this Project may include funds from NYS. Project Contractors may be required to comply with all non-discrimination requirements pertaining to such funding.

SECTION 4.4 WORKFORCE DIVERSITY UTILIZATION

A. The Unions recognize and acknowledge that workforce diversity of minorities and women are employment goals consistent with our values of fair play. The Local Unions agree and will strive to utilize their best efforts to provide qualified minority and female applicants.

B. All parties to this Agreement acknowledge that funding for this Project includes but is not limited to funds from the NYS Department of State Downtown Revitalization Initiative (NYSDOS-DRI), NYS Department of Environment Conservation Climate Smart Communities (NYSDEC-CSC), and NYS Environmental Facilities Corporation Green Innovation Grant Program (NYSEFC GIGP) Funds. As a condition of contract with the City, Project Contractors will be required to comply with all workforce diversity utilization requirements pertaining to such funding.

SECTION 4.5 CROSS AND QUALIFIED REFERRALS

The Local Unions shall not knowingly refer to a Contractor an employee then employed by another Contractor working under this Agreement. The Local Unions shall exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of each Contractor.

SECTION 4.6 UNION DUES

Nothing in this Agreement requires employees to join a Union or pay dues or fees to a Union as a condition of working on the Project. This Agreement is not, however, intended to supersede independent requirements in applicable Local Union Agreements as to Contractors that are otherwise signatory to those Agreements in relation to employees of such Contractors performing Project Work.

ARTICLE 5 – UNION REPRESENTATION

SECTION 5.1 LOCAL UNION REPRESENTATIVE

Each Local Union signatory to this Agreement shall be entitled to designate a representative and/or Business Manager who shall be afforded access to the Project site only during times when Project Work is being conducted.

SECTION 5.2 STEWARDS

A. Each Local Union shall have the right to designate a working journeyperson as a Steward or operating engineer in charge (lead engineer), or other designee as the case may be, as set forth in the Local Union Agreements set forth in Schedule A and shall notify the Contractor of the identity of the designated Steward and lead engineer as the case may be, prior to the assumption of such duties.

B. Stewards etc., shall not exercise supervisory functions and will receive the rate of pay as per Schedule A. There will be no non-working Stewards or Lead Engineer.

C. The Steward, lead engineer, (etc.), shall have the right to receive but not solicit complaints or grievances and to discuss and assist in their adjustment with the Contractor's appropriate supervisor.

D. Each Steward, lead engineer (etc.), shall be entitled to act only with respect to the employees of their specific Contractor and, if applicable, subcontractors of that Contractor, but not with the employees of any other Contractor, unless allowable under Schedule A.

E. The Contractor(s) shall not discriminate against the Steward, lead engineer, (etc.), in the performance of their Union duties.

F. The Stewards shall not have the right to determine when overtime shall be worked, or who shall work overtime except pursuant to a Schedule A provision providing procedures for the equitable distribution of overtime.

G. The General Contractor or CM will employ the labor steward and lead engineer. The above referenced employer shall not be required to carry the steward's or lead engineer if there is no work of that particular trade or the local collective bargaining agreement or area practice does not require it.

H. Stewards shall assist in implementing this Agreement in the spirit of labor management cooperation. Where the owner's personnel or agents may be working in close proximity to the construction activities, the Unions agree that under any and all conditions, Union Representatives, Stewards and individual employees will not interfere in any manner with the Owner's or the OR/PM's personnel or agents, or with, the execution of the work which is being performed by the Owner's or the OR/PM's personnel and all workers will work in harmony with each other.

SECTION 5.3 LAYOFF OF A STEWARD

Contractors agree to notify the appropriate Union 24 hours prior to the layoff of a Steward or Lead Engineer, except in cases of discipline or discharge for just cause. If a Steward is protected against layoff by a Schedule A agreement, such provisions shall be recognized to the extent the Steward or Lead Engineer possesses the necessary qualifications to perform the Project Work required. In any case in which a Steward or Lead Engineer is discharged or disciplined for just cause, the Local Union involved shall be notified immediately by the Contractor.

SECTION 5.4 UNION STANDARDS

A. The Council and its affiliates have a legitimate interest in preventing the undermining of the work opportunities and standards gained through collective bargaining and desire to preserve and protect work opportunities for its members.

B. The EFD, while recognizing this interest, must maintain its ability to utilize the services of off-site fabricators not covered by NYS Labor Law 220 and those entities involved in deliveries of construction materials, except those materials included in Section 3.3, when not covered under New York State Labor Law 220.

C. While the scope of the Agreement is limited to Project Work as defined and subject to exceptions herein, Contractors should, whenever economically feasible, make reasonable efforts to use Union signatory vendors, which includes, but not limited to, UA Yellow Label and SMW Blue Label products for off-site assemblies or fabrications.

D. This Section does not refer to construction material normally purchased preassembled or manufactured, it references Project Work normally and historically done on-site or in Local Union fabrications shops.

E. If any dispute should arise with respect to this Section, the Contractors agree to install any off-site assemblies or fabricated items regardless of the source. The parties shall endeavor to settle such dispute in the Labor Management forum or appropriate sub-committee before a grievance is filed under Article 9.

ARTICLE 6 – MANAGEMENT RIGHTS

SECTION 6.1 RESERVATION OF RIGHTS

Except as expressly limited by a specific provision of this Agreement, Contractors retain full and exclusive authority for the management of their operations including, but not limited to: the right to direct the Project Work force, including determination as to the number to be hired and the qualifications therefore; the promotion, transfer, layoff of its employees; or the discipline or discharge for just cause of its employees; the assignment and schedule of Project Work; the promulgation of reasonable Project Work rules; and the requirement, timing and number of employees to be utilized for overtime Project Work. Nothing contained herein shall be construed so as to allow direction of an Employee to perform Project Work outside the jurisdiction of that Employee's Labor Union affiliation, if any. No rules, customs, or practices which limit or restrict productivity or efficiency of the individual (as determined by the Contractor) and/or joint working efforts with other employees shall be permitted or observed.

SECTION 6.2 MATERIALS, METHODS & EQUIPMENT

A. There shall be no limitation or restriction upon either the Owner's or the Architect/Engineer's choice of materials, techniques, methods, technology or design, or, regardless of source or location, upon the use and installation of equipment, machinery, package units, pre-cast, prefabricated, pre- finished, or pre-assembled materials, tools, or other labor-saving devices. Contractors may, without restriction, install or use materials, supplies or equipment regardless of their source, subject to the requirements of Section 6.2(B). The on-site installation or application of such items shall be performed by the craft having jurisdiction over such Project Work pursuant to an applicable collective bargaining agreement; provided, however, it is recognized that other personnel having special qualifications may participate, in a supervisory capacity, in the installation, check-off or testing of specialized or unusual equipment or facilities as designated by the Contractor.

ARTICLE 7 – WORK STOPPAGES AND LOCKOUTS

SECTION 7.1 NO STRIKES-NO LOCK OUT

There shall be no strikes, sympathy strikes, picketing, work stoppages, slowdowns, demonstrations or other disruptive activity on Project Work site for any reason by any signatory to this Agreement. There shall be no Union or concerted or employee activity which disrupts or interferes with the Project Work. Should any employee breach this provision, the Local Unions will use their best efforts to immediately end the breach and return all employees to work. There shall be no lockout by any signatory to this Agreement.

SECTION 7.2 DISCHARGE FOR VIOLATION

A Contractor may discharge any employee violating Section 7.1, above, and any such employee will not be eligible thereafter for referral under this Agreement for a period of 100 working days.

SECTION 7.3 NOTIFICATION

If a Contractor contends that any Union has violated this Article, it shall notify the Council of such fact, with copies of the notification to the Local Union involved. The Council and Local Union shall instruct, order, and otherwise use their best efforts to cause the employee(s) to immediately cease and desist from any violation of this Article. The Council shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union and its members shall not be liable for any unauthorized acts of its members, the Council, or another Local Union.

SECTION 7.4 EXPEDITED ARBITRATION

Any Contractor or Union alleging a violation of Section 7.1 of this Article or Section 8.3(D)(ii) of Article 8 may utilize the expedited procedure set forth below (in lieu of, or in addition to, any actions at law or equity) that may be brought.

A. A party invoking this procedure shall notify J.J. Pierson, Neal M. Eiseman and Thomas Hines who shall alternate as Arbitrator under this expedited arbitration procedure. If the Arbitrator next on the list is not available to hear the matter within 24 hours of notice, the next Arbitrator on the list shall be called. Copies of suchnotification will be simultaneously sent to all parties (the alleged violator, the Council, the Local Union, the Contractor, the Owner and Architect/Engineer).

B. The Arbitrator shall hold a hearing within 48 hours of receiving the notice invoking the procedure if it is contended that the violation still exists. The Arbitrator shall provide at least 24 hours' notice (excluding Sundays and holidays) to all parties as to time and place of the hearing.

C. All notices pursuant to this Article must be delivered to all parties (Local Union, Council, Contractor, alleged violator, Owner and Architect/Engineer) and may be provided by telephone, telegraph, hand delivery, fax, email, or confirmed overnight delivery. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case and conduct their cross examination) unless otherwise agreed. A failure of any party to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

D. (i) Section 7.1 hearings:
The sole issue at the hearing shall be whether a violation of Section 7.1 occurred. If a violation is found to have occurred, the Arbitrator shall issue a Cease-and- Desist Award restraining such violation and serve copies on all parties. The Arbitrator shall have no authority to consider any matter in justification, explanation or mitigation of such violation or to award damages (any damages issue is reserved solely for court proceedings, if any). The Award shall be issued in writing within 3 hours after the close of the hearing, and may be issued without an Opinion. If any involved party desires an Opinion, one shall be issued within 15 calendar days, but its issuance shall not delay compliance with, or enforcement of, the Award.

(ii) Section 8.3(D)(ii) hearings:

The sole issue at the hearing shall be whether a violation of Section 8.3(D)(ii) occurred. If a violation is found to have occurred, it shall be prima facie evidence of intentional mis-assignment, and the Arbitrator shall issue an immediate stop- work order with respect to the Project Work involved and reassign the Project Work as necessary. The Arbitrator is also authorized to (a) award damages or back pay in order to make the aggrieved trade whole, and (b) remove the offending Contractor from the job in egregious situations.

E. An Award issued under this procedure may be enforced by any court of competent jurisdiction upon the filing of this Agreement together with the Award. Notice of the filing of such enforcement proceedings shall be given to all parties. In any court proceeding to obtain a temporary or preliminary order enforcing the Arbitrator's Award as issued under this expedited procedure, the involved Union and Contractor waive their right to a hearing and agree that such proceeding may be commenced by order to show cause. Such agreement does not waive any party's right toparticipate in a hearing for a final court order of enforcement or in any contempt proceeding.

F. Any rights created by statute or law governing arbitration proceedings which are inconsistent with the procedure set forth in this Article, or which interfere with compliance thereto, are hereby waived by the Contractors and Unions to whom they accrue.

G. The fees and expenses of the Arbitrator shall be equally divided between the involved Contractor and Union.

H. No arbitrator appointed under this Agreement shall have jurisdiction or authority to:

1) impose monetary liability upon the Owner

2) award damages, back pay, benefits, attorneys' fees, consequential damages or other compensation against the Owner.

3) modify, amend, supplement or impair any contract between the Owner and a Contractor;

4) direct the Owner to issue a change order or additional payment;

5) extend the Owner's contractual payment or performance obligations; or

6) impose any obligation upon the Owner except as expressly provided in this Agreement.

Any award shall be binding only upon the Contractor, Union and/or employee parties to the dispute, as applicable.

The Owner shall not be responsible for, and shall have no liability arising from, any dispute

concerning wages, benefits, hiring, referral, discipline, discharge, jurisdiction, staffing, union membership, union representation, benefit-fund contributions, or other employment-related matters between a Contractor, subcontractor, employee, Union or benefit fund. Each Contractor shall be solely responsible for its employment and labor obligations and shall defend, indemnify and hold harmless the Owner to the fullest extent permitted by law from claims arising out of such obligations.

SECTION 7.5 ARBITRATION OF DISCHARGES FOR VIOLATION

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 7.1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact, violate the provisions of Section 7.1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

SECTION 8.1 SUBJECTS

The Project Labor Management Committee ("Committee") will meet as established by the Committee to: 1) promote harmonious relations among the Contractors and Unions; 2) enhance safety awareness, cost effectiveness and productivity of construction operations; 3) protect the public interest; 4) discuss matters relating to staffing and scheduling with safety and productivity as considerations; 5) review Affirmative Action and equal employment opportunity matters pertaining to the Project, if any and increase work opportunity within the City for City residents.

SECTION 8.2 COMPOSITION

The Committee shall be jointly chaired by a designee of the EFD, a designee of the Architect/Engineer, and a designee of the Council. It may include representatives of the Local Unions and Contractors involved in the issues being discussed. The Committee may conduct business through mutually agreed upon sub-committees.

SECTION 8.3 PRE-JOB CONFERENCE

A. So that the start and continuation of Project Work may progress without interruption, the Committee shall require each Contractor and Subcontractor of whatever tier to conduct a pre-job conference with the Council prior to commencing work. The Owner, Architect/Engineer, and General Contractor shall be advised in advance of such conferences, and may designate a representative to participate in such conferences. This pre-job conference with the Council shall be in addition to any pre-job/pre-construction conferences required by the Project Contract Documents.

B. The purpose of the pre-job conference with the Council shall be for the parties to gain an understanding of each Contractor's proposed work assignments, the standard work day and work week, the number of employees to be employed, the method of referral,

the applicable wage rates and fringe benefit contributions and any other matters in accordance with this Agreement.

C. Proposed Trade Assignments. In conjunction with the pre-job conference with the Council required by this Section, each Contractor shall fill out the attached Schedule E-Proposed Trade Assignments Identifying all Subcontractors and indicating what trades will be used to perform the Project Work. This form shall be submitted to the Council at least fourteen (14) days in advance of the commencement of Project Work. If any Local Union(s) objects to or disagrees with the Proposed Trade Assignment of either the Contractor or Subcontractor, the Local Union will state its objection within three (3) days of the submission of the Proposed Trade Assignments and there shall be a good faith discussion among the Contractor or Subcontractor and the objecting Local Union and other affected Unions to resolve the matter. If no resolution is reached, any involved Local Union may submit their objection position in writing, together with support documentation, within seven (7) calendar days of the submission of the Proposed Trade Assignments to the Contractor or Subcontractor with a copy to all affected Local Unions. Failure of any objecting Local Union and/or other affected Unions to timely object or submit such objection positions in writing waives any objection to the Proposed Trade Assignments. The Contractor or Subcontractor will review all submitted supporting documentation regarding the Proposed Trade Assignments and will submit to the Owner, the Architect/Engineer, the Council, and all affected Local Unions a "Final Trade Assignment" letter within fourteen (14) days calendar days of the pre-job meeting at which the Proposed Trade Assignments were made.

D. Disputes and Violations.

(1) Unresolved disputes concerning trade assignments shall be handled in accordance with Section 10.1, 10.2, and 10.3 of Article 10 in accordance with the National Plan for Settlement of Jurisdictional Dispute in the Construction Industry established by the Building and Construction Trades Department, incorporated by reference in Schedule D, provided however, that disputes concerning intra-trade assignments (assignments between trades within the same International Union) will be determined by the applicable International Union.

(2) Contractor's failure to conduct a pre-job conference with the Council, failure to include all required parties in a pre-job conference with the Council, or failure to adhere to agreed-upon Schedule E trade assignments is a violation of this Agreement and prima facie evidence of intentional misassignment. Alleged violations of this provision shall be considered a lockout and subject to the expedited arbitration procedures of Article 7, Section 7.4.

(3) All remaining unresolved issues shall be subject to the provisions of Article 9.

ARTICLE 9 - GRIEVANCE & ARBITRATION PROCEDURE

SECTION 9.1 CLOSE COOPERATION

The Contractors, Unions, and employees, collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of Project Work and agree to resolve disputes in accordance with the grievance-arbitration provisions set forth in this Article.

SECTION 9.2 PROCEDURE

Any question, dispute or claim arising during the term of this Agreement involving the interpretation or application of this Agreement (other than jurisdictional disputes and alleged violations of Section 7.1, and Section 8.3(D)(2)), shall be considered a grievance and shall be resolved pursuant to the following procedure.

Step 1:

A. When any employee covered by this Agreement feels aggrieved by a claimed violation of this Agreement, the employee shall give notice of the claimed violation to the Local Union representative or job steward, who shall notify the Project Work site representative of the involved Contractor and the Owner. To be timely, such notice must be in writing given within 7 calendar days after the act, occurrence or event giving rise to the grievance. Strict compliance with this 7-day notice is a condition precedent to proceeding with such grievance. The Local Union representative or the job steward shall meet with the Project Work site representative of the involved Contractor and the Owner and endeavor to adjust the matter within 7 calendar days after timely notice has been given. The representative of the involved Contractor shall keep the minutes of the meeting and shall respond to the Union representative in writing, with copy to the Owner, within twenty-four (24) hours after the conclusion of the meeting. If they fail to resolve the matter within the prescribed period, the grieving party, may, within 7 calendar days thereafter, pursue Step 2 of the grievance procedure by serving the involved Contractor with written copies of the grievance setting forth a description of the claimed violation, the date on which the grievance occurred, and the provisions of the Agreement alleged to have been violated. Grievances and disputes settled at Step 1 are non-precedential except as to the specific Local Union, employee and Contractor directly involved, unless the settlement is accepted in writing by the Labor-Management Committee as creating a precedent with respect to Project Work.

B. Should any signatory to this Agreement have a dispute [excepting jurisdictional disputes and alleged violations of Section 7.1 or Section 8.3(D)(i) or (ii) with any other signatory to this Agreement and, if after conferring, a settlement is not reached within 7 calendar days, the dispute may be reduced to writing and the grieving party may proceed to Step 2 in the same manner as outlined in subparagraph (a) for the adjustment of employee grievances.

Step 2:

Upon timely receiving a written grievance, the involved Contractor shall notify and schedule a meeting with the Business Manager of the involved Local Union, the Council, and the Owner, and their respective representatives, for the purpose of arriving at a satisfactory settlement. Such meeting shall be held within 7 calendar days of the involved Contractor's receipt of the written grievance. Meeting minutes shall be kept by the Contractor with copies to the parties within twenty-four (24) hours.

Step 3:

A. If the grievance shall have been submitted but not resolved in Step 2, any of the participating Step 2 entities may, within 21 calendar days after the initial Step 2 meeting, submit the grievance in writing (copies to other participants, including the Owner) along with copies of the minutes from Step 1 and Step 2, to the acting Arbitrator under this procedure (alternating between J.1. Pierson, Roger Moyer and Thomas Hines). The Labor Arbitration Rules of the American Arbitration Association shall govern the conduct of the arbitration hearing, at which all Step 2 participants shall be parties. The decision of the Arbitrator shall be final and binding on the involved Contractor, Local Union, and employees, and the fees and expenses of such arbitrations shall be borne equally by the involved Contractor and Local Union.

B. Failure of the grieving party to adhere to the time limits set forth in this Article shall render the grievance null and void. These time limits may be extended only by written consent of the Owner, the involved Contractor, and the involved Local Union at the particular step where the extension is agreed upon. The Arbitrator shall have authority to make decisions only on the issues presented to him and shall not have the authority to change, add to, delete or modify any provision of this Agreement.

ARTICLE 10 - JURISDICTIONAL DISPUTES

SECTION 10.1 ASSIGNMENT

The assignment of Project Work shall be solely the responsibility of the Contractor performing the Project Work involved, subject to the pre-job conference with the Council and the procedures set forth in Section 8.3(C), and such Project Work assignments shall be in accordance with the National Plan for the Settlement of Jurisdictional Disputes in the Construction Industry ("National Plan"), incorporated by reference into Schedule D, or any successor Plan approved by the Building & Construction Trades Department, AFL-CIO. Where there are jurisdictional MOUs or agreements locally, they shall apply.

SECTION 10.2 PROCEDURE FOR SETTLEMENT OF JURISDICTIONAL DISPUTES

All jurisdictional disputes involving Project Work shall be settled according to the National Plan, provided however, that disputes concerning intra-trade assignments (assignments between trades within the same International Union) will be determined by the applicable International Union.

NO AUTOMATIC CHANGE ORDERS. No provision of this Agreement, including any jurisdictional award, grievance determination, arbitration award, labor-management decision, staffing requirement, referral issue, benefit dispute, or trade-assignment determination, shall automatically entitle a Contractor to additional compensation, additional contract time, a change order, or other adjustment to its Contract unless such entitlement independently exists under the applicable Project Contract Documents and is approved in accordance with the procedures established therein.

SECTION 10.3 NO DISRUPTIONS

There will be no strikes, work stoppages, or slowdowns, arising out of any jurisdictional dispute. Pending the resolution of the dispute, the Project Work shall continue uninterrupted and as assigned by each Contractor. No jurisdictional dispute shall excuse a violation of Article 7.

No jurisdictional determination shall require the Owner to pay additional compensation or a change order unless such compensation is otherwise independently required under the Project Contract Documents.

SECTION 10.4 AWARD

Any jurisdictional award pursuant to this Article shall be final and binding on the disputing Unions and the involved Contractor on this Project only and may be enforced in any court of competent jurisdiction. Such award or resolution shall not establish a precedent on any other construction work not covered by this Agreement.

SECTION 10.5. LIMITATIONS

Awards made under this Article shall determine only to whom the disputed Project Work belongs. The deciding person or group hereunder shall have no authority to (a) assign Project Work to a double crew, that is, to more employees than the minimum required by the Contractor to perform the Project Work involved; (b) assign work to employees who are not qualified to perform the work involved; or (c) assign Project Work being performed by non-Union employees to Union employees. This provision does not prohibit the establishment, with the agreement of the involved Contractor, of composite crews where more than (1) employee is needed for the job.

ARTICLE 11 - WAGES AND BENEFITS

SECTION 11.1 CLASSIFICATION AND HOURLY RATE

All employees covered by this Agreement shall be classified in accordance with the work performed and paid the wage rates applicable for those classifications as required by the Schedule A applicable to the work. The term "straight time" in this Agreement shall mean the hourly wage rate applicable for those classifications as required by the applicable New York State Labor Law Section 220 ("Section 220") prevailing wage determination.

The PRC number for this project is 1623644.

SECTION 11.2 EMPLOYEE BENEFITS

A. Unless expressly provided differently in this Agreement, Contractors agree to pay employee benefits/supplements on behalf of all of their employees covered by this Agreement in the amounts required by the applicable Section 220 schedule in effect. Except as provided herein, the Contractors agree that such payments shall be made to those established jointly trusteed employee benefit funds designated in the applicable Schedule A agreement, and in the amounts so designated, to the extent such payments are required by and satisfy the Section 220 obligation. Bona fide jointly trusteed fringe benefit plans established or negotiated through collective bargaining during the life of this Agreement may be added if they similarly fall within Section 220. Contractors not otherwise contractually bound to do so, shall not be required to contribute to non-Section 220 benefits, trusts or plans; however, this provision does not relieve Contractors which are signatory to local collective bargaining agreements with any Local Union from complying with the benefit requirements for all funds contained in those collective bargaining agreements.

B. Notwithstanding Section II.2(A):

(1) Contractors who designate employees pursuant to Article 4, Section 4.2(B), may satisfy the above benefits obligation with respect to those employees by: (1) providing those employees with coverage under their private benefit plans for health, welfare, pension, annuity and 40I(k); or (2) paying the full amount of such benefit to the employee in employees' wages. The total benefit payments to be made on behalf of each such employee must equal the total Section 220 benefit/supplement amount. If the Contractor's contribution into the private benefit plan for the above funds is less than the amount required by Section 220, the difference must be paid to the employee in cash. Payments of other benefits covered under Section 220 shall be paid to the respective Unions on behalf of each employee.

(2) This same option shall apply with respect to any other employee who is referred to the Contractor through the hiring hall process provided such employee was previously employed by the Contractor and was a participant in

a bona fide private benefit plan maintained by the Contractor which satisfies the requirements of Section 220.

(3) The option for a private plan equivalent supplement shall not apply to contributions into Joint Apprentice Training Committee (JATC), or similar apprentice funds designated in the applicable Schedule A agreement, if the Contractor does not have an apprentice training program approved by the Department of Labor (However, all Contractors with contracts for this Project in excess of $500,000 must participate in apprenticeship training programs pursuant to New York State Labor Law §222(2)(e». Upon request by the Council, any Contractor providing coverage under this provision will provide the Council with documentation of benefit payments made to individual employees during the term of their employment on the Project.

(4) Contractors who exercise the option under Section 11.2(B) of this Article to pay into their own private benefit plans rather than the applicable jointly trusteed funds designated in the applicable Schedule A agreement shall be responsible for and guarantee employee benefit/supplement payments and shall indemnify and hold harmless the jointly trusteed funds designated in the applicable Schedule A agreement against any and all benefit/supplement claims by its employees.

C. Contractors who contribute to jointly trusteed funds under this Section agree to be bound by the written terms of the legally-established jointly trusteed Trust agreements specifying the detailed basis on which payments are to be paid into, and benefits paid out of, such trust funds but only with regard to Project Work done and only for those employees for whom this Agreement requires such benefit payments. Notwithstanding the foregoing, a Contractor's liability shall be at all times limited to the amount of contributions required to be made to the Trust Funds.

D. Each Contractor shall be responsible for and guarantee the payment of all required fringe benefits on the Project. The Local Unions and/or the Council shall notify the Owner and Architect/Engineer within 120 hours excluding weekends whenever a Contractor or Subcontractor fails to make a required benefit payment and such delinquency remains outstanding after 30 days. Notification must be in writing and may be by email. If written notice of such a delinquency is received by the Owner and Architect/Engineer within that 120-hour period, the Owner or general contractor at Owners notice shall withhold from any funds due to the delinquent Contractor the amount of that delinquency, up to the total amount due, until any dispute regarding the delinquency has been resolved. The Owner shall have no other obligation with respect to contributions owed by any Contractor (or its Subcontractor); each delinquent Contractor shall continue to be obligated with respect to contributions based on Project Work done by that delinquent Contractor. If notice of a delinquency is not received by the Owner and Architect/Engineer within the required time periods, Owner shall have no basis upon which to withhold, with respect to that delinquency, any part of a payment which is otherwise due. Owner and general contractor shall require Contractors to submit proof of benefit payment with pay request on a form acceptable by the

Union. General contractor shall be required to issue joint checks for benefits as remedy.

ARTICLE 12 - HOURS OF WORK, PREMIUM PAYMENTS, SHIFTS AND HOLIDAYS

SECTION 12.1 WORK WEEK AND WORK DAY

A. Unless otherwise provided for in this Agreement, the standard work week shall be five days, Monday through Friday, eight hours per day plus 1/2-hour unpaid lunch period each day. The starting time for the standard work week shall start at either 6:00 a.m., 6:30 a.m., 7:00 a.m., 7:30 a.m. or 8:00 a.m. Multiple starting times shall be allowed.

B. Four-tens: notwithstanding any other provision of the Agreement, when working a four-day work week, the work shall consist of 4 days, Monday through Thursday, ten hours per day plus 1/2-hour unpaid lunch period at the straight time rate. The starting time for four-tens shall be 6:00 a.m. 6:30 a.m. 7:00 a.m. A three-day minimal notice shall be required for four-tens to the respective involved Unions.

C. On a 5-day work week, Saturday may be used as a make-up day at straight time to fulfill the 40-hour work week due to inclement weather. On a 4-day work week, Friday may be used as a make-up day at straight time to fulfill the 40-hour work week. Make-up days shall be scheduled for a minimum of 8 hours, except in the case of inclement weather in which Section 12.5 shall apply. This minimum shall also apply when more than one shift or multiple shifts are worked.

D. The changing of the regular starting time, except in the case of overtime and the switch from a 5- day and 4-day work weeks shall be a 4-week minimum.

SECTION 12.2 OVERTIME

Overtime pay for hours outside of the standard work week and workday, defined in Section 12.1, and all work on Saturdays shall be paid at time and one half the hourly rate and benefits will be paid on straight time. All work on Sundays shall be paid at two times the hourly rate and benefits will be paid at straight time. For clarity, Saturday makeup shall be at straight time up to 40 hours. Overtime shall remain the contractor’s responsibility and shall not be reimbursed as a change order.

SECTION 12.3 SHIFTS

A. Flexible Schedules - Scheduling of shift work, including Saturday and Sunday work, shall be within the discretion of the Contractor in order to meet Project Work schedules and existing Project Work conditions. Shifts must have prior approval of the Owner and Architect/Engineer and must be scheduled with not less than three work days' notice to the Local Union.

B. Second and/or Third Shifts - Saturday and/or Sunday Work.

The second shift shall start between 3 p.m. and 6 p.m. and the third shift shall start between 11 p.m. and 2 a.m. Shift differentials shall be straight time plus fifty percent (50%) of the applicable Schedule A agreement shift differential. No other premium or payments for such work shall be required unless such work is in excess of 40 hours during the week. There shall be no reduction in hours worked on a second and/or third shift, except that when 3 shifts are working together, the length of one or more shifts can be reduced to accommodate a 24-hour day and only actual hours worked will be paid. Work performed on Saturdays or Sundays shall be paid as provided in the applicable Schedule A agreement. Benefits for shift work shall be at straight time.

C. To clarify above, Schedule A Shift Differential designated percentage rates vary according to each trade's prevailing Collective Bargaining Agreement. Shift work as part of this Project Labor Agreement is 50% of the designated percentage of the shift percentages of each trade, for example if a trade's shift differential is 15% it would be 7.5%.

SECTION 12.4 HOLIDAYS

A. Schedule - There shall be seven (7) recognized holidays:

New Year's Day
President's Day
Memorial Day
Fourth of July
Labor Day
Thanksgiving Day
Christmas Day

All said holidays shall be observed on the dates designated by New York State Law. In the absence of such designation, they shall be observed on the calendar date, except that holidays which occur on Sunday shall be observed on the following Monday and holidays which occur on a Saturday shall be observed on the previous Friday.

B. Payment - Regular holiday pay, if any, for work performed on a recognized holiday shall be in accordance with the applicable Schedule A agreement. There will be no benefits paid on holidays unless worked.

C. Exclusivity -No holidays other than those listed in Section 12.4 shall be recognized or observed in relation to holiday pay and benefits.

SECTION 12.5 REPORTING PAY

A. When on a five-day work week, employees who report to the work location

pursuant to a regular schedule and who are not provided with work for whatever reason, shall receive two (2) hours reporting pay, four (4) hours if work starts and (8) hours pay if work occurs after the 4th hour except in the case of inclement weather in which hours worked after the four hours shall be paid and when on a four-day work week with a 10-hour day, (3), (5) and (10) shall apply as per the same terms above.

B. When an employee who has completed his or her scheduled shift and has left the Project site is "called out" to perform special work of a casual, incidental, or irregular nature, the employee shall receive pay for actual hours worked at applicable straight time or overtime rates in accordance with this Agreement, but no less than a minimum guarantee of four (4) hours.

C. When an employee leaves the job or work location of their own volition, is discharged for cause, or is not working as a result of the Contractor's invocation of Section 12.8 below, he or she shall be paid only for the actual time worked.

D. There shall be no pay for time not actually worked except as specifically set forth in this Article 12 and where an applicable Schedule A agreement applies to Forepersons, Stewards and Lead Engineer in reference to pay.

SECTION 12.6 PAYMENT OF WAGES

A. Payday: Payment shall be made by check, drawn on a New York bank with branches located within commuting distance of the job site. Paychecks shall be issued by the Contractor at the job site by 3 :00 p.m. on Thursdays. In the event that the following Friday is a bank holiday, paychecks shall be issued on Wednesday of that week. Not more than one week's wages shall be held back in any pay period. Paycheck stubs shall contain the name and business address of the Contractor, together with an itemization of deductions from gross wages. Direct deposit is allowable, except employer acknowledges the right of employees to opt out of direct deposit.

B. Termination: Employees who are laid off or discharged for cause shall be paid in full for that which is due them at the time of termination. The Contractor shall also provide the employee with a written statement setting forth the date of layoff or discharge.

SECTION 12.7 INJURY/DISABILITY

An employee who, after commencing Project Work, suffers a work-related injury or disability while performing Project Work duties, shall receive no less than eight (8) hours wages for that day. Further, the employee shall be rehired at such time as the employee is able to return to duties provided there is still Project Work available for which the employee is qualified and able to perform.

SECTION 12.8 EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life, property, and/or safety of employees or others, suspend all or a portion of Project Work. In such instances, employees shall be paid for actual time worked; provided however, that when a Contractor requests that employees remain at the job site available for Project Work, employees shall be paid for "standby" time at their hourly rate of pay.

Notwithstanding any other provision of this Agreement, the Owner shall retain the unrestricted right, in its reasonable discretion, to direct the immediate suspension, modification, relocation, resequencing, limitation or cessation of Project Work when reasonably necessary to protect life, health, safety, property, emergency operations, public safety, or the continued operation of the Fire District. No such Owner-directed action shall constitute a breach of this Agreement or a violation of the labor-harmony provisions. The Contractor's rights, if any, arising from such direction shall be determined solely under the Project Contract Documents. Nothing herein shall permit any Contractor, Union or employee to interfere with or delay the Owner's emergency operations.

ARTICLE 13 - APPRENTICESHIP & HELMETS TO HARDHATS

SECTION 13.1 APPRENTICE RATIOS

Recognizing the need to maintain continuing supportive programs designed to develop adequate numbers of competent workers in the construction industry and to provide craft entry opportunities for minorities, women, and economically-disadvantaged non-minority males, Contractors will employ apprentices in their respective crafts to perform such Project Work as is within their capabilities and that is customarily performed by the craft in which they are indentured. Contractors may utilize apprentices and such other appropriate classifications as are contained in the applicable Schedule A agreement in a ratio of not less than twenty-five percent (25%) of the work force by craft (without regard to whether a lesser ratio is set forth in the applicable Schedule A agreement), unless the applicable Schedule A agreement provides for a higher percentage. The first person assigned to the job shall be a Journeyman. The second person assigned may be an apprentice. Subsequent assignments shall be Journeymen until the applicable ratio is achieved. This assignment shall be repeated until staffing needs are satisfied. Apprentices and such other classifications as are appropriate will be employed in a manner consistent with the provisions of the applicable Schedule A agreement.

SECTION 13.2 NYS DEPARTMENT OF LABOR· APPRENTICESHIP

To assist the Contractors in attaining a maximum effort on this Project, the Unions agree to work in close cooperation with, and accept monitoring by, the New York State Department of Labor to ensure that minorities and women are afforded every opportunity to participate in apprenticeship programs that result in the placement of apprentices on this Project.

SECTION 13.3 NEW YORK HELMETS TO HARDHATS

The Contractors and the Unions desire to facilitate the entry into the building and construction trades of veterans who are interested in careers in the building and construction industry. The Contractors and the Unions agree to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment (the "Center") and the Center's "New York Helmets to Hardhats" program as a resource for preliminary orientation and assessment of construction aptitude; referral to apprenticeship programs or hiring halls; counseling and mentoring; and support networks, employment opportunities, and other needs as identified by the parties.

The Unions and the Contractors agree to work with the Center to create and maintain an integrated database of veterans interested in working on the Project as well as information about apprenticeship and employment opportunities related to this Project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

SECTION 13.4 PARTICIPATION GOALS (MBE, WBE, SDVOB, LABOR SURPLUS AREA)

A. The City, Contractors, the Hudson Valley Building and Construction Trades Council and its affiliated Unions are committed to meeting federal and New York State Participation Goals, if any are applicable to the Project, and shall be in alignment with the current goals or standards set for by federal or New York State requirements for Minority Business Enterprises (MBE), Woman Owned Business Enterprise (WBE), Service-Disabled Veteran Owned Business (SVDOB), and federal Labor Surplus Area requirements, to ensure participation on the project by MBE, WBE and SVDOB firms while maintaining fiscal responsibility.

B. Outreach by the EFD, Contractors, Hudson Valley Building and Construction Trades and affiliated Unions and contractor associations to ensure participation goals of NYS Certified MBE, WBE and SDVOB firms are met will be required through the project.

ARTICLE 14 - NO DISCRIMINATION

SECTION 14.1 COOPERATIVE EFFORTS

The Contractors and Unions agree that they shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, marital status, age, Union or non-Union status, real or perceived sexual orientation or any other status protected by law, in any manner prohibited by law or regulation. It is recognized that special procedures may be established by Contractors and Local Unions and the New York State Department of Labor for the training and employment of persons who have not previously qualified to be employed on construction projects of the type covered by this Agreement. The parties to this Agreement shall assist in such programs and agree to use their best efforts to ensure that the goals for female and minority employment are met on this Project. Nothing in this section shall be grieveable.

SECTION 14.2 LANGUAGE OF AGREEMENT

The use of the masculine or feminine gender in this Agreement shall be construed as including all genders.

ARTICLE 15- GENERAL TERMS SECTION

SECTION 15.1 PROJECT RULES

A. All rules shall be the responsibility of the General Contractor without exception. If requested owner will provide direction on coordination with adjacent property owners if requested. These rules shall be outlined at the pre-job conference with the Council, detailed in the contract documents, posted at the Project site, and may be amended thereafter as necessary.

B. Security Protocols - The Owner,in its sole discretion, will determine security protocols for the entire Project Site. Strict compliance by all Contractors and subcontractors of all tiers and their respective personnel with security procedures, protocols, and directives issued by the General Contractor is required at all times.

SECTION 15.2 TOOLS OF THE TRADE

The welding/cutting torch and chain fall are tools of the trade having jurisdiction over the Project Work performed. Employees using these tools shall perform any of the Project Work of the trade. There shall be no restrictions on the emergency use of any tools or equipment by any qualified employee or on the use of any tools or equipment for the performance of Project Work within the employee's jurisdiction.

SECTION 15.3 SUPERVISION

Employees or other personnel shall work under the supervision of the craft foreperson or general foreperson for the applicable hiring or subcontracting Contractor.

SECTION 15.4 FULL WORKDAY

A. Employees shall be at their Project Work area at the starting time established by the Contractor.

B. The signatories to this Agreement reaffirm their policy of a fair day's work for a fair day's wage.

ARTICLE 16 - SAFETY PROTECTION OF PERSON AND PROPERTY

SECTION 16.1 SAFETY REQUIREMENTS

Each Contractor will ensure that applicable OSHA and New York State mandated safety requirements are at all times maintained on the Project and the employees and Unions agree to cooperate fully with these efforts. Employees must perform their Project Work at all times in a safe manner and protect themselves and the property of the Contractor from injury or harm. Failure to do so may be grounds for discipline, including discharge. Prevention of accidents at the site is the responsibility of the Contractors, its employees, subcontractors and suppliers, persons, and entities at the Project Site. The Contractors shall establish their own safety programs implementing safety measures, policies, and standards conforming to those required or recommended by governmental and quasi-governmental authorities having jurisdiction. The General Contractor and their sub-contractors shall be Soley responsible for maintaining safety provisions without exception.

SECTION 16.2 CONTRACTOR RULES

Employees covered by this Agreement shall at all times be bound by the reasonable safety, security, and visitor rules as established by the General Contractor. Such rules will be referenced in the Project Contract Documents and may be distributed to Contractors for further distribution to personnel and/or posted in conspicuous places throughout the Project.

SECTION 16.3 INSPECTIONS

The Contractors, Owner, and Architect/Engineer shall have the right to inspect incoming shipments of equipment, apparatus, machinery, and construction materials of every kind. The Contractors shall include a provision granting such right to inspect to the Owner and the Architect/Engineer in all agreements with subcontractors and other third parties performing Project Work.

ARTICLE 17 - TEMPORARY SERVICES

Temporary light, power, cooling, ventilation and other services shall only be required on the specific request of a Contractor and when requested shall be assigned in accordance with the Contract Documents. Temporary coverage may be provided by the supplying Contractor's employees already working under this Agreement during regular work hours. The supplying Contractor will determine the need for temporary coverage requirements during non-work hours. For safety reasons, temporary light and power panels will only be accessed by employees of the Contractor responsible for supplying the temporary light and power panels. Coverage requirements shall not require a standby employee who is not performing Project Work. There shall be no stacking of trades on temporary services. In the event temporary services are claimed by multiple trades, the matter shall be resolved pursuant to Article 10.

ARTICLE 18 - SAVINGS AND SEPARABILITY

SECTION 18.1 THIS AGREEMENT

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, the provision involved (and/or its application to a particular part of the Project, as necessary) shall be rendered, temporarily or permanently, null and void, but the remainder of the Agreement shall remain in full force and effect to the extent allowed by law. In the event a court of competent jurisdiction finds any portion of the Agreement to be invalid, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

SECTION 18.2 NON-WAIVER

Nothing in this Agreement is intended to be or shall be construed as a waiver by any Union(s) of any prevailing wage determination or schedule that is applicable to their trade for any public work that has been or may be performed in the future on any work outside the scope of this Agreement. Nothing contained in this Agreement is intended to be or shall be construed as a waiver by any Union(s) of any more favorable term or condition of employment that may be contained in any collective bargaining agreement applicable to work outside the scope of this Agreement.

ARTICLE 19 - FUTURE CHANGES IN SCHEDULE A AREA CONTRACTS

SECTION 19.1 CHANGES TO AREA CONTRACTS

Each Schedule A agreement incorporated by reference into this Agreement by Schedule A shall continue in full force and effect until the Contractor and/or Union parties to the area collective bargaining agreements which are the basis for the applicable Schedule A agreement, notify the Owner and Architect/Engineer in writing of the agreed upon changes in the Schedule A agreement which is applicable to the Project, and their effective dates. Such changes shall only be effective to the extent consistent with this Agreement. Any disagreement between signatories to this Agreement over the incorporation into Schedule A of provisions agreed upon in the renegotiation of area collective bargaining agreements shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

SECTION 19.2 LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS

The Unions agree that there shall be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity or other violations of Article 7 affecting the Project by any Local Union involved in the renegotiation of area local collective bargaining agreements, nor shall there be any lock-out on this Project affecting a Local Union during the course of such renegotiations.

ARTICLE 20 - PROJECT SPECIFIC

SECTION 20.1 HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES LABOR MANAGEMENT ALLIANCE

If not prohibited by law and there are no direct or additional costs to the parties to this Agreement, the parties agree to participate in the Hudson Valley Building and Construction Trades Labor Management Alliance.

SECTION 20.2 CLEAN UP

A clean work site results in a safe and more productive and safe job site. All cleanup during construction shall be performed by the trades having jurisdiction for cleanup. The General Contractor will ensure a clean and safe workplace. The Owner or general contractor may back charge Contractors accordingly if clean up becomes unsatisfactory.

Once construction is complete and a building, section or floor is turned over to a professional cleaning company for final cleaning, including but not limited to, windows and floor prep, up to 33.3% of the Employees may be a direct employee of the cleaning company. Those direct employees shall be exempt from this Agreement.

SECTION 20.3 FURNITURE, FIXTURES AND EQUIPMENT (FFE)

Project Work related to furniture, fixtures and equipment that is free standing and requires no onsite assembly and is not fastened, mounted or anchored to any part of the building structure by glue, screws, nails, mechanical fastener or by other means is excluded from this Agreement. Accordingly, for the avoidance of doubt, all unloading, handling, assembly, installation and cleanup of all furniture, fixtures and equipment which requires fastening, mounting or anchoring to any part of the building structure by glue, nails, screws, mechanical fasteners or by other means, or requires any onsite assembly, shall be included Project Work under this Agreement.

SECTION 20.4 OWNER VENDORS

After substantial completion owner vendors involved in the installation of surveillance, special systems (IT), and fire department specialty equipment such as but not limited to gear wash, SCBAs shall be exempt from this agreement and may be performed by vendor directly or member of the Fire Department.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed

*******SIGNATURE PAGES FOLLOW*******

ATTACHMENTS:

SCHEDULE A – LOCAL COLLECTIVE BARGAINING AGREEMENT

SCHEDULE B – LETTER OF ASSENT

SCHEDULE C – ADMINISTRATION OF AGREEMENT; DESIGNEE

SCHEDULE D – NATIONAL PLAN

SCHEDULE E – PROPOSED TRADE ASSIGNMENTS

IN WITNESS WHEREOF the parties have caused this Agreement to be executed and effective as of September 2026.

HUDSON VALLEY BUILDING AND CONSTRUCTION TRADES COUNCIL

BY:
NAME: L. Todd Diorio
TITLE: President
DATE:

ELLENVILLE FIRE DEPARTMENT

BY:
NAME: Dean Burburan
TITLE: Commissioner Chairman
Date:

GENERAL CONTRACTOR (UPON AWARD)

CONTRACTOR: _____

BY: _____

NAME: _____

TITLE: _____

DATE: _____

CELL: _____

EMAIL: _____

SCHEDULE A – LOCAL COLLECTIVE BARGAINING AGREEMENTS

ARTICLES OF AGREEMENT between the INTERNATIONAL BROTHERHOOD OF BOILERMAKERS, IRON SHIP BUILDERS, BLACKSMITHS, FORGERS & HELPERS, AFL-CIO and THE FIRMS WHOSE SIGNATURES ARE AFFIXED HERETO

AGREEMENT by and between THE CONSTRUCTION CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY, BUILDING CONTRACTORS ASSOCIATION, AND THE MASON AND CONCRETE CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY and THE INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTWORKERS LOCAL 1 NEW YORK

AGREEMENT between THE ASSOCIATIONS and the NORTH ATLANTIC STATE REGIONAL CONCIL OF CARPENTERS LOCAL UNION 279

AGREEMENT by and between the HUDSON VALLEY CHAPTER, NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION and LOCAL UNION 363, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS

AGREEMENT by and between the NATIONAL ELEVATOR BARGAINING ASSOCIATION and the INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS

MEMORANDUM OF AGREEMENT by and between the WINDOW AND PLATE GLASS DEALERS ASSOCIATION and DISTRICT COUNCIL NO. 9 GLAXIERS LOCAL UNION #1087

AGREEMENT OF WORKING CONDITIONS between INDUSTRIAL INSULATION CONTRACTORS OF SOUTHERN NEW YORK and THE INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ALLIED WORKERS LOCAL #91

AGREEMENT between FABRICATORS, ERECTORS AND REINFORCING CONTRACTORS ASSOCIATION OF THE HUDSON VALLEY, INC. and LOCAL UNION NO. 417 OF THE INTERNATIONAL ASSOCIATION OF BRIDGE, STRUCTURAL, ORNAMENTAL AND REINFORCING IRON WORKERS

INDEPENDENT MILLWRIGHT AGREEMENT between NEW YORK CITY MILLWRIGHT CONTRACTORS ASSOCIATION and THE DISTRICT COUNCIL OF NEW YORK CITY AND VICINITY OF THE UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA and MILLWRIGHT LOCAL 740

AGREEMENT between MASTER PAINTERS and DISTRICT COUNCIL NO. 9

RESILIENT FLOOR COVERERS AGREEMENT between THE GREATER NEW YORK FLOOR COVERERS ASSOCIATION, INC. and THE DISTRICT COUNCIL OF NEW YORK AND VICINITY OF THE UNITED BROTHERHOOD OF CARPENTERS AND JOINERS OF AMERICA

AGREEMENT between UNITED UNION OF ROOFERS, WATERPROOFERS AND ALLIED WORKERS, LOCAL UNION NO. 8 and ROOFING & WATERPROOFING CONTRACTORS ASSOCIATION OF NEW YORK AND VICINITY

COMMERCIAL AGREEMENT between LOCAL UNION NO. 38 OF THE INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL AND TRANSPORTATION WORKERS (SMART) and SHEET METAL AND ROOFING CONTRACTORS' ASSOCIATION OF SOUTHEASTERN NEW YORK

AGREEMENT between NATIONAL FIRE SPRINKLER ASSOCIATION, INC. and ROAD SPRINKLER FITTERS LOCAL UNION NO. 669

AGREEMENT HEAVY & HIGHWAY between TEAMSTERS UNION LOCAL 445, IBT, AFL-CIO and INDIVIDUAL EMPLOYERS

LOCAL UNION NO. 7 TILE, MARBLE, AND TERRAZZO, AFL-CIO OF NEW YORK AND NEW JERSEY AGREEMENT between the MARBLE INDUSTRY OF NEW YORK, INC. and THE MARBLE POLISHERS AND MAINTENANCE FINISHERS, LOCAL NO. 7 of the INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTSMEN

AGREEMENT HEAVY & HIGHWAY between TEAMSTERS UNION LOCAL 445, IBT, AFL-CIO and INDIVIDUAL EMPLOYERS

AGREEMENT between THE GREATER NEW YORK AND NEW JERSEY TILE CONTRACTORS ASSOCIATION, INC. and THE TILE SETTERS AND TILE FINISHERS UNION OF NEW YORK AND NEW JERSEY, LOCAL UNION NO. 7 OF THE INTERNATIONAL UNIO OF BRICKLAYERS AND ALLIED CRAFTWORKERS

AGREEMENT between the MOSAIC, TERRAZZO AND CHEMICAL PRODUCT DECORATIVE FINISHER MASONS WORKERS ASSOCIATION LOCAL NO. 7 OF NEW YORK NEW JERSEY & VICINITY INTERNATIONAL UNION OF BRICKLAYERS AND ALLIED CRAFTWORKERS and MARBLE TERRAZZO AND SPECIALTY CONTRACTORS ASSOCIATION, INC.

BUILDING AGREMENT between LABORERS' LOCAL UNION NO. 17 and CONSTRUCTION CONTRACTORS ASSOCIATION of the HUDSON VALLEY, INC.

HEAVY, HIGHWAY & SITE AGREEMENT between LABORERS’ LOCAL UNION NO. 17, AGC OF AMERICA and CONSTRUCTION INDUSTRY COUNCIL

AGREEMENT between THE HUDSON VALLEY MECHANICAL CONTRACTORS ASSOCIATION, INC., AND PLUMBERS, STEAMFITTERS AND APPRENTICES LOCAL UNION 373 AFFILIATED WITH THE UNITED ASSOCIATION OF JOURNEYMAN AND APPRENTICES OF THE PLUMBING AND PIPEFITTEING INDUSTRY OF THE UNITED STATES AND CANADA, A.F.L.-C.I.O.

AGREEMENT between INTERNATIONAL UNION OF NORTH AMERICA OPERATING ENGINEERS LOCAL UNION NO. 825 INDEPENDENT AGREEMENT

SCHEDULE A COLLECTIVE BARGAINING AGREEMENT can be viewed by visiting the Hudson Valley Building and Construction Trades Council website: builditunion.org

Username: hudsonvalley
Password: buildingtrades

IT SHALL BE THE REPSONSIBILITY OF THE CONTRACTOR TO VERIFY SCHEDULE A AGREEMENTS WITH THE RESPECTIVE UNIONS SIGNATORY TO THIS PROJECT LABOR AGREEMENT.

For questions about this Agreement or Schedule A contact:

Todd Diorio (845) 565-2737 or email tdiorio555@aol.com
President, HVBCTC

SCHEDULE B - LETTER OF ASSENT

The undersigned party confirms that it agrees to be a party to and be bound by the Project Labor Agreement (the "PLA" or the "Agreement") as such Agreement may, from time to time, be amended by the parties or interpreted pursuant to its terms. The terms of the Project Labor Agreement, its Schedules, Addenda and Exhibits are hereby incorporated by reference herein.
The undersigned, as a Contractor or Subcontractor (hereinafter Contractor) on the Project known as

Construction Related: ELLENVILLE FIRE DISTRICT Project Initial _____

(hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

(1) The Contractor agrees to be bound by the Project Labor Agreement and the Schedules, Addenda and Exhibits specifically identified and incorporated into the Agreement as of the effective date of the Agreement. No subsequent amendment, supplement, modification or addition shall bind the Contractor or affect the Project unless expressly approved in writing by the Owner and incorporated into the Agreement.
(2) Agrees to be bound by the legally established collective bargaining agreements and local trust agreements as set forth in the Project Labor Agreement and this Letter of Assent but only to the extent of the work covered by the PLA.
(3) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it has engaged or may engage to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee provisions.
(4) Agrees to secure from any Contractor(s) (as defined in said Agreement) which is or becomes a Subcontractor (of any tier), to it, a duly executed Letter of Assent identical to this document.
(5) Understands as per the PLA that they shall not be required to sign local Collective Bargaining Agreements.

Name of Contractor

Authorized Officer & Title

Address

Phone/Fax

Worker's Comp Carrier and Policy #

General Liability Carrier and Policy #

_____ _____
Signature Date

Sworn to before me this _____ day of _____, 2025

_____
Notary Public

SCHEDULE C – ADMINISTRATION OF AGREEMENT; DESIGNEE

Name of Project: _____

The Owner shall name a Designee to administer this Agreement. The Designee shall be notified in the event any jurisdictional issue, grievance, or other matter concerning this PLA arises, and such Designee shall actively take part in the resolution of the issue. Any signatory Union may request the Designee's assistance in rectifying an issue.

The Owner shall designate a representative for administration of this Agreement. The Owner's Designee shall receive notice of grievances, jurisdictional disputes and other matters concerning this Agreement and may participate to the extent the Owner determines necessary to protect its interests. The Owner's participation shall not constitute an assumption of responsibility for resolving disputes between Contractors, Subcontractors, employees, Unions or benefit funds, nor shall such participation make the Owner a party to any employment or collective bargaining dispute unless expressly agreed to in writing.

The Designee's contact information is as follows:

_____ (Office Phone)

_____ (Cell Phone)

_____ (Email)

_____ (Signature)

_____ (Print)

Owner

SCHEDULE D – NATIONAL PLAN

A copy of National Plan for the Settlement of Jurisdictional Disputes can be viewed by visiting the Hudson Valley Building and Construction Trades website: builditunion.org

Username: hudsonvalley Password: buildingtrades

SCHEDULE E – PROPOSED TRADE ASSIGNMENTS

CONTRACTOR: _____

ADDRESS: _____

_____

_____

CONTACT: _____

WORK SCOPE / DIVISION: _____

BRIEF DESCRIPTION OF WORK: _____

_____

_____

_____

TRADES TO BE USED AND WORK SCOPE ASSIGNMENTS:

_____

_____

_____

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_____

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_____

SUBMITTED BY:_____ _____

SIGNATURE NAME

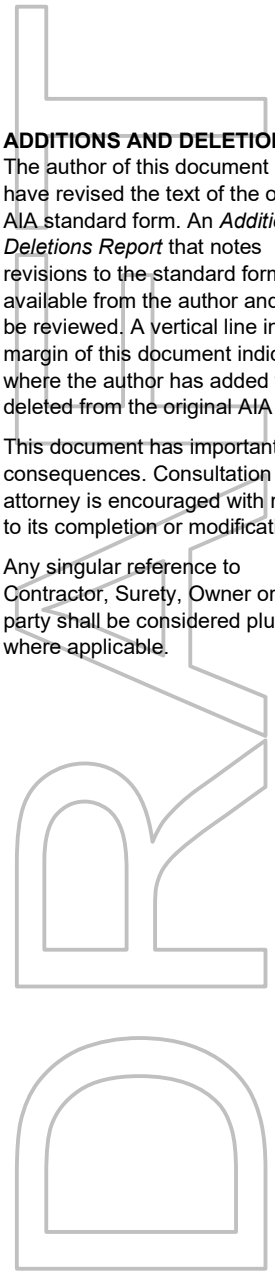
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Bid Bond

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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.



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User Notes: (640e2aeff442e4498d0

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT: $

PROJECT:
(Name, location or address, and Project number, if any)

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, 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.

Signed and sealed this day of ,

	(Contractor as Principal) *(Seal)*
(Witness)	*(Title)*
	(Surety) *(Seal)*
(Witness)	*(Title)*

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Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

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:

(Any additional signatures appear on the last page of this Payment Bond.)

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*

Signature: _____
Name and Title:

SURETY
Company: *(Corporate Seal)*

Signature: _____
Name and Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes 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 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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

DRAFT

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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.

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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.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under

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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:

(Any additional signatures appear on the last page of this Payment Bond)

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

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Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

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:

(Any additional signatures appear on the last page of this Performance Bond.)

CONTRACTOR AS PRINCIPAL
Company: *(Corporate Seal)*
Signature: _____
Name and Title:

SURETY
Company: *(Corporate Seal)*
Signature: _____
Name and Title:

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
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Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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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.

§ 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;

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.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.

§ 16 Modifications to this bond are as follows:

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(Any additional signatures appear on the last page of this Performance Bond)

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

DRAFT

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BID FORM

SPECIFICATION NO. 2501
NEW FIREHOUSE FACILITY
ELLENVILLE FIRE DISTRICT
203 S. MAIN STREET NYS RT. 209
ELLENVILLE, 12428

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

TELEPHONE NUMBER: _____

EMAIL ADDRESS: _____

The bidder mentioned above being duly sworn deposes and says:

First: That said bidder is of lawful age and the only one interested in this bid, and that no one other than said bidder has any interest herein.

Second: That this bid is made without any previous understanding, agreement, or connection with any other person, firm, or corporation making a bid for the same purpose, and is in all respects fair and without collusion or fraud.

Third: That no member of the Board of Fire Commissioners of the Ellenville Fire District, nor any officer or employee or person whose salary is payable as a whole or in part from the treasury of said Board is directly or indirectly interested in this bid or in the supplies, materials, equipment, work, or services to which it relates, or in any portion of the profits thereof.

Fourth: That said bidder has carefully examined the drawings, Instruction to Bidders, schedules, specifications and scope of work, and will, if successful in this bid, furnish and deliver at the prices bid and within the time stated, all materials, supplies, apparatus, goods wares, merchandise, services, or labor for which this bid is made.

Fifth: That the prices quoted are net and exclusive of all federal, state, and municipal sales and excise taxes. However, successful bidder will be required prior to award of contract to provide certification that they, affiliates, subcontractors and the affiliates of their subcontractors have a valid certificate of authority to collect New York State and local sales and compensating use taxes if the contractors, affiliates, subcontractors and the affiliates of their subcontractors have made sales delivered by any means to locations within New York State of tangible personal property or taxable services having a cumulative value in excess of $300,000, during the four quarterly periods ending on the last day of February, May, August, and November which immediately preceded the quarterly period in which this certification is made. Submit completed form ST-220.

Sixth: The undersigned further declares that he has received and examined the following addenda (if any):

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

FOR PROPOSAL FORM TO BE VALID, ALL PAGES OF THE PROPOSAL FORM MUST BE DULY EXECUTED.

Seventh: The undersigned further understands and agrees that he is to furnish all labor, materials, equipment, supplies, and other facilities and things necessary and required for the execution and completion of all work associated with his bid in strict accordance with the contract documents.

Eighth: The undersigned further agrees that the Board of Fire Commissioners hereby reserves the right to accept or reject any item set forth individually as add alternates indicated as part of each bid. The Owner may determine the lowest bid by adding to or deducting from those base bid(s), additive or deduct alternates, or substitutions, if any, which the Owner elects to accept after the opening of bids.

Ninth: BID SECURITY

Each bidder shall deposit with his bid a bid bond, in the amount of not less than five percent (5%) of the Base bid AND agrees such surety shall be a measure of liquidated damages should the bidder be default in entering into a contract within forty-five (45) days of the bid opening.

Tenth: COMPLETION

It is intended that the work under this contract be completed substantially within the time frame included as part of the project schedule as included in the Supplemental Conditions.

Eleventh: NON-COLLUSIVE BIDDING CERTIFICATION

General Municipal Law, Section 103-d

A. By submission of this bid, the bidder and each person signing on behalf of the bidder certifies, and if this is a joint bid each party hereto certifies as to its own organization, under penalty of perjury that to the best of the bidder's 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 completion, 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 a bid for the purpose of restricting completion.

B. A bid shall not be considered for award nor shall award be made where A-1, 2, and 3 above have not been complied with provided, however, that if in any case the bidder shall so state and shall furnish with a bid a signed statement which sets forth in detail the reasons therefore, where A-1, 2, and 3 above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department agency, or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting completion.

The fact that the bidder: (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute without more, a disclosure within the meaning of Paragraph A above.

C. If the bidder is a corporation, the corporation shall be deemed to have been authorized by the Board of Directors of the bidder to make the above certification and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation, provided by General Municipal Law Section 103 d (2).

Twelfth: That the Bidder shall complete and include the attached bid breakdown schedule of values of their bid, including unit measures of all materials, individual prices, subcontract prices, list of subcontractors and any additional information requested to evaluate bids.

Thirteenth: On acceptance of this proposal for said work, the undersigned hereby binds himself or themselves to enter into written contract within fort- five (45) days of date of bid, and to comply in all respects with the provisions set forth in the Instructions for Bidders" and "General Conditions of Contract" in relation to the faithful performance of the terms of said contract.

Fourteenth: That the bid amount and schedule of values submitted with the bid will be held without increase in amount for a period of ninety (90) days following the date of the bid opening without exception at which time the project

construction duration schedule shall commence.

Fifteenth: That 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 of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one g of the labor law

Sixteenth: That unit prices shall be included as a condition of the contract for changes during construction as included by each bidder in their schedule of values, Unit Prices" as attached to this bid form.

seventeenth: That the amount of the bid and alternates are as follows:

The following are the minimum items to be submitted with the bid:

- ✓ Completed bid form.
- ✓ Contractors' qualification form.
- ✓ Corresponding schedule of values.
- ✓ Five percent (5%) bid bond.
- ✓ Insurance and indemnification form.

BASE BID 2501 GC: GENERAL CONSTRUCTION:

This base bid inclusive of all General Construction, mechanical, plumbing, fire sprinkler and electrical work including any and all materials, labor, installations, coordination between sub-contract trades for all work indicated in the drawings and specifications and as required for a complete installation of all work shall be in the amount of:

_____

_____

_____($_____)

ADD ALTERNATE NO. 1201.1 – METAL ROOF OPTION:

This add alternate for all costs associated with the installation of a standing seam metal roof system in lieu of asphalt roof shall be as follows:

Deduct cost for asphalt roof from base bid: _____

_____ (- $_____)

Added cost for standing seam metal roof to the base bid: _____

_____(+ $_____)

TOTAL NET CHANGE AMOUNT: _____

_____(+ $_____).

ADD ALTERNATE NO. 2501.2 – MEETING ROOM MOVABLE PAERTITION:

This add alternate for all costs associated with the installation of the movable partition in the first-floor meeting room shall be in the following amount of:

_____
_____($_____)

ADD ALTERNATE NO. 2501.3 – MASONRY SIGN:

This add alternate for all costs associated with the installation of a masonry sign structure base with piers to accommodate an electronic sign (sign by others) shall be in the following amount of:

_____
_____($_____)

DEDUCT ALTERNATE NO. 2501.4 – RADIANT SLAB INSULATION INSTALLATION AND COORDINATION:

This deduct alternate shall apply if the radiant slab is not accepted by the owner and shall include all costs associated with the installation of 2" rigid insulation under the apparatus and related area slabs to receive radiant heat and additional coordination with the mechanical contractor to facilitate installation shall be in the following amount of:

_____
_____($_____)

DEDUCT ALTERNATE NO. 2501.5 – MECHANICAL SUB CONTRACT RADIANT GARAGE HEATING:

This DEDUCT alternate for all costs associated with the mechanical installation of the radiant floor slabs in the apparatus bays and related equipment shall be in the following amount of:

_____
_____deduct ($_____deduct)

ADD ALTERNATE NO. 2501.6 – MECHANICAL SUB CONTRACT LP GAS FIRED HEATERS:

This add alternate for all costs associated with the per unit installation of gas fired Modine heaters including controls and venting through the roof/wall shall be in the following amount of:

_____
_____ each ($_____ea.)

ADD ALTERNATE NO. 2501.7 – PLUMBING SUB CONTRACT GAS PIPING:

This add alternate for all costs associated with the per unit addition of LP gas piping to six (6) unit heater locations within the apparatus bay in lieu of a single connection to the

radiant slab boiler shall be in the following amount of:

_____

_____($_____)

ADD ALTERNATE NO. 2501.8 – ELECTRICAL SUB CONTRACT UNIT HEATER WIRING:

This add alternate for all costs associated with the per unit addition of line voltage wiring in conduit to six (6) unit heater locations within the apparatus bay in lieu of a single circuit to the radiant slab boiler shall be in the following amount of:

_____

_____($_____)

ADD ALTERNATE NO. 2501.9 – ELECTRICAL SUB CONTRACT UNIT LIGHTENING PROTECTION SYSTEM:

This add alternate for all costs associated with the installation of a complete building lightning protection system shall be in the following amount of:

_____

_____($_____)

UNIT PRICES: Unit prices, which are not included in the base bid, shall be included in the bid breakdown schedule of values which is required to be provided as part of this bid.

BIDDER AUTHORIZATION:

Corporate or Company Name: _____

By: _____
Name & Title

Signature: _____ Date: _____

State of _____
County of _____

Sworn before me this ____ day of _____, 2020

_____

Notary Public – State of _____

(To be completed by Notary Public duly authorized in jurisdiction where executed)

For Corporate Bidders:

Corporate bidders must attach Corporate Resolution authorizing execution of bid by agent executing this bid form

All bidders shall complete and submit the following schedule of values including the total bid amount, add alternates and unit prices.

BID 250; GENERAL CONSTRUCTION SCHEDULE OF VALUES The following schedule of values shall be submitted with the General Construction bid in dollars. This amount will be reflected on the successful contractor's payment request form AIA G107 for approval of monthly payments during the project	
ITEM	AMOUNT
GENERAL CONDITIONS	
Insurance, twenty (20) months from notice to proceed	
Performance and material and payment bonds	
Offsite general conditions including administration costs, twenty (20) months from notice to proceed	
On site general conditions including temporary facilities, twenty (20) months from notice to proceed	
As built drawings, warranties and punch list	
SITEWORK	
Site preparation including SWPPP, temporary fencing and controls.	
Phase 1 sitework parking grading & drainage	
Phase 1 sitework base asphalt (see concrete for curbing)	
Phase 3, 4 & 5 sitework parking grading & drainage	
Phase 3, 4 & 5 sitework base asphalt (see concrete for curbing & aprons)	
NYSDOT roadwork (excluding preemption)	
Finish grading & landscaping	
Finish paving & striping	
CONCRETE	
Building excavation & controlled backfill	
Building concrete foundation	
First floor slabs on grade	
Second floor & mechanical attic slabs	
Concrete curbing	
Concrete aprons	
MASONRY	
Concrete masonry units including loose lintels for building walls	
Exterior stone veneer system	
Exterior brick veneer system	
STRUCTURAL STEEL	
Structural rolled steel & deck	
Cold formed metal framing (roof & mezzanines)	
Roof trusses	
Misc. metals including stairs & railing systems	
CARPENTRY	
Exterior Armorwall sheathing	
Rough carpentry including sheathing, decking, & blocking	
Interior metal framing, soffits, etc.	
Interior casework	
Exterior trim work	
THERMAL & MOISTURE PROTECTION	
Spray insulation	

Base bid shingle roofing	
Aluminum gutter and downspout systems	
Double ply flat roofing system	
Caulking & sealants	
DOORS & WINDOWS	
Metal doors & frames and hardware	
Nanawall & storefront systems	
Upward acting sectional doors and roll up grills	
Vinyl clad windows & trim	
FINISHES	
Gypsum board systems	
Ceramic tile	
Epoxy flooring system	
Misc. flooring (carpet, resilient, epoxy paint, etc.)	
Suspended ceilings	
Painting	
SPECIALTIES	
Toilet compartments	
Toilet accessories	
Gear grid lockers (new)	
Gear grid lockers (existing reinstalled)	
Louvers & vents	
Miscellaneous including access panels, FE cabinets, etc.	
EQUIPMENT	
Projection screen	
Kitchen Equipment	
Walk in cooler	
CONVEYING SYSTEMS	
Schindler traction elevator	
MECHANICAL WORK	
Air handlers, heat pumps, condensers and related equipment	
Ductwork	
Controls	
Apparatus and related radiant slab installation	
Kitchen exhaust hood and make up air	
PLUMBING WORK	
Warter service including RPZ & double check valves	
Underground waste piping	
Above ground waste piping & venting	
Hot & cold water piping	
Piping insulation and tagging	
Hot water heaters	
Gas piping	
Compressor & air piping	
FIRE SPRINKLER WORK	
Sprinkler piping	
Sprinkler devices (flow valves, tamper switches, etc.)	

ELECTRICAL WORK	
Air handlers, heat pumps, condensers and related equipment	
Ductwork	
Controls	
Apparatus and related radiant slab installation	
Kitchen exhaust hood and make up air	
ALLOWANCES INCLUDED IN BID	
Temporary heat	50,000.00
Testing	25,000.00
Contingency allowance	125,000.00
TOTAL BASE BID INCLUDING ALL OF THE ABOVE	
ADD ALTERNATES	
2501.1 Metal roof system in lieu of asphalt shingles	
2501.2 Moving partition system	
2501.3 Insulation for radiant slab system	
2501.4 Deduct alternate to omit radiant slab	
2501.5 Additional LP gas fired unit heaters (each)	
2501.6 Gas piping for five (5) unit heaters in lieu of radiant slab boiler	
2501.7 Deduct alternate to omit radiant slab circuits and wiring	
2501.8 Additional electric for circuit for LP gas fired unit heaters (each)	
2501.9 Lightening Protection System	
UNIT PRICES	
Per workday on site general conditions if extended beyond twenty 20 months schedule duration	
Per workday man lifts if required beyond project duration or if required as part of requested change order work.	
Per foot re-routing of existing on site 12” HDPE drainage piping	
Per foot re-routing of existing on site 12” CRP drainage piping	
Additional clean fill import per cubic yard	
Removal and disposal of contaminated soils per cubic yard	
10’ unit 1” fire sprinkler piping installed	
10’ unit 2” fire sprinkler piping installed	
1” fire sprinkler tee installed (per unit)	
1” fire sprinkler elbow installed (per unit)	
2” fire sprinkler tee installed (per unit)	
2” fire sprinkler elbow installed (per unit)	
Fire Sprinkler head installed (per head)	
Electrical Per 10’ unit of 16/2 wire in EMT	
Electrical Per 2’ x 2’ LED lay in light fixture	
Electrical Per 2’ x 4’ LED lay in light fixture	
Electrical Per 1’ x 4’ LED surface light fixture	
Electrical Per 20-amp breaker	
Electrical Per location smoke/carbon monoxide detector	

ELLENVILLE FIRE DISTRICT
CONTRACTORS QUALIFICATION SUMMARY
(THIS COMPLETED FORM SHALL BE SUBMITTED WITH BID)

NAME OF BIDDER: _____

ADDRESS: _____

PHONE NO. _____ FAX NO._____

TYPE OF ENTITY: CORPORATION ____ PARTNERSHIP ____ INDIVIDUAL ____

DATE OF ORGANIZATION: _____

1. Name of principals:

2. We normally perform _____% of the work with our own forces. For subcontracted work, list trade and name of subcontractors:

3. Have you ever failed to complete any work awarded to you? If so, note when, where, and why:

4. Has any officer or partner of your organization ever been an officer or a partner of another organization that failed to complete a construction contract? If so, state circumstances:

QUALIFICATION SUMMARY (CONT.)

5. List the construction experiences of the principal individuals of your organization:

7. Name of Bonding Company and name and address of agent:

8. Project References:

   All bidders will be required to complete this form providing three references of past performance. References should involve projects and/or service of similar size and scope to this bid. References must have had dealings with the Bidder within the last thirty-six months. The Ellenville Fire District and their representatives reserve the right to contact any or all of the references supplied for an evaluation of past performance in order to establish the responsibility of Bidder before the actual award of the bid and/or contract. Completion of the reference form is required.

A. Three (3) Architect References (Include Name of Architect, Project and Phone No.):

1. _____
   _____
2. _____
   _____
3. _____
   _____

B. Three (3) Owner, Fire District or Municipal Project References (Include Name of owner representative, Project and Phone No.):

1. _____
   _____
2. _____
   _____
3. _____
   _____

For the Following Project:
Proposed Firehouse for
Ellenville Fire District
203 S. Main Street, NYS Rt. 209
Ellenville, NY 12428

The Owner:
Board of Fire Commissioners
Ellenville Fire District
PO Box 268
Ellenville, NY 12428

The Architect:
Sendlewski Architects, PC
215 Roanoke Avenue
Riverhead, New York 11901

The Clerk of the Works:
TBD

INSURANCE

Prior to commencement of any work under this Contract and until completion and final acceptance of the work, the Contractor shall, at its sole expense, maintain the following insurance in its own behalf, and furnish to the Ellenville Fire District, Architect and the Clerk of Works certificates of insurance evidencing same and reflecting the effective date of such coverage as follows:

The term "Contractor" as used in this insurance rider, shall mean and include Subcontractors of every tier.

A. Worker's Compensation and Occupational Disease Insurance in accordance with the applicable law or laws; Employer's Liability Insurance with limit of at least One Million ($1,000,000) dollars. This includes sole proprietorships and officers of corporations who will be performing work on the job.

B. Commercial General Liability with a combined Bodily Injury and Property Damage limit of not less than FIVE Million ($5,000,000.00) dollars per occurrence Coverage must include the following perils:

1. Broad Form Blanket Contractual Liability for liability assumed under this Contract and all other Contracts relative to the project.

2. Completed Operations/Products Liability

3. Broad Form Property Damage

4. Personal and Advertising Injury Liability

5. Independent Contractors

6. Endorsements must be furnished reflecting the inclusion of the interests of Owner and naming it as an Additional Insured on a primary and noncontributing basis.

7. Coverage is to be endorsed to reflect that insurance is to be primary and non-contributory with respect to any other collectable insurance, for the Owner, General Contractor, Contractor, (your company) and all other parties required to be named as additional insureds.

8. Coverage is to be provided on an "occurrence" basis with carriers licensed and admitted to do business in the State of New York.

9. A copy of policy and/or endorsement(s) and any other documents required to verify such insurance are to be submitted with the appropriate certificate(s). Failure to provide these documents is not to be construed as a waiver of the requirements to provide such insurance.

C. Coverage provided under the Commercial General Liability policy shall be on an occurrence basis and shall include, but not be limited to, premises operations liability, personal injury liability, property damage liability, contractual liability, independent contractors' liability and products liability. This policy shall name Ellenville Fire District as an additional insured.

D. Commercial Automobile Liability Insurance covering the use of all Owned, Non-Owned, and Hired Vehicles with combined Bodily Injury and Property Damage Limit of at least One Million ($1,000,000.00) dollars.

E. The above insurances shall each contain the following wording verbatim: "The Ellenville Fire District is interested in the maintenance of this insurance and it is agreed that this insurance will not be canceled, materially changed or not renewed without at least a thirty (30) day advance written notice to Ellenville Fire District, PO Box 268, Ellenville, New York 12428 by certified mail – return receipt requested."

F. The amount of insurance contained in the aforementioned insurance coverage shall not be construed to be a limitation of the liability on the part of the Subcontractor or any of its Subcontractors.

G. The Contractor shall file certificates of insurance prior to the commencement of work with the Owner and the Architect which shall be subject to the Owner their councils approval of adequacy of protection and the satisfactory character of the Insurer.

H. The carrying of the insurance described shall in no way be interpreted as relieving the Contractor or Subcontractor of any responsibility of liability under this Contract.

I. Should the Contractor engage a Subcontractor, the same conditions will apply under this contract to each Subcontractor, however, the retained Subcontractor shall be required to maintain limits of liability of not less than One Million ($1,000,000.00) dollars per occurrence and Two Million ($2,000,000) dollars in the aggregate, with said limits applicable on a per project basis, or such greater limits as may be required by the retaining Subcontractor.

HOLDHARMLESS /INDEMNIFICATION

To the fullest extent permitted by law, by acceptance of this Contract, Contractor agrees to indemnify and hold the Ellenville Fire District, the Clerk of the Works (TBD) and Sendlewski Architects PC harmless from and against all claims, damages, losses and expenses including but not limited to attorney's fees arising out of or in connection with the work provided that any such claim, damage, loss or expense:

1. is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the work itself) including the loss of use resulting therefrom, and

2. is caused in whole or in part by any negligent act or omission of the Contractor, any of its subcontractors, anyone directly or indirectly employed by any of them or any one for whose acts any of them may be liable.

In addition, and to the fullest extent permitted by law, by acceptance of this Contract, Contractor agrees to indemnify and hold the Ellenville Fire District, Clerk of the Works (to be named) and Sendlewski Architects, PC harmless from and against all claims, damages, losses and expenses including but not limited to attorney's fees arising out of or in connection with the work provided that any such claim, damage, loss or expense is for damages arising out of bodily injury to persons or damage to property caused by or resulting from the negligence of a party other than the Ellenville Fire District, Clerk of the works and Sendlewski Architects PC, whether or not the Contractor is partially negligent.

Further, to the fullest extent permitted by law, the Contractor agrees to indemnify and hold the Ellenville Fire District, Clerk of the Works and Sendlewski Architects PC, harmless from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or in connection with the work provided that any such claim, damage, loss or expense is based upon or imposed under any obligation of the Ellenville Fire District, Clerk of the Works, and or Sendlewski Architects PC under the Labor Law.

_____

Name of Contractor

_____

Signature

Printed Name: _____ Title _____

Sworn to before me this _____ day

of _____, 2014

_____

Public Notary

SPECIFICATION 2501
DIVISION 1 - GENERAL REQUIREMENTS

SECTION 01010 - SUMMARY OF WORK
01010.0100 GENERAL

1. This project includes the construction of a new main firehouse facility for the Ellenville Fire District to be located at 203 S. Main Street, NYS RT 209, Ellenville, New York, including site preparation, sitework, utilities, new construction, etc. including but not limited to the following:

General Scope Provisions:

1. The general contractor shall jointly review the entire set of documents, including the documents to have a full understanding of the work of other sub-contractors that may affect coordinating, scheduling and the work.
2. The general contractor shall be responsible for sitework including the installation of all underground utilities including excavation, conduit, piping, wiring, etc. and shall backfill trenching and excavations. Backfill at paved, apron & sidewalk areas shall be in 8" lifts fully compacted to 95%. Lawn and landscaped areas shall be backfilled in 12" lifts tamped.
3. The general contractors shall be responsible for clean up and trash including dumpsters and tipping fees. Dumpster locations shall be coordinated as the work progresses.
4. The general contractor including all of his all sub-contractors shall prepare and sign off a full site coordination plan for all underground installations prior to commencing work and shall provide an as-built record drawing upon completion of all work. Utility depths (to top) shall be as follows:
   - Water lines 60" below grade with blue caution tape at 48".
   - Power (line voltage) lines in conduit 30" below grade with red caution tape at 18" below grade.
   - Gas lines at 24" below grade with yellow caution tape at 18" below grade.
   - Sanitary lines at 24" (minimum) below grade. Provide additional sleeve to 10'-0" in each direction where lines cross over water lines. No caution tape required.
   - Communications (low voltage) 20" below grade with green caution tape at 12" below grade.
   - Contractors shall lay out all utility locations and shall maintain minimum clearances between other underground utilities and structures and shall coordinate any and all required inspections prior to backfilling.
5. Within fourteen (14) Calander days the general contractor shall prepare and issue to a critical path comprehensive schedule for all work. Within seven (7) additional calendar days all sub-contractors shall insert their duration schedules and return the schedule to the general contractor. Within the following seven (7) calendar days, the general contractor shall complete preparation of the comprehensive schedule to be maintained throughout the project. The schedule shall be updated as required

throughout the project by the general contractor. All revisions to the project schedule shall be approved by the architect and shall be at no additional cost to the owner with the exception of change orders for work that requires additional time.

6. The project schedule shall include twenty-eight (28) workdays of delay time for weather and other unavoidable delays. Written requests for adjustments in the schedule that incorporate delay days shall be subject to approval by the architect.
7. All change orders shall include the cost of the labor and material that is required to carry out the change with five percent (5%) overhead which includes additional general conditions, five percent (5%) profit and three percent (3%) bond and insurance added. All change order requests must identify all additional time extensions requests that will be required because of the proposed change relative to the critical path of the project schedule.
8. All change orders and product substitutions must include a list that identifies any items that affect the work of other sub-contractors. Said list of items must be agreed to by affected trades, including additional work to be paid for directly by the contractor responsible for the change or substitution.
9. The contractor shall submit all long lead items for approval in a timely fashion upon receipt of their signed contract. Within fourteen (14) calendar days of award of contract, the contractor shall provide a list of submittals and target submittal schedule.
10. All communications between all parties that facilitate coordination, scheduling, changes in the work, etc. shall be in writing and/or recorded in the project minutes to be considered valid and binding as to their content.
11. The contractor must have a project superintendent assigned to the project who will be on site to coordinate and oversee operation during construction. The superintendent shall attend all project job meetings as weekly site safety reviews.
12. Each contractor shall provide certificates of insurance, licenses, etc.
13. It shall be the responsibility of the general contractor to schedule, coordinate and have carried out all inspections that are required to be completed by any and all authorities having jurisdiction over the project for all work including inspections required for sub-contractors and shall provide all documentation and approvals to the owner as required for receipt of the final certificate of occupancy for the facility.
14. All work shall be bid to include the Project Labor Agreement rates and requirements that are included in the bid document.

General Construction Scope:

1. The project site shall be fully prepared for construction prior to commencing work including but not limited to; perimeter fencing with two (2) construction gates with 50’ gravel tire cleaning driveway, SWPPP storm water protection, signage including posting of all jobsite OSHA and safety requirements, trailer and portable toilet facilities and on site security camera with remote internet access provided to owner, construction administrator and architect.
2. Clearing, grading, stockpiling, backfill and finish grading as required for site development and new construction Completion of all site development. Provide protection and stabilization of all stockpiled materials per SWPPP requirements.

3. As per the bid documents drawing ECS-1, it is anticipated that based on the amount of fill removal and replacement with suitable material, that the work will be required to be completed in phases which shall be included in the bid.
4. Include a contingency in the base bid in the amount of fifty thousand dollars ($50,000.00) to be used when authorized for changes and or additions to the work in lieu of a change order. The amount of mark-ups indicated in the general provisions shall apply with the exception of added bonds and insurance.
5. Include an allowance of twenty-five thousand dollars ($25,000.00) for special inspections during construction. The firm to be utilized for inspections during construction shall be approved by the architect.
6. Include an allowance of fifteen thousand dollars ($15,000.00) for winter conditions including snow removal as required for work to proceed, warming blankets, tarps, temporary heat for your own work, etc.
7. This contract shall include assisting the owner in obtaining the required building permit for construction including providing all insurance certificates and any licensing required to complete the work included in their contract as a condition of the bid.
8. The scope of work to be completed and turned over to the owner includes the complete construction of the proposed Type 2B, structure including all sitework, concrete, masonry, steel, carpentry, roofing & siding, thermal and moisture protection, doors & windows, finishes (excluding epoxy floor system), specialties, equipment (excluding kitchen equipment) and elevator.

Mechanical Sub-Contract Scope:

1. This contract shall include preparation and submission of drawings and applications and filing for and obtaining permits required for the new kitchen hood and ansul systems including coordination with owner as required for signature. Permit fee if any shall be paid by owner.
2. Coordination including scheduling with all other trades.
3. All heating and cooling systems including equipment and controls associated with the new building.
4. Coordinating any and all inspections from governing agencies as required for receipt of the final Certificate of Occupancy for the facility.
5. Supplying and installing all mechanical systems and equipment in their entirety. Refer to drawings and specifications for complete scope of work.

Plumbing Sub-Contract Scope:

1. This contract shall include preparation and submission of water and sewer service applications including all necessary documentation without exception including coordination with owner as required for signature and fees. Permit fees if any shall be paid for by the owner.
2. Coordination including scheduling with all other trades.
3. All plumbing systems including equipment, etc. associated with the new building.

4. Coordinating all inspections from governing agencies as required for receipt of the final Certificate of Occupancy for the facility.
5. Installation of all plumbing systems and equipment. Refer to drawings and specifications for complete scope of work.

Fire Sprinkler Sub-Contract Scope:

1. This contract shall include preparation and submission of all local (town, fire prevention, etc.) fire sprinkler permit applications including all necessary documentation without exception including coordination with owner as required for signature and fees. Fees for permits shall be paid by the owner. Permits include but are not limited to fire sprinkler systems and related interface with fire alarm systems.
2. Water service shall be provided by the plumbing contractor.
3. Coordination including scheduling with all other trades.
4. Installation of all fire sprinkler systems and equipment. Refer to drawings and specifications for complete scope of work.

Electrical Sub-Contract Scope:

1. Provide temporary pole with 200 amp temporary service, meter and panel. Include temporary 60-amp service to trailer. Fees for power consumption shall be paid for by the owner.
2. Provide three (3) 50 amp panels in/at building during construction with local gang boxes for contractors use.
3. Include temporary lighting throughout facility during construction until permanent lighting is functional at a minimum rate of one (1) fixture per 400 sq. ft. with a minimum of one light in each individual area regardless of size.
4. This contract shall include preparation and submission of utility service applications including all necessary documentation without exception including coordination with owner as required for signature and fees. Fees for permanent services shall be paid for by the owner.
5. Install any and all underground wiring in conduit for electric service and on site electrical work including site lighting, low voltage (cameras etc.), spare conduits and any other work required under this contract. See site plans (including construction site development plans) and special systems diagrams for identification of scope of work.
6. Coordinate with utility and provide permanent underground electrical service and conduit to designated pole location.
7. This contract shall include preparation and submission of all local (town, fire prevention, etc.) fire alarm permit applications including all necessary documentation without exception including coordination with owner as required for signature and fees. Fees for permits shall be paid by the owner. Permits include but are not limited to electrical permit for all electric work, fire alarm permit, and any and all additional permits required for the installation of any work associated with this contract.
8. Install an additional two (2) 3” conduits to designated pole location with drag strings for phone, cable, fiber optic, etc. utility use.
9. Coordination including scheduling with all other trades.

10. All electrical and related systems including equipment, etc. associated with the new building.
11. Coordinating any and all inspections from governing agencies as required for receipt of the final Certificate of Occupancy for the facility.
12. Installation of all electrical and fire alarm systems and equipment, installation of IT wiring and conduit, server racks, punch down blocks and wire trays. Refer to drawings and specifications for complete scope of work.
13. Provide and install a complete building lightening protection system as an add alternate price.

01010.0200 DRAWINGS AND SPECIFICATIONS

1. All drawings and specifications and all copies thereof shall remain the property of the architect and shall not be copied or used for any other project.
2. Each contractor shall keep one set of the most recent drawings, specifications and other contract related documentation at the project site during construction.
3. In the case of a discrepancy between information included in the documents, interpretation shall be given by the Architect. In accordance with the supplemental conditions, the item of greater value shall be included as part of the contract.

01010.0300 LAYING OUT

1. Each contractor shall lay out their own work and coordinate same through the general contractor.
2. Each contractor shall thoroughly examine the documents, shall verify all existing conditions prior to start of work and shall report any discrepancies to the Construction Clerk Administrator and Architect.
3. Each contractor shall locate and verify any and all utilities, equipment, structures etc. and to protect same against damage during construction. Any damage caused shall be repaired by the contractor causing such damage at their own cost at no additional cost to the owner without exception.
4. Each contractor shall establish all heights, datum elevations, etc. from field benchmark location. Each contractor shall employ standard surveying and field engineering as required for same and shall be liable for accuracy of his work.
5. Owners surveyor shall establish datum and will stake location of building and curbs.

01010.0400 COORDINATION

1. The general contractor and all sub-contractors shall be required to coordinate and schedule their work as required to facilitate sequencing, coordination, etc. and to notify the other contractors of conditions that will affect their work that will require coordination and/or verification. No change orders will be considered for costs incurred due to lack of proper coordination.
2. Each contractor shall review the entire set of drawings to coordinate their work with

work of other trades and to verify information that will affect their work. (i.e. reflected ceiling plan takes precedence over other drawings for locations of lighting fixtures, sprinkler heads, etc.) In general, locations indicated on architectural plans take precedence over other documents. The Architect shall provide interpretation of locations etc. when requested.

3. The contractor shall maintain one set of marked up drawings to indicate any and all deviations for as built conditions and shall turn over same to Architect upon completion of project.
4. Contractors shall provide and coordinate with other trades any and all inserts, sleeves, etc. and any additional information necessary for items to be incorporated into their work. Each contractor shall install sleeves and inserts for other trades into their work.
5. All contractors shall review and sign off coordination drawings prior to start of work in AutoCad format as follows:

    a. Architect shall provide Autocad disk of floor plan and structural plans to general contractor to insert finish floor and ceiling elevations and pertinent structural steel elevations.
    b. Mechanical contractor to add all ducting, equipment, piping, sleeve locations, etc. and elevations.
    c. Plumbing contractor to add all piping, sleeve locations, etc. and elevations.
    d. Fire sprinkler contractor to add all piping locations and elevations.
    e. Electrical contractor to include all fixtures and verify required clearance.
    f. Each prime contractor shall note location and elevation of sleeves blocking, supports, etc. to be provided and installed by others.
    g. All contractors must sign documents to be maintained at the project site.

SECTION 01300 - SUBMITTALS

01300.0100 CONSTRUCTION SCHEDULES

1. The work shall be done in sections, if necessary, commencing work or discontinuing operations as coordinated by the general contractor. The work shall be executed at such time and in such a way as to cause the least inconvenience and with proper consideration for the rights of others. Each sub-contractor shall keep in touch with the entire operation via the general contractor and install his work promptly.

2. The comprehensive schedule for the Project shall be prepared by the General Contractor and shall be forwarded to all Sub-Contractors.

3. Each trade contractor shall add their work onto the comprehensive schedule and shall coordinate said schedule with other trades under the direction of the GC to finalize the schedule.

4. The general contractor shall sign the finalized schedule indicating acceptance prior to start of work. The completion date in the schedule shall be indicated to be 28 days prior to the project 18-month project timeline for substantial completion for weather and unexpected delays. The schedule will then be updated for each day accordingly.

5. Each sub-contractor shall cooperate with the general contractor in revising and monitoring the schedule and is required to promptly notify the Architect of potential changes to the schedule that would require approval for a schedule extension.

6. The schedule shall be the basis for the date of commencement of construction including established dates for all trades starting and completing work for the various portions of each contract and for completing the work for the entire Project. It shall be the duty of the general contractor and each sub-contractor to conform to the approved schedule and to arrange his work in such a manner that it will be installed within the time limits indicated.

7. The effective date of commencement of the contract and duration schedule shall be the date of official notice to proceed, which shall be a maximum of ninety (90) days after the bid date. For each additional day beyond the ninety (90) day duration that the notice to proceed is not issued, the contract amount will be increased by change order at the annual rate of three percent (3%) computed daily (x 0.000082191/day).

8. The schedule will be updated as required during construction for weather delays and for additional time approved for changes in the work. Each contractor shall furnish information necessary for re-evaluating and updating the schedule including applicable information about such contractor's proposed effort to overcome any delays incurred. The final determination to approve revisions to the chedule rests with the Architect.

9. The Contractor and sub-contractors are required to take whatever steps are necessary

and to cooperate in every way possible with the other contractors to maintain the schedule and the scheduled completion date. No additional compensation will be considered for such action and cooperation.

10. Each contractor is required to consult with and fully cooperate with the other contractors regarding any changes which may be required to be made in the schedule. Any possible means of shortening the schedule, at no additional cost, shall be brought to the attention of the Architect.

11. 01300.0200 SHOP DRAWINGS AND SAMPLES

1. All submittals shall be in PDF format and submitted via drop box using files that will be set up for the general contractor and his sub-contractors for access and file sharing. Review of submissions shall be completed withing ten (10) days.

2. Submit standard manufactured items, in the form of manufacturer's catalog sheets, showing illustrated cuts of the item to be furnished, scale details, sizes, dimensions, performance characteristics, capacities, wiring diagrams and controls and all other pertinent information.

3. For all other shop drawings, submit PDF copies of each drawing. Each drawing shall be a clear space of approximately 4 inches by 4 inches for stamps: "date received"; "approved"; "approved as noted"; "disapproved"; "resubmit". For coordination drawings, Autocad documents shall be utilized.

4. The following critical path items MUST be submitted within forty-five (45) days of award of contract (prior to notice to proceed) for coordinated approval:
   - Concrete/rebar
   - Steel
   - Roof trusses
   - Masonry
   - Elevator
   - Windows
   - Switchgear & panels
   - Generator
   - HVAC Equipment

   All other items per trade as required for approval and delivery of items as required to maintain delivery to site and project schedule.

5. The approval of shop drawings by the Architect will be general. It shall not relieve the Contractor of responsibility for accuracy of such shop drawings, nor for proper fitting, construction of work, furnishing of materials or other items necessary to complete the work that is not indicated on shop drawings. Shop drawing approval shall not be construed as approving departures from contract requirements. All verification of dimensions for fabrication shall remain the responsibility of the

contractor without exception. It is herewith established that all existing field dimensions and requirements for the installation of the work of all contractors have been verified and are included on the submission.

6. Submittals returned "revise & resubmit" or "rejected" shall be corrected and a new resubmitted provided until final approval is obtained.

7. Submittals shall be returned to indicate "no exception taken", "make corrections noted", "approved" and/or "approved as noted". The Contractors shall print and provide one (1) copy of all submittals that are returned “approved” or “approved as noted” to be maintained in the job trailer. All copies will be turned over to the owner upon completion of the project.

8. The Contractor shall submit to the Architect for approval samples of materials he proposes to use. Samples shall be in duplicate, of sufficient size or number to show the quality, type, range of color, finish, and texture of the material he intends to furnish under the Contract. This includes all exterior and interior finish materials.

9. Each sample shall have label bearing the name and quality of the material, the Contractor's name, date, specification number, specification section and building name. A letter from the Contractor requesting approval should accompany all such samples. Transportation charges to the office of the Architect must be prepaid on samples forwarded.

10. Samples shall be submitted in due time to permit proper consideration without delaying the Contractor's operation. Material should not be ordered until approval is received in writing. The use of any substitution materials will be permitted only as long as its quality remains equal to the approved samples and is accepted in writing by the architect.

11. The General Contractor shall provide a 4’-0” wide x 5’-8” high mock up panel of the exterior masonry systems including aa 8” solid CMU base course with a 4” x 2” solid veneer CMU (to represent the foundation detail), one 12” high base stone, 8” horizontal band, 12” masonry brick finish, 8” band, 12” smooth face stone and 8” frieze detail (1” backer x 8” high and 4” bottom trim). The mock up will be on the Armorwall sheathing installed on 8” studs and shall include all system components, flashings, etc.

01300.0300 JOB MEETINGS

1. During the course of the work, the Architect shall hold job meetings for the purpose of coordinating the work, reviewing work completed and in progress and answer Contractor's questions.

2. The meeting will be on a weekly basis during the active period of the construction on each Tuesday at 8:00 am.

3. Additional Coordination Meetings may be called as deemed necessary by the Architect.

4. The contractor and active sub-contractors (at the general contractors discretion) shall be represented at weekly meetings as detailed in the supplemental conditions and shall allow two (2) hour duration for attendance. Cell phone use is not permitted unless required for inquiries related to the meeting.

01300.0400 APPLICATIONS FOR PAYMENT

1. The schedule for submission of payment requests at job meetings shall be determined by Owner at first job meeting. Each payment request shall be for work completed monthly.

2. Submit two (2) draft copies of pencil request at the job meeting the week prior to the due date for review of the architect and owner's representative.

3. Submit four (4) copies of AIA G702 - Application and Certificate for Payment and schedule of values indicating percentages of completion of all portions of the work.at the scheduled job meeting.
   - Three (3) copies shall include all partial lien releases and will be signed and distributed to the owner, architect and owner's representative.
   - One (1) copy (no attachments required) will be signed and returned to the contractor.

01300.0500 FIELD ENGINEERING

1. The General Contractor shall provide field engineering services to establish grades, lines and levels, by use of recognized engineering survey practices.

2. The General Contractor shall establish a control datum benchmark for the project. Locate and protect benchmarks, control and reference points.

3. All benchmark and elevations shall be referenced to the survey topography included in the owner's survey included in the drawings. Specific reference elevation shall be included relative to the existing sewer manhole cover (Rim 439.00'). Height from rim to sewer invert in the existing manhole shall also be verified and noted.

* * * * *

Pre notice to Proceed (all)	1	2	3																					
MONTH				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Insurance & bonds (all_																								
Submittals (all)																								
Punch list (all)																								
SITEWORK																								
Site preparation																								
Phase 1 sitework																								
Phase 3, 4 & 5								3	4										5	5				
NYSDOT roadwork																								
Ggrading & landscaping																								
Finish paving & striping																								
CONCRETE																								
Building foundation																								
First floor slabs on grade																								
Slab on deck																								
MASONRY																								
CMU																								
Exterior veneer system																								
STRUCTURAL STEEL																								
Structural steel																								
Cold formed metal																								
Roof trusses																								
Misc. metals																								
CARPENTRY																								
Roof sheathing																								
Rough carpentry																								
Armorwall sheathing																								
Interior metal framing																								
Interior casework																								
Exterior trim work																								
THERMAL & MOISTURE																								
Spray insulation																								
Base bid shingle roofing																								
gutter and downspout																								
Double ply flat roofing system																								
Caulking & sealants																								
DOORS & WINDOWS																								
Metal																								
Nanawall & storefront																								
OHD																								
Vinyl clad windows & trim																								
FINISHES																								
Gypsum board systems																								
Ceramic tile																								
Epoxy flooring system																								
Misc. flooring																								
Suspended ceilings																								
Painting																								
SPECIALTIES																								
Toilet compartments																								
Toilet accessories																								
Gear grid lockers (new)																								
Louvers & vents																								
EQUIPMENT																								
Projection screen																								
Walk in cooler																								
CONVEYING SYSTEMS																								
Schindler traction elevator																								

Pre notice to Proceed (all)	1	2	3																				
MONTH				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
HVAC																							
Ductwork & piping																							
Equipment																							
Grill & trim																							
PLUMBING																							
Underground																							
Utilities				SAN			H2O			RPZ													
Roughing																							
Fixtures & equipment																							
FIRE SPRINKLER																							
Rough piping																							
Heads																							
Equipment & test																							
ELECTRIC																							
Temp service	APP			ON																			
Permanent service	APP							UG							ON								
Temp lighting & power																							
Underground																							
Equipment																							
Conduit & wire																							
fixtures																							

This schedule is not binding. It is only intended to be referenced as a guide as to the minimum tasks to be included in the schedule that is required to be prepared and maintained by the General Contractor. The General Contractor shall be responsible for the project schedule, including the schedules of all of his sub-contractors, without exception.

SECTION 01500 - TEMPORARY FACILITIES & CONTROLS

01500.0100 WORK INCLUDED

1. The General contractor and his sub-contractors shall furnish all necessary transportation, scaffolding, centering, grounds, blocking, forms, hoists, labor, tools, and mechanical appliances and all other means, materials, and supplies for properly completing their work. This shall include all necessary dewatering equipment required to keep its excavations, trenches, structures, etc., free from water at all times.

2. In addition to all other equipment, plant, etc. specified elsewhere in the Specifications, the General contractor shall require all transportation, labor, materials, tools, and appliances, and perform all operations in connection with providing the Temporary Facilities and controls as herein specified as required by law and conditions at the building and site and necessary to complete the work.

Hoisting equipment, scaffolding, shoring, etc.

Parking; All contractors shall park where directed by the general contractor. Additional off-site parking areas may be coordinated by the Owner, but is not guaranteed or included as part of this agreement..

Storage areas; The general contractor shall be maintain storage trailers on site and shall have use of the site for staging of materials delivered to the site at his own discretion.

Temporary electric lights and power; Temporary light and power shall be as follows:

- Provide temporary pole with 200 amp temporary service, meter and panel. Include temporary 60-amp service to trailer.
- Provide two (2) 100 amp panels in/at building during construction with local gang boxes for contractors use. Each trade will supply their own extension chords for usage.
- Include temporary lighting throughout facility during construction until permanent lighting is functional at a minimum rate of one (1) fixture per 400 sq. ft. with a minimum of one light in each individual area regardless of size.
- The cost of electric consumption until permanent power is on shall be paid by the owner

Temporary water supply; Provide a temporary RPZ device with a temporary 1” water service located at the northeast corner of the jobsite trailer. Submit and obtain water district approval for installation. Usage fees shall be paid by owner. Each contractor may use on site water.

Rubbish removal; The general contractor shall be responsible for removal and legal disposal of all rubbish and materials associated with the work.

Toilet facilities; Port-A-Lav services on site shall be provided and maintained by the General Contractor for use of all during construction.

Field Offices; The general Contractor shall be required to provide and maintain a jobsite trailer for the duration of the contract. When the building is available for use for meetings to be held at a designated location, the trailer may be removed. The trailer will include a central conference area with (3) 5' x 3' tables and (14) chairs, an office for owner's use with (1) 8' x 3' table, (2) chairs and (1) two drawer file cabinet, and an office furnished as determined by the general contractor for their own use. Trailer shall have internet access for use of all. A surveillance camera panning the work site shall be installed on the trailer with internet access to the camera being provided to the owner, architect and owners representative.

Temporary telephone service; The general and each sub-contractor shall provide their own phone (cell) as required for their own use. The general contractors superintendent and project managers direct cell phone numbers shall be provided to the architect, owner and clerk of works.

Temporary enclosures and guards; The general contractor shall provide temp fence around the entire site and on-site safety guards during construction and safety fencing around trenching and excavations, and any required safety equipment while carrying out the work. There will be a weekly on site OSHA safety meeting that will be required to be attended by each sub-contractor's project superintendent. The General Contractor shall assume responsibility for all safety measures, fire protection, warning lights, signs and operating procedures, and shall conform to all National Safety Standards (OSHA) and State Labor Laws and Regulations

Temporary Heating; Temporary heating shall be provided as follows:

- The general contractor shall provide temporary heat during construction for excavations (heating blankets) and exterior wall construction (tenting & heating) per an allowance included in the bid (see scope of work).
- Upon completion of the building shell (walls and roofing) the general contractor shall install temporary protection to all door and window openings (6 mil sheeting secured with 1 x2 frame as part of their base bid.
- Upon completion of building shell and temporary protection, the general contractor shall provide space heaters as required to maintain working conditions within the structure per an allowance included in the bid (see scope of work).

01500.0200 PRODUCTS AND EXECUTION

1. Hoisting Equipment, Scaffolding, Shoring, Etc.; The General Contractor and each of his sub-contractors entering upon the work, shall furnish, install, erect, maintain, protect, and upon completion dismantle and remove such temporary construction named below, both interior and exterior, during the project construction. Temporary staging, falsework, formwork, shoring, bracing, protective enclosures, scaffolding, ladders, runways, hoisting equipment shall be maintained throughout the project in accordance with all OSHA and safety requirements. The General Contractor shall remain responsible enforcing and monitoring all safety measures on site throughout construction.

2. Temporary Enclosures and Guards; The Contractor and sub-contractors shall furnish,

erect and maintain, for as long as required, all temporary partitions, closures, covering, guard rails, barricades and the like, which shall be of approved materials and construction conforming to OSHA guidelines.

3. All of the barriers and protection work shall be maintained in good condition and be removed when no longer required.

4. The Contractor shall be responsible for protecting completed work from damage during the progress of construction of their work and shall responsible for correction of damage caused as a result of their work to any completed work.

01500.0300 DISCONTINUANCE, CHANGES AND REMOVAL

1. The temporary facilities and services specified shall be discontinued as when their use is no longer required or if they impede the progress of the work. The Contractor shall thereafter provide under his Contract, at no increase on the Contract amount, any and all temporary service required by his work to replace the discontinued services.

2. Should a change in location of any temporary facilities or services specified as necessary to progress the work properly, the Contractor providing said facilities and services shall remove and relocate them without an increase in the Contract amount.

3. When no longer needed during the construction process, all temporary equipment and services shall be removed from the site by the Contractor responsible.

01500.0400 SPECIAL CONTROLS

1. Fire Prevention Control

a. General: Take all precautions necessary and required to prevent fires.

b. Fuel for cutting and heating torches shall be gas only, and shall be contained in Underwriter's Laboratory approved containers.

c. Provide and maintain a 20 pound capacity, dry chemical type fire extinguisher in the immediate vicinity of the work when welding tools or torches of any type are in use.

d. Volatile liquids shall not be used for cleaning agents or as fuels for motorized equipment or tools within a building except with written approval of the Architect.

e. Tarpauling shall be securely anchored and flameproofed when attached to any wood scaffolding and when used to enclose any portion of a building.

2. Pollution Control

a. Disposal of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or

sanitary sewer systems or into streams or waterways is prohibited. Any violation, intentional or accidental, obligates the involved contractor or contractors to clean up and remediate as necessary for restoration including violations and penalties imposed by any authority having jurisdiction.

3. Traffic Control

a. Access: Contractors shall control routes of ingress and egress on the grounds and to the locations of the work over routes on site to be determined as site conditions require.

b. Parking: Areas for the parking of vehicles belonging to Contractors or their employees shall be designated by the general contractor.

01500.0500 DAILY CLEAN UP OF WORK AREAS

1. The Contractor shall clean up the debris resulting from the work at the end of each day's work and leave work areas broom clean. Debris shall be dumped into covered containers designed to avoid spills or pollution from occurring provided by each Contractor for his own work.

SECTION 01600 - MATERIAL AND EQUIPMENT

01600.0100 STORAGE AND PROTECTION

1. The Contractor shall take all precautions required to prevent fires because of its operations. Where flame cutting torches, blow torches, or welding tools are required to be used within building, their use shall be in accordance with OSHA requirements. When welding tools or torches of any type are in use, the contractor shall have available, in the immediate vicinity of the work, a fire extinguisher of the dry chemical type. The fire extinguisher shall be provided and maintained by the each contractor.

2. Fuel for cutting and heating torches shall be gas only, and shall be contained in Underwriter's Laboratory approved containers. Storage of gas shall be in locations as per OSHA.

3. No volatile liquids shall be used in cleaning agents or as fuels for motorized equipment or tools within a building. Bulk storage of volatile liquids shall be prohibited.

4. The Contractor shall comply with the following requirements relating to compressed gas:

   a. Where compressed gas of any type is used for any purpose at the Project site, it shall be contained in cylinders complying with ICC regulations as to manufacturing, filling, marking, testing, tagging, valving, and shipping. Gases of different types shall not be stored together except when in use and when such proximity is required.

   b. All gas cylinders shall be stored in sheds, constructed of noncombustible materials. Sheds shall be well ventilated and without electric lights or fixtures and shall be located as far from the other buildings as is practicable. All gas cylinders not in actual use, or in proposed immediate use, shall be removed from the building under construction. Empty gas cylinders shall be removed prior to bringing in a replacement cylinder. Cylinders shall at all times be supported and braced in an upright position. When not in use, the protective cap shall be screwed over valve.

   c. All persons required to handle gas cylinders or to act as temporary firemen (Fire Watchers) shall be able to read, write and understand the English language; they shall also be required to read Part 3 of Pamphlet P-1 "Safe Handling of Compressed Gases" published by The Compressed Gas Association, 500 Fifth Avenue, New York, New York 10036.

   d. Where LP-Gas is required for temporary Heat (including construction heat), the number of cylinders within the structure or building shall be limited to the least amount required, in general, one (1) cylinder per heater. Cylinders and heaters shall be connected with two (2) braid neoprene hoses fitted at each end with

threaded unions and capable of withstanding a pressure of 250 P.S.I. The length of hose shall not exceed 30 feet and shall be protected from mechanical injury, kinking and abrasion. Heaters shall not be less than six (6) feet from any tarpaulins or other type closure. All tarpaulins and other type closures shall be secured so as not to be blown loose. All debris and rubbish shall be removed as directed to prevent fire hazards.

e. Where local ordinances are in effect regarding gas cylinders (their use, appurtenances and handling), such ordinances shall supplement the requirements of this Article.

f. LP-Gas Heating will not be permitted in enclosed areas below grade.

g. Any cylinder not having the proper ICC marking or reinspection marking, or any cylinder which fails to meet the requirements of the "Standards of Visual Inspection of Compressed Gas Cylinders" of the Compressed Gas Association, Inc. shall be returned to the supplier. Any cylinder which develops a leak shall be isolated immediately away from any building and the supplier shall be immediately notified; such other precautions as may be required to prevent damage or injury shall also be taken by the Contractor.

5. The Contractor shall comply with the following requirements relating to welding and cutting:

a. All cutting and/or welding (electric or gas) must be done only by skilled, certified and licensed personnel.

b. During welding or cutting operations, a Contractor's man shall act as a Fire Watch. The Fire Watch shall have proper eye protection and suitable fire fighting equipment including fire extinguisher, bearing current Inspection Certificate, asbestos gloves and any other equipment deemed necessary.

c. Welding or cutting shall not be done near flammable liquid, vapors or tanks containing such material.

d. Where cutting or welding is done above or adjacent to (10 feet) combustible material or persons, a shield of incombustible material shall be installed to protect against fire or injury due to sparks or hot metal.

e. Tanks supplying gases for welding or cutting are to be placed in an upright position securely fastened, and as close as practical to the operation. Tanks, actives or spares, shall be protected from excess heat and shall not be placed in stairways, hallways or exits. When not in use, protective valve cap shall be screwed on the cylinder.

f. Adequate fire extinguishing equipment shall be maintained at all welding or

cutting operations.

g. Contractor shall secure all required inspections associated with his work.

h. All equipment, hoses, gauges, pressure reducing valves, torches, etc., shall be maintained in good working order and all defective equipment shall immediately be removed from the job.

i. No person shall be permitted to do any welding or cutting until his name, address and current License Number have been submitted in writing to the Architect.

01600.0200 CUTTING, ETC.

1. The Contractor and his sub-contractors shall not disturb any of the completed structure, piping, apparatus or other work unless expressly required by the Contract. Where cutting, drilling or removals are required in finished wall, floor or roof construction, the work shall be done in a manner that will safeguard and not endanger the structure. Prior to any cutting, drilling or removals, the Contractor shall determine the exact location of adjacent structural members by visual examination and shall avoid interference with such members. No structural members such as joists, beams or columns supporting work shall be cut, drilled or removed unless such conditions are shown in detail on the Contract Documents and reinforcing of members affected to compensate for such cutting, drilling and removals are shown.

2. The Contractor shall coordinate such openings, channels, chases, flues, etc., as may be required for its work and for the work of others, required by the Contract Documents.

3. Unless otherwise specified, each sub-contractor shall furnish and install all sleeves, inserts, hangers, etc., required for the execution of its work, and failing to provide such, shall do all necessary cutting and patching required for the execution of its work. All sleeves, etc., shall be packed and filled with smoke, fire and vermin proofing materials.

4. The Contractor and his sub-contractors shall not endanger any work by cutting, digging, or otherwise and shall not cut or alter the work of any other Contractor except with the consent of the Architect.

5. All work shall conform to the Occupational Safety and Health Administration standards and requirements.

6. All cutting required for the work of the trades will be done by Contractors performing such work, unless otherwise noted on the drawings or specified herein.

7. The Contractor shall be responsible for the cutting of walls, floors, ceilings, etc., for the installation of, access to, corrective work, pertaining specifically to the work in their trade.

8. All cutting shall be core drilled or be cut square and large enough only to accept the Contractors' work and be readily patched.

9. All openings shall be cut to a minimum so as to accept Contractor's piping, conduit and duct work and require minimum patching.

10. The Contractor shall be responsible for patching of openings cut in the walls, floors, ceilings, etc., so as to close around his work in a neat and workmanlike manner.

11. In all cases, all framing for roof openings shall be done by the general contractor including structural steel and framed openings. The Heating and Ventilating, Plumbing, fire sprinkler and Electrical sub-contractors shall install their pipes, ductwork, vents, etc., through the roof openings previously coordinated or shall core drill or field cut openings in sheathing and decking and shall provide and install equipment curbs and related work. The Roofing sub-contractor shall close the openings and flash as required, make the roof tight in accordance with the Specifications and be responsible for the tightness of the roof.

* * * * *

SECTION 01631 - PRODUCT SUBSTITUTIONS

A. Substitutions: Requests for changes in products, materials, equipment and methods of construction required by contract documents proposed by the contractor after award of the contract are considered requests for "substitutions".

1. Submit each request for substitutions in the form and in accordance with procedures required for submittals. Requests must be made in a timely fashion as required for them to be reviewed and accepted or rejected without any impact on the construction schedule.

2. Identify the product or installation method to be replaced in conjunction with each request. Include related Specification Section and Drawing numbers. Document compliance with requirements for substitutions, and the following information, as appropriate:

    a. Product data and samples where applicable including drawings and descriptions, physical properties and safety data sheets, fabrication and installation procedures associated with each substitution.
    b. A comparison of significant qualities of the proposed substitution with those specified.
    c. A list of changes or modifications needed to other parts of the work and to construction performed by the separate sub-contractors that will be necessary to accommodate the proposed substitution.
    d. A statement indicating the substitution's effect on the Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall contract time.
    e. Provide all cost impact information, including any net change, if any in the contract sum.
    f. Certification that the substitution is equal to or better in every respect to that required by Contract Documents, and that it will perform adequately in application indicated. Include Contractor's waiver of rights to additional payment or time that may be necessary because of the substitution's failure to perform adequately.

3. Architect's Action: Within one (1) week of receipt of the request for substitution, the architect will request additional information if necessary for evaluation. Within two (2) weeks of receipt of the request, or one (1) week of receipt of additional information, whichever is later, the architect will notify of acceptance or rejection.

B. Acceptance of substitutions: Substitution requests will be received and considered by the architect when one or more of the following conditions are satisfied, as determined by the architect, otherwise requests will be returned without action except to record noncompliance with these requirements:

1. Extensive revisions to Contract Documents are not required.

2. Proposed substitutions are in keeping with the general intent of contract documents and are equivalent in their fabrication, quality and warranty in every respect to the specified item

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the contract documents.

5. The specified product or method of construction cannot be provided within the contract time due to factors outside of the contractor’s control. The request will not be considered if the product or method cannot be provided because of failure to submit available specified item promptly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the owner, in terms of cost, time, energy conservation or other considerations of merit to the benefit of the owner and do not impose additional responsibilities or costs to the owner which may include additional compensation to the architect for redesign and evaluation services, increased cost of other construction by separate contractors, and similar considerations.

C. The contractor's submittal and architect's acceptance of shop drawings, product data or samples that relate to construction activities which are not complying with the contract documents do not constitute an acceptable or valid request for substitution, nor does it constitute approval. If determined that an approval was inadvertently provided without first being submitted and approved in accordance with items A & B above, said substitutions shall be promptly removed and replaced with the specified item if directed by the architect. Any and all additional costs associated with the corrections associated with materials installed which do not have previously approved by the architect, including additional; costs required of other trades due to said corrective work, shall be born by the responsible contractor without exception.

* * * * *

SECTION 01700 - PROJECT CLOSEOUT

01700.0100 OPERATION AND MAINTENANCE DATA (EACH CONTRACTOR)

1. Where operating tests are specified, the Contractor shall test its work as it progresses, on its own account, and shall make satisfactory preliminary tests in all cases before applying to the Architect for official tests.

2. Final tests shall be made in the manner specified for the different branches of the work or portions thereof. The contractor shall furnish all operating manuals, experienced personnel, materials and apparatus, shall make connections and conduct the official test. The test will be conducted in the presence of the owner's representative. Should defects appear, they shall be corrected by the contractor and the test repeated until the installation is acceptable.

3. No work of any kind shall be covered or enclosed before it has been tested and approved.

4. The contractor shall provide on site training to designated fire district personnel of all systems and equipment incorporated in to the project as part of their contract including review of operation and maintenance manuals and complete system operating demonstrations.

01700.0200 PROJECT RECORD DRAWINGS (EACH CONTRACTOR)

1. The contractor will maintain a full set of drawings for the purpose of keeping a complete record of all installation of work as actually made. Each contractor shall keep a complete record of his own work and shall indicate deviations from the drawings as to construction, mechanical, electrical, fire sprinkler and plumbing work which relate to his work. All information shall be recorded in a neat, legible and accurate manner. All changes, revisions or additions made in the installation of the work which differ from that required by the drawings shall be noted in RED.

2. Upon completion of the work, the Contractor shall forward one (1) set of the marked-up drawings in color PDF and noted as an "as-built" drawing to the Architect.

01700.0300 CLEANING UP (EACH CONTRACTOR)

1. The Contractor shall clean up the debris resulting from his work daily and more often if the same interferes with the work of others or presents a fire or safety hazard.

2. Should the Contractor fail to do his clean up, the Owner's construction advisor shall arrange to have the work completed and the Contractor shall be charged for the complete cost accordingly.

2. Upon completion of work immediately prior to owner occupancy, the contractor shall clean provide a complete clean up as follows:

a. Clean all fixtures and replace all filters associated with their own fixtures, etc.

b. Have all fixtures, outlets, piping, etc. labeled.

c. The General Contractor shall then provide a full cleaning of the entire facility including windows, dusting of all areas, floors, etc. in accordance with manufacturers' recommendations prior to owner occupancy.

* * *

SECTION 01740 - WARRANTIES AND BONDS

A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products used on this project shall be specifically endorsed by the manufacturer to the Ellenville Fire District and shall be included on the close out documentation by each contractor.

B. Special Warranties are written warranties specific to the installation as part of this project. They shall be prepared by the manufacturer and warranted to the owner. These warranties shall include but are not limited to roofing, elevator, mechanical equipment, etc.

C. In addition to the above, the contractor shall provide a written material and workmanship warranty against failures for a period of two (2) years from the date of substantial completion. Some items may have earlier commencement dates when put into use prior to substantial completion including HVAC and plumbing equipment. Date of acceptance and start of warranty period prior to substantial completion shall be in writing.

D. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

E. Related Damages and Losses: When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work at no cost to the owner.

F. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

G. Replacement Cost: On determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of the original scope of work. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the work through part of its useful service life.

H. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights or remedies.

I. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties on the Architect's request.

1. When a designated portion of the Work is completed and occupied or used, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect with fifteen (15) days of completion of that designated portion of the Work.

* * * * *

PROPOSED
MAIN FIREHOUSE FACILITY
ELLENVILLE FIRE DISTRICT
203 S. MAIN STREET, NYS RT. 209
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO BOX 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS, PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
(631) 727-5352

GENERAL CONSTRUCTION
CONTRACT 2501.GC

ISSUED FOR BIDDING
September 17, 2026

ELLENVILLE FIRE DISTRICT
NEW FIREHOUSE FACILITY
SPECIFICATION NO. 2501
GENERAL CONSTRUCTION SPECIFICATION INDEX

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DIVISION 2 - SITEWORK

SECTION 02100 – SITEWORK SCOPE OF WORK

02100.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", the "Contract Forms", and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

02100.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the execution of sitework and related improvements, complete, in strict accordance with the Contract Drawings and as herein specified and required by conditions at the site including but not necessarily limited to the following:

    a. Any and all sitework and related improvements as required for the complete development of the site in accordance with the site plan including any work not specifically called out to be completed but required to achieve the full development of the site and affected areas including public roadway and sidewalk improvements.
    b. Installation of permanent fence around sides and rear of property including clearing any and all vegetation, trees, rocks, trash, stumps, etc. as required for said installation.
    c. Installation and maintenance of temporary fence along property frontage with two (2) access gates with tire cleaning gravel tracks.
    d. Installation and maintenance of hay bales and silt fence around entire site, stockpiled areas, etc.
    e. Compliance and maintenance of any and all storm water pollution prevention plan requirements (SWPPP) for the duration of construction.
    f. Clearing and grubbing of entire site where indicated and/or as required for development of site including removal and legal disposal of trash, underbrush, trees, roots, stumps, etc.
    g. Establish phase 1 on site parking area at start of construction. Refer to site staging plan and materials removal plan for complete scope of work.
    h. Establishing temporary drainage measures including relocation of facilities as required for the duration of construction for work carried out in different staged locations.
    i. Removing and or providing any and all fill that is either excess or required to establish grades and subgrades indicated on the drawings.
    j. Excavation and backfilling of site as required for new building construction, drainage, utitities, etc,
    k. Installation of all drainage and structures and related components.
    l. Layout, forming and installation of any and all site concrete including curbs,

walks, aprons, HC ramps, etc.

m. Installation of all on site paving including fabric, base, binder and top course.
n. Installation of flagpole.
o. Installation of topsoil, plantings, mulch and lawn areas.
p. Installation of masonry electronic sign base.
q. Installation of dumpster pad and fencing.
r. Any and all improvements along NYS Rt 209 including temporary barriers, flagmen, saw cutting, removal of existing shoulder and curbs as required. Provide all insurances and information as required for NYSDOT permit that will be obtained by owner.
s. Signage and striping.
t. Coordination with all trades to facilitate their trenching and utility installations.
u. Spare conduits to be installed 18" min. below grade under apron and driveways and between building where indicated.

02150.0300 RELATED WORK SPECIFIED ELSEWHERE

Division 2 Remaining Sections.
Division 3 Concrete

02100.0600 COOPERATION

1. Properly coordinate the work of this Section with work of contiguous trades and/or Contracts.

DIVISION 2 - SITEWORK

SECTION 02150 - EXCAVATION & GRADING FOR BUILDING CONSTRUCTION

02150.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", the "Contract Forms", and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

02150.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the execution of excavation and grading for building construction and improvements, complete, in strict accordance with the Contract Drawings and as herein specified and required by conditions at the site.

   a. General site excavation and grading for site development and building construction. Excavation, backfilling and grading shall include removal and replacement of objectional soils in accordance with the contours and elevations and grading contract limits shown on the Drawings. Refer to test borings, site plans, staging plan and foundation plan for full scope of work.

   b. Clearing and grubbing and removal of any and all unwanted material.

   c. Removal of all trees (except where noted to remain) including stumps and roots.

   d. Porous fill.

   e. Temporary shoring, bracing, sheet piling, etc. without exception including shoring for OSHA and jobsite safety requirements.

   f. Disposal of rubbish and objectionable excavated materials. Excavation and demolition and removal of existing material of every name and nature which may be required for the installation of work under this contract unless otherwise noted on drawings and specifications.

   g. Temporary protection barricades, enclosure, etc., required by Local Authorities including complete fence enclosure of site as directed by Architect.

   h. Subgrade preparation.

   i. Finish grading.

j. Storm drainage systems including curb inlets, trench drains, piping, etc.

k. Trench excavation for all General Construction site work, trenching for underground utilities. Coordinate scope of utility trenching with general contractor.

l. Bituminous (asphalt) paving for driveways and parking and roads including striping.

m. Topsoil and lawns.

n. Spare conduits to be installed 18" min. below grade under apron and driveways and between building where indicated.

02150.0300 RELATED WORK SPECIFIED ELSEWHERE

Division 3 Concrete

02150.0400 INSPECTION OF SITE

1. Before submitting bid, visit the site and check all existing conditions. If, in the opinion of the Bidder and conditions exist which might affect the completion of the work as planned, he shall report them in writing to the Architect before submitting his bid. No consideration will be given to claims made because of possible existing adverse conditions not mentioned in these specifications.

02150.0500 SUBSURFACE CONDITIONS

1. Subsurface conditions have been investigated and information is shown on site plan. Borings were performed by Soil Mechanics.

2. Data and information thereby obtained and conveyed is not guaranteed to be accurate for entire site by the Owner, Architect or any of its agents or Contractors.

3. Contractor further acknowledges that he assumes all risks contingent upon nature of subsurface conditions to be actually encountered by him in performing work covered by his contract even though such actual conditions may result in his performing more or less work than originally anticipated. The Contractor shall report any unsatisfactory conditions when encountered prior to proceeding with work.

02150.0600 COOPERATION

1. Properly coordinate the work of this Section with work of contiguous trades via the general contractor.

02150.0700 PROTECTION

1. Execute the work in such manner that no damage or injury shall occur to persons, existing curbs, roads and walks, and any and all other property. Any damage or injury resulting from work under this Division shall be the responsibility of the Contractor, who shall make good such damage and assume all responsibility for such injury, without additional cost to the Owner. Notify all individuals, municipal agencies and service utility companies having jurisdiction over any affected above surface or subsurface utilities and protect or remove and/or relocate these services as required in accordance with their requirements.

2. Trees:

   a. All trees in building construction area (except for those selected to remain, if any) are to be removed. Existing trees to remain shall be protected by using boxing, guys, burlap around trees.

   b. The Architect shall be notified of any situation in which trees or shrubs will hinder the construction operation. The Architect will decide the necessary action to be taken in such a situation.

3. Temporarily support and maintain the sides of excavations until permanent support is provided. Shore and brace all work, wherever required to prevent injurious caving or sliding, and to protect existing work. Provide sheet piling, adequately braced, where other means are insufficient to maintain excavations in stable conditions. Install work so as not to interfere with the proper placing and compacting of backfill. Remove all temporary work as the work progresses and necessity for same ceases to exist.

02150.0800 CLEARING AND GRUBBING

1. General: Under this item, the Contractor shall clear and grub the entire area within the limits of the work of this contract and remove all structures to the extent shown or as determined by the Architect.

2. Clearing and grubbing shall consist of the removal or destruction of trees, roots, stumps, bushes, and decayed or growing organic matter above and below the surface of the ground.

3. The Contractor shall use every precaution to prevent injury to roads, curbs, walks, pipes, conduits, poles and other structures above and below ground that are adjoining or included in the area under contract, and shall repair or replace at his own expense any material or work damaged or destroyed by his forces, while clearing the site.

4. The Contractor shall see that stock piles of materials and storage of equipment are in cleared spaces and shall provide tarp protection of any and all stockpiles to prevent

erosion. He shall prevent his employees from tramping through existing plantings except when it is necessary in carrying out the work. He shall prevent equipment from being taken through existing planting.

5. No burning at the site will be permitted. Contractor shall assume that it will be necessary to remove all cleared material to public disposal areas and that on site burning will not be permitted.

6. Material removed under this item, unless otherwise specified or noted on the drawings, shall become the property of the Contractor and shall be legally disposed of.

7. All materials removed for roadwork and public improvements outside of the boundary of the site which require disposal shall be legally disposed of by the Contractor at his own expense.

02150.0900 LINES AND GRADES

1. Establish and maintain all lines and grades for the work with required batter boards and elevation points.

2. A competent Surveyor/Engineer shall be employed by the Contractor to establish all lines and grades and paid for by the Contractor.

3. Prior to any construction, notify the Architect of any discrepancy between the elevations and grades on the site in relation to the elevations and grades indicated on the drawings.

4. Removal of Existing Topsoil:

   a. All topsoil in areas of operations shall be carefully scraped off and piled independent of the other excavated. This topsoil shall be reused for grading at the completion of the work. if it is not needed, it shall remain the property of the contractor and shall be removed from the site.

   b. Stock piles shall be such shape and size as will keep loss of topsoil by wind and erosion to a minimum and shall be trimmed in a workmanlike manner to fairly uniform surfaces and slopes. They shall be placed on clear and well drained lands, in areas and covered with tarps to prevent erosion. Silt fences shall be installed around all stockpiles. The equipment, methods and workmanship shall be such as to avoid lifting of subsoil, or other unsuitable material. Topsoil operations shall not be carried on during unsuitable weather or when the topsoil is wet or frozen.

5. Drainage: Conduct operations so as to prevent the accumulation of surface water in the vicinity of excavated and graded areas and provide all necessary ditches as

required. Any water which accumulates in excavations shall be promptly remedied by pumping or other effective means. Provide temporary drainage structures with silt fence protection and recharge pools during construction.

02150.1000 GENERAL EXCAVATION

1. Include the satisfactory removal of all materials of every nature and description which are encountered in obtaining the lines, grades and elevations shown on the drawings. Suitable materials from the excavation shall be utilized for filling. Excavated materials which are not suitable for fill or embankment and excess materials (excluding topsoil) not needed for filling shall be removed and legally disposed of outside the site.

02150.1100 TRENCH EXCAVATION

1. Trenches shall be open cuts of the necessary width, to the correct alignment, for the proper installation of underground lines, with banks as nearly vertical as possible. Provide sheeting and/or shoring as may be necessary to protect life and the excavation it. Width or excavation at the bottom shall not exceed 20" plus the external diameter of the pipe, equally divided on each side of the pipe.

2. Bottom of trench shall be accurately graded and shaped to provide uniform bearing and support for the bottom quadrant of the pipe barrel on undisturbed soil at every point along its entire length. Excavation shall not be completely plowed, scraped or dug by machinery to finished grade. The last several inches shall be trimmed by hand to exact line and grade and shaped to support the pipe just prior to placing the pipe. In the event excavation is carried too deep in error, refill trench with suitable material compacted properly in accordance with other portions of this Section and excavate to proper elevation by hand. Ample provision shall be allowed for making up joints.

3. Trenches shall not be opened farther in advance of the pipe laying than is necessary. No pipe laying in wet trench will be permitted. Excavation must be kept free from water. In accordance with other portions of this Division, backfill and compact.

02150.1200 BUILDING EXCAVATION, FILLING AND BACKFILLING

1. Excavation:

   a. Excavation shall be carried to elevations, depths and dimensions indicated. The footing elevations noted are intended to carry all bearings to the same strata of earth. No extra compensation will be allowed for any additional excavation required to insure uniform quality of bearing. All bearings shall be on undisturbed earth. If excavations for walls or footings are carried too deep by error, they shall be backfilled, but shall be brought to proper elevation with concrete mixed and placed as specified under Division 3 - CONCRETE, at no

additional cost to the Owner. Minimum bearing soil shall be one and one half (1 1/2) tons per sq. ft. Remove materials of every nature and description encountered in obtaining indicated lines and grades.

b. Excavate outside of building walls and foundations, etc., as necessary to allow for inspection work if required.

c. Bottom of all excavations shall be leveled or otherwise properly trimmed to lines and grades as required.

d. Slabs on grade shall be placed upon approved (by independent testing company) compact granular fill, except as otherwise specified or shown on the drawings.

1. Where natural subsoil directly under slabs on grade is of clay or silt, excavate to 6" below bottom of slab and backfill with compacted gravel. This does not exclude the placing of compacted gravel to a greater depth where shown on the drawings and/or herein specified.

e. As the basis of the Contract, it shall be assumed that the material to be excavated is earth.

f. Provide and operate all pumps, hose and drainage lines required to keep excavations free from water at all times, until after concrete has been placed for all footings and foundation walls. In the event that overtime labor is necessary to preform this work, it shall be done without additional cost to the Owner.

2. Filling and Backfilling:

a. Promptly backfill excavations as work permits, but not before concrete walls and footings have attained adequate strength (min. 60% design) and piping and other items below backfill have been tested and approved.

b. For backfilling, use earth free from waste, objectionable matter, loan, wood rubbish, debris or stones other 1/2 cubic foot. Do not use frozen material. Objectionable backfilling material shall be legally disposed of away from the site.

1. All excess excavation not required as backfill for work under this Contract shall be removed and legally disposed of outside the site.

c. Backfill and fill to new surface grades as required. If sufficient sound and approved fill materials are not on hand to complete filling operations to required grades, provide same at no extra cost to the Owner.

d. Backfill around building walls, and under any slabs on grade, shall be with compacted clean sand and gravel.

e. All filling and backfilling shall be deposited in layers: Each layer to be compacted to not less than 95% of the maximum density obtained at optimum moisture contents as determined by AASHO T-180, Method "D". Final compaction tests must indicate a minimum of 95% compaction for the total fill.

f. All rough grading shall be brought up to grades, required as shown on Site Plan. Unless otherwise indicated, the following depths shall be allowed for finished grading:

1. Concrete Walls 5 Inches
2. Bituminous Paving as Required by Drawings
3. Grass Areas 6 Inches
4. Other Areas As Required by Drawings

g. Compaction shall be by Contractor using mechanical tampers.

02150.1300 SUBGRADE PREPARATION

1. Subgrades shall be shaped to the required line, grade, and cross-section, and shall be rolled with approved equipment until thoroughly compacted. In paved areas, the full depth of subgrade in fill areas and the top 6" of the subgrade in cut areas shall be compacted to not less than 95% of the maximum density obtained at optimum moisture content as determined by AASHO-T-180, Method "D". In other areas, compact to not less than 90%. All soft or otherwise unsuitable subgrade material shall be removed and replaced with suitable materials as directed by the Architect. Low areas, holes, and depressions shall be brought to the required grade with approved material thoroughly compacted as herein provided. All roadway and parking area paving shall be installed on a subbase of a mixture of sand, gravel or other acceptable material compacted as described above for paved areas.

02150.1400 POROUS FILL

1. Stone or gravel: Pass through a 2" ring and be retained by a 1" mesh.

2. The subgrade below fill shall be brought to a true and even plane and compacted to a solid bearing. Porous fill shall be installed to a minimum compacted depth of 6" and leveled to a reasonably true and even surface. All piping, etc., installed below porous fill shall have been tested and approved before installation of fill. After placing porous fill, stones larger than 3" in any dimension shall be hand removed or broken up.

02150.1500 FINISHED GRADING

1. All areas shall be uniformly graded. The finished surface shall be reasonably smooth,

compacted, and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from either blade-grader or scraper operations, except as otherwise specified. The finished surface shall be not more than 0.15 foot above or below the established grade or approved cross section. Ditches shall be finished so as to permit adequate drainage. The surface of areas to be turfed shall be finished to smoothness suitable for the application of turfing materials. The surface of the pavement subgrade shall not vary more than 0.50 foot from the established grade and approved cross-section.

02150.1600 PROTECTION

1. Newly graded areas shall be protected from traffic and from erosion, and any settlement or washing away that may occur from any cause, prior to acceptance, shall be repaired and grades re-established to the required elevations and slopes, at no additional cost to the Owner. The finished subgrade shall be protected and maintained in a satisfactory condition until the stone base course is placed.

SECTION 02170 - BITUMINOUS PAVING

1. General: Take special precautions when installing bituminous pavements to prevent the bituminous materials from staining the exposed parts of building, curbs, or structures above finished grade. Any stains or markings caused by paving work shall be removed by the Contractor, at his own expense.

2. Heavy Duty Bituminous pavements shall consist of a 2" New York State type 1A Asphaltic Concrete Surface Course placed on a 4" Penetration Macadam Base Course, over a fully compacted 6" Loam/RCA mix base and fabric mesh in accordance with the plans and sections on the drawings and as herein specified.

3. Penetration Macadam Base Course for Heavy Duty Pavements (minimum 4" compacted thickness):

   A. The base course shall conform in all respects to the requirements of the State of New York, Dept. of Public Works, Division of Construction, "Public Works Specifications for "Item 45SN - Base Course - Bituminous - Macadam Penetration Method Asphalt", with the following modifications:

   Use Size 3 Stone.
   Bituminous material shall be asphalt cement.
   Penetration grade 85 - 100%.

4. Asphaltic Concrete Surface Course: (minimum 2" thickness after compaction)

   a. The asphaltic concrete surface shall conform to the requirements of State of New York, Dept. of Public Works, Division of Construction, and "Public Works Specifications as amended. References herein to "Standard Specifications" shall be to that document.

   b. Thickness shall be compacted depth as indicated on the drawings.

   c. The surface course shall conform to the requirements of the "Standard Specifications" for Item 51 - Asphalt Concrete - Type 1A (Mixing Method - Hot Mix - Two Course)"

5. All paving at roads shall comply with all NYSDOT permit requirements.

SECTION 02180 - TOPSOIL & LAWNS

A. MATERIALS

1. Grass Seed:

Pearl's Premium sun/shade fescue/Kentucky bluegrass mix or equal.

B. Seeded Lawns:

1. Prepare and seed all areas at locations indicated on the site plan.

2. Provide topsoil as required to maintain depth of 6" for all lawn areas. Topsoil shall be free of roots, debris and rock. Prior to spreading topsoil disc or scarify ground to a minimum depth of 3". Ground limestone shall be evenly distributed over topsoil at a rate of 100 pounds per 1,000 square feet. Commercial starter fertilizer (10-30-15) applied at the rate of 25 pounds per 1,000 square feet and worked into top 3" of the topsoil.

3. Immediately before any seed is sown, ground shall be scarified as necessary and raked until surface is smooth, friable and of a uniform texture. Minimum seeding rate 5 pounds to 1,000 square feet. Seed shall be raked into ground and rolled or tamped and thoroughly watered.

C. ORNAMENTAL PLANTINGS:

1. Contractor shall install any and all landscaping, shrubs, trees, etc. as indicated on the drawings.
2. Contractor shall water all landscaped areas for thirty (30) days upon completion of installation.

* * * * *

SECTION 02725 - Trench Drains

1. Scope

   A. Provide complete trench drainage systems where indicated on the drawings. System shall include but is not necessarily limited to precast trench drains, cast iron heavy duty lock down grate covers, anchors, fittings, hardware, end caps and outlet end with 4" nipple and piping tied into site drainage system.

2. Quality Assurance

   A. System shall be Slope trench drain system with "D" load class ductile iron slotted grate as detailed on the drawings or approved equal.

3. Submittals

   A. Manufacturers product literature and detailed shop drawings indicating the entire installation including all components and details referenced by catalog number and piping to storm drain location.

4. Installation

   A. All materials, systems, components, etc. shall be installed in strict compliance with the manufacturers printed product system specifications and installation instructions including drain systems manual and drain technical installation.

   B. The Drain System requires a bedding of concrete on both sides and under the channels. An area must be provided for channel placement wide enough and deep enough to accommodate the channel and bedding concrete. Follow installation techniques exist for proper placement of trench.

* * * * *

DIVISION 3 - CONCRETE

SECTION 03300 - CONCRETE & CEMENT WORK

03300.0100 GENERAL

1. Include all labor, materials, equipment and appliances and perform all operations in connection with the installation of concrete and cement work as shown on the drawings and specified herein, and generally include the following:

   a. Concrete work for all foundations, footings, piers, walls, floor slabs, and all other items of concrete as required to make the work of this section complete, and as detailed on the drawings hereinafter specified.

   b. All required formwork.

   c. Reinforcing steel and wire mesh, including chairs, spacers and tie wires.

   d. Installing and/or building in of all items embedded in the concrete such as anchor bolts, inserts, sleeves, blocking, etc., as required by this and other trades under this and other contracts.

   e. Cement mortar protection for pipes and conduits in slabs.

   f. Vapor barrier under slabs on grade.

   g. Pre-molded joint fillers and water stops.

   h. Finishes of all concrete and concrete slabs.

   i. Concrete walks, platforms, terraces and curbs.

   j. Testing and inspecting concrete work.

   k. Concrete housekeeping pads for all motors, pumps, tanks and other items of equipment provided under Mechanical and Electrical Contracts.

   l. Construction and expansion joints.

   m. Perimeter insulation.

   n. All other items of concrete and cement and related work to be inferred as needed to make the work of this contract complete.

   o. Damp proofing all basement walls below grade.

p. Water stops at basement footings and at all pier details.

q. Set anchor bolts provided by structural steel contractor for all columns and other bearing plate locations as required.

03000.0300 RELATED WORK SPECIFIED ELSEWHERE

1. Waterproofing - Division 7.

2. Miscellaneous bolts, anchors, reglets, inserts, etc., required by other trades and installed under this Section.

03300.0400 CODE REQUIREMENTS AND APPLICABLE STANDARDS

1. Local building codes, laws and regulations govern all work. Adhere to where mandatory, specifications and drawings to the contrary notwithstanding.

2. ACI 318-95.

3. ACI 301-96 (paragraph reference).

   a. Except as modified herein.

   b. Contractor to maintain current copies of ACI-301 manual on site.

03300.0500 SHOP DRAWINGS

1. Submit shop drawings for approval in accordance with the requirements of the Supplementary General Conditions showing locations, size, length and bending of all bars, and also such additional details as may be required to completely cover the furnishing and installing of all reinforcement, chairs and spacers and execution of all concrete work. Allow sufficient time for checking and approval prior to fabrication. Show the location, sizes and forms of all required openings, miscellaneous steel items, inserts, anchor bolts, recesses, etc., as required for work under this and other Contracts.

2. All details shall be in accordance with the current rules and practices of the American Concrete Institute and jurisdictional codes, except where otherwise indicated.

3. Shop drawings shall indicate all slab depressions.

03300.0600 COORDINATION

1. Properly coordinate the work of this Section with work of contiguous trades.

03300.0700 MATERIALS

1. Cement: ASTM-C150 Type I, Type II, or Type III may be used only with written permission of the Architect. Air-entrained concrete where specified shall be obtained by use of approved air-entraining agents, the use of air-entraining, or other type cements is expressly prohibited without prior approval of the Architect. Cement used throughout the project shall not vary in color so as to prejudice appearance of exposed concrete. Only one brand of any type of cement shall be used for exposed concrete surfaces.

2. Aggregate: ASTM C33 except as modified herein.

   a. Fine Aggregate shall conform to the following requirements:

      Not more than 3% shall pass the No. 200 sieve.

      Rational analysis shall conform to Table A as follows:

Table A	By Weight	
Kaolin	Max. %	6
Quartz & Feldspar	Min. %	75
10 Cycle Sodium Sulphate	Max. % loss	6
5 Cycle Magnesium Sulphate	Max. % loss	15

      It shall not show darker than light amber when tested by colorimetric method.

      The graduation of the sand shall be constant and the fineness modulus shall not vary by more than 0.2.

   b. Coarse Aggregate: Shall consist of hard crystalline stone or gravel free from clay, silt, shale, or decomposed or thin laminated pieces. The pieces shall be clear and uncoated, and conforming to Table B below:

TABLE B	GRAVEL OR STONE
Abrasion Test with Los Angeles Machine (ASTM Designation C-131) Max. Permissible percent by weight	40
Soundness Test (ASTM Designation C-88) Max. permissible percent by weight for 10 cycles, magnesium sulphate for 5 cycles, sodium sulphate	7.5

Chemical Test (ASTM Designation C-289) and/or Petrographic Analysis (ASTM Designation C-295) max. permissible percent of following reactive minerals. 12

Opal or Opaline chart	0.25%
Chalcedony	5%
Glassy or crytocrystal lime acidic to intermediate volcanic rocks or tuffs	3%

Test with all aggregate for potential reactivity in accordance with ASTM C295, C289, and C227. Supply certified test reports by an agency satisfactory to the Architect for compliance of the aggregate to the contract documents.

Coarse aggregate where specified for lightweight structural concrete shall conform with the requirements of ASTM C330 - graded to size 3/4" to #4 of Table 1 therein.

3. Admixtures.

   a. Air-entraining admixtures shall be Darex AEA, neutralized Vinsol-Resin, or equivalent as approved by the Architect.

   b. Plasticizer shall be "Pozzolith" as manufactured by Master Builders.

   c. No other admixtures will be permitted without the express approval of the Architect.

4. Reinforcing bars shall be new billet stock unless otherwise specified and shall conform to ASTM 615, Grade 60. The Contractor shall furnish, when requested by the Architect, a certificate from the manufacturer guaranteeing that the present product meets the specification requirements.

5. Wire Mesh for concrete reinforcement shall consist of welded wire fabric conforming to ASTM Designation A185.

6. Mixing water shall be clean and potable. If there is any question as to its suitability, it shall be tested in accordance with AASHO Standard Method of Test T-26.

7. Premolded Joint Material: Celotex Corp. "Flexell" or approved equal. Expansion joint sealer shall be Sonneborne Building Products, Inc. Sonolastic, one component Paving Joint Sealer or approved equal.

8. Surface Hardener: "Lapidolith" by Sonneborne Building Products, Inc., "Hornlith" by A.C. Horn Co., Inc. or "Saniseal" by the Master Builders Co.

   a. Shall be installed in accordance with the Manufacturer's recommendations.

   b. Provide five (5) year written guarantee by Manufacturer.

9. Vapor Barrier: "Vis Queen" as manufactured by Visking Division of Union Carbide, Polyethylene sheets, .066" thick, or other approved equal.

10. Perimeter Insulation: Shall be "Styrofoam SB" as manufactured by Dow Chemical Company or approved equal. Insulation shall be 2" thick unless otherwise noted on the drawings.

11. Grout under base plates: Fosroc "Conbextra" or approved equal.

12. Other materials as herein specified.

03300.0800 STORAGE OF MATERIALS

1. General: Storage facilities are subject to the approval of the Architect. Afford easy access for inspection and identification of shipments.

2. Cement: Store cement well off the ground in a dry, weather-tight adequately ventilated structure with provision to prevent the absorption of moisture.

3. Aggregates: Store aggregates in a manner to assure good drainage to preclude the inclusion of foreign matter, and to preserve the gradation. Keep each size group separate by means of bulkheads between the piles.

4. Reinforcing Steel: Store reinforcing steel off the ground under cover and protected from rusting, oil, grease and distortion.

03300.0900 FORM WORK

1. Chapter 2 of ACI 301 is included in its entirety except as modified hereinafter.

2. Design form work to be strong, rigid, accurately formed to within 1/4 inch of the lines and dimensions shown on the drawings and strong enough to support the dead weight of the concrete without deflection or leakage.

3. Design form ties so that they may be cut off no less than 1 inch from any concrete surface. Patch all holes left by form ties in a manner satisfactory to the Architect.

4. Coat all wall forms with a form oil. Keep reinforcement clean of form oil.

5. Provide temporary openings in forms to permit inspection, cleaning, and placing concrete.

6. Remove forms so as not to damage concrete. Remove forms in accordance with paragraph 2.3.4.

03300.1000 REINFORCING

1. Accurately fabricate reinforcing steel to the details and dimensions shown on the drawings, maintain bars free from dust, mud, rust, scale, oil, distortion, and structural defects.

2. Bend all bars cold and in a manner which will not injure the bars. Do not use bars with bends or kinks not indicated on the drawings. Fabricate in accordance with ACI315-80 standards.

3. Support all reinforcement rigidly in its design location prior to placing concrete, support reinforcing off the ground on precast concrete blocks.

4. Place all reinforcement within the limits of a days' operation, firmly supported and firmly connected before start of concrete placement. Provide concrete cover as indicated in paragraph 5.5 except as otherwise noted. Correct bent or displaced bars before placing concrete.

5. Prepare bending and placing drawings at a scale deemed suitable by the Architect for the work shown. Submit copies of shop drawings in accordance with the general conditions for review; correct and resubmit as required until approval is obtained. Maintain on the job site, an approved up-to-date set of shop drawings bearing the approved stamp by the Architect. All work shall conform to these drawings.

03300.1100 CONCRETE

1. Proportion all concrete to attain the properties and strength indicated in Table E.

Table E

Description	28 Day Strength
Piers and Footings	4000 psi
Slabs on grade	5000 psi
Foundation Walls	4000 psi
Floor Slabs (on Decking)	3500 psi

2. Submit a mix design, to the Architect, no less than 35 days prior to placement of concrete; for each class of concrete. The mix design consists of:

   a. Mix proportions including admixtures.

   b. Gradation and specific gravities of aggregates.

   c. Test reports of the components quality as outlined in Paragraph 7.

   d. Strength tests of designed mix indicating strength at least 20% higher than job requirements.

   e. Slump, weight, and air content of designed mix.

3. The Architect, may at his discretion, require additional cement or other changes to the mix if the designed mix fails to meet the specification.

4. Produce concrete with a slump not exceeding 4 inches.

5. General Contractor shall arrange for making and testing samples of the concrete as placed. Tests will be in accordance with ASTM Standards. Failure of the concrete to comply with the contract documents as evidenced by these tests is sufficient cause for rejection of the concrete placed. Cost of all tests shall borne by the Owner.

03300.1200 MIXING

1. Equipment: Machine mix all concrete in a mechanical batch-type mixing plant conforming to acceptable standards. Provide mixers with adequate facilities for the accurate measurements and control of each of the materials entering the mixer. Prepare all batches by weight in automatically controlled batch plants.

2. Mixing: Do not charge mixers in excess of the manufacturers rated capacity for mixing, or operate in excess of the rated speed. Excessive mixing requiring the addition of water to preserve the required consistency will not be permitted. Discharge the entire batch before recharging. Discharge all wash water before recharging. Once initial sets has taken place, do not attempt to temper the concrete by addition of water.

3. Ready-Mixed Concrete: May be used provided that the central plant producing the concrete and the mixing and transporting equipment is suitable for the production, transportation and placing of the specified concrete. Ready-mixed concrete shall conform to the requirements of ASTM Designation C94 except as modified herein. Mixing in transit shall be prohibited.

03300.1300 PREPARATION FOR PLACING CONCRETE

1. Remove water from all areas where concrete is to be placed. Do not permit water to flow over freshly placed concrete. Clean forms and concrete handling equipment thoroughly. All form work, reinforcement, etc., will be inspected and approved prior to placing concrete. Clean earth foundations of mud, water, loose material and debris.

03300.1400 PLACING CONCRETE

1. Place concrete only when the weather conditions are suitable for proper placing, finishing and curing.

2. Mix, transport, and place concrete to maintain proper consistency and avoid segregation. Maintain concrete in a plastic state at all times from mixing to placing in final position.

3. Convey concrete from mixer to final location in a manner which will prohibit segregation. Do not exceed 3 foot fall from mixer conveyance. Do not exceed 6 foot free fall when placing in final position.

4. Vibrate all concrete in place with approved internal vibrators. Do not vibrate after initial set has taken place.

03300.1500 CONSTRUCTION JOINTS & EMBEDDED ITEMS

1. ACI 301, Chapter 5 is included in its entirety except as modified hereinafter.

2. Where not shown, locate construction joints to provide the least impairment to the structure: Location and detail of all construction joints must be approved by the Architect.

3. Location construction joints to produce the following maximum length of concrete placement:

Beams and slabs cast on ground	30 feet each way
Walls	50 feet each way

4. Accurately locate all inserts, sleeves, anchor bolts, etc. Mislocation or embedded items is solely the responsibility of the Contractor.

03300.1600 BONDING AND GROUTING

1. Clean all laitance and loose material from surfaces of set concrete, slush face of joint with neat cement grout. Place new concrete before grout has set.

2. Grout all base plates with a mix of one part cement to two parts sand.

03300.1700 PATCHING

1. Patch all slight honeycomb and other surface defects by chipping out defective material and patching with a 1 part cement to 3 parts sand mortar.

2. Where in the Architect's opinion the defects will impair the structural adequacy of the member, make repairs as directed by the Architect. All costs relating to such repairs will be borne by the Contractor.

3. Where in the Architect's opinion, the defects will impair the finished appearance of the area, make repairs as directed by the Architect. All costs relating to such repairs will be borne by the Contractor.

03300.1800 PROTECTION AND CURING

1. Protect concrete from injury, from any cause for no less than five (5) days after placing. Begin curing immediately after the concrete has attained its initial set. Cure by water spray, saturated burlap or curing compound. Cure in accordance with ACI 301, Chapter 12.

03300.1900 INCLEMENT WEATHER

1. Place concrete only when the ambient temperature is between 40 degrees F and 85 degrees F.

   In order to place concrete at temperatures outside of the above range, special instructions may be issued by the Architect. All costs involved in implementing these special instructions will be borne by the Contractor.

2. In general, the special instructions will be in accordance with the recommendations of ACI 305-82 and ACI 306-88, except that Chapter 6 of ACI 306 will not be utilized.

03300.2000 FINISHING CONCRETE

1. Formed surfaces ACI 301 Chapter 5.3.3 is included in its entirety.

2. Flatwork: ACI 301 Chapter 5.3.4 is included in its entirety except as modified herein.

   a. Finish all flat floors except as noted below with a steel trowel finish suitable for receiving floor finishes. Class A tolerance verify requirements with Architect.

   b. Finish exterior slabs with non-skid broom finish. Class B tolerance.

   c. Do not float or trowel concrete surfaces while the material is wet or sloppy.

Delay finishing operations until all surface water has disappeared. Do not dust cement over wet areas to accelerate drying.

3. Surface Hardener: Unless otherwise specified, all exposed interior concrete slab surfaces shall be treated with the specified surface hardener, applied in strict accordance with the manufacturer's printed instructions.

4. Wood Float Finish: Concrete platforms shall be finished by tamping with special tools to force the aggregate away from the surface, then screening with straight edge to bring surface to the required lines. While the concrete is still green, it shall be wood-floated to a true and uniform plane with no coarse aggregate visible.

5. Screeds for All Finished Work: Provide metal screeds as approved by the Architect. Screeds shall be set with instruments to proper elevations.

03300.2100 CONCRETE SIDEWALKS, TERRACES, RAMPS AND CURBS

1. Concrete and the equipment, workmanship, testing, etc., and materials therefore, shall conform to the applicable requirements of Division 3, CONCRETE, of these specifications except as otherwise specified herein. Concrete shall be air-entrained 4000 psi minimum compressive strength at 28 days. Concrete shall have a slump of not more than 4". Air entrained shall range between 5 and 8%.

2. Subgrade Course:

   a. The subgrade shall be constructed true to grade and cross-section as shown on the drawings and shall be constructed in accordance with the applicable requirements of PARAGRAPH, SUBGRADE PREPARATION. The subgrade for curbs shall extend in all cases at least 1 foot in width beyond the back face of the curb.

3. Forms: Wood or metal, straight, free from warp, of sufficient strength to resist springing during construction, and of a height equal to the full depth of the finished work. Wood forms shall be 2" surfaced plank. Metal forms shall be of approved section with a flat top surface. Benders or thin plank forms may be used for curb returns. Forms shall be set with the upper edge true to line and grade and shall be held rigidly in place by stakes placed on the outside of forms and set flush with the top edge of the form. Clamps, spreaders and braces shall be used where required to insure rigidity in the curb forms.

4. Concrete Placement and Finishing:

   a. Sidewalks & Ramps: Place in forms in a layer of such thickness than when compacted and finished the walk will be of the thickness shown on the drawings. After the concrete has been placed between side forms, a strike-off guided by the side forms shall be used to bring the surface to the proper section to be

compacted. The concrete shall then be tamped with a heavy tamper and given a final tamping with a light tamper. The surface shall be finished to grade and cross section with a wooden float at least 10 feet in length, 6 to 8 inches in width, and at least 1 inch in thickness with handles at each end for longitudinally floating along the surface. After float, the surface shall be troweled smooth and then finished with a fine hair push broom drawn over the surface traverse to the line of traffic. If necessary water may be added to the surface immediately in advance of brooming. Before final finish, the surface shall be checked with a 10 foot straight edge, and any irregularities of more than 1/8" in 10 feet shall be eliminated. Divide into rectangles at intervals of approximately five feet by means of contraction joints. The contraction joints shall be formed in the fresh concrete by cutting a groove in the top portion of the slab to a depth of at least 1" by means of a jointer having a radius of 1/8" or a cutting blade not more than 1/8" thick. The completed surface shall be uniform in color and completely free of blemishes and tool marks.

b. Curbs: Place in the forms to the specified depth in 6" layers and thoroughly consolidate by tamping and spading so that there are no rock pockets at forms, and mortar entirely covers the top surfaces. Concrete may be compacted by means of mechanical vibrators approved by the Architect. The surface of the top of the curb shall be edged with the proper edging tool and floated and finished with a smooth wood float or a concrete rubbing block until it is true to grade and section and uniform in texture. These surfaces shall then be brushed with a fine hair brush with strokes parallel to the line of the curb. Ample water shall be used during the finishing operations. Immediately after removing the front curb forms, the face of the curb shall be rubbed with a wood or concrete rubbing block and water until all blemishes, form marks, and tool marks have been removed. The surface of the face shall, while still wet, be brushed in the same manner as the curb top. The face of the finished curb shall be true and straight and the top surface of curbs shall be of uniform width, free from humps, sags, or other irregularities. When a straightedge, 10' long is laid on the top of the curb, or on the surface of gutters, the surface shall not vary more than 1/8" from the edge of the straight edge, except at grade changes or curves. All visible surfaces and edges of the finished curb, shall be free of all blemishes and form and tool marks, and shall be uniform in color, shape and appearance.

5. Expansion Joints:

a. Provide expansion joints in sidewalks, terraces and platforms at all walk intersections and returns, at buildings, steps, structures, and other features against which the slabs abut. In addition, provide expansion joints for sidewalks at intervals of 20 feet. Form joints with expansion joint filler strips, 1/4" thick. The filler strips shall be Phillip Carey "Elastite", Serviceized Products Co. "KorkPak" or approve equivalent joint filler. Joint filler shall be held in place by means of steel pins or other devices to prevent warping of the filler during floating and

finishing. After finishing operations are completed, joint edges shall be rounded with an edging tool having a radius of 1/4".

b. Expansion joints for curbs: Form expansion joints for curbs with joint filler cut and shaped to the cross section of the curb. Provide expansion joints at the ends of all returns and directly opposite the expansion joints of abutting concrete walks and unless otherwise indicated shall be of the same type and thickness as the joints in the sidewalk. Where curbs do not abut concrete walks, expansion joints at least 1/2 inch in width shall be provided at intervals not exceeding 20 feet.

c. After the concrete has cured and is thoroughly dry, the upper part of all expansion joints shall be cleaned and shall be sealed with joint sealer. Sealer shall be a cold-applied 2 component, polysulfide type sealant conforming as a minimum to ASA Standard 116.1-60. The compound shall be capable of being mixed on-the-job to a consistency appropriate for pressure extrusion. When mixed and applied in accordance with the manufacturer's instructions, the mixture shall completely fill the joints without the formation of air holes and voids.

6. Curing: Immediately after the completion of the finishing operations, the exposed surfaces of concrete shall be cured by one of the following methods, as the Contractor may elect.

a. The entire exposed surface shall be covered with quilted covers conforming to AASHO Specification M-73. Immediately after placing, they shall be thoroughly wet with water and kept in a saturated condition for not less than 7 days.

b. The entire exposed surface shall be wetted with a fine spray of water and then covered with waterproof paper conforming to ASTM Standard C-171. Sheets shall be laid directly on the concrete surface and overlapped 12" when a continuous sheet is not used. The curing medium shall be not less than 18" wider than the concrete surface to be cured, and shall be securely weighted down by placing a bank of moist earth on the edges just outside the forms and over the transverse laps to form closed joints. Sheets shall be satisfactorily repaired or replaced if torn or otherwise damaged during curing. The curing medium shall remain on the concrete surface to be cured for not less than 7 days.

7. Protection: After the concrete has been cured, all debris shall be removed, and the areas adjacent to the work shall be backfilled, graded, and compacted in a satisfactory manner in accordance with the lines and grades shown on the drawings. The completed work shall be protected from damage until accepted. The Contractor shall repair and clean, at no additional cost to the Owner, all concrete damaged or discolored during construction. Repair of sidewalks, if required, shall be made by removing and replacing defective portion between the nearest cleavage or expansion joints.

3300.2200 TRENCH DRAIN

1. Provide complete trench drainage systems where indicated on the drawings at bays and apron. System shall include but is not necessarily limited to precast trench drains, cast iron heavy duty lock down grate covers, anchors, fittings, hardware,
   end caps and outlet end with 4" nipple. Coordinate with plumber who will provide and install piping tied into site drainage pools.

03300.2300 PERIMETER INSULATION

1. Manufacture: Perimeter insulation shall be "Styrofoam SB" rigid type, as manufactured by Dow Chemical Co., or approved equal. Thickness as shown on Drawings.

2. Preparation: The surfaces to which insulation is to be applied shall be smooth, flat and trim.

3. Foundation Walls: Install on the inside surface of the foundation wall to a minimum depth of 24" below bottom of slab with a thin layer of asphalt emulsion. Apply a layer of roofers felt, cut in strips the thickness of the floor slab, to the insulation to prevent the concrete from bonding to the insulation; cement with asphalt emulsion. Conform with details shown on the drawings.

03300.2400 INSPECTION AND TESTS

1. All concrete operations are subject to inspection and test as ordered by the Architect. All tests will be made in accordance with the appropriate ASTM Standards. The Contractor will provide all required assistance in performing these inspections and tests. The cost of inspection and tests will not be borne by the Contractor. The test performed constitute sufficient cause for rejection should these tests indicate failure to comply with the Contract documents.

03300.2500 TESTING

1. Testing and Inspection which may be performed by the Owner:

   a. The General Contractor shall schedule for the following services:

   b. Test cylinders shall be made and stored in accordance with ASTM C-31. The method of sampling fresh concrete shall be in accordance with ASTM C-172. The Contractor shall provide a safe storage box for storage of test cylinders in an undisturbed manner.

   c. Two (2) of the specimens shall be tested after seven (7) days and two (2) after

twenty-eight (28) days. Two (2) cylinders will be saved for testing at 45 days. 45 Day tests will not be required if the 28 Day tests are satisfactory. The 7 day strength will be assumed to have 70% of the 28 days strength. For Type III cement, the 7 day test shall indicate 90% of 28 day strength.

d. Compression tests shall be conducted in accordance with ASTM C-39.

e. Slump tests shall be made for each truck load of concrete placed, in accordance with ASTM C-143.

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DIVISION 4 - MASONRY

SECTION 04200 - UNIT MASONRY

04200.0100 GENERAL

1. The work under this Section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

0400.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of all masonry and related work, complete, in strict accordance with the Contract Drawings and Schedule of Finishes, as specified herein or reasonably implied, in general as follows:

   a. Concrete Masonry Units: For interior and exterior reinforced bearing walls and cavity as shown and detailed on the drawings.

   b. Brick masonry unit veneer including all ties, etc.

   c. All truss type reinforcing and steel rebar reinforcing, bearing plates, anchor bolts, eye and pintle masonry ties, etc. as noted on the drawings.

   d. Expansion joints as shown on the drawings.

   e. Furnishing and building in of anchors, ties, clamps, clips, etc., as required for work of this Section.

   f. Mortar beds and grouting for saddles, windows, doors, louver frames, and similar items as noted on the drawings.

   g. Scaffolding, hoists, centers, shoring, bracing, etc., as required for work under this Section.

   h. Cleaning and pointing.

   i. Clean-up and removal of rubbish, etc.

   j. Do all cutting and patching, etc.

   k. The masonry contractor shall install all necessary items that are required in the work and supplied by others, including: bolts, nailing blocks, inserts, anchors, flashing, lintels, expansion joints, conduits, etc.

0400.0300 QUALITY ASSURANCE

1. Tests:

   Manufacturer or supplier of masonry units shall submit to Architect prior to delivery, certification of compliance of units with specified standards, as determined by an acceptable testing agency conforming to the applicable requirements of ASTM E329. Brick shall be tested in accordance with ASTM C67, and concrete masonry units in accordance with ASTM C140. If tests made after delivery indicate that units do not conform to specified requirements, costs of such tests shall be borne by the supplier.

2. Masonry cements:

   Proprietary masonry cement mixes used in engineered masonry construction shall be subject to laboratory testing to assure compliance with minimum requirements for strength and bond.

3. Sample panels:

   Erect sample panels for each type of masonry required, approximately 4 ft. long by 4 ft. high, showing the proposed color range, texture, bond, mortar, and quality of work. The sample panel, when accepted, shall become the project standard for bond, mortar, quality of work, and appearance. Do not begin work until panel is accepted by Architect.

0400.0400 SUBMITTALS

1. Samples:

   Submit samples of each type of masonry unit and each accessory item required. Provide certification of pull-out strength of all masonry ties and anchors. Submit certification of compliance with required standards for all masonry units.

2. Shop Drawings:

   Provide shop drawings of custom sized and shaped precast Brick as detailed on the drawings.

0400.0500 PRODUCT DELIVERY, STORAGE AND HANDLING

1. Delivery:

   Deliver masonry units to job site in undamaged condition. Deliver and handle units to prevent chipping, breaking, or other damage.

2. Storage:

   Store masonry units off ground and protected from wetting by capillary action, rain, or snow, and protected from mud, dust, or other materials and contaminants likely to cause staining or defects.

0400.0600 JOB CONDITIONS

1. Cold weather construction:

   Masonry construction performed when ambient temperature falls below 40 degrees F. shall conform to the Recommended Practices and Guide Specifications for Cold Weather Masonry Construction published by the International Masonry Industry All-Weather Council.

2. Coverings:

   The Contractor shall construct and maintain temporary protection as required to permit continuous progress of the work. During construction, partially completed walls which are not enclosed or sheltered shall be kept dry by covering at the end of each day and when work is not in progress with strong, weather-resistant material extended a minimum of 2 ft. down each side, and held securely in place.

3. Protections:

   Do not apply uniform floor or roof loads for at least 12 hours or concentrated loads for at least 3 days after building masonry walls or columns.

4. Staining:

   Prevent grout or mortar from staining the face of masonry to be left exposed or to be painted. Remove immediately any grout or mortar in contact with face of such masonry. Protect all sills, ledges, and projections from droppings of mortar. Protect door jambs and corners from damage during construction.

0400.0700 PRODUCTS

1. Materials

a. Portland cement:

ASTM C150, Type II

b. Lime:

Hydrated lime, ASTM C207, Type S.

c. Sand:

ASTM C144.

d. Aggregates:

ASTM C404.

e. Water:

Mixing water must be clean and free of harmful amounts of acids, alkalis, organic materials, or other substances that would adversely affect the quality or appearance of the mortar or the masonry units.

f. Brick and Stone:

1. Veneer Brick shall be ASTM C216, Grade SW, Type 1; as manufactured by Belden Brick Co. Bellcrest 550 or equal. Submit sample of Brick and Stone. Provide brick similar in color, texture, and physical properties to those available for inspection at the Architect's office. Do not exceed variations in color and texture of samples accepted by the Architect.

2. Stone accents and rockface shall be Continental Cast Stone Manufacturering Inc. or equal color 1100E Whitestone. Provide all samples, sizes and finishes for all interior and exterior stone as indicated and noted in the drawings.

g. Hollow loadbearing CMU:

ASTM C90, Grade N, Type 1, Normal weight.

h. Hollow non-loadbearing CMU:

ASTM C129, Type II, Light weight.

i. Provide bond beams with two (2) #5 3,000 psi concrete where indicated.

j. Reinforcement:

Steel reinforcing shall conform to the following ASTM Specifications:

1. Cold-drawn steel wire, ASTM A82.

2. Welded steel wire fabric, ASTM A185.

3. Billet steel deformed bars, ASTM A615, Grade 60.

k. Material for anchors and ties:

All anchors and ties shall be coated or corrosion-resistant metal meeting or exceeding the following ASTM Specifications:

1. Zinc coating of flat metal, ASTM A153.

2. Zinc coating of wire, ASTM A116, Class 3.

3. Copper-coated wire, ASTM B227, grade 30HS.

4. Stainless steel, ASTM A167, Type 304.

l. Types of anchors and ties:

Provide the following types of anchors and ties for masonry construction:

1. Wire mesh: Minimum 20 gauge, 1/2 in. mesh, galvanized wire, and 1 in. less in width than width of masonry.

2. Corrugated veneer anchors: Minimum 22 gauge, minimum 7/8 in. wide x 6 in. long.

3. Cavity wall ties: Shall be eye & pintle type minimum 3/16 in. wire diameter with drip, rectangular, at least 2 in. wide, or Z-shaped with 2 in. legs, length sufficient to allow 1 in. minimum mortar coverage of ends or legs. At all veneer space 16” vertical & horizontal staggered.

4. Joint reinforcement: Prefabricated welded joint reinforcement, longitudinal

cross tie wire minimum 9-gauge spaced 16 in. on center; ladder or truss-type design.

5. Dovetail flat bar anchors: Minimum 16 gauge, 7/8 in. minimum width, corrugated, turned up 1/4 in. at end, or with 1/2 in. hole within 1/2 in. of end of bar.

6. Wire anchors: Wire anchors shall be minimum 3/16 in. diameter.

7. Rigid anchors for intersecting bearing walls: 1 1/2 in. wide x 1/4 in. thick x 24 in. minimum length; turn up ends minimum 2 in. or provide cross pins.

8. Wire ties for grouted reinforced masonry: Minimum 9-gauge wire bent into rectangular stirrups 4 in. wide and 2 in. shorter than overall wall thickness; form so that tie ends meet in center of one embedded end of stirrup.

2. Mixes

a. Mortar mixes:

Mortar shall comply with the minimum requirements of ASTM C270, Type M for Arriscraft units use a Portland cement-lime based mortar mix, proportioned to a 1:1:6 ratio, where 1 part Portland cement is mixed with 1 part Type S hydrated mason's lime and 6 parts masonry sand. This mixture shall be properly mixed with the appropriate quantity of water to result in a Type N mortar as specified in CSA A179-94; Mortar and Grout for Unit Masonry, and ASTM C270-95a; Standard Specifications for Mortar for Unit Masonry.

b. Admixtures:

No air-entraining admixtures or materials containing air-entraining admixtures shall be used. No antifreeze compounds or other substances shall be added to mortar or grout. No calcium chloride shall be included in mortar or grout in which metal reinforcing or accessories will be embedded. Mortar colors shall consist of inorganic compounds not to exceed 15% of the weight of the cement except that carbon black shall not exceed 3% of the weight on the cement. If mortar colors are used in reinforced masonry, the ultimate compressive strength of the masonry shall be determined by prism tests.

0400.0800 EXECUTION

1. Preparation

a. Inspection:

Inspect surfaces that are to support masonry work to assure completion to proper lines and grades free of all dirt and other deleterious material. Do not begin work until surfaces not properly prepared have been satisfactorily corrected.

2. Field Quality Control

a. Mortar and grout:

Mix mortar and grout in accordance with the proportion requirements of ASTM C270, and ASTM C476 as applicable. Control batching procedure to ensure proper proportions by measuring materials by volume. Amount of mixing water and mortar consistency shall be controlled by mason. Retempering will be permitted only within the first 2 1/2 hours of initial mix. Any mortar or grout that has partially set shall be discarded.

b. Allowable tolerances:

1. Maximum variation from plumb in lines and surfaces of columns, walls, and arises shall not exceed 1/4 in. 10 ft.; 3/8 in. in any story or 20 ft. maximum; or 1/2 in. in 40 ft.

2. Maximum variation from plumb for external corners, expansion joints, and other conspicuous lines shall not exceed 1/4 in. in any story or 20 ft. maximum; or 1/2 in. in 40 ft.

3. Maximum variation from level or grades for exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines shall not exceed 1/4 in. in any bay or 20 ft. maximum; or 1/2 in. in 40 ft.

4. Maximum variation of linear building line from an established position in plan and related portions of columns, walls, and partitions shall not exceed 1/2 in. in any bay or 20 ft. maximum; or 3/4 in. in 40 ft.

5. Maximum variation of linear building line from an established position in plan and related portions of columns, walls, and partitions shall not exceed 1/2 in. in any bay or 20 ft. maximum; or 3/4 in. in 40 ft.

c. Anchors and ties:

Remove all dirt, ice, loose rust, and scale prior to installation.

d. Protection of work:

Protect sills, ledges, and offsets from mortar droppings or other damage during construction. Remove misplaced mortar or grout immediately. Protect face

materials against staining. Protect door jambs and corners from damage during construction.

2. Installing Masonry

a. Preparation:

Verify that initial absorption rate of clay brick is less than 0.025 oz. /sq. in. per minute. Brick with absorption rates in excess of this amount shall be wetted with clean water 24 hours prior to placement until unit is nearly saturated, and shall be surface dry when laid. During freezing weather, units that require wetting shall be sprinkled with warm or hot water just before laying.
No wetting of concrete unit masonry is permitted.

b. Installation:

Do not install cracked, broken, or chipped masonry units exceeding ASTM allowances. Use masonry saws to cut and fit exposed units. Lay brick plumb, true to line, and with level courses accurately spaced within allowable tolerances. Unless otherwise shown on the drawings, install masonry work using 1/2 running bond. Stop horizontal runs at end of workday by racking back in each course; toothing will not be permitted. Adjust units to final position while mortar is soft and plastic. If units are displaced after mortar has stiffened, remove, clean joints and units of mortar, and re-lay with fresh mortar. Adjust shelf angles to keep work level and at proper elevation. When joining fresh masonry to set or partially set masonry, remove loose unit and mortar, and clean and lightly wet exposed surface of set masonry prior to laying fresh masonry. The mason shall place all accessories and reinforcement in the masonry as the job progresses. Place horizontal joint reinforcement in first bed joint and each successive third joint of concrete masonry walls to prevent cracking. Cooperate with other trades to assure proper location of anchors, inserts, penetrations, etc.

c. Built-in items:

Install bolts, anchors, nailing blocks, inserts, frames, vent flashing, conduit, and other built-in items as masonry work progresses. Avoid cutting and patching. Solidly grout spaces around built-in items. Provide joints around exterior framed openings 1/4 to 3/8 in. wide, raked and tooled smooth to a uniform depth of 3/4 in., ready for caulking by others. Build chases in, do not cut. Install chases minimum of one masonry unit length from jambs.

d. Joints:

Provide nominal joint thickness of 3/8 in. for concrete unit masonry, 3/8 in. for brick masonry. Do not furrow bed joints for solid masonry units. Provide face-

shell bedding for concrete unit masonry except at grouted cells and base course, where full mortar bedding is required. Construct uniform joints. Provide full head and bed joints, shoved tight to prevent penetration of moisture. Provide weather-proof, concave, tooled joints in exposed surfaces when mortar is thumbprint hard, using round jointing tool. Strike joints flush in surfaces to be plastered, stucco, or covered with other material or surface-applied finish other than paint. Concave tool exterior joints below grade. Remove mortar protruding into cells or cavities to be grouted. Do not permit mortar droppings to fall into cavities of multi-wythe walls or to block weep holes. Fill with mortar all horizontal joints between top of masonry partitions and underside of concrete beams. Keep movement joints clean of all mortar and debris. For tuckpointing, rake mortar joints to a depth of 1/2 to 3/4 in., saturate with clean water, fill solidly with pointing mortar, and tool to match existing joints. Cut first course of CMU at each level with wet saw as required for bed joints to align with veneer joints.

e. Flashing & Damp Proofing:

Provide through-wall flashing at base of all cavity walls; at shelf angles; at lintels, heads, and sills of openings in exterior walls; at all locations shown on the drawings; and at any other locations as required to complete the integrity of waterproofed or dampproofed surfaces. Form dams at horizontal termination of all flashing.

Clean surface of masonry smooth and free from projections that might puncture or otherwise damage flashing membrane. Carefully fit flashing around projections and where dampproof membrane abuts columns, walls, etc. Neatly fold and bed in mastic or mortar so as to direct moisture to the outside. Form membrane to required profiles and install in such a manner as to force any moisture entering the wall to the outside. Hold outer edge of membrane to surface with mastic or mortar. Lap joints 4 in. and seal with mastic or embed in mortar. Form membrane to correct profile without wrinkles or buckles, and protect from punctures and tears during installation. Field cut units at 8/12 ratio at straight wall flashing where roofs intersect with masonry veneer.

Prior to installation of veneer brick and thin brick systems, the entire exterior face of CMU shall be damp proofed with Tamms Dehydrate 75 Emulsified Asphalt Damp Proofing Compond or equal, one (1) coat application.

f. Weep holes:

Provide weep holes in head joints in first course immediately above all flashing. Leave head joint free and clean of mortar or install weep hole tube in head joint. Space weep holes 24 in. on center maximum for brick masonry, and 24 in. on center maximum for Arriscraft. Keep weep holes and area above flashing free of mortar droppings. For backfill material behind retaining walls, and for loose fill

insulation in walls, screen cavity side of weep hole against clogging before fill material is placed.

g. Masonry bonding:

Bond facing and backing of multi-wythe walls as shown on the drawings with masonry headers extended a minimum of 3 in. into backing. If single header does not extend through wall, overlap headers from opposite sides of wall at least 3 in. Provide minimum number of wall headers equal to 4% of wall surface, spaced maximum distance of 24 in. on center either vertically or horizontally.

For multi-wythe walls of hollow concrete masonry units, bond inner and outer wythes by transverse lapping of stretcher unit at least 3 in. over units below, spaced maximum 32 in. on center vertically; or lap with stretcher units at least 50% wider than unit below, spaced maximum 16 in. on center vertically. Bond abutting or intersecting walls and partitions with at least 50% of units at the intersection laid in masonry bond. Provide a minimum of 3 in. of bearing of alternate units on unit below. Masonry bonding is not permitted for grouted or reinforced construction.

h. Metal-tie bonding:

Provide metal ties for bonding of multi-wythe walls as shown on the drawings. Stagger ties in alternate courses, and provide minimum of one tie for each 4.5 sq. ft. of wall surface. Maximum distance between adjacent ties not to exceed 18 in. vertically or 24 in. horizontally. Embed ties in horizontal joints of facing and backing. Provide additional ties within 12 in. of openings, spaced maximum 36 in. around perimeter.

In lieu of metal ties, contractor may use continuous prefabricated metal joint reinforcement as specified, spaced not more than 16 in. on center vertically.

For corner intersections of walls carried up separately, provide rigid steel anchors at maximum vertical spacing of 32 in. When intersecting bearing or shear walls are carried up separately, provide rigid steel anchors at a maximum vertical spacing of 2 ft.

Anchor nonbearing partitions abutting or intersecting other walls or partitions with cavity wall ties at vertical spacing not to exceed 4 ft.

i. Anchoring brick veneer:

Attach brick veneer to backing with metal veneer ties spaced maximum 16 in. on center vertically and horizontally with a minimum of one tie for each 2 sq. ft. of wall area. Embed ties at least 2 in. in horizontal joint of facing. Provide additional ties within 12 in. of openings, spaced maximum 36 in. around perimeter.

j. Expansion and contraction:

Provide vertical movement joints where called for on the drawings at intervals of not more than 20 ft. on centers, and at all offsets, returns, openings, and intersections with dissimilar materials. Provide continuous bond break at steel columns and members. Provide pressure-relieving joints by placing a continuous 1/8 in. neoprene pad below shelf angles.

3. Reinforced Masonry

a. Masonry strength:

Provide minimum ultimate compressive strength of 1,500 psi.

b. Reinforcement:

Hold vertical reinforcement firmly in place by means of frames or other suitable devices. Place horizontal reinforcement as masonry work progresses. Provide minimum clear distance between longitudinal bars equal to nominal diameter of bar. Provide minimum clear distance between bars in columns equal to 1 1/2 times bar diameter. Minimum thickness of mortar or grout between masonry and reinforcement shall be 1/4 in., except than 1/4 in. bars may be laid in 1/2 in. horizontal mortar joints, and 6-gauge or smaller wires may be laid in 3/8 in. mortar joints. Collar joints containing both horizontal and vertical reinforcement shall have a minimum width 1/2 in. larger than the sum of the diameters of the horizontal and vertical reinforcement.

c. Low-lift grouting:

For grout spaces less than 2 in. width, place grout at maximum 24-in. intervals in lifts of 6 to 8 in. as the wall is built. Assure that grout core is clean of mortar, mortar droppings, and debris. Agitate grout during and after placement to assure complete filling and coverage of reinforcement. If work is to be stopped for 1 hour or more, hold grout 1 1/2 in. below top of masonry. Continue grouting to top of finished wall.

d. High-lift grouting:

For grout spaces 2 in. or more in width, grout may be placed in lifts not to exceed 4 ft. For running bond, provide one metal tie for each 3 sq. ft. of wall with maximum spacing of 16 in. vertically and 24 or 32 in. horizontally for brick and concrete block respectively. For stack bond, provide one metal tie for each 2 sq. ft. of wall with maximum spacing 12 in. vertically and 24 in. horizontally for brick, or 16 in.

vertically and horizontally for concrete block.

Keep grout core clean. Provide cleanout holes in bottom course as required for inspection and cleaning. Replace cleanout plugs only after area to be grouted has been accepted. Do not place grout until the entire wall has been in place a minimum of 3 days. Place horizontal grout barriers at convenient intervals. If work is to be stopped for 1 hour or more, hold grout 1 1/2 in. below top of masonry. Continue grouting to top of finished wall.

e. Forms and shoring:

Provide substantial and tight forms to prevent leakage of mortar or grout. Brace or shore forms to maintain position and shape. Do not remove forms or shoring until masonry has hardened sufficiently to carry its own weight and any other temporary loads that may be placed on it during construction (10 days for girders and beams, 7 days for masonry slabs).

4. Cold-Weather Masonry Construction

a. Surface conditions:

Ice or snow that has formed on the masonry bed shall be thawed by application of heat. Apply heat carefully until top surface is dry to the touch. Any section of completed masonry work that is deemed frozen and damaged shall be removed before continuing construction of that section.

b. Condition of masonry units:

Use only dry masonry units, except as permitted below. Wet or frozen masonry units shall not be laid. No wetting of concrete masonry units will be permitted.

For brick masonry units used in cold-weather construction, initial rates of absorption may range to a maximum of 1 1/2 oz. When sprinkling is required to achieve proper rates, heated water shall be used. Water shall be above 70 degrees F. when temperature of units is above freezing and above 130 degrees F. when temperature of units is below freezing.

c. Construction requirements:

1. Air temperature 32 to 40 degrees F: Sand or mixing water shall be heated to produce mortar temperatures ranging from 40 to 120 degrees F.

2. Air temperature 25 to 32 degrees F: Sand and mixing water shall be heated to produce mortar temperatures ranging from 40 to 120 degrees F. Maintain temperature of mortar on boards above freezing.

3. Air temperature 20 to 25 degrees F: Sand and mixing water shall be heated to produce mortar temperatures ranging from 40 to 120 degrees F. Maintain mortar temperatures on boards above freezing. Provide sources of heat on both sides of walls under construction. Windbreaks shall be employed when wind is in excess of 15 mph.

4. Air temperature 20 degrees F. and below: Sand and mixing water shall be heated to provide mortar temperatures ranging from 40 to 120 degrees F. Enclosures and auxiliary heat shall be provided to maintain air temperature above freezing. Temperature of units when laid shall be not less than 20 degrees F.

d. Protection of completed work:

1. Mean ambient temperature 32 to 40 degrees F: Masonry completed or not being worked on shall be protected from rain or snow for 24 hours by covering with weather-resistive membrane.

2. Mean ambient temperature 25 to 32 degrees F: Masonry shall be completely covered with weather-resistive membrane for 24 hours.

3. Mean ambient temperature 20 to 25 degrees F: Masonry shall be completely covered with insulating blankets, or equally protected for 24 hours.

4. Mean ambient temperature 20 degrees F and below: Masonry temperature shall be maintained above freezing for 24 hours by enclosure and supplementary heat such as electric heating blankets, infrared heat lamps, or other approved methods.

5. Pointing and Cleaning

a. Pointing:

At final completion of masonry work, cut out any defective joints or holes in exposed masonry and repaint with mortar, tooling to match adjacent joints.

b. Cleaning:

Dry brush masonry surface after mortar has set at end of each workday and after final pointing. Clean exposed, unglazed masonry with stiff brush and clean water. Cleaning agents may be used only with written approval of Architect. Cleaning agents must be tested on sample wall area of 20 sq. ft. Protect adjacent materials from damage due to cleaning operations. Remove efflorescence in accordance with brick manufacturer's recommendations.

Leave work area and surrounding surfaces clean and free of mortar spots, droppings, and broken masonry.

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DIVISION 4 – MASONRY

SECTION 042516 – THIN BRICK/STONE VENEER MASONRY

PART 1: GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 general requirements apply to this section.

1.2 SUMMARY

A. Section Includes:
1. Thin Tech® Thin Masonry Support System comprised of:
   a. Thin Tech® Thin Masonry Support Panel
   b. Glen-Gery Construction Adhesive
   c. Silicone Adhesive and Primer
   d. Thin Tech® Air Vent
   e. Thin Tech® Starter Angle
   f. Thin Tech® Shim
   g. Thin Tech® Universal Corner Support
   i. Thin Tech® Fasteners
   j. Thin Tech® spacers
   k. Transition Tape
   l. Glen-Gery Mortar
      1. Color Mortar Blend (Portland cement lime mortar)
      2. Type N or Type S Preblended Mortar

2. Related Materials and Procedures:

   a. Thin Brick
   b. Glazed Thin Brick
   c. Cast Stone/Natural Stone
   d. Cleaning
   e. Embedded Flashing
   f. Weepholes/Vents
   g. Movement Joints
   h. Fasteners
   i. Silicone Sealant
   j. Silicone Sealant Primer

B. Related Sections:

1. Division 03 Section – "Concrete" (Cast-in-Place, Precast)
2. Division 04 Section – "Masonry" (Unit Masonry)
3. Division 05 Section – "Metals" (Structural Framing, Cold-Formed Framing, Metal Fabrications)
4. Division 06 Section – "Wood, Plastics and Composites" (Rough Carpentry, Sheathing)
5. Division 07 Section – "Thermal and Moisture Protection" (Dampproofing and Waterproofing, Flashing and Sheet Metal, Joint Protection)
6. Division 08 Section – "Openings" (Wall Vents)
7. Division 09 Section – "Finishes" (Plaster and Gypsum Board, Tile)
8. Division 13 Section – "Special Construction" (Pre-Engineered Structures)

1.3 REFERENCES

A. ANSI A118.4 - American National Standards Institute Specifications for Modified Dry-Set Cement Mortar

B. ANSI A118.15 – American National Standards Institute Specifications for Improved Modified Dry-Set Cement Mortar

C. ASTM A 240 – Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

D. ASTM A 510 – Standard Specification for General Requirements for Wire Rods and Coarse Round Wire, Carbon Steel, and Alloy Steel

E. ASTM A 653 – Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process

F. ASTM A 925 – Standard Specification for Zinc 5% Aluminum Mischmetal Alloy Coated Steel Overhead Ground Wire Strand

G. ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus

H. ASTM C 67 – Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile

I. ASTM C 126 – Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units

J. ASTM C 270 – Standard Specification for Mortar for Unit Masonry

K. ASTM C 954 - 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

L. ASTM C 1088 – Standard Specification for Thin Veneer Brick Units Made From Clay or Shale

M. ASTM C 1364 - Standard Specification for Architectural Cast Stone

N. ASTM C 1405 – Standard Specification for Glazed Brick (Single Fired, Brick Units)

O. ASTM E 2925 - Standard Specification for Manufactured Polymeric Drainage and Ventilation Materials Used to Provide a Rainscreen Function

P. ASTM D 4716 – Standard Test Method for Determining the (In-plane) Flow Rate per Unit Width and Hydraulic Transmissivity of a Geosynthetic Using a Constant Head

Q. ASTM E 2112 - Standard Practice for Installation of Exterior Windows, Doors and Skylights

R. TMS 602 (ACI 530.1/ASCE 6) – Specifications for Masonry Structures.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product description, indicating material types, colors and thicknesses and storage and handling requirements prior to purchase. Field review with manufacturers representative [Kyle Evans (631) 786-4513] & Architect as part of submittal process to verify entire system to be utilized.

B. Samples: Submit samples of each product type proposed for use.

C. Material Certificates: Prior to delivery, submit to Architect/Engineer certificates indicating compliance with the applicable codes, specifications and criteria herein for [Thin Brick, including Grade and Type], [Architectural Cast Stone] [and] [Architectural Accent Cast Stone] as listed in this Section.

D. Thin Brick Test Reports: Submit test reports substantiating compliance with requirements of [ASTM C1088] [ASTM C216 for thin brick cut from facing brick]. Sample and test in accordance with ASTM C 67.

1. Testing and reports shall be completed by an independent laboratory.

   a. Test reports for each type of brick shall be submitted to the Architect/Engineer for review.

   b. Thin Brick Test reports shall indicate:

      i.) 5-hour boiling water absorption
      ii.) Saturation coefficient
      iii.) Initial rate of absorption

iv.) Efflorescence Rating

E. Glazed Thin Brick Test Reports: Submit test reports substantiating compliance with requirements of [ASTM C1405 for thin brick cut from glazed brick] [ASTM C126 for glazed surfaces applied to thin brick complying with ASTM C1088]. Sample and test in accordance with ASTM C67 and C126.

1. Test reports for each type of glazed thin brick shall be submitted to the Architect/Engineer for review.

a. Glazed Thin Brick Test reports for the body shall indicate:

i.) 24-hour cold water absorption
ii.) Saturation coefficient
iii) Initial rate of absorption
iv.) Efflorescence Rating

b. When specified, Glazed Thin Brick Test reports for the glazed surface shall indicate:

ii.) Resistance to fading
iii.) Resistance to crazing
iv.) [Imperviousness]
i.) [Opacity]

F. Cast & Accent Stone Test Reports: Submit test reports substantiating compliance with requirements of ASTM C1364. Sample and test in accordance with ASTM C1364.

1. Test reports for each type of cast stone shall be submitted to the Architect/Engineer for review.

G. Costs of Tests: Cost of tests shall be borne by the purchaser, unless tests indicate that units do not conform to the requirements of the specifications, in which case cost shall be borne by the seller.

H. Installation Instructions: Submit copy of manufacturer's product installation instructions

I. Manufacturer's Details: Submit individual drawings to be approved by Architect for special shaped thin veneer units.

1.5 CLOSEOUT SUBMITTALS

A. Warranty Documentation:

1. Product warranty documentation specified under Section 3.12 shall be supplied to contractor (for subsequent provision to building owner) upon completion of building construction.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Maintenance:

1. Installer shall supply to contractor (for subsequent provision to building owner) copy of manufacturer's pertinent documentation relating to typical repair of thin veneer system once occupancy commences.

1.7 QUALITY ASSURANCE

A. Masonry Standard: Comply with TMS 602 (ACI 530.1/ASCE 6) unless modified by requirements in the Contract Documents.

B. Comply with all applicable codes, regulations, and standards. Where provisions of applicable codes, regulations and standards conflict with requirements of this section, the more demanding shall govern.

C. Manufacturer Qualifications:

1. Obtain materials from one manufacturer to ensure compatibility.

2. Thin Masonry Support Panel:

a. Documented qualifications and capabilities that fully describe the ability to provide the required metal panel system and technical support to the Owner.

b. At least five (5) completed projects over the last two years, illustrating system performance equal to or exceeding the criteria listed in this specification.

1. Include the project location, award date, the completion date, the contract value, and the name and telephone number of a person employed by the Owner who has personal knowledge of the manufacturer's contractual and technical performance.

D. Installer Qualifications:

1. All products listed in this Section shall be installed by a Glen-Gery trained Thin Tech® installer or installer providing proof of a minimum of five years' experience with a related thin masonry support system.

2. At least one supervisory journeyman, who has completed Glen-Gery Thin Tech® training, shall be present at all times during execution of work, who shall be thoroughly familiar with design requirements, types of materials being installed, reference standards and other requirements, and who shall direct all Thin Tech® related work performed at jobsite.

3. Upon request, installer shall furnish proof of training/experience documentation that may

include the following to Contractor prior to commencement of work under this Section:

a. Glen-Gery training certificate.

b. Lists of completed projects with project names, addresses, and contact information of architects and owners.

c. Specialty certification held by [company] [installer] that are relevant to this project, including the name of the certification, certifying body, and date certified.

E. Sample/ Mock-Up Panels: Sample/mock-up panels shall be used to review installation process as well as [thin brick,] [cast stone] [natural stone] and mortar color selections and serves as the standard of workmanship for the Project.

1. Build Mock-up panels [with adjoining walls at a 90 degree angle for Thin Tech® System in sizes approximately 48 in. (1,219 mm) long by 48 in. (1,219 mm) high by full wall thickness.

2. Build mock-up panel for walls to receive Glen-Gery Thin Tech® System as shown on designated project drawings.

a. All thin brick shipped for the mock-up shall be included in the panel.

b. Use mock-up panel as standard of comparison for all masonry work built of same material.

c. Where masonry is to match existing, erect panel adjacent and parallel to existing surface.

d. Clean [one-half of] exposed faces of panel with masonry cleaner as indicated and approved by manufacturer.

e. Approval of panel is for color, texture, and blending of masonry units; relationship of mortar to masonry unit colors; tooling of joints; and aesthetic qualities of workmanship.

f. Protect approved panel from the elements.

g. Do not start work until Architect/Engineer/Owner has accepted mock-up panel.

h. Do not destroy or move sample or mock-up panels until work is completed and accepted by Architect/Engineer/Owner.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer’s unopened packaging.

B. Inspect all materials upon arrival and notify supplier if any damage is observed. Store products in manufacturer’s packaging or according to manufacturer's recommendations until ready for installation.

C. Store Glen-Gery Thin Tech® Panels, masonry units, mortar, and accessories off the ground to prevent contamination by mud, dust or other materials likely to cause staining or other defects.

D. Protect materials from contamination, moisture, freezing, overheating or other damage in accordance with manufacturer's instructions. Cover all materials with a non-staining waterproof membrane material when necessary to protect from elements.

E. Store different types of materials separately.

F. Store adhesive and mortar additive above 32° Fahrenheit and below 86° Fahrenheit temperatures.

G. Store and dispose of solvent-based materials and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

H. Panels must be stored to prevent permanent distortion and kept dry before installation. Panels and accessories should be covered at all times prior to installation.

I. Dry panels exposed to water or condensation prior to installation or application of thin brick. The presence of moisture on the brick or metal panels may adversely affect adhesive performance.

1.9 PROJECT CONDITIONS

A. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during and after installation.

B. Protection of Work:

1. 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 limits.

2. Stain Prevention:

a. Prevent adhesive and mortar from staining the face of masonry.

b. To avoid smearing of adhesive or mortar on the face of masonry, allow adhesive and mortar on face of installed masonry to become firm before trying to remove.

c. Protect all sills, ledges and projections from droppings of adhesive or mortar.

d. Protect the wall from rain-splashed mud and mortar splatter.

C. Cold Weather Requirements:

1. Do not use frozen masonry materials or materials mixed or coated with ice or frost.

2. Do not build on frozen substrates.

3. Comply with cold-weather construction requirements contained in TMS 602 (ACI 530.1/ASCE 6).

D. Hot Weather Requirements:

1. Comply with hot-weather construction requirements contained in TMS 602 (ACI 530.1/ASCE 6).

2. Protect mortar from uneven and excessive evaporation.

a. The face of the installed thin brick may be dampened with water prior to mortar installation to reduce the absorption of moisture from the mortar joint and increase bond.

b. Veneer may be fogged with water to prevent drying prior to proper hydration of mortar. Apply only enough moisture to consistently dampen the wall without allowing water to run down the face of the masonry.

PART 2: PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer: Glen-Gery Corporation located at 1166 Spring Street, P.O. Box 7001, Wyomissing,

Contact: Kyle Evans (Kings Materials) E: kyle@kingsny.com P: (631)786-4513

B. Substitutions: Not permitted.

2.2 THIN MASONRY VENEER SUPPORT SYSTEM

A. Thin Masonry Veneer Support Panel: Metal support panel consisting of 26 gauge (16 mil) , stucco embossed, textured steel with angled ties providing structural mechanical support for interior or exterior thin masonry veneer, installed by fastening to concrete, masonry, metal or wood frame construction.

1. All Metal Panels for thin brick support specified and shown on drawings shall be Elite Thin Tech® Panels as manufactured by the Glen-Gery Corporation.

2. Exterior Finish: [G90 Galvanized with thermal set coating] [Stainless steel]

3. Support ties: [3/8 in. (10 mm)], [5/8 in. (16 mm)]

4. Support Panels: 4 ft. x 4 ft. nominal (16 sq. ft, 1.44 m^2 - actual dimensions except as noted: 48 in. [W] 47-7/8 in. x [H] 48 in. x [T] 3/8 in. {1,216 mm x 1,219 mm x 10 mm}) masonry support panels for flat wall areas, shall be for unit heights as follows:

a. 2-5/8 in. (2.667 in., 68 mm) spacing for Modular, Standard, Norman, and other 2-1/4 in. (57 mm) high units. Three (3) courses equal 8 in. (203 mm).

b. 3.2 in. (3-1/8 in., 81 mm) spacing for Engineer, Handmade Oversize, and other 2-3/4 in. (70 mm) high units. Five (5) courses equal 16 in. (406 mm).

c. 4 in. (102 mm) spacing for Econo, Utility and other 3-5/8 in. (92 mm) high units.

d. 8 in. (203 mm) spacing for 8-Square and other 7-5/8 in. (194 mm) high units. 5/8 in. (16 mm) support ties.

e. 12 in. (305 mm) for 11-5/8 in. (295 mm) high units. 5/8 in. (16 mm) support ties.

B. Fasteners (For Masonry Support Panel)

1. Screw fasteners as supplied by Glen-Gery: Pan head fasteners with a minimum #10, (0.190 in., 4.8 mm) thread diameter and corrosion resistance provided by tri-layered ceramic surface coating with a minimum

protection of 1000 hrs. when tested according to ASTM B117.

a. Fasteners for attachment to wood studs, concrete and masonry: Self-tapping, point type 17.

b. Fasteners for attachment to light gauge steel studs: Self-drilling, with a drilling capacity of 0.035 to 0.176 in. and minimum torsional strength of 75 lb/in.

2. Fastener Length:

a. Wood stud fasteners: [1-½ in. (38 mm)] [2-¼ in. (57 mm)] [3 in. (76 mm)] [4 in. (102 mm)] [5-1/4 in. (133 mm)] Screw fasteners shall penetrate the studs a minimum of 1-1/4 in. (32 mm).

b. Metal framing/support member fasteners: [1-½ in. (38 mm)] [3-½ in. (89 mm)] [4-1/2 in (114 mm)] [5-¾ in. (146 mm)]. Fasteners shall penetrate not less than member thickness plus three threads (3/16 in., 5 mm).

c. [Masonry] [or] [Concrete] fasteners: [1-½ in. (38 mm)] [2-¼ in. (57 mm)] [3 in. (76 mm)] [4 in. (102 mm)] [5-1/4 in. (133 mm)]. Screw fasteners shall penetrate the substrate a minimum of 1 in. (25 mm).

C. Starter Angle Flashing:

1. Glen-Gery Thin Tech® Starter Angle:

a. Stainless steel conforming to ASTM A240/A240M, Type 304, 0.018 in. (0.45 mm) (26 gauge) pre-bent in 10 ft. (3.05 m) lengths.

b. Depth: [1-1/4 in. (32 mm)] [2-1/4 in. (57 mm)] [3-1/4 in. (83 mm)] [4-1/4 in. (108 mm)]

c. Profile: [45 degree drip] [straight hemmed]

D. Resistive Barrier

1. Provide water resistive barriers as designated in Division 07.

2. Water resistive barrier shall be [Laticrete MVIS Air & Water Barrier] [Water-resistive barrier complying with ASTM E2556, Type II] [Two layers of water-resistive barrier equal to or complying with ASTM E2556, Type I].

E. Drainage Mat/Rainscreen shall be:

a. Glen-Gery Drainage Mat

1. Filter fabric laminated to spun and heat welded entangled geomatrix, 0.25 in. (6 mm) two-ply polypropylene core mesh with cornrow configuration

2. Permits moisture drainage and creates airspace

3. Hydraulic Transmissivity, Machine Direction, ASTM D 4716:

a. Flow Rate: 3.70 GPM/ft. width.

b. Transmissivity: 7.65E-03 m^2/s.

4. Air Transmissivity, ASTM D 4716, Modified:

a. Estimated Flow Rate: 15.8 cu ft./min/ft. width.

b. Incremental Transmissivity: 6.97E-04 m^2/s

F. Shims: [1-¼ in. (32 mm) wide] [2-5/8 in. (67 mm) wide] by [H] 48 in. (1,219 mm) by [T] 3/8 in. (10 mm), manufactured from G90 hot dipped galvanized, 26 gauge (16 mil) steel with thermal set coating, stucco embossed texture and centered channel.

G. Adhesives and Primer

1. Glen-Gery Heavy Duty Construction Adhesive for thin brick (maximum 1 in. [25 mm] thick) as supplied by Glen-Gery:

a. High-strength mastic exceeding ASTM D3498 and ASTM C557 specifications with less than 70 grams of VOC per liter with a shear value between the thin veneer and the panel greater than 50 PSI (10.5 kg/cm^2).

2. Adhesive for [cast stone] [natural stone] [and] [thin brick units more than ¾ in. (19 mm) thick] [and] [thin brick units 3-⅝ in. (92 mm)] or greater in height] when not otherwise mechanically attached (e.g. with Glen-Gery Thin Tech® support channels or clips) as supplied by Glen-Gery:

a. Silicone meeting or exceeding the following: TT-S-00230C, Class A, ASTM C-920,

Class 50, Type S, Grade NS, Use G,A,M,O; Type I & II, ASTM C1184-05, AAMA 805.2, AAMA 802.3 & 808.3, ASTM C1248.

3. Primer for cast/natural stone as supplied by Glen-Gery:

   a. One-component, colorless, non-yellowing polyisocyanate compatible with silicone sealants, porous and non-porous substrates.

H. Installation Hardware

1. Support Channels: 8 ft. (2.44 m) long, manufactured from 26 gauge (18 mil) [stainless steel] with ½ in. (13 mm) support leg, ¾ in. (19 mm) wide by ½ in. (13 mm) high clip
   a. 3-¾ in. (95 mm) Type 1 Classic Channel for 3-⅝ in. (92 mm) high units
   b. 7-¾ in. (197 mm) Type 2 Classic Channel for 7-⅝ in. (194 mm) high units
   c. 11-¾ in. (298 mm) Type 3 Classic Channel for 11-⅝ in. (295 mm) high units
   d. 2-⅜ in. (60 mm) Type 5 Classic Channel for 2-¼ in. (57 mm) high units
2. Cast/Natural Stone Sill Clips: Manufactured from Type 304 stainless steel
   a. SE1 Side Clip: 14 ga. (75 mil), Type 304 stainless steel split-end bent plate, 2 in. (51 mm) high x ¾ in. (19 mm) wide with ½ in. (13 mm) split bend
   b. WC1 Sill Clip: 22 ga. (30 mil) channel, 3-¾ in. (95 mm) high x 3 in. (76 mm) long with ½ in. (13 mm) support leg and ½ in. (13 mm) clip
   c. WC2 Sill Clip: 22 ga. (30 mil) channel 5 in. (127 mm) high x 3 in. (76 mm) long x ¾ in. (19 mm) wide with ½ in. (13 mm) support leg and ½ in. (13 mm) clip
   d. Z1 Z Clip: 14 ga. (75 mil) Type 304 stainless steel bent plate, 2 in. (51 mm) wide x 2 in. (51 mm) high x ¾ in. (19 mm) wide bent plate with ½ in. (13 mm) clip

I. Universal Corner Support: 6 in. (152 mm) x 6 in. (152 mm) x 4 ft. (1.22 m) long, pre-bent 90 degrees, manufactured from 26 gauge (16 mil) , stucco embossed, textured steel

1. Exterior Finish: [G90 Galvanized with thermal set coating] [Stainless steel]

J. Thin Tech® Spacer: 1-1/4” in. (31 mm) [H] x 1 in. (25 mm) [W] x 3/4 in. (19 mm) [T] injection molded plastic with height-setting panel clip, reusable.

K. Weepholes/Vents:

1. Glen-Gery Thin Tech® Air Vent: Impact resistant polypropylene copolymer. Density 2,000 grams/sq. meter. Size: ⅜ in. (10 mm) x ½ in. (13 mm) x 48 in. (1.22 m).

2.3 MASONRY UNITS, GENERAL

A. Masonry unit weight may not exceed 15 psf.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other imperfections exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed work.

2.4 UNIT MASONRY

A. Manufacturer: Glen-Gery Corporation located at 1166 Spring Street, P.O. Box 7001, Wyomissing, PA 19610; Tel: 610-562-3076; e-mail: info@glengery.com; Web: www.glengery.com

B. Substitutions: Not permitted.

C. General: Provide shapes indicated and as follows:

1. Provide special shapes for applications where flats (stretcher units) cannot accommodate special conditions, including those at corners and openings.

2. Provide special shapes for applications requiring thin brick of size, form, color and texture on exposed surfaces that cannot be produced by sawing.

3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

D. Provide brick similar in texture, color and physical properties to those available for inspection at the Architect/Engineer's office and/or as supplied on the approved sample panel.

E. All thin brick veneer specified and shown on drawings shall be 4"x1"x12" utility wire-cut (ASTM C216, Grade SW, Type 1); as manufactured by Kings Materials, or equal. Color shall be "Flashed Red as manufactured by the Glen-Gery Corporation.

1. Thin Brick: Comply with ASTM C 1088, Grade Exterior.

a. Type [TBS]

b. Size:

i.) Utility: 3-5/8 in. (92 mm) high, 11-5/8 in. (295 mm) long

ii.) Thickness: [1 in. (25 mm)]

F. All Glazed Thin Brick specified and shown on drawings shall be utility wire-cut (ASTM C216, Grade SW, Type 1); as manufactured by Kings Materials, or equal. Color shall be "Flashed Red as manufactured by the Glen-Gery Corporation.

1. Glazed Thin Brick: Comply with [ASTM C 1088, Grade Exterior, Type TBX for the body

and ASTM C 126 Grade S, Type 1 for glazed surface requirements][ASTM C 1405].

a. Size (height, length – actual dimensions listed)
   i.) Utility: 3-5/8 in. (92 mm) high, 11-5/8 in. (295 mm) long
   ii.) Thickness [1 in. (25 mm)]

2.5 CAST STONE MASONRY

A. Comply with requirements of ASTM C 1364.

1. Compressive Strength: as tested in accordance with ASTM C 1194.
2. Absorption, Cold Water: as tested in accordance with ASTM C 1195.
3. Linear Shrinkage: as tested in accordance with ASTM C 426.

B. Size: [1] inches wide/thick, [12] inches high, [24] inches long.

C. Color, Texture and Finish: Stone veneer shall be Rock Cast 12”x1”x24” “Rock Face” finish; as manufactured by Kings Materials, or equal. Color shall be “Smokehouse”

2.6 ACCENT STONE MASONRY

A. Comply with requirements of ASTM C 1364.

1. Compressive Strength: as tested in accordance with ASTM C 1194.
2. Absorption, Cold Water: as tested in accordance with ASTM C 1195.
3. Linear Shrinkage: as tested in accordance with ASTM C 426.

B. Size: [1] inches wide/thick, [8] inches high, [Maximum allowed] inches long.

C. Color, Texture and Finish: Rock Cast 8”x1”x Maximum length “Smooth Finish” with chamfered edges; as manufactured by Kings Materials, or equal. Color shall be “Buffstone”.

2.7 MORTAR

A. Cold Weather Additives (including accelerators) shall not be used in mortar.

B. Mortar for thin brick:

1. Mortar shall conform to ASTM C 270, Standard Specification for Mortar for Unit Masonry.
   a. Glen-Gery Color Mortar Blend: Color – (Verify - TBD by Owner) Type [S]
2. Mortar modified with polymer additives and conforming to ANSI A118.4 or ANSI A118.15 specifications for modified or improved modified dry-set cement mortar.

C. Mortar for cast & accent stone units:

1. Comply with masonry unit manufacturer's mortar requirements. Mortar shall conform to ASTM C 270, Standard Specification for Mortar for Unit Masonry.

   a. Glen-Gery Color Mortar Blend: Color – (Verify - TBD by Owner) Type [S]

2. Mortar modified with polymer additives and conforming to ANSI A118.4 or ANSI A118.15 specifications for modified or improved modified dry-set cement mortar.

2.8 ANCILLARY MATERIALS

A. Flashing

NOTE TO SPECIFIER: These are flexible and/or self-adhering flashings designed for used at jambs and sills where applicable. Delete flashing options not required for project or referenced in specification Division 07.

1. [Self-Adhering] Stainless Steel Fabric Flashing: Composite flashing product consisting of a 0.003 in. (0.08 mm) single sheet of Type 304 stainless steel [bonded to a 0.004 in. (0.10 mm) layer of polymeric fabric][with a butyl block co-polymer adhesive].

2. Elastomeric Thermoplastic Flashing: Composite flashing product consisting of a polyester-reinforced ethylene interpolymer alloy as follows:

   a. Monolithic Sheet: Elastomeric thermoplastic flashing, 0.040 in. (1.0 mm) thick.

   b. Self-Adhesive Sheet: Elastomeric thermoplastic flashing, 0.025 in. (0.6 mm) thick, with a 0.015 in. (0.4 mm) thick non-asphaltic adhesive.

3. Butyl Flashing: Self-adhering flashing membrane, minimum 0.016 in. in thickness (0.15 mm) consisting of a polyolefin film and butyl adhesive

4. Adhesives, Primers, and Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for joints or connections to or between water-resistive barrier or air barrier system components.

   a. Transition Tape:

      1. Asphalt free self-adhering membrane, 3 in. (76 mm) wide, consisting of woven polyethylene/polypropylene film bonded to heavy duty synthetic rubber adhesive.

      2. Self-adhering tape, 3 in. (76 mm) wide, consisting of a polyolefin film with an acrylic adhesive.

   b. Primer: As recommended by the manufacturer of the specified product

B. Control and Expansion Joints

1. Bond Breaker Tape: Polyethylene tape, width to match width of movement joint.

2. Backer Rod: Non-gassing polyethylene or flexible polyurethane foam rod 25% wider than width of joint to be filled and depth exceeds requirements in as indicated in Division 07 Section “Joint Sealants”.

3. Sealant: As specified in Division 07 Section “Joint Sealants” and complying with ASTM C920.

2.9 RIGID INSULATION

A. Provide rigid insulation as designated in Division 07 (Armorwall exterior insulation board system).

B. Closed-cell insulating rigid foam shall have a minimum compressive strength of 15 pounds per square inch and comply with the requirements of [ASTM C578] [or] [ASTM C1289].

C. Maximum flame spread and smoke development when tested in accordance with ASTM E 84 shall not exceed 25 and 450 respectively.

D. Thickness shall not exceed 3 in. (76 mm).

2.10 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer’s standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Diedrich Technologies, Inc.

a. 202 New Masonry Detergent

b. 202V Vana-Stop®

c. Green Clean 250 Manufactured Stone Cleaner

2. [other cleaning agent as recommended by masonry unit and mortar manufacturer.]

PART 3: EXECUTION

3.1 EXAMINATION

A. Do not begin Thin Tech® installation until substrates, water-resistive barrier, drainage mat, foundations, rough-ins and built-in construction have been installed according to project specifications and building code requirements.

1. Walls must be structurally sound and the substrate system designed with a wall deflection not greater than L/360.

   a. Maximum wall frame spacing for stud walls = 24 in. (610 mm) O.C.

   b. Maximum wall frame spacing for girts = 24 in. (610 mm) O.C.

   c. Minimum 0.043 in. (18 gauge; 1.09 mm) metal framing for exterior walls.

2. Substrate shall provide continuous support and be flat, with surface variation not exceeding 1/8 in. (3 mm) within any 4 ft. (1.2 m) square area and have no planar irregularities greater than 1/4 in. (6 mm) in 10 ft. (3.05 m).

3. Substrate shall be concrete, masonry or one of the following as deemed suitable for specific project conditions:

   a. [Exterior grade gypsum sheathing] [glass fiber mat-faced sheathing] [or] [cement board] not less than 1/2 in. (13 mm) in thickness.

   b. Closed-cell insulating rigid foam not less than 1/2 in. (13 mm) thick conforming to ASTM C578 (min. 15 psi compressive strength and minimum 1.30 lb./cu. ft. [21 kg/cu. m] density) or ASTM C1289.

   c. Oriented strand board (OSB) not less than 7/16 in. (11 mm) in thickness.

   d. Exterior grade plywood not less than 3/8 in. (10 mm) in thickness.

C. Verify walls are plumb and corners are braced to specifications.

D. If substrate (including insulation), water-resistive barrier, drainage mat, foundations or flashings (including roof and kickout flashing when applicable) are the responsibility of another installer, notify Architect and General Contractor of unsatisfactory preparation before proceeding.

E. Do not begin installation of Thin Tech panels until unacceptable conditions have been corrected. Installation constitutes acceptance of existing conditions.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation. All surfaces including, but not limited to metal panel and back face of thin brick must be free of water, snow, dirt, mud, oil and other foreign materials 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. Trim or flash in place per manufacturer's details and/or BIA *Technical Note* 28C on Thin Brick Veneer.

D. Protect the tops of all uncompleted walls to prevent water entry.

3.3 INSTALLATION, GENERAL

A. Install materials in accordance with manufacturer's instructions.

B. Select and arrange exposed masonry units to produce a uniform blend of color and texture.

1. Install masonry units from several pallets or cubes as they are placed.

C. Comply with tolerance requirements in TMS 602 (ACI 530.1/ASCE 6).

3.4 FLASHING

A. Prior to metal panel installation, install starter angle and flashing in accordance with Glen-Gery Thin Tech® installation instructions or ASTM E2112. Prime substrate prior to installation when required by flashing manufacturer.

B. Seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.

C. Extend horizontal through wall flashing vertically up the backing a minimum of 3 in. (76 mm).

D. Lap flashing ends a minimum of 3 in. (76 mm).

E. Seal vertical and horizontal legs of all flashing laps with compatible lap [cement] [sealant].

F. Lap water-resistive barrier over top of flashing.

[or]

[Mechanically attach flashing] [Seal top edge of flashing][Tape top edge of flashing] according to manufacturer's instructions to surface of [water-resistive barrier] [backing] in such a manner as to [prevent moisture from entering the wall] [or] [redirect it to the exterior].

G. Turn up the ends of discontinuous (e.g., head, sill and stepped) flashings to form end dams or extend not less than 4" (102 mm) beyond edges of openings.

H. Extend flashing through wall with at least 1/4 in. (6 mm) exposed to form a drip.

3.5 THIN MASONRY SUPPORT PANEL

A. Install in accordance with manufacturer's written instructions as applicable to each type of substrate required.

B. Trim, starter angle and flashing shall be installed prior to panel installation.

C. Panels shall be clean, dry and free of dirt, oil or any other foreign contaminant.

D. Attach panels flat to the substrate in true and level rows with support ties aligned and level to each other, including at corners.

E. Stagger vertical support panel joints over sheathing joints and at least 16 in. (406 mm) horizontally from panels in rows above or below.

F. Install full-size uncut panels when possible. Cut panels using a method resulting in clean, unbent edges when necessary to provide vertical staggered panel joints, to ensure panels are fastened to studs, or to fit specific conditions.

G. Install panels with 1/16 in. to 1/8 in. (2 to 3 mm) space between the vertical edges of panels.

H. Do not allow panels to bridge vertical or horizontal movement joints in substrate. The space between metal panels at substrate movement joint locations shall be equal to the thickness of the substrate movement joint.

I. Stop panel at least 3/8 in. (10 mm) from inside corners, openings and other materials to allow for movement.

K. Start panels at least [4 in. (102 mm) above earth] [2 in. (51 mm) above paved areas]. Maintain a minimum clearance of 2 in. (51 mm) above roof surfaces. Do not install Thin Tech® panels below grade.

3.6 FASTENERS (For Thin Masonry Support Panel)

NOTE TO SPECIFIER: Revise subparagraphs below to suit Project.

A. Attach fasteners to framing/support members for framed applications. Do not attach Thin Tech® panel to the sheathing alone.

B. Fasteners for wood studs shall penetrate the studs a minimum of 1-1/4 in. (32 mm).

C. Fasteners for steel studs or other steel supports shall penetrate a minimum of three threads beyond steel member thickness.

D. Fasteners for [masonry] [or] [concrete] shall penetrate the substrate a minimum of 1 in. (25 mm).

E. Fastener Installation: Mechanically attach metal panels with a minimum of one fastener per sq. ft. (929 cm^2), reducing fastener spacing along the top and bottom of the wall and around openings, as indicated below.

1. Spacing of pre-punched fastener holes results in the typical recommended fastener spacing of 8 in. (203 mm) vertically and 16 in. (406 mm) horizontally.

2. Horizontal fastener spacing shall not exceed 24 in. (610 mm); vertical fastener spacing shall not exceed 16 in. (406 mm).

3. Fasteners should not be installed behind masonry units, except where they are placed within the channels of Elite Panels.

4. Provide additional fasteners around the perimeter of walls and around openings larger than 24 in. (610 mm) in either dimension, as well as building corners not utilizing corner panels as follows:

   a. Fasteners shall be placed within 8 in. (203 mm) of the top and bottom of the building walls, at a maximum spacing of 12 in. (305 mm) horizontally.

   b. At vertical ends of walls and openings, fasteners shall be spaced a maximum of 8 in. (203 mm) vertically within 4 in. (102 mm) of the vertical edge of the panel.

   c. Where the vertical edge of Thin Tech® Elite Panel is more than 2 in. (51 mm) from a channel, install Thin Tech® Shim and fasten for additional support.

3.7 MASONRY UNITS

A. Back face of [thin brick] [and] [cast stone] [natural stone] and surface of metal panel must be dry and clean; free of dirt, oil or and other contaminants.

B. Prime cast stone and natural stone masonry units, if recommended, according to manufacturer's instructions.
   1. Apply primer with a brush or roller at least 1 in. (25 mm) wide in vertical lines no more than 6 in. (152 mm) apart prior to adhering to panel.

   2. Do not prime within ½" to 1" (13 to 25 mm) of any stone edges.

   3. Allow primer to dry completely (at least one hour) before applying adhesive. Reapply primer if structural silicone adhesive is not applied within 8 hours.

C. Prior to installing veneer units with adhesive, establish unit layout to ensure bond patterns with uniform joint thicknesses and to reduce cutting at openings, movement joints, returns, and offsets.

   1. Avoid using less-than-half-size units, particularly at corners and jambs.

   2. Avoid using cut units at heads and sills of opening.

3. Ensure unfinished or cut faces are not exposed to view upon completion.

D. Lay masonry in bond pattern as indicated on drawings or general notes.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of color and texture.

F. Leave a uniform 3/8 in. to 1/2 in. (10 to 13 mm) space around the perimeter of openings to allow for movement joint installation.

G. Apply [1 in. (25 mm) diameter dabs of specified adhesive, not more than 6 in. (152 mm) apart to the back of thin brick] [and] [3/8 in. (10 mm) wide vertical beads of specified adhesive not more than 6 in. (152 mm) apart to the back of cast/natural stone units.] and adhere units to panel. No less than two dabs/beads shall be applied to each full length unit. Corner units shall have at least one dab/bead of adhesive applied to the head/return.

1. Do not apply adhesive in horizontal streams.

2. Do not use excessive adhesive as this may cause veneer units to tilt away from wall prior to adhesive set.

3. Do not apply silicone adhesive within ½ in. to 1 in. (13 to 25 mm) of any stone edges.

H. Masonry units shall be adhered to dry panel within 5 to 10 minutes after adhesive has been applied and before film begins to form on the adhesive.

I. When adjustment is necessary to be made after adhesive begins to harden, remove hardened adhesive and replace with fresh adhesive.

J. Keep areas intended to receive sealant clear of thin brick, adhesive and other materials during construction.

K. Do not allow masonry units to bridge movement joints in substrate

.

3.8 MORTAR INSTALLATION AND JOINTING

A. After adhesive has set a minimum of 6 hours, completely fill head and bed joints intended to receive mortar.

B. Discard mortar after two hours or when too stiff to work. Retempering within two hours is permitted, but may contribute to mortar color variation.

C. Do not fill movement joints to receive sealant.

D. Do not fill joints to receive Glen-Gery Thin Tech® Air vent.

E. Form weep holes (head joints free of mortar) as required in Section 3.9, immediately above starter angles and flashings.

F. Tool exposed joints when thumbprint hard to joint [concave] [V-shaped] [grapevine] profile.

G. For glazed thin brick, use nonmetallic jointer

H. Flush cut all joints not tooled.

I. When repointing, completely remove mortar, and refill solidly with mortar and tool joints.

3.9 WEEPHOLES/VENTS

A. Vents for Elite Panels: Omit mortar from head joints and install vents cut to [2-1/4 in. (57 mm)] [add desired height] vertically in head joints.

1. Spacing of weep vents shall not exceed a maximum of 24 in. (610 mm) on center horizontally for units 12 in. (304.8 mm) or less in length and a maximum of 32 in. (813 mm) on center for larger units, in the joint between the flashing and masonry units above or in the lower third of the head joints immediately above the starter angles and flashings, including the base of the wall, at horizontal expansion joints and above all openings.

2. Keep vents free of mortar or other obstructions.

3.10 MOVEMENT JOINTS

A. Locate movement joints where indicated on drawings.

B. Provide vertical and horizontal movement joints where indicated by leaving a continuous space no less than 3/8 in. (10 mm) wide between Thin Tech® panels, installing bond breaker tape or backer rod as specified and installing sealant as specified in Division 07 Section "Joint Sealants."

1. Provide and install bond breaker tape at movement joints prior to installing masonry units 1 in. (25 mm) or less in thickness. Install backer rod where thickness of masonry unit exceeds 1 in. (25 mm).

C. Keep entire length of movement joint clear of mortar, Thin Tech® adhesive and debris.

D. Install movement joints between Thin Tech® wall assemblies and other materials, including around windows and doors.

E. Install movement joints at changes in substrate and where movement joints occur in substrate or foundation.

F. Install movement joints at changes in wall height or thickness.

G. Spacing of vertical movement joints must not exceed 24 ft. (7.3 m) on center in walls without openings.

H. Install movement joints at inside corners and within 2 to 4 ft. (0.6 to 1.2 m) of outside corners where intersecting walls (with Thin Tech® applied to each) are longer than 4 ft. (1.2 m).

I. Install no less than one horizontal movement joint per story, with height between horizontal movement joints not exceeding 20 ft. (6.1 m).

J. Install horizontal movement joints below all starter angles above the base of the wall.

3.11 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses with a dry, non-metallic brush to remove adhesive as well as mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is set and cured, clean exposed masonry as follows:

1. Cut out all defective mortar joints and holes in exposed masonry and fill with new mortar.

2. Clean preselected sample wall area with specified cleaning product as per brick manufacturer's recommendations. Do not use muriatic or hydrofluoric acid. Do not proceed with cleaning until approved by Architect/Owner.

3. Clean thin brick in accordance with cleaning product manufacturer's written instructions.

4. Protect adjacent stone and non-masonry surfaces from contact with cleaner.

3.12 WARRANTY

A. Provide manufacturer's 50 year warranty against material defects in Thin Tech® Elite panels and accessories.

C. Warranty provides for the original purchaser. See warranty for detailed information on terms, conditions and limitations.

DIVISION 5 - STRUCTURAL STEEL

SECTION 05120 - STRUCTURAL STEEL

PART 1 GENERAL

1.01 WORK INCLUDED

A. Structural steel framing members, structural steel support members, struts, and with required bracing, welds, and fasteners.

B. Baseplates, shear stud connectors and expansion joint plates.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Section 3300.1500: Anchorages cast in concrete.

B. Section 0400.1200: Anchorages embedded in masonry.

1.03 RELATED WORK

A. Section 05210 - Steel Joists.

B. Section 05311 - Steel Roof Deck: Support framing for small openings in metal deck.

C. Section 05313 - Steel Floor Deck: Support framing for small openings in metal deck.

1.04 REFERENCES

A. ASTM A36 - Structural Steel.

B. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

C. ASTM - A325 - High Strength Bolts for Structural Steel Joints.

D. ASTM A490 - Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints.

E. ASTM - A500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Round and Shapes.

F. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

G. ASTM A572 - High Strength Low Alloy Columbium-Vanadium Steel of Structural Quality.

H. ASTM A502 - Steel Structural Rivets.

I. AWS D1.1 - Structural Welding Code.

J. AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

K. FS TT-P-31 - Paint, Oil: Iron Oxide, Ready Mix, Red and Brown.

1.05 SHOP DRAWINGS

A. Submit shop drawings under provisions of the General Conditions.

B. Indicate profiles, sizes, spacing, and locations of structural members, connections, attachments and fasteners.

C. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

D. Prepare shop drawings under seal of a Professional Structural Engineer registered in State of New York.

PART 2 PRODUCTS

2.01 MATERIALS

A. Structural Steel Members: ASTM A36.

B. Structural Tubing: ASTM A500, Grade B.

C. Bolts, Nuts and Washers: ASTM A325.

D. Welding Materials: AWS D1.1; type required for materials being welded.

E. Primer: FS TT-P-31, brown.

2.02 FABRICATION

A. Fabricate structural steel members in accordance with AISC Specification.

2.03 FINISH

A. Clean, prepare, and shop prime structural steel members.

PART 3 EXECUTION

3.01 ERECTION

A. Erect structural steel in accordance with AISC Specification.

B. Make provision for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.

C. Do not field cut or alter structural members without approval of Architect/Engineer.

D. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete. Use a primer consistent with shop coat.

E. All structural steel installations shall be A-36 steel and shall conform to ASTM Specifications. Affidavit to be filed with Building Department upon request.

F. All structural steel fabrication, erection, and connections shall conform to latest AISC standards and specifications Type 2 construction except as noted.

G. All field connections to be 3/4" diameter machine bolts unless indicated otherwise. Shop connections to be either machine bolted or welded. All bolts to be A-325 friction type. Connections shall be per Type 1 construction per AISC for portal frames and shall be detailed to develop at least full allowable movement and shear capacity. All remaining steel to have Type 2 connections. A-307 bolts may be used for minor connections when acceptable to engineer.

H. Steel encased in concrete shall not be painted. All steel surfaces not in contact with concrete shall receive one shop coat of approved paint, and after erection, one field coat. Omit primer paint at welds and high strength bolts.

I. The structure shall be properly guyed and braced.

J. Grout under column and beam bearing plates shall be non-shrink, propak or equal.

K. Provide loose lintels as required for openings in masonry walls and partitions.

L. Provide holes in shop for bolted blocking, pipe penetrations, etc. Details shall be shown on shop drawings for review by Engineer.

SECTION 05311 - STEEL FLOOR AND ROOF DECKING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Steel roof deck and accessories.

B. Framed openings up to 18 inches (450 mm).

C. Bearing plates and angles.

1.02 RELATED WORK

A. Section 05120 - Structural Steel: 05210 - Steel Joists.

1.03 REFERENCES

A. AISI - Specification for the Design of Cold-Formed Steel Structural Members.

B. ASTM A36 - Structural Steel.

C. ASTM A446 - Steel Sheet, Zinc-Coated (Galvanized) by the Hot- Dip Process, Structural (Physical) Quality.

D. ASTM A525 - Steel Sheet, Zinc-Coated, Galvanized by the Hot- Dip Process.

E. ASTM A611 - Steel, Cold-Rolled Sheet, Carbon, Structural.

F. AWS D1.1 - Structural Welding Code.

G. SDI - Design Manual for Composite Decks, Form Decks, Roof Decks.

1.04 SHOP DRAWINGS

A. Submit shop drawings under provisions of General Requirements.

B. Indicate decking plan, deck profile dimensions, supports, projections, openings, and reinforcement, finishes, pertinent details, and accessories.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store decking on wood sleepers with slope for positive drainage.

PART 2 PRODUCTS

2.01 MATERIALS

A. Sheet Steel: ASTM A446, Grade B structural quality; with G60 coating; unfinished.

B. Bearing Plates: Angles: ASTM A36 steel.

C. Welding Materials: AWS D1.1.

D. Cell Closures: Closed cell foam rubber, profiled to decking.

E. Metal Closure Strips, Wet Concrete Stops, Cover Plates, and Related Accessories: 22 gage sheet steel; of required profiles and size.

F. Primer: Red oxide type.

G. Touch-up Primer: Red oxide.

2.02 FABRICATION

A. Metal Decking: Minimum gage as noted on plans, sheet steel, high fluted profile to SDI 24 inch sheets; multiple span; lapped joints.

B. Fluted Floor Decking: Minimum gage as noted on plans, sheet steel, 1-1/2 inch fluted profile; 24 inch wide sheets, multiple span, lock seam joints, to SDI.

C. Fabricate metal decking in accordance with SDI Design Manual for Composite Decks, Form Decks, Roof Decks to accommodate maximum working stress of 20,000 psi and maximum span deflection of 1/240.

D. Fabricate roof sump pan of 14 gage sheet steel, flat bottom, sloped sides, recessed 1-1/2 inches (38 mm) below roof deck surface, bearing flange 3 inches (75 mm) wide, watertight.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect metal decking in accordance with SDI Design Manual for Composite Decks, Form Decks, and Roof Decks. Provide welding in accordance with AWS D1.1.

B. On steel support members provide 3 inch minimum bearing. Align and level on supports.

C. Weld male/female side lap at 18 inches oc maximum.

D. Fasten deck to steel support members at ends and intermediate supports with 3/4 inch fusing welds at 12 inches oc maximum.

E. Reinforce deck openings from 6 to 18 inches (150 to 450 mm) in size with 2 x 2 x 1/4 inch (50 x 50 x 6 mm) steel angles. Place angles perpendicular to flutes; extend minimum two flutes each side of opening and weld to deck.

F. Install 6 inch (150 mm) wide sheet steel cover plates where deck changes direction. Spot weld in place 12 inches oc maximum.

G. Install sheet steel strip closures at roof edge and floor edge upturned to thickness of slab, to contain wet concrete. Provide closures of sufficient strength to remain in place without distortion.

H. Install sheet steel closures and angle flashings to close openings between deck and walls, columns, and openings.

I. Install foam cell closures in locations above walls and partitions.

J. Position roof sump pans with flange bearing on top surface of deck. Weld at each deck flute.

K. Immediately after welding deck in place, touch-up welds, burned areas, and surface coating damage with prime paint.

1. Metal floor deck shall be 1-1/2 inches deep, galvanized, Composite Type, equal to United State Steel Deck 1-1/2 inch "B-Lok" or Bowman 1-1/2 inch "Vgrip".

2. Metal roof deck shall be 1-1/2 inches deep, galvanized, wide rib, equal to United Steel Roof Deck "Type B" or Bowman Roof Deck "Type B".

3. Weld to supports and screw side laps, per manufacturer's recommendations and specifications.

4. Deck units shall be in lengths to span over three or more supports where possible.

5. Stone concrete topping shall have 28 day, 3000 psi. Closures shall be provided at edges, at perimeter and at openings to serve as concrete stop.

6. Conform to steel deck institute recommendations.

SECTION 05400 - COLD FORMED METAL FRAMING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Non-load bearing formed steel stud interior wall framing including soffits, etc. as shown on the drawings and refer to the following details (pages 5-15).

B. Supply and install pre-engineered and prefabricated roof truss system. Refer to page 16 specification.

1.02 RELATED WORK

A. Section 07213 - Batt and Blanket Insulation: Insulation within framing members.

B. Section 09260 - Gypsum Board Systems.

1.03 REFERENCES

A. ASTM A90 - Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

B. ASTM A446 - Steel Sheet, Zinc-Coated (Galvanized) by Hot Dip Process, Physical (Structural) Quality.

C. ASTM A570 - Hot-Rolled Carbon Steel Sheet and Strip. Structural Quality.

D. ASTM A611 - Steel, Cold-Rolled Sheet, Carbon, Structural.

E. AWCI (Association of Wall and Ceiling Industries) - Specifications Guide for Cold Formed Steel Structural Members.

F. AWS D1.1 - Structural Welding Code.

G. FS TT-P-645 - Primer, Paint, Zinc-Chromate, Alkyd Type.

1.04 SYSTEM DESCRIPTION

A. Design system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in structural framing components with three years minimum experience.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 01300.

B. Provide product data on standard framing members. Describe materials and finish, product criteria and limitations.

C. Submit manufacturer's installation instructions under provisions of Section 01300.

PART 2 PRODUCTS

2.01 FRAMING MATERIALS

A. Studs: ASTM A446 sheet steel.

B. Track: Formed steel; channel shaped; same width as studs, tight fit.

2.02 ACCESSORIES

A. Bracing, Furring, Bridging: Formed sheet steel, thickness determined for conditions encountered, manufacturer's standard shapes, same finish as framing members.

B. Plates, Gussets, Clips: Formed sheet steel, thickness determined for conditions encountered, manufacturer's standard shapes, same finish as framing members.

2.03 FASTENERS

A. Self-drilling, Self-tapping Screws, Bolts, Nuts and Washers: ASTM A90, hot dip galvanized.

B. Anchorage Devices: Power driven.

C. Welding: In conformance with AWS D1.1.

2.04 FABRICATION

A. Fabricate assemblies of framed sections of sizes and profiles required; with framing members fitted, reinforced, and braced to suit design requirements.

B. Fit and assemble in largest practical sections for delivery to site, ready for installation.

2.05 FINISHES

A. Galvanizing: G90 coating class.

B. Primer: FS TT-P-645, touch-up for galvanized surfaces.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that substrate surfaces and building framing components are ready to receive work.

B. Beginning of installation means acceptance of existing conditions.

3.02 ERECTION OF STUDDING

A. Install components in accordance with manufacturer's instructions.

B. Align floor and ceiling tracks; locate to partition layout. Secure in place with fasteners or welding at maximum 24 inches o.c.

C. Place studs at 16 inches o.c.; not more than 2 inches from abutting walls and at each side of openings. Connect studs to tracks using fastener method.

D. Construct corners using minimum three studs. Double stud at wall opening, door, and window jambs.

E. Erect load bearing studs one piece full length. Splicing of studs is not permitted.

F. Erect load bearing studs, brace, and reinforce to develop full strength to meet design requirements.

G. Extend stud framing through ceiling to underside of floor or roof structure above.

H. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.

I. Install intermediate studs above and below openings to match wall stud spacing.

J. Provide deflection allowance in stud track, directly below horizontal building framing for non-load bearing framing.

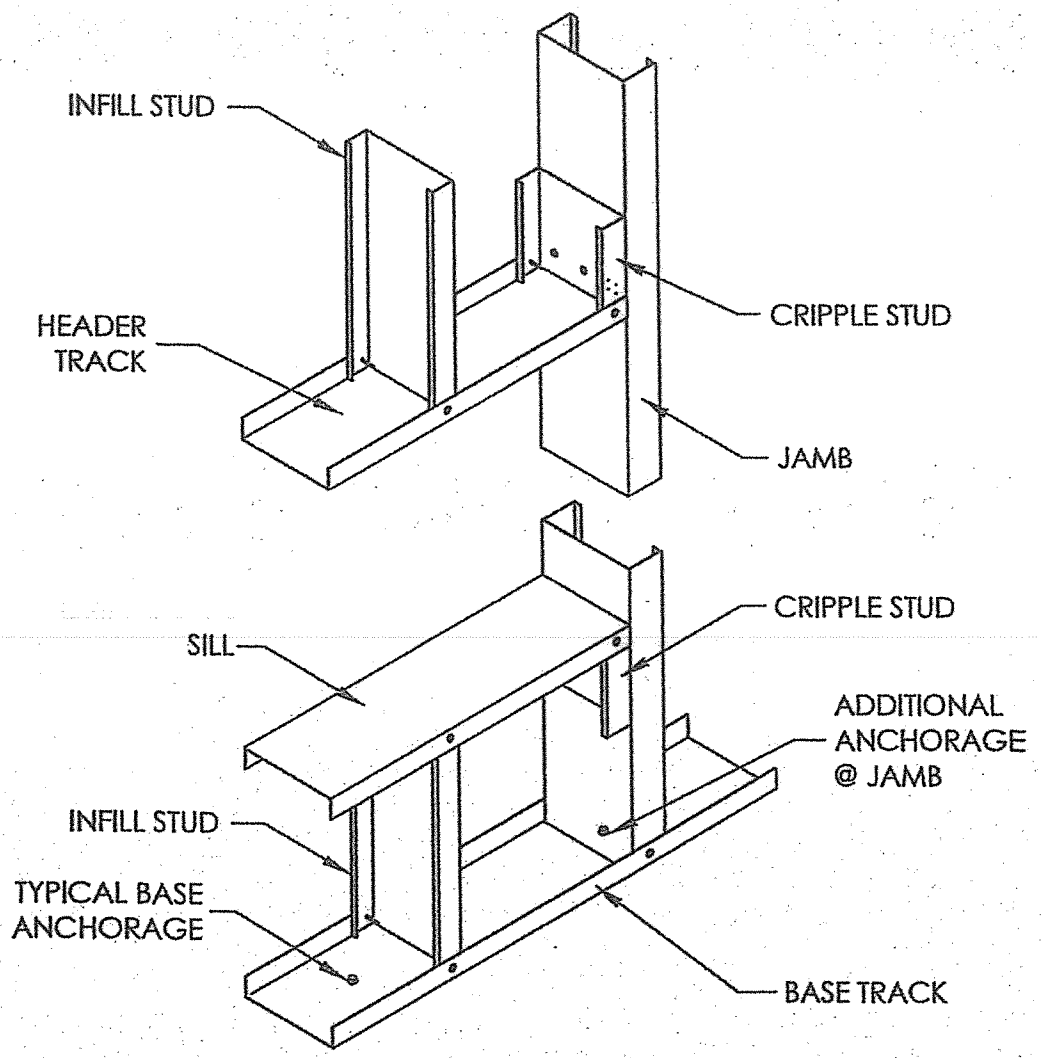
K. Attach cross studs to studs for attachment of fixtures anchored to walls.

L. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.

M. Touch-up field welds and damaged galvanized surfaces with primer.

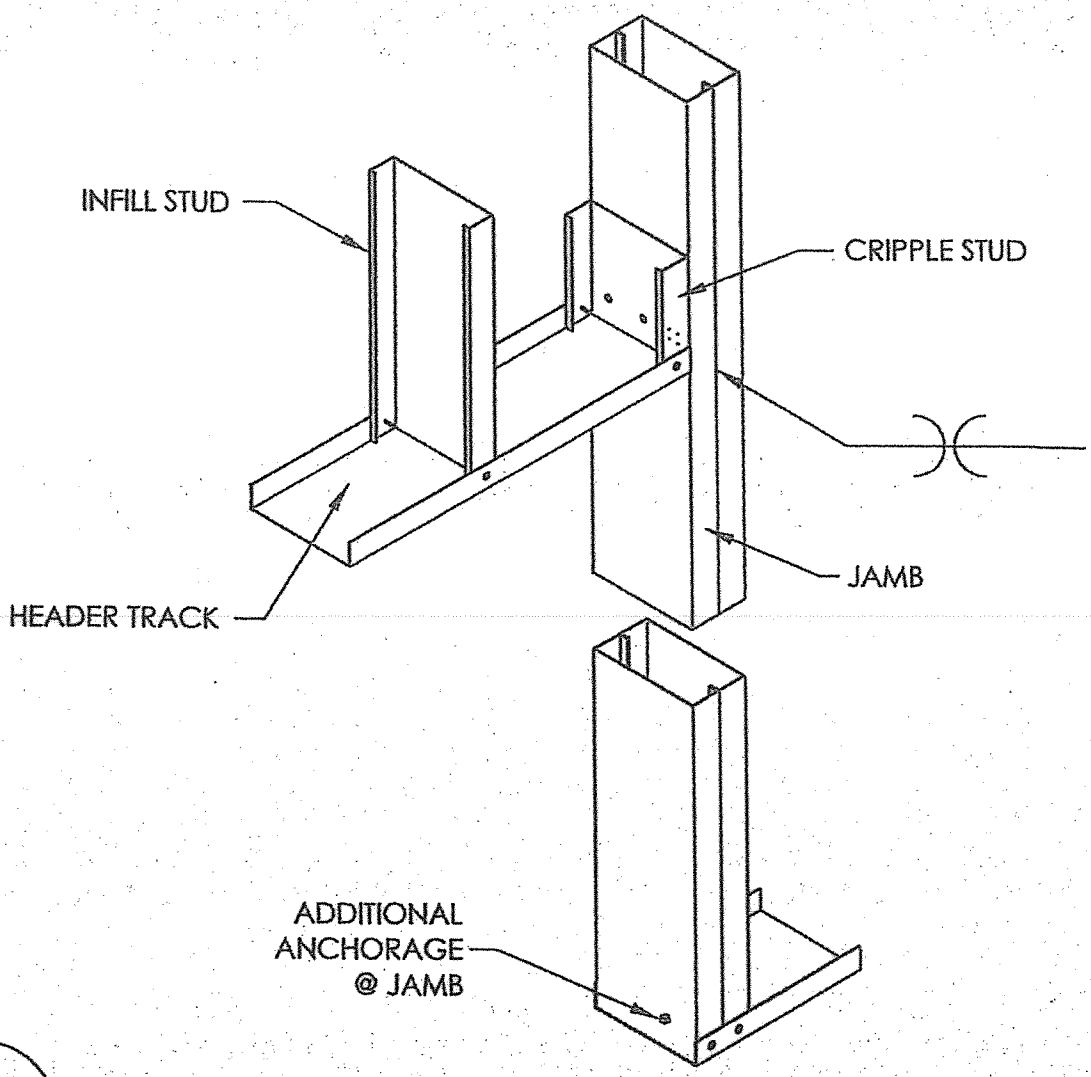
N. Complete framing ready to receive gypsum wall board.

* * * * *



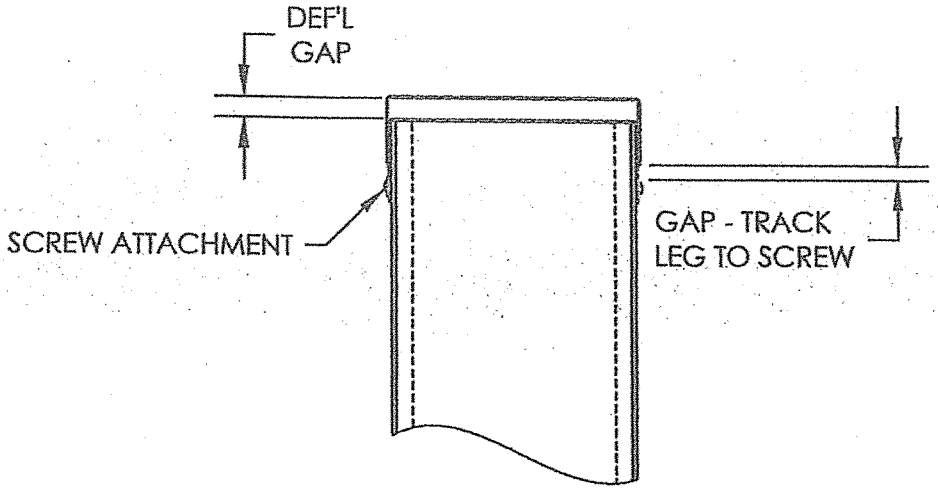
WIN-10 / XX — Window Non-Load Bearing Single Track Header Single Jamb

NTS

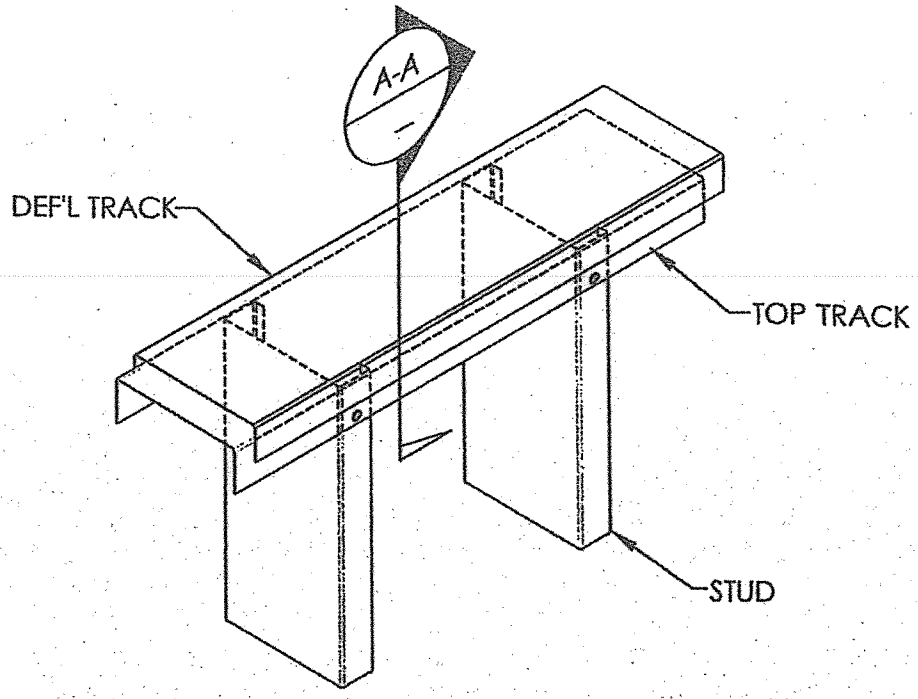


DR-11 / XX — Door Non-Load Bearing Single Track Header Boxed Jamb

NTS

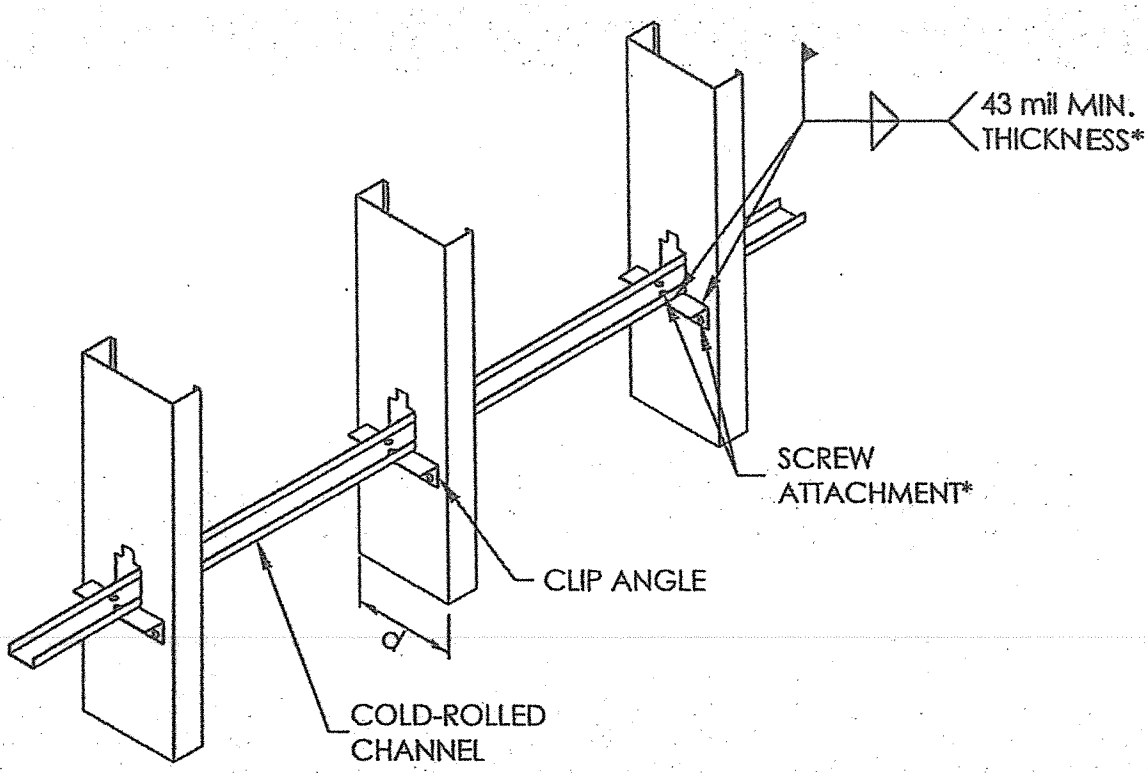


SECTION A-A



DEFL-1 / XX — Deflection Track-In-Track Assembly

NTS

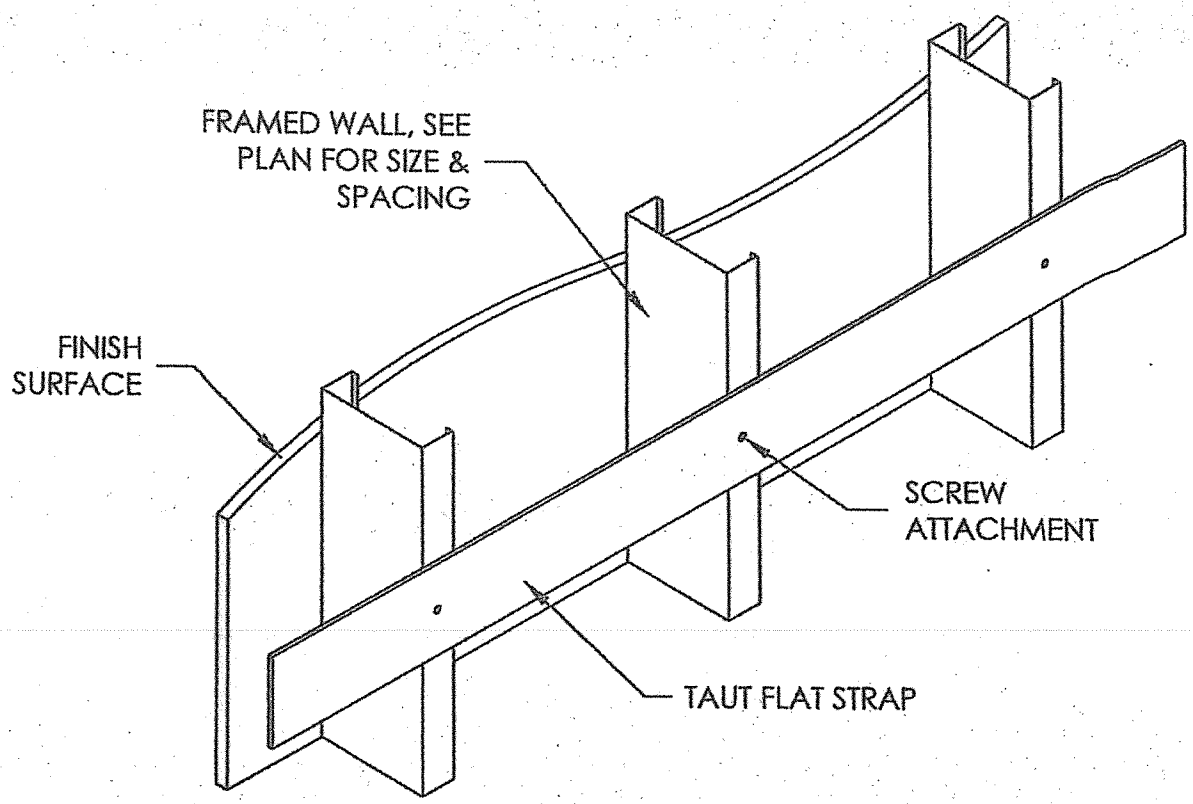


* EITHER SCREW OR WELD ATTACHMENT REQUIRED

BRG-1
XX

Bridging Cold-Rolled Channel With Clip Angle

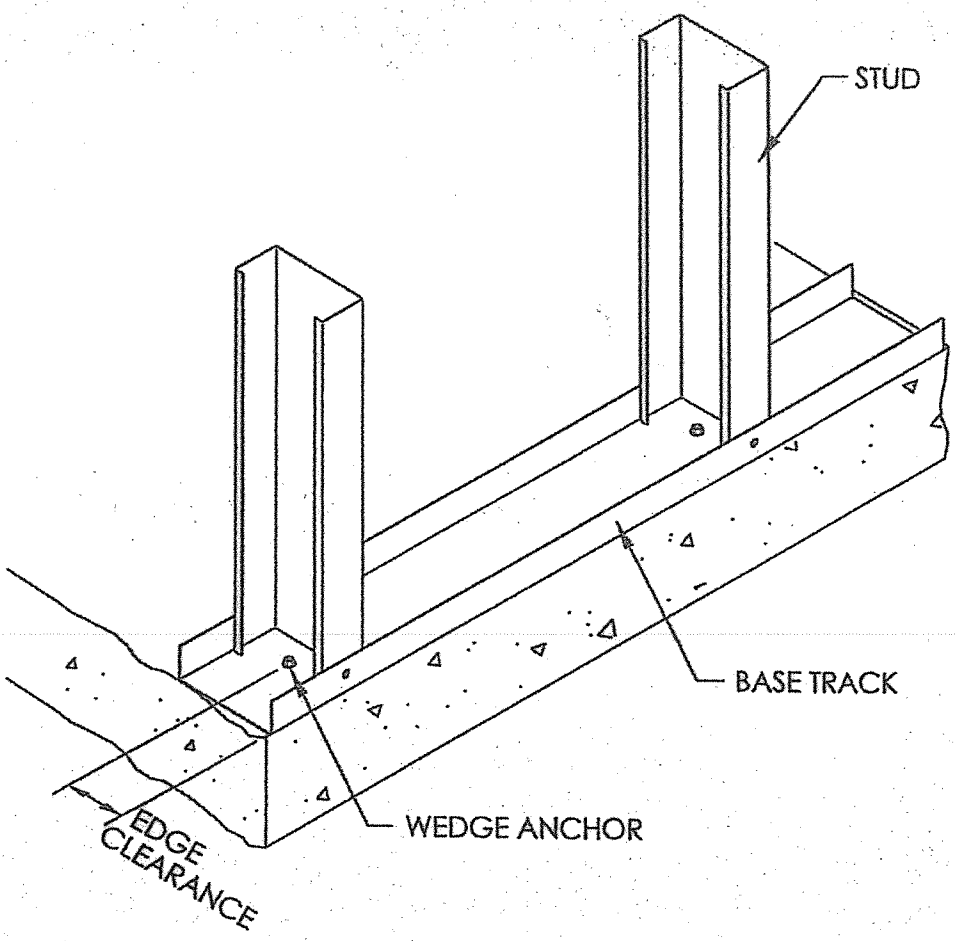
NTS



BACK-1
XX

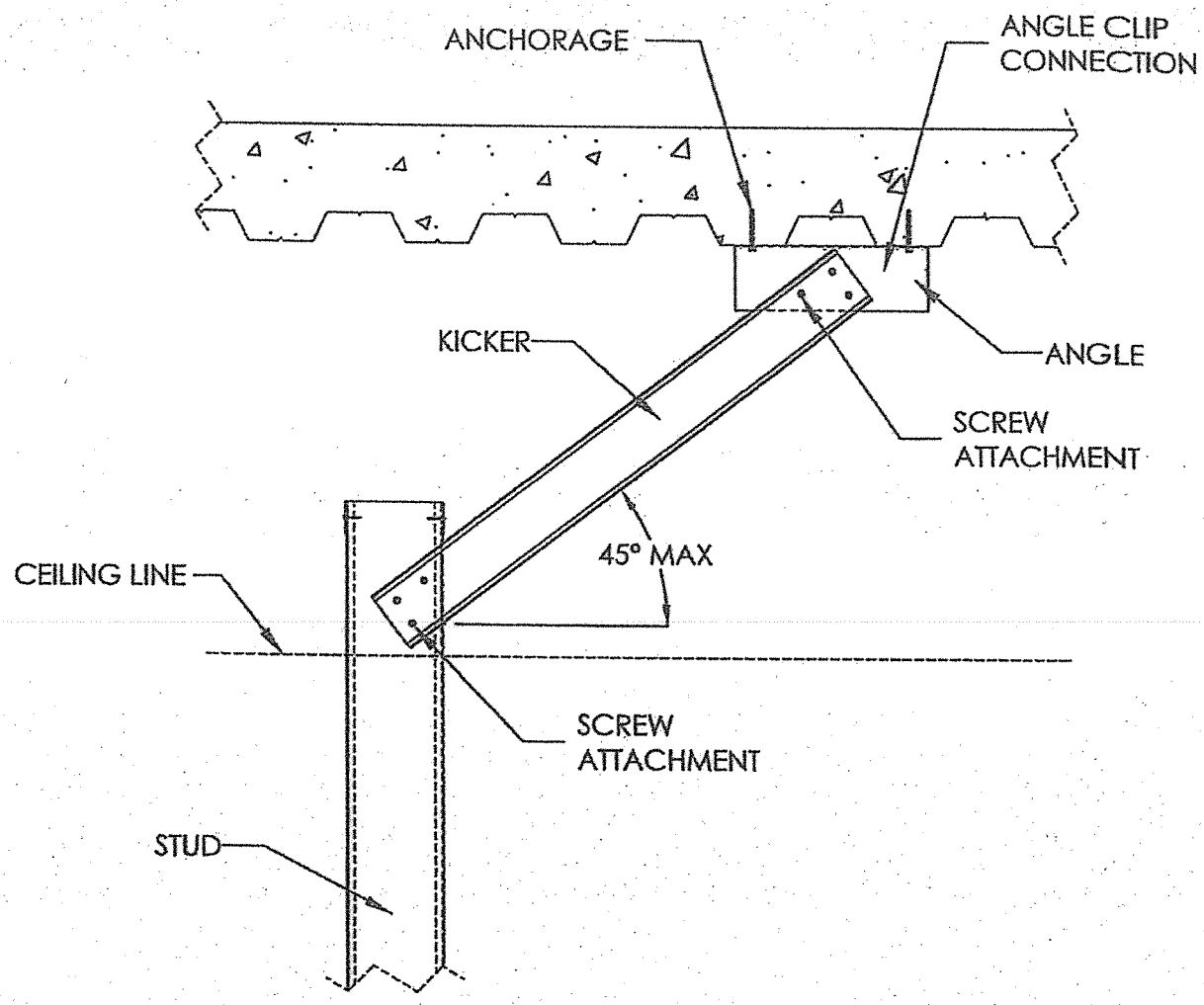
Backing Flat Strap Lightly Loaded

NTS



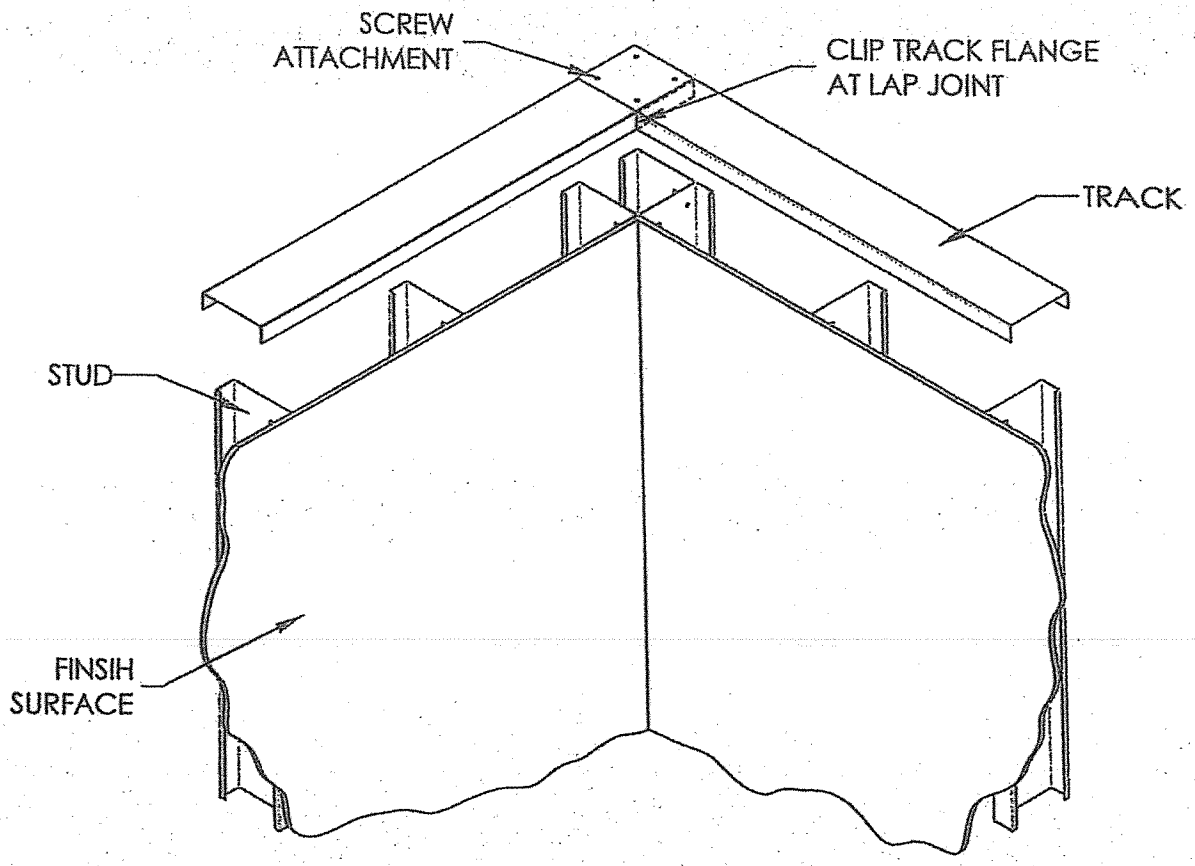
BASE-2 / XX — Bottom Track Anchorage Wedge Anchor

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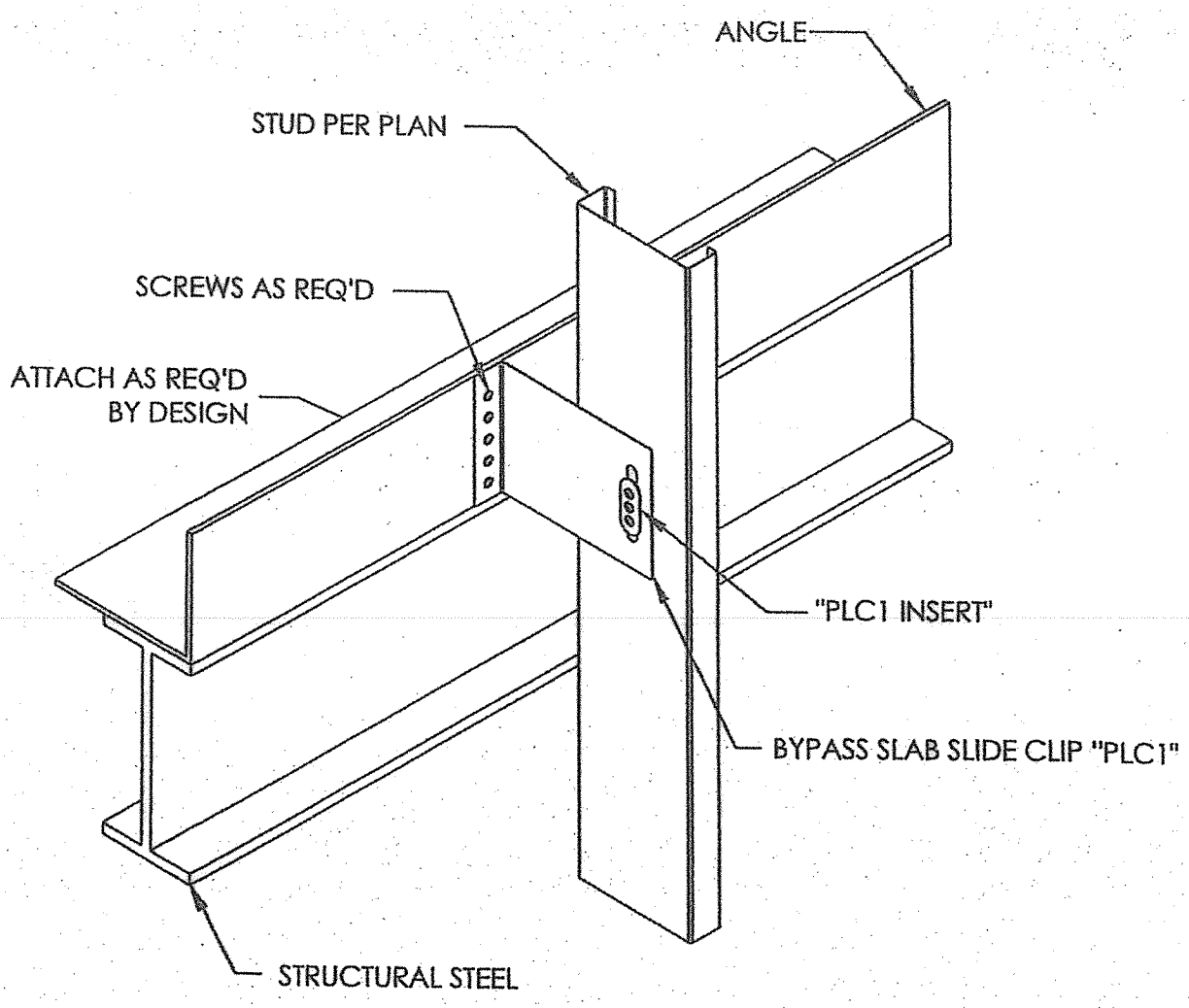
KICK-1 / XX — Non-Load Bearing Interior Wall Diagonal Kicker Screwed

NTS



CRNR / XX — Wall Framing at Corner Track Lap Connection

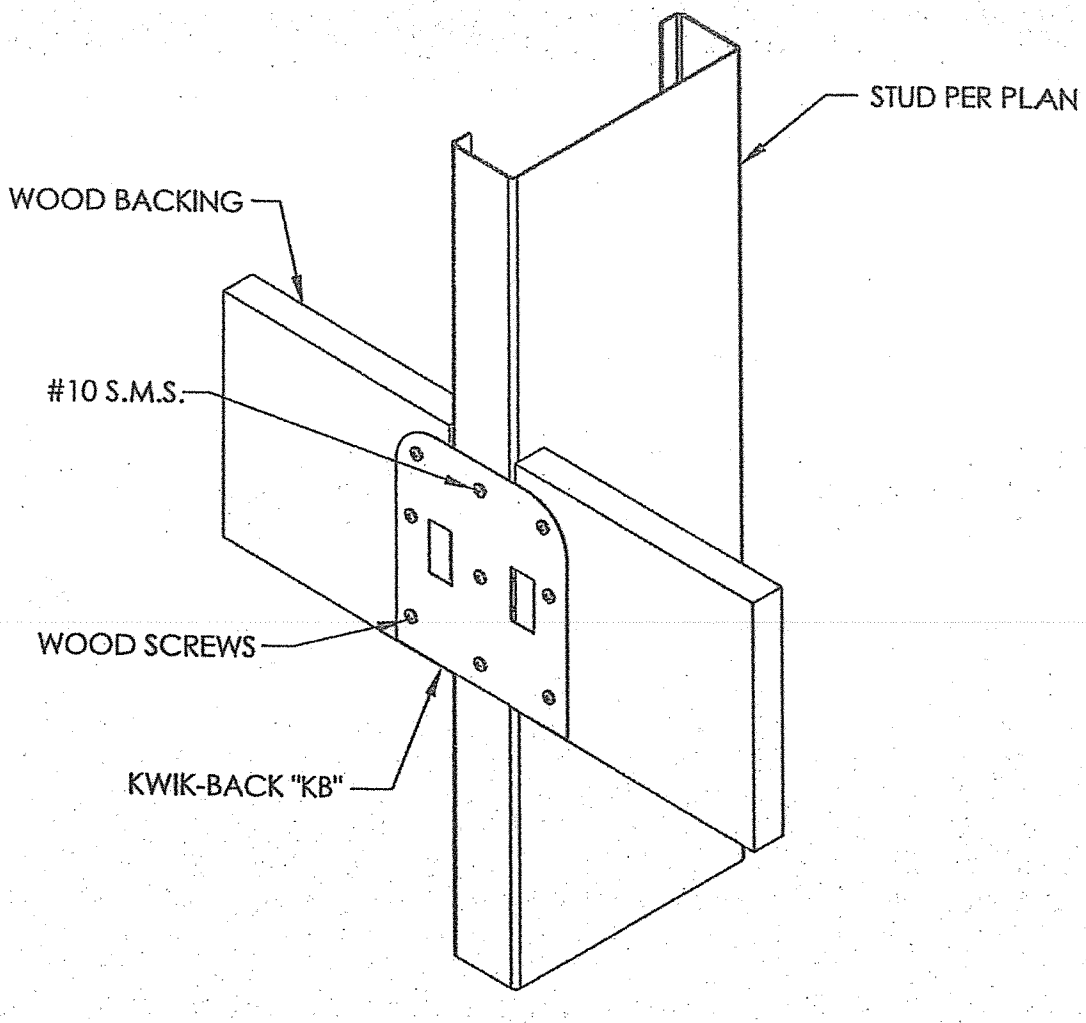
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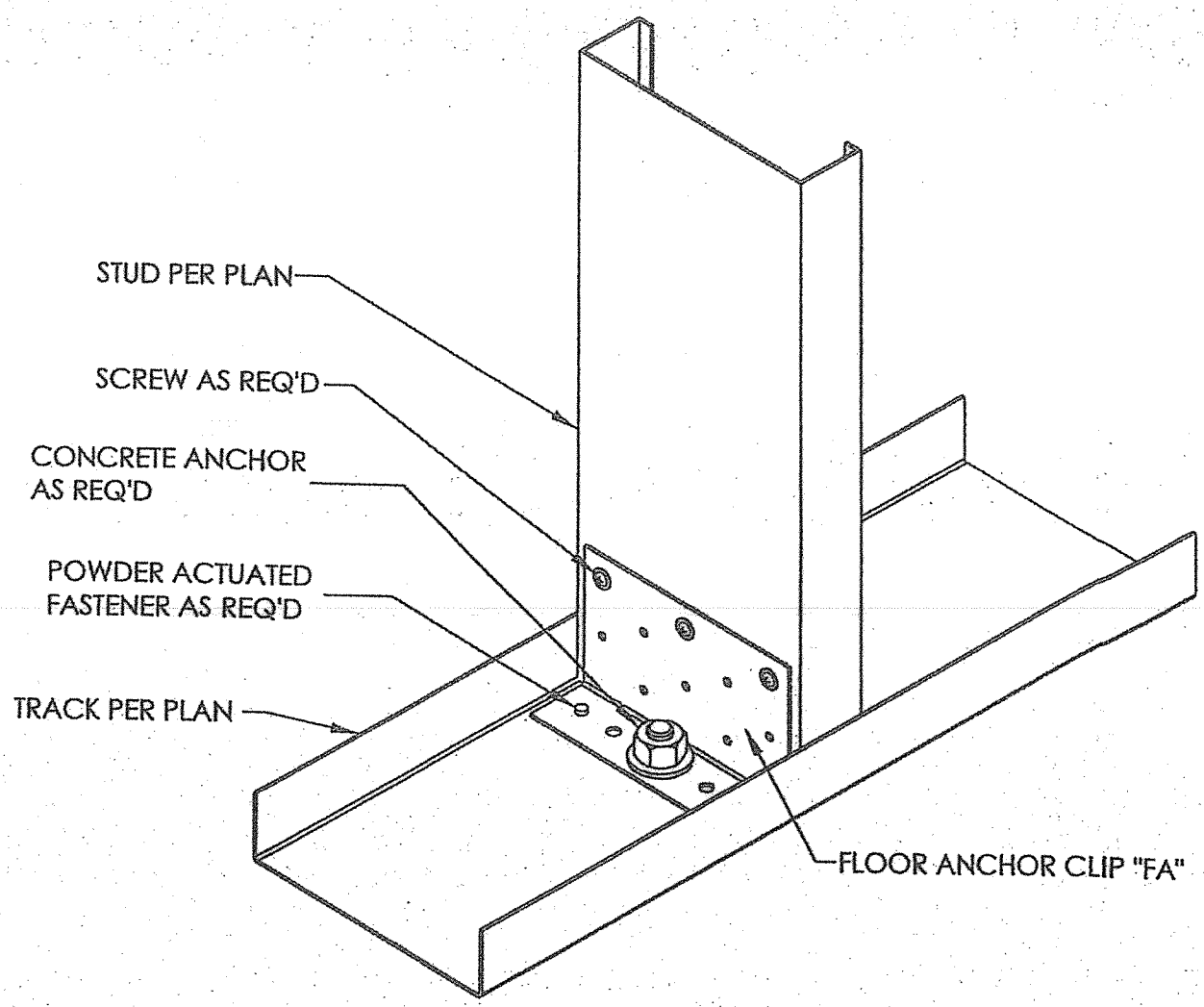
PLC1-1
XX

Bypass Slab Slide Clip Detail

NTS



KB-1 / XX — Kwik-Back Detail — NTS



FA-1 / XX

Stud to Floor Anchoring Detail

NTS

SECTION 05 44 00

(formerly 05425)

Pre-Engineered, Pre-Fabricated Light Gauge Steel Roof & Floor Trusses

PART 1 GENERAL

1.01 SUMMARY

A. Section includes pre-engineered, pre-fabricated light gauge cold formed steel framing elements. Work includes:

1. Light Gauge Cold-formed steel open web floor trusses.
2. Light Gauge Cold-formed steel roof trusses.
3. Anchorage, bracing and bridging.

B. Related work

1. Drywall attachment
2. Roofing, fascia, soffit

1.02 REFERENCES

Reference standards:

A. ASTM:

1. ASTM A653/A653M-94 "Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanealed) by the Hot Dip Process."
2. ASTM A780-93a "Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings."

B. American Welding Society (AWS)

1. AWS D1.1 "Structural Welding Code - Steel."
2. AWS D1.3 "Structural Welding Code - Sheet Steel."

1.03 PERFORMANCE REQUIREMENTS

A. AISI "Specifications": Calculate structural characteristics of cold-formed steel truss members according to AISI's "Specification for the Design of Cold-Formed Steel Structural Members, 1986 (1990)."

B. Structural Performance: Design, engineer, fabricate, and erect cold-formed steel trusses to withstand specified design loads within limits and under conditions required.

1. Design Loads: As specified.
2. Deflections: Live load deflection meeting the following (unless otherwise specified):
   a. Floor Trusses:Vertical deflection less than or equal to 1/360 of the span.
   b. Roof Trusses:Vertical deflection less than or equal to 1/240 of the span.
3. Design framing systems to provide for movement of framing members without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change (range) of 120 degrees F (67 degrees C).

1.04 SUBMITTALS

A. Submit manufacturer's product data and installation instructions for each type of cold-formed steel framing and accessory required.

B. Submit shop drawings showing member, type, location, spacing, size and gauge of members, method of attachment to supporting members and all necessary erection details. Indicate supplemental bracing, strapping, splices, bridging, accessories and details required for proper installation.

C. Submit detailed floor truss and roof truss layouts.

D. Submit truss drawings, sealed and signed by a qualified registered Professional Engineer, verifying truss' ability to meet local code and design requirements. Include:

1. Description of design criteria.
2. Engineering analysis depicting member stresses and truss deflection.
3. Truss member sizes and gauges and connections at truss joints.
4. Truss support reactions.
5. Top chord, Bottom chord and Web bracing requirements.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Fabrication shall be performed by a cold-formed steel truss fabricator with experience designing and fabricating cold-formed steel truss systems equal in material, design, and extent to the systems required for this Project.

1. Cold-Formed steel truss system installation shall be performed by an experienced installer approved by the steel truss system fabricator.

B. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code--Steel" and AWS D1.3 "Structural Welding Code--Sheet Steel."

1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure."

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in manufacturer's unopened containers or bundles, fully identified by name, brand, type and grade. Exercise care to avoid damage during unloading, storing and erection.

B. Store trusses on blocking, pallets, platforms or other supports off the ground and in an upright position sufficiently braced to avoid damage from excessive bending.

C. Protect trusses and accessories from corrosion, deformation, damage and deterioration when stored at job site. Keep trusses free of dirt and other foreign matter.

1.07 PROJECT CONDITIONS

A. During construction, adequately distribute all loads applied to trusses so as not to exceed the carrying capacity of any one joist, truss or other component.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer: Ultra-Span® Truss Manufacturer

2.02 COMPONENTS

A. System components: Aegis Metal Framing, LLC ULTRA-SPAN® and POSI-STRUT® light gauge steel floor truss and roof truss components.

B. Provide manufacturer's standard steel truss members, bracing, bridging, blocking, reinforcements, fasteners and accessories with each type of steel framing required, as recommended by the manufacturer for the applications indicated and as needed to provide a complete light gauge cold formed steel truss system.

2.03 MATERIALS

A. Materials:

1. All component gauges: Fabricate components of structural quality steel sheet per ASTM A653 with a minimum yield strength of 50,000 psi.
2. Bracing, bridging and blocking members: Fabricate components of commercial quality steel sheet per ASTM A653 with a minimum yield strength of 33,000 psi.

B. Ultra-Span steel truss components: Provide sizes, shapes and gages indicated.

1. Design Uncoated-Steel Thickness:20 gauge, 0.0350 inch (0.91 mm).
2. Design Uncoated-Steel Thickness:18 gauge, 0.0460 inch (1.20 mm).
3. Design Uncoated-Steel Thickness:16 gauge 0.0570 inch (1.52 mm).
4. Design Uncoated-Steel Thickness:14 gauge, 0.0730 inch (1.90 mm).

C. Finish: Provide components with protective zinc coating complying with ASTM A653, minimum G60 coating.

D. Fastenings:

1. Manufacturer recommended self-drilling, self-tapping screws with corrosion-resistant plated finish. Fasteners shall be of sufficient size and number to ensure the strength of the connection.
2. Welding: Comply with AWS D1.1 when applicable and AWS D1.3 for welding base metals less than 1/8" thick.
3. Other fasteners as accepted by truss engineer.

2.04 FABRICATION

A. Factory fabricate cold-formed steel trusses plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations and the requirements of this Section.

1. Fabricate truss assemblies in jig templates.
2. Cut truss members by sawing or shearing or plasma cutting.
3. Fasten cold-formed steel truss members by welding or screw fastening, or other methods as standard with fabricator. Wire tying of framing members is not permitted.
   a. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
   b. Locate mechanical fasteners and install according to cold-formed steel truss component manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.

B. Care shall be taken during handling, delivery and erection. Brace, block, or reinforce truss as necessary to minimize member and connection stresses.

C. Fabrication Tolerances: Fabricate trusses to a maximum allowable tolerance variation from plumb, level, and true to line of 1/8 inch in 10 feet (1:960) and as follows:

1. Spacing: Space individual trusses no more than plus or minus 1/8 inch (3mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel truss to a maximum out-of-square tolerance of 1/8 inch (3mm).

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine structure, substrates and installation conditions. Do not proceed with cold-formed steel truss installation until unsatisfactory conditions have been corrected.

B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION, GENERAL

A. General:

1. Erection of trusses, including proper handling, safety precautions, temporary bracing and other safeguards or procedures are the responsibility of the Contractor and Contractor's installer.
2. Exercise care and provide erection bracing required to prevent toppling of trusses during erection.

B. Erect trusses with plane of truss webs vertical and parallel to each other, accurately located at design spacing indicated.

C. Provide proper lifting equipment suited to sizes and types of trusses required, applied at lift points recommended by truss fabricator. Exercise care to avoid damage to truss members during erection and to keep horizontal bending of the trusses to a minimum.

D. Provide framing anchors as indicated or accepted on the engineering design drawing or erection drawings. Anchor trusses securely at bearing points.

E. Install roof framing and accessories plumb, square, true to line, and with connections securely fastened, according to manufacturer's recommendations.

1. DO NOT cut truss members without prior approval of truss engineer.
2. Fasten cold-formed steel roof framing by welding or screw fastening, as standard with fabricator. Wire tying of roof framing is not permitted.
   a. Comply with AWS requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
   b. Locate mechanical fasteners and install according to cold-formed roof framing manufacturer's instructions with screw penetrating joined members by not less than 3 exposed screw threads.

SECTION 05510 - METAL STAIRS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Steel stair frame of structural sections, with open and closed risers as called out on plans.

B. Pan to receive concrete fill stair treads and landings.

D. Balusters and handrailing.

E. Steel ladder and service platform for access to roof kitchen exhaust fan for service..

1.02 REFERENCES

A. ANSI A202.1 - Metal Bar Grating Manual for Steel and Aluminum Gratings and Stair Treads.

B. ASTM A36 - Structural Steel.

C. ASTM A53 - Hot-Dipped, Zinc-coated Welded and Seamless Steel Pipe.

D. ASTM A307 - Low-Carbon Steel Externally and Internally Threaded Fasteners.

E. ASTM A352 - High Strength Bolts for Structural Steel Joints.

F. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.

G. ASTM A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot- Dip Process, Physical (Structural) Quality.

H. ASTM A500 - Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

I. ASTM A501 - Hot-formed Welded and Seamless Carbon Steel Structural Tubing.

J. AWS D1.1 - Structural Welding Code.

K. FS TT-P-31 - Paint, Oil: Iron Oxide, Ready Mix, Red and Brown.

L. FS TT-P-641 - Primer Coating, Zinc Dust - Zinc Oxide (for Galvanized Surfaces).

M. FS TT-P-645 - Primer, Paint, Zinc Chromate, Alkyd Type.

1.03 STRUCTURAL REQUIREMENTS

A. Fabricate stair assembly to support live load of 100 lb/sq. ft. with deflection of stringer not to exceed 1/240 of span.

B. Railing assembly, wall rails, and attachments to resist lateral force of 50 lbs. at any point without damage or permanent set.

1.04 SUBMITTALS

A. Submit shop drawings under provisions of Section 01300.

B. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, openings, size and type of fasteners, and accessories.

C. Include erection drawings, elevations, and details where applicable.

D. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

E. Prepare shop drawings under seal of a Professional Structural Engineer registered in the State of New York.

F. Submit samples under provisions of Section 01300.

PART 2 PRODUCTS

2.01 MATERIALS

A. Steel Section: ASTM A36.

B. Steel Tubing: ASTM A500, Grade B.

C. Sheet Steel: ASTM A446, Grade B, structural quality with galvanized coating.

D. Bolts, Nuts, and Washers: ASTM A307.

E. Welding Materials: AWS D1.1; type required for materials being welded.

F. Primer: FS TT-P-31, brown; for shop application and field touch-up.

G. Touch-up Primer for Galvanized Surfaces: FS TT-P-641.

H. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of structure.

2.02 FABRICATION - GENERAL

A. Verify dimensions on site prior to shop fabrication.

B. Fabricate items with joints tightly fitted and secured.

C. Fit and shop assemble sections in largest practical sizes, for handling through building openings.

D. Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius. At exposed to view locations, place plastic filler between welds; sand flush.

E. Make exposed joints butt tight, flush, and hairline.

F. Accurately form components required for anchorage of stairs, landings and railings to each other and to building structure.

2.03 FABRICATION - PAN STAIRS AND LANDINGS

A. Fabricate stairs with risers and treads of pan construction to receive concrete.

B. Form treads and risers from minimum 16 gage sheet stock.

C. Secure tread pans to stringers' clip angles, welded in place.

D. Form stringers of rolled steel channels, 12 inches deep. Weld fascia plates to channels using 14 gage steel sheet stock across channel toes.

E. Form landings from minimum 20 gage metal decking. Reinforce underside with angles to attain design load requirements.

F. Prime paint components.

2.04 FINISH

A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.

B. Do not prime surfaces in direct contact bond with concrete or where field welding is required.

C. Prime paint items specified with one coat.

PART 3 EXECUTION

3.01 ERECTION

A. Erect stairs level and plumb, free from distortion or defects detrimental to appearance or performance.

B. Provide anchors, plates, angles, hangers, and struts required for connecting stairs to structure.

C. Verify alignment with adjacent construction. Coordinate related work.

D. Do not field cut or alter members.

E. Field bolt and weld to match standard of shop bolting and welding. Hide bolts and screws whenever possible. Where not hidden, use flush countersunk fastenings.

F. Mechanically fasten joints butted tight, flush, and hairline. Grind welds smooth and flush.

SECTION 05521 - PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Steel pipe and tube handrails, balusters, and fittings.

1.02 RELATED WORK

A. Section 05510 - Metal Stairs: Handrailing at stairs.

1.03 REFERENCES

A. ASTM A386 - Zinc-Coating (Hot-Dip) on Assembled Steel Products.

B. FS TT-P-31 - Paint, Oil: Iron Oxide, Ready Mix, Red and Brown.

1.04 STRUCTURAL REQUIREMENTS

A. Railing assembly, wall rails, and attachments to resist lateral force of 50 lbs. at any point without damage or permanent set.

1.05 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01300.

B. Indicate component details, materials, finishes, connection and joining methods, and the relationship to adjoining work.

C. Submit manufacturer's installation instructions under provisions of Section 01300.

D. Submit samples under provisions of Section 01300.

PART 2 PRODUCTS

2.01 STEEL RAILING SYSTEM

A. Rails and Posts 1-1/2 inches diameter steel pipe welded jointing.

B. Posts: 12 inches diameter steel pipe welded jointing.

C. Fittings: Elbows, Tee-shapes, wall brackets, escutcheons; cast steel.

D. Mounting: Adjustable brackets and flanges, with steel inserts for casting in concrete where required.

E. Splice Connectors: Steel concealed spigots.

F. Primer: FS TT-P-31, brown; one coat.

2.02 FABRICATION

A. Verify dimensions on site prior to shop fabrication.

B. Fit and shop assemble sections in largest practical sizes, for delivery to site and installation.

C. Supply components required for secure anchorage of handrails and railings.

D. Grind exposed welds smooth and flush with adjacent surfaces.

E. Make exposed joint butt tight, flush, and hairline.

F. Accurately form components required for anchorage of railings to each other and to building structure.

PART 3 EXECUTION

3.01 PREPARATION

A. Supply items to be cast into concrete embedded in masonry or placed in partitions with setting templates and erection drawings to appropriate Sections.

3.02 INSTALLATION

A. Install in accordance with shop drawings and manufacturer's instructions.

B. Erect work square and level, free from distortion or defects detrimental to appearance or performance.

C. Anchor handrailings to structure.

D. Weld field connections and grind smooth to complete assembly. Touch-up welds with primer.

DIVISION 6 - WOOD AND PLASTICS

SECTION 06100 - ROUGH CARPENTRY

06100.0100 GENERAL

1. The work under this Section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

06100.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of all carpentry related work, complete, in strict accordance with the Contract Drawings and as specified herein or reasonably implied.

    a. Blocking, grounds, nailing strips, wedges, centerings, wood curbs for roof openings, wood closures and members to receive flashing, etc., for the work of this Contract.

    b. Roof sheathing.

    c. Fascias & trim

    b. All other items of carpentry work indicated on the drawings.

    c. All required miscellaneous rough hardware and fasteners.

06100.0300 RELATED WORK SPECIFIED ELSEWHERE

1. Concrete Work - Division 3.

2. Masonry - Division 4.

3. Doors and Windows - Division 8.

4. Specialties - Division 10.

5. Thermal & Moisture Protection - Division 7.

06100.0400 MATERIALS

1. General: Lumber shall conform to the requirements of the latest edition of the American Lumber Standards Simplified Practice Recommendation R-16. Grades shall conform to the grading rules of the Association having jurisdiction, and shall bear the official grade and trademark of the Inspection Bureau of the Association and a mark of

mill identification. Moisture content of lumber shall not exceed 19 percent (19%).

2. Preservative Treatment: Pressure treat all lumber for exterior work, and for all wood furring, screeds and grounds, and all lumber embedded in or in contact with masonry or concrete, against decay with zinc chloride or other approved preservatives, in accordance with the standard specifications of the American Wood Preservers Association; shall be kiln dried after treatment.

3. Lumber:

   a. Defects or blemishes shall not appear in the material used. Lumber shall be D4S, sound, thoroughly seasoned and well manufactured, and free from warp that cannot be corrected in the process of nailing or bolting.

   b. Furring Screeds and Grounds: Western or Northern White Pine, Fir or Spruce which has been prepared and bundled by the manufacturer for those purposes.

06100.0500 VERIFICATION OF DIMENSIONS AND CONDITIONS

1. All dimensions and conditions at the building which affect the size, construction and installation of items or features provided under this Section shall be carefully checked, verified and compared with the drawings. All discrepancies and conflicts including those between different materials or installations shall be reported to the Architect in writing for correction and adjustment.

2. Consult and agree with other trades on details of construction of adjoining installations which have not yet been completed.

06100.0600 STORAGE OF LUMBER AND WOODWORK

1. Lumber for rough usage when delivered at the site shall be immediately piled in stacks to insure drainage and free circulation. Stacks shall be supported on skids, placed to give slope of not less than 1/2" per foot, the stacks with a minimum clearance of 6" above grade. Stacks shall be covered with tarpaulins or other watertight covering. Grounds and similar small sized lumber shall be stored inside the building as soon as possible after delivery.

06100.0700 TEMPORARY PROTECTION, ENCLOSURES AND PARTITIONS

1. Provide and maintain protection during the life of the Contract for all materials and work installed under this Section and for other work requiring protection.

2. Provide and maintain all temporary partitions and enclosures for doors, windows, temporary openings, and for openings to exclude rain and snow and to permit maintenance of suitable conditions and temperatures within the building for the work to be actively executed at all times.

3. Provide batten doors, complete with hinges and padlocks at all exterior door openings, and as directed and approved by the Architect.

4. Remove and dispose of, off the site, all temporary protection enclosures.

06100.0800 ROUGH HARDWARE

1. Provide all items of rough hardware of every description including nails, spikes, screws, bolts, anchors, ties, expansion shields and bolts, strap irons and other items which are required to assemble or secure the work shown or specified herein.

2. All nails, driven into the face of exposed exterior woodwork, shall be non-corrosive and such nails shall be set and putty stopped.

06100.0900 FRAMING AND BLOCKING

1. Provide blocking, etc., as shown or as obviously necessary for the various systems and items herein specified, with all bolts or nails and all gusset plates, metal attachments, and miscellaneous steel items or devices shown or necessary for rigid substantial construction and support of work indicated.

2. Conform to details shown on the drawings. Framing shall be accurately done and abutting members shall fit closely and be securely fastened together as approved.

   a. Attaching to Masonry: Except where built-in anchors are shown or specified, members required to be attached to masonry shall be secured to same with expansion bolts extending into masonry not less than 4" or by special bolts or anchors where so shown or specified.

3. Set all members in designated positions, build plumb and true, and brace in position. Frame as shown or directed for the proper assembly of work, both concealed and within enclosed areas.

06100.1000 NAILING STRIPS FOR ROOFING AND SHEETMETAL WORK

1. Materials in general shall be dimension fir lumber or other approved species dressed to required sizes. All material where indicated as bolted, shall be secured with bolts of sizes and spacing as included therein. Furring for soffit finish shall be arranged for solid nailing at all edges and joints.

2. Include required recessing of nuts and washers, as required.

3. Provide all other required bolts and fastenings.

06100.1100 GROUNDS, FURRING AND SCREEDS

1. Provide all wood grounds and/or furring required for the securing in place of all finished carpentry work, interior wood finish and other items furnished by this or other contractors including trim, mouldings, finished carpentry, shelving, frames, covers, stools, aprons, etc.

2. Grounds shall be minimum 3/4" thick and as wide as may be necessary for the required purpose; securely attached with hardened nails, screws, toggle bolts or other fasteners. Grounds shall be carefully plumb, leveled and straightened by means of wood or steel wedges or blocks and where necessary shall be aligned with continuous partitions and wall surfaces.

3. Grounds and screeds shall be of dressed lumber free from wave or knots which would impair its usefulness.

4. The attention of the contractor is called to the fact that the plans do not show all the blocking nor some of the subordinate framing which will be required. This blocking and subordinate framing will be required. This blocking and subordinate framing is nevertheless to be furnished and installed under this Section.

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SECTION 06200
FINISH CARPENTRY

PART 1 GENERAL

1.01 WORK INCLUDED

A. Finish carpentry items, other than shop fabricated work, with hardware and attachment accessories.

B. Any and all wood chair rails, window trim, wainscot, bar ,trophy cases, wood wall finishes etc.

1.02 WORK INSTALLED BUT FURNISHED UNDER OTHER SECTIONS

A. Section 08700 - Hardware: Supply of cabinet hardware to this Section.

1.03 RELATED WORK

A. Section 06100 - Rough Carpentry.

B. Section 06410 - Custom Casework: Shop fabricated cabinetwork.

C. Section 08210 - Wood Doors.

D. Section 08610 - Wood Windows.

E. Section 08700 - Hardware: Supply of finish carpentry hardware.

F. Section 09900 - Painting: Painting and finishing of finish carpentry items.

1.04 REFERENCES

A. AWI - Quality Standards.

B. FS L-P-508 - Plastic Sheet, Laminated, Decorative and Non- Decorative.

C. FS MM-L-736 - Lumber - Hardwood.

D. FS TT-W-550 - Wood Preservative, Chromated Copper Arsenate Mixture.

E. FS TT-W-568 - Wood Preservative, Creosote-Petroleum Solution.

F. FS TT-W-570 - Wood Preservative, Pentachlorophenol.

G. FS TT-W-571 - Wood Preservation: Treating Practices.

H. FS TT-W-572 - Wood Preservative, Water Repellent.

I. FS MMM-A-130 - Adhesive, Contact.

J. PS 1 - Construction and Industrial Plywood.

K. PS 20 - American Softwood Lumber Standard.

L. PS 51 - Hardwood and Decorative Plywood.

M. PS 58 - Basic Hardwood.

1.05 QUALITY ASSURANCE

A. Perform finish carpentry work in accordance with AWI Quality Standards, Premium grade.

B. Fire retardant treatment to conform to requirements of Underwriters' Laboratories (UL).

1.06 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01300.

B. Indicate materials, component profiles, fastening methods, jointing details, finishes, and accessories.

C. Submit samples under provisions of Section 01300.

1.08 DELIVERY AND STORAGE

A. Deliver wood materials under provisions of Section 01600.

B. Store indoors, in ventilated areas with constant minimum temperature of 60 degrees F and maximum relative humidity of 55 percent.

PART 2 PRODUCTS

2.01 LUMBER MATERIALS

A. Softwood Lumber: PS 20; premium grade in accordance with AWI; maximum moisture content of 6 percent for interior work and 10 percent for exterior work.

B. Hardwood Lumber: PS 58; premium grade in accordance with AWI; maximum moisture content of 6 percent.

C. Facias to be primelock factory primed with Alkyo - oil primer finger jointed Eastern White Pine 5/4" boards with maximum lengths for minimum jointing.

2.05 ACCESSORIES

A. Bolts, Nuts, Washers, Lags, and Screws: Size and type to suit application; non-corrosive for exterior, high humidity, and treated wood locations; plain finish at other interior locations.

PART 3 EXECUTION

3.01 INSTALLATION

A. Set and secure materials and components in place, plumb, and level.

B. Verify mechanical, electrical, and building items affecting this Section are placed and ready to receive this work.

C. Prime paint surfaces of items or assemblies in contact with cementitious materials.

3.02 SITE TREATMENT OF WOOD MATERIALS

A. Brush apply two coats of preservative treatment on exterior located finish carpentry items.

B. Apply preservative treatment in accordance with manufacturer's instructions.

C. Treat site-sawn ends. Allow preservative to cure prior to erecting materials.

D. Prime paint surfaces in contact with cementitious materials.

3.03 PREPARATION FOR FINISHING

A. Sand work smooth and set exposed nails and screws. Apply manufacturer's recommended filler in exposed screw indentations and at joints.

END OF SECTION

SECTION 06400 - ARCHITECTURAL WOODWORK

06400.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

06400.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations relating to the installation of all related work, complete, in strict accordance with the contract drawings, and as specified herein or reasonably implied.

2. Wood counters and cabinets as shown on the drawings.

3. Stone counter tops.

4. Wood trim, moldings, etc. All wood trim profiles are to match existing trim profiles unless otherwise determined by the Architect.

5. All other wood and/or finished carpentry items classified as cabinet work and as called for on the drawings.

6. Shop priming all finished woodwork and millwork which is not required to be stained or varnished.

7. All rough hardware, and furnishing and installing finishing hardware as required to be provided to complete the work of this Section.

8. All cutting and patching of work to permit the installation of new work.

06400.0300 SHOP DRAWINGS

1. Submit shop drawings in accordance with the requirements of the General Conditions based on the Contract Drawing and Specifications showing complete details of construction, size of members, kinds of material, assembly of work, and connections for the proper execution of the work of other divisions. Show the profiles of all profiles of all moldings and show methods of reinforcement, anchorage and support.

06400.0400 SAMPLES

1. Submit samples for approval in accordance with the general requirements including wood finishes, hardware, etc. All woods showing the graining, texture, color, etc. All finished work shall lie within the range of approved samples of each kind of wood.

2.

06400.0500 MATERIALS

1. Unless otherwise specified scribe or closure molding for painting shall be clear White Pine.

2. Trim: Solid stock, select grade of same species as adjoining work.

3. Drawers: Solid stock, birch or maple.

06400.0600 VERIFICATION OF DIMENSIONS AND CONDITIONS

1. Add dimensions and conditions at the building which affect the size, construction and installation of items or features provided under this Section shall be carefully checked, verified and compared with those given on the drawings. All discrepancies and conflicts shall be reported to the Architect.

06400.0700 GROUNDS, FURRING AND SCREEDS

1. Provide all wood grounds and/or furring required for the securing in place of all finished carpentry work, interior wood finish and other items furnished by this or other contractors including trim, moldings, shelving, frames, covers, stools, aprons, etc.

06400.0800 ANCHORS, BOLTS AND ATTACHMENTS

1. Furnish all anchors, bolts, wall plates bolted to masonry, corrugated wall plugs, nailing blocks, wood, bricks, etc., which are required for the proper fastening and installation.

06400.0900 HARDWARE

1. Provide all hardware required for cabinets and millwork. All cabinet doors shall be provided with fixed pin butts 2-1/2" x 2-1/2" for doors 18" wide or less and 3" x 3" for wider doors, spring catches, and door pulls all of design approved by the Architect and of brushed stainless-steel finish. Provide all necessary channel bases, pilaster strips, etc.

2. Assemble all work in conformity with the best cabinet work practice.

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SECTION 07190 – M ASONRY SEALANTS

07190.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

07190.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of caulking and all related work, complete, in strict accordance with the Contract Drawings and as specified herein or reasonably implied.

    a. Seal all exterior masonry and precast with TAMMS CHEMSTOP WB HEAVY DUTY WATER REPELLENT

07190.0300 DELIVERY AND STORAGE

1. Deliver, store and handle materials in a manner to prevent the inclusion of foreign materials and damage. Deliver and store packaged materials in original sealed containers until ready for use. Deliver materials in ample time to facilitate inspection and test.

07190.0400 SAMPLES

1. Submit the following samples of material for approval, in accordance with the requirements of the Supplementary General Conditions:

    a Field apply 24” x 24” sample for review

07190.0500 MATERIALS

1. CHEMSTOP WB HD is water based, oligomeric silxoxane/silane, ready to use deep penetrating water repellent. CHEMSTOP WB HD is colorless when dry, non-staining, non-yellowing, and non-film sealer used for protecting concrete and masonry surfaces without altering the appearance or the texture of the treated surface. CHEMSTOP WB is breathable, non-flammable and complies with current federal AIM VOC regulations.

2. USES: CHEMSTOP WB HD repellent is used above grade on vertical surfaces to minimize water penetration, reduce efflorescence, and aid in minimizing spalling due to freeze-thaw cycles. It also protects against ultraviolet degradation, airborne dirt, smog, industrial fumes, acid rain, and most other atmospheric chemicals.

07190.0600 APPLICATION

1. General: Apply in accordance with the manufacturer's instructions as approved by the Architect and as herein specified.

2. Preparatory work:

    1. SURFACE PREPARATION: Cure new concrete 28 days before application. Surface must be structurally sound, clean, dry, free of dust, dirt, paint, efflorescence, laitance, and other contaminants that will prevent the proper penetration of CHEMSTOP WB. Prior to application joints or cracks must be properly sealed or filled. If acid is used for cleaning, neutralize completely before CHEMSTOP WB application. A dry substrate allows better penetration of the sealer.

    2. APPLICATION TECHNIQUES: Low pressure airless spray equipment is the method of application. Application should be from the bottom up to ensure uniform product distribution. Apply a saturation coat with a 6-8" controlled rundown. Two saturation coats of CHEMSTOP WB HD shall be required, applied using a "wet on wet" technique. Apply a test patch to evaluate surface appearance and effectiveness of the coverage rate.

3. CLEAN-UP INSTRUCTIONS: Clean drips, runs, and overspray residue while still wet, using detergent and water. CHEMSTOP WB will not etch common glass and spills and overspray onto glass can be easily removed with a damp cloth. Dried material may require mechanical abrasion for removal. Clean application and spray equipment with detergent and water immediately following use.

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SECTION 07 21 29- SPRAY POLYURETHANE FOAM INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:
1. Closed-cell spray polyurethane foam insulation.
2. Air-sealing insulation applied within wall, roof, and floor assemblies.
3. Accessories required for complete installation.

B. Related Sections:
1. Section 07 27 00 – Air Barriers.
2. Section 07 60 00 – Flashing and Sheet Metal.
3. Section 09 21 16 – Gypsum Board Assemblies.
4. Section 09 90 00 – Painting and Coating.

1.02 REFERENCES

A. ASTM C1029 - Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.

B. ASTM C518 - Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

C. ASTM D1621 - Compressive Properties of Rigid Cellular Plastics.

D. ASTM D1622 - Density of Rigid Cellular Plastics.

E. ASTM D6226 - Open Cell Content of Rigid Cellular Plastics.

F. ASTM E84 - Surface Burning Characteristics of Building Materials.

G. ASTM E2178 - Air Permeance of Building Materials.

H. ASTM E283 - Air Leakage Through Exterior Assemblies.

I. ICC-ES Acceptance Criteria AC377.

J. NFPA 286 - Evaluation of Fire Propagation Characteristics.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordinate installation with mechanical, electrical, plumbing, and fire protection Work.

B. Verify that substrates are complete and ready to receive insulation.

1.04 SUBMITTALS

A. Product Data:
1. Manufacturer's technical literature.
2. Physical properties.
3. Code evaluation reports.

B. Shop Drawings:
1. Locations and extent of spray foam application.

C. Quality Assurance Submittals:
1. Installer qualifications.
2. Manufacturer certification.

D. Field Reports:
1. Daily installation logs.
2. Thickness verification reports.

E. Closeout Submittals:
1. Warranty documentation.
2. Maintenance recommendations.

1.05 QUALITY ASSURANCE

A. Manufacturer:
1. Minimum five years documented experience producing SPF insulation.

B. Installer:
1. Approved by insulation manufacturer.
2. Minimum three years experience with comparable projects.

C. Regulatory Requirements:
1. Comply with applicable building code requirements.
2. Products shall possess current ICC-ES evaluation reports.

1.06 MOCKUP

A. Provide mockup area not less than 100 square feet.

B. Mockup may remain as part of completed Work if approved.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original unopened containers.

B. Store materials in accordance with manufacturer requirements.

C. Protect materials from moisture, direct sunlight, and temperature extremes.

1.08 FIELD CONDITIONS

A. Do not apply insulation when environmental conditions are outside manufacturer recommendations.

B. Maintain substrate temperature within manufacturer's published limits.

1.09 WARRANTY

A. Manufacturer's standard material warranty.

B. Installer warranty:
1. Two years minimum from Date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design Product:
1. WALLTITE ONE Spray Polyurethane Foam

B. Subject to compliance with requirements, equivalent products by:
1. Carlisle Spray Foam Insulation.
2. Huntsman Building Solutions.
3. Dupont Corporation
4. Approved equal.

2.02 CLOSED-CELL SPRAY POLYURETHANE FOAM

A. Material:
1. Two-component spray-applied polyurethane foam.
2. Closed-cell formulation.

B. Physical Properties:
1. Density: Minimum 2.0 lb/cu ft.
2. Closed-cell content: Minimum 90 percent. 【1-4788a8】
3. Compressive Strength: Minimum 36 psi.
4. Water vapor transmission: 1.0 Perms min.
5. Air permeance: Comply with ASTM E2178.

C. Thermal Performance:
1. Aged R-value:
a. Minimum R-7.2 per inch.

D. Surface Burning Characteristics:
1. Flame Spread Index: 25 maximum.
2. Smoke Developed Index: 450 maximum.
3. Tested in accordance with ASTM E84.

E. Environmental Requirements:
1. No ozone-depleting blowing agents.
2. Comply with applicable federal, state, and local regulations.

2.03 ACCESSORIES

A. Primers:
1. As recommended by foam manufacturer.

B. Ignition or Thermal Barriers:
1. As required by applicable code.

C. Joint Sealants:
1. Compatible with insulation system.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify substrates are:
1. Structurally sound.
2. Dry.
3. Clean.
4. Free of contaminants.

B. Do not begin installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Protect adjacent surfaces from overspray.

B. Mask windows, doors, equipment, and finished surfaces.

C. Ensure penetrations, blocking, and supports are installed prior to foam application.

3.03 INSTALLATION

A. Install spray polyurethane foam in accordance with manufacturer's written instructions.

B. Apply continuously to achieve thickness indicated on Drawings.

C. Fill voids, cracks, joints, and penetrations to provide a continuous insulation layer.

D. Apply insulation to:
1. Exterior wall cavities.
2. Roof deck undersides.
3. Cantilevered floors.
4. Other locations indicated.

E. Minimum Installed Thickness:
1. Exterior Walls: As required to achieve assembly R-value.
2. Roof Assemblies: As required to achieve assembly R-value.

F. Trim excess foam flush where required to receive subsequent finishes.

3.04 FIELD QUALITY CONTROL

A. Inspect installed foam for:
1. Uniformity.
2. Adhesion.
3. Thickness.
4. Voids and gaps.

B. Verify thickness using depth probes or other approved methods.

C. Remove and replace defective areas.

3.05 PROTECTION

A. Protect installed insulation from:
1. Mechanical damage.
2. Ultraviolet exposure.
3. Weather exposure beyond manufacturer limitations.

B. Cover exposed insulation with approved finish, coating, thermal barrier, or building component within manufacturer's recommended timeframe.

END OF SECTION 07 21 29

SECTION 07225 - EPS BOARD ROOF DECK INSULATION

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes: Tapered EPS board roof deck insulation system for use as an acceptable and recommended substrate for project roofing system.

1.02 REFERENCES

A. American Society for Testing & Materials (ASTMJ): C578-87a preformed, Cellular Polystyrene Thermal Insulation Spec for.

B. The Society of the Plastics Industry, Inc. (SPI): ACCU-R EPS Program for product quality control and labeling program.

C. Factory Mutual Research Corporation (FMRC)

1. Loss Prevention Data Sheet I-28, current edition.

1.03 SYSTEM DESCRIPTION

A. Description: EPS tapered roof deck insulation product specifically manufactured and recommended by manufacturer for compatibility with project roofing system for R-value and other physical properties indicated herein when tested in accordance with ASTM C578.

1.04 SUBMITTALS

A. Product Date: Submit manufacturer's product data for specific EPS board roof deck insulation proprietary products affirming products do not contain chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC).

B. Samples: Submit three samples, 12" x 12" x 1" minimum, each specified EPS insulation product, identified with SPI ACCU-R quality assurance program label.

C. Tapered Insulation Shop Drawings: Submit tapered EPS insulation shop drawings indicating layout, minimum and maximum thickness, slope direction, and placement sequence.

1.05 QUALITY ASSURANCE

A. SPI ACCU-R Program: Comply with the quality assurance program of The Society of the Plastics Industry, Inc. (SPI) ACCU-R EPS program for appropriate testing, inspection, and review of product production practices for compliance with ASTM C578 requirements.

B. Insurance Underwriter Requirements: Comply with owner's insurance underwriter's requirements for EPS roof deck insulation product for application with project roofing system.

C. Factory Mutual Research Corporation (FMRC) Requirements: Comply with requirements for EPS roof deck insulation application with project roofing system.

1.06 DELIVERY, STORAGE AND HANDLING

A. Storage: Store and protect EPS roof deck insulation prior to installation from direct sunlight exposure and from weather to ensure insulation is dry when installed.

1.07 WARRANTY

A. Manufacturer's Product Warranty: Submit manufacturer's standard warranty form for EPS board insulation R-value when tested for conformance with ASTM C578. This warranty is in addition to, and not a limitation of other rights Owner may have under Contract Documents.

1. Warranty Period: 20 years from Date of Substantial Completion.

2. Beneficiary: Issue warranty in the legal name of project Owner.

3. Warranty Acceptance: Owner is sole authority who will determine acceptance of warranty document.

PART 2 - PRODUCTS

A. Tapered EPS Board:

1. Thickness 3" Minimum.

2. Slope: 1/8"/LF

2.01 INSULATION MATERIAL

A. Material Standard: Comply with ASTM C578 for EPS board roof insulation.

1. Type II.

2.02 ROOF INSULATION BOARD

A. Molded EPS Board Insulation: Rigid, closed cell, lightweight, thermal insulation formed by the composition of hydrogen and carbon atoms in a closed mold to comply with ASTM C578-87a for type indicated as follows:

1. Type II: 1.35 pcf minimum density, R-value of 4.55 and 4.17 at 40 degrees F and 75 degrees F (4.4 degrees C and 23.9 degrees C), respectively.

PART 3 - EXECUTION

3.01 INSULATION

A. General: Install EPS board insulation in single or multiple layers to achieve required R-value, extending EPS insulation over entire roof deck surface to be installed, cutting and fitting around projections and obstructions. Form cant strips, crickets, and tapered areas for positive drainage of roofing system.

B. Insulation Board Joints: Stagger EPS board insulation joints in one direction for each course. For multiple layers, stagger joints in both directions between courses with no gaps to form a complete thermal envelope.

C. Exposure: Do not install more EPS insulation in a day than can be covered with roofing membrane before end of work day or before start of weather conditions which can damage EPS insulation.

D. Adhered Single-Ply Membrane Re-Roof: Install EPS board insulation over roof deck fully adhered and mechanically secured to deck substrate.

E. Install boards with FM 60 fasteners at a rate of 1 fastener per 2 sq. ft. Provide fastener in each corner typical.

* * * * *

SECTION 07270 – FIRESTOPPING

PART 1 – GENERAL

1.01 SUMMARY

A. Work Included: The work of this section shall include, but is not necessarily limited to the following:

1. Penetrations through fire resistance rated construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.

2. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.

3. Sealant joints in fire resistance rated construction at intersection of dissimilar materials including at wall and deck locations, etc.

4. Furnishing of dams, clips and closures for support and containment of fire safing materials and installation of dames, clips and closures where possible to install after completion of floors, walls or other construction.

B. Related Sections:

1. Section 03300 – Cast – In – Place Concrete

2. Section 04200 – Unit Masonry

3. Section 07210 – Building Insulation

4. Section 07250 – Fireproofing

5. Section 07900 – Joint Sealers

6. Section 09255 – Gypsum Board Assemblies

7. Division 15 and 16 – Mechanical and Electrical

1.02 QUALITY ASSURANCE

A. Qualifications: The work of this section shall be performed by a qualified and experienced installer, acceptable to the Architect. The term “installer” as used herein, shall mean a firm of established reputation; which has been trained by the Manufacturer in the proper installation of fire safing materials and which is

regularly engaged in, and maintains a regular force of workmen skilled in the installation of fire safing materials of the type specified.

B. Installer's Qualifications: Before proceeding with the work, submit three (3) copies of a list of several comparable projects of similar work that the installer has completed within the past five (5) years, giving the job locations, names of the owners, their telephone numbers and the date on which the work on each project was started and completed.

1.03 REFERENCES

A. Codes and Regulations: Fire safing work shall conform to the New York State Fire Prevention and Building Code and all applicable regulations of governmental authorities having jurisdiction, including safety, health and anti-pollution regulations.

1.04 SUBMITTALS

A. Product Data: Submit product data consisting of Manufacturer's latest published catalog information or technical description and installation instructions; obtain approval before materials are fabricated or delivered to the site.

B. Test Reports: Submit three (3) certified copies of test reports, by an independent testing laboratory, approved by the Architect, indicating that the fire safing materials are in conformance with the requirements specified herein.

C. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through penetration fire stop systems are installed per specified requirements.

D. The School District may employ and pay a qualified inspection agency to check installed firestopping systems for compliance with requirements.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original tightly sealed containers or unopened packages, with legible mixing and application instructions.

B. Store materials out of weather in original containers as recommended by manufacturer.

PART 2 – PRODUCTS

2.01 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "System Performance Requirements" article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance rated systems. Accessories include but are not limited to the following items:

1. Permanent forming/damming/backing materials including the following:

    a. Semirefractory fiber (mineral wool) insulation.

    b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.

    c. Fire rated form board.

    d. Joint fillers for joint sealants.

2. Temporary forming materials.

3. Substrate primers.

4. Collars.

5. Steel sleeves.

6. Safing Clips.

7. Metal support plates.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

2.02 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Mineral Wool: Loose or formed mineral wood rated non-combustible when tested according to ASTM 136, free of asbestos and glass fiber, and suitable for stuffing to an in place density of 6 to 12 psf.

B. Endothemic, Latex Compound Sealant: Single component, endothermic, latex formulation.

C. Intumescent, Latex Sealant: Single component, intumescent, latex formulation.

D. Intumescent Putty: Nonhardening, dielectric, water resistant putty containing no solvents inorganic fibers, or silicone compounds.

E. Intumescent Wrap Strips: Single component, elastomeric sheet with aluminum foil on one side.

F. Job Mixed Vinyl Compound: Prepackaged vinyl based powder product for mixing with water at project site to produce a paintable compound, passing ASTM E 136, with flame spread and smoke developed ratings of zero per ASTM E 84.

G. Mortar: Prepackaged dry mix composed of a blend of inorganic binders, fillers, and lightweight aggregate formulated for mixing with water at project site to form a nonshrinking, homogenous mortar.

H. Pillow/Bags: Re-usable, heat expanding pillows/bags composed of glass fiber cloth cases filled with a combination of mineral fiber, water insoluble expansion agents and fire retardant additives.

I. Silicone Sealant: Moisture curing, single component, silicone based, neutral curing elastomeric sealant of grade indicated below:

1. Grade: Pourable (self leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

2. Grade for Horizontal Surfaces: Pourable (self leveling) grade for openings in floors and other horizontal surfaces.

3. Grade for Vertical Surfaces: Nonsag grade for openings in vertical and other surfaces.

J. Solvent Release Curing Intumescent Sealant: Solvent release curing, single component, synthetic polymer based sealant of grade indicated below:

1. Grade: Pourable (self leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a non-slumping/gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

K. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include, but are not limited to the following:

1. Endothermic, Latex Sealant:
   Fyre-Shield, Tremco Inc.

2. Endothermic, Latex Compounds:
   Flame-Safe FS500/600 Series, International Protective Coatings Corp.
   Flame-Safe FS900/FST900 Series, International Protective Coatings Corp.

3. Intumescent Latex Sealant:
   Metacaulk 950, The RectorSeal Corporation
   Fire Barrier CP 25WB Caulk, 3M Fire Protection Products.

4. Intumescent Putty:
   Series SSP, STI Spec Seal FireStop Products
   Flame-Safe FSP1000 Putty, International Protective Coatings Corp.
   Fire Barrier Moldable Putty, 3M Fire Protection Products.

5. Intumescent Wrap Strips:
   Series SSP, STI Spec Seal FireStop Products
   Dow Corning Fire Stop Intumescent Wrap Strip 2002, Dow Corning Corp.
   Fire Barrier FS-195 Wrap/Strip, 3M Fire Protection Products

6. Job Mixed Vinyl Compound:
   USG Firecode Compound, United States Gypsum Co.

7. Mortar:
   SpecSeal Mortar, STI Spec Seal FireStop Products
   Novasit K-10 Firestop Mortar, Bio Fireshield, Inc.
   KBS-Mortar Seal, International Protective Coatings Corp.

8. Pillow/Bags:
   Firestop Pillows, Bio Fireshield, Inc.
   SpecSeal Pillows, STI Spec Seal FireStop Products

9. Silicone Foams:
   Pensil 200 Foam, STI Spec Seal FireStop Products
   Dow Corning Fire Stop Foam 2001, Dow Corning Corp.

10. Silicone Sealants:
    Dow Corning Firestop Sealant 2000, Dow Corning Corp.
    Pensil 300, STI Spec Seal FireStop Products
    CS240 Firestop Sealant, Hilti Construction Chemicals, Inc.
    Metacaulk 880, The RectorSeal Corporation

11. Solvent Release Curing Intumescent Sealants:
    Biostop 500 Intumescent Firestop Caulk, bio Fireshield, Inc.
    Fire Barrier CP 25N/S Caulk, 3M Fire Protection Products
    Fire Barrier CP25S/L Caulk, 3M Fire Protection Products

12. Mineral Fiber Fire Safing:
    Therma Fiber Safing Insulation by USG Interiors Inc.
    Fire Master Bulk, 3M
    Fire Protection Products

2.03 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:

1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.

3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

3.03 INSTALLING THROUGH-PENETRATION FIRESTOPS

A. General: Comply with the "System Performance Requirements" article in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

C. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:

1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.

2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

4. Provide 20 gage minimum metal plates where required for fire safing support to comply with fire rating.

5. For mineral safing insulation, apply in continuous length using manufacturer's standard safing clips compress insulation until stable without movement.

3.04 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

A. General: Comply with "System Performance Requirements" article in Part 1, with ASTM C 1193, and with the sealant manufacturer's installation instructions and drawings pertaining to products and applications indicated.

B. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depth of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.

C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement's capability. Install sealants at the same time joint fillers are installed.

D. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begin. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.05 FIELD QUALITY CONTROL

A. Inspecting agency employed and paid by Government will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. Inspecting agency will report observations promptly and in writing to Contractor and Architect.

C. Do not proceed to enclose firestopping with other construction until reports of examinations are issued.

D. Where deficiencies are found, repair or replace firestopping so that is complies with requirements.

3.06 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

SECTION 07300 - ROOF SHINGLES

07300.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements" which form a part hereof whether attached hereto or not.

07300.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of all roof shingles and grade ice and water shield underlayment and related work, complete, in strict accordance with the Contract Drawings and as herein specified, or reasonably implied. Provide stop flashings and related flashings at any and all junctions with dissimilar materials and surfaces.

07300.0300 SHOP DRAWINGS

1. Submit product literature for approval of the following items herein specified in accordance with the requirements of the Supplementary General Conditions.

07300.0400 SAMPLES

1. Submit for approval in accordance with the requirements of the Supplementary General Conditions, samples of all materials herein specified as requested by the Architect and as follows:

    a. Insulations

07300.0500 GUARANTEE

1. The Contractor shall and hereby does guarantee all workmanship and materials entering into this Section of the specifications to be free of all leaks and other defects for a period of five years. Should any defects in the work develop within the five year period, the Contractor shall and hereby does agree to repair such defective work and to make all repairs to work of others damaged in correcting the defective work, and further, he agrees to and shall repair or replace work of others damaged by leaks in his defective work without additional cost to the Owner. All repairs shall be made within five (5) days after notice to the Contractor. Such guarantee shall be made in writing to the Owner and transmitted to the Architect.

2. Submit manufacturer’s 40 year warranty including 5 year sure start protection.

07300.0600 MATERIALS

1. General: Materials shall be delivered in unbroken containers, stored and handled so as

to prevent inclusion of foreign substances and damage by water or breakage. All manufactured materials shall bear the manufacturer's labels. All materials shall be the product of one manufacturer.

2. Roof shingles shall be GAF timberline with integral ridge and hip vents (shingle vent II) by Air Vent Inc.

07300.0700 PRELIMINARY INSPECTION

1. Before starting work, carefully examine surfaces on which work of this Section is dependent. Check and verify lines, elevations, contours, and general condition of preliminary work. Any defects in surfaces to which materials of this Section are to be applied must first be corrected. Report any unsatisfactory conditions to the Architect before starting work, and do not commence work until so directed by the Architect. Start of installation will be considered acceptance of preceding work and acceptance of responsibility for correcting defects.

07300.0800 INSTALLATION

1. Refer to the roof plan drawings for all systems and components to be installed in accordance with this section.
2. Comply with all manufacturers written installation requirements, guidelines an instructions which are incorporated herewith by reference..

07400.0800 COOPERATION

1. Coordinate work of this section with work of contiguous trades under this and other Contracts. Flashings built into masonry shall be formed in advance so as not to delay work.

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Mechanically-seamed, standing seam metal roof panels, with related metal trim and accessories.

1.2 RELATED REQUIREMENTS

A. Division 05 Section "Structural Steel Framing" for structural steel framing supporting metal panels.

B. Division 05 Section "Steel Decking" for continuous metal decking supporting metal panels.

C. Division 07 Section "Air Barriers" for air barriers within roof assembly and adjacent to roof assembly.

1.3 REFERENCES

A. American Architectural Manufacturer's Association (AAMA):

1. AAMA 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) & Zinc-Aluminum Coated Steel Substrates.
2. AAMA 809.2 - Voluntary Specification Non-Drying Sealants.

B. American Society of Civil Engineers (ASCE):

1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. ASTM International (ASTM):

1. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A 755 - Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
3. ASTM A 792/A 792M - Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
4. ASTM A 980 - Standard Specification for Steel, Sheet, Carbon, Ultra High Strength Cold Rolled.
5. ASTM C 645 - Specification for Nonstructural Steel Framing Members.
6. ASTM D 226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
7. ASTM D 1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics.
8. ASTM D 2244 - Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.
9. ASTM D 4214 - Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.
10. ASTM E 1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
11. ASTM E 1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.

12. ASTM E 1680 - Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
13. ASTM E 1980 - Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.

D. International Accreditation Service (IAS):

1. IAS AC 472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems, Part B.

E. Underwriters Laboratories, Inc. (UL):

1. UL 580 - Tests for Uplift Resistance of Roof Assemblies

1.4 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Prior to erection of framing, conduct preinstallation meeting at site attended by Owner, Architect, manufacturer's technical representative, inspection agency and related trade contractors.

1. Coordinate building framing in relation to metal panel system.
2. Coordinate openings and penetrations of metal panel system.
3. Coordinate work of Division 07 Sections "Roof Specialties" and "Roof Accessories" and openings and penetrations and manufacturer's accessories with installation of metal panels.

1.5 QUALITY ASSURANCE

A. Manufacturer/Source: Provide metal roof panel assembly and accessories from a single manufacturer providing fixed-base roll forming, and accredited under IAS AC 472 Part B.

B. Manufacturer Qualifications: Approved manufacturer listed in this Section with minimum five years experience in manufacture of similar products in successful use in similar applications.

1. Approval of Comparable Products: Submit the following in accordance with project substitution requirements, within time allowed for substitution review:

a. Product data, including certified independent test data indicating compliance with requirements.
b. Samples of each component.
c. Sample submittal from similar project.
d. Project references: Minimum of five installations not less than five years old, with Owner and Architect contact information.
e. Sample warranty.
f. IAS AC 472 certificate.

2. Substitutions following award of contract are not allowed except as stipulated in Division 01 General Requirements.
3. Approved manufacturers must meet separate requirements of Submittals Article.

C. Installer Qualifications: Experienced Installer certified by metal panel manufacturer with minimum of five years experience with successfully completed projects of a similar nature and scope.

1. Installer's Field Supervisor: Experienced mechanic certified by metal panel manufacturer supervising work on site whenever work is underway.

1.6 ACTION SUBMITTALS

A. Product Data: Manufacturer’s data sheets for specified products.

B. Shop Drawings: Show layouts of metal panels. Include details of each condition of installation, panel profiles, and attachment to building. Provide details at a minimum scale 1-1/2-inch per foot of edge conditions, joints, fastener and sealant placement, flashings, openings, penetrations, roof accessories, lightning arresting equipment, and special details. Make distinctions between factory and field assembled work.

1. Indicate points of supporting structure that must coordinate with metal panel system installation.
2. Include data indicating compliance with performance requirements.
3. Include structural data indicating compliance with requirements of authorities having jurisdiction.

C. Samples for Initial Selection: For each exposed product specified including sealants. Provide representative color charts of manufacturer's full range of colors.

D. Samples for Verification: Provide 12-inch long section of each metal panel profile. Provide color chip verifying color selection.

1.7 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Indicating compliance of products with requirements, witnessed by a professional engineer.

B. Qualification Information: For Installer firm and Installer’s field supervisor.

C. IAS Accreditation Certificate: Indicating that manufacturer is accredited under provisions of IAS AC 472.

D. Manufacturer's Warranty: Sample copy of manufacturer's standard warranty.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance data.

B. Manufacturer's Warranty: Executed copy of manufacturer's standard warranty.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Protect products of metal panel system during shipping, handling, and storage to prevent staining, denting, deterioration of components or other damage. Protect panels and trim bundles during shipping.

1. Deliver, unload, store, and erect metal panel system and accessory items without misshaping panels or exposing panels to surface damage from weather or construction operations.
2. Store in accordance with Manufacturer's written instructions. Provide wood collars for stacking and handling in the field.

1.10 COORDINATION

A. Coordinate sizes, profiles, and locations of roof curbs and other roof-mounted equipment and roof penetrations, based upon sizes of actual selected equipment.

1.11 WARRANTY

A. Special Manufacturer's Warranty: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal panel assemblies that fail in materials and workmanship within one year from date of Substantial Completion.

B. **Special Weathertightness Warranty**: On manufacturer's standard form, in which manufacturer agrees to repair or replace metal panel assemblies that fail to remain weathertight, including leaks, without monetary limitation up to cost within 20 years from date of Substantial Completion.

C. Special Panel Finish Warranty: On Manufacturer's standard form, in which Manufacturer agrees to repair or replace metal panels that evidence deterioration of factory-applied finish within 25 years from date of Substantial Completion, including:

a. Color fading in excess of 5 Hunter units per ASTM D 2244.
b. Chalking in excess of No. 6 rating per ASTM D 4214.
c. Failure of adhesion, peeling, checking, or cracking.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis of Design Manufacturer: **Garland R-Mer Span**.

1. Provide basis of design product, or comparable product approved by Architect prior to bid.

2.2 PERFORMANCE REQUIREMENTS

A. General: Provide metal roof panel system meeting performance requirements as determined by application of specified tests by a qualified testing facility on manufacturer's standard assemblies.

B. Structural Performance: Provide metal panel assemblies capable of withstanding the effects of indicated loads and stresses within limits and under conditions indicated:

1. Wind Loads: Determine loads based on uniform pressure, importance factor, exposure category, and basic wind speed indicated on drawings.

a. Wind Uplift Testing: Certify capacity of metal panels by actual testing of proposed assembly per ASTM E 1592.

2. Snow Loads: 35 lbf/sq. ft.
3. Deflection Limits: Withstand inward and outward wind-load design pressures in accordance with applicable building code with maximum deflection of 1/180 of the span with no evidence of failure.
4. Seismic Performance: Comply with ASCE 7, Section 9, "Earthquake Loads."

C. Wind Uplift Resistance: Comply with UL 580 for wind-uplift class UL-90.

D. Air Infiltration, ASTM E 1680: Maximum 0.006 cfm/sq. ft. (1.27 L/s per sq. m) at static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).

E. Water Penetration Static Pressure, ASTM E 1646: No uncontrolled water penetration at a static pressure of 25 lbf/sq. ft..

F. Thermal Movements: Allow for thermal movements from variations in both ambient and internal temperatures. Accommodate movement of support structure caused by thermal expansion and contraction. Allow for deflection and design for thermal stresses caused by temperature differences from one side of the panel to the other.

2.3 METAL ROOF PANELS

A. Mechanically-seamed, Concealed Fastener, Metal Roof Panels: Structural metal roof panel consisting of formed metal sheet with vertical ribs at panel edges, installed by lapping and mechanically interlocking edges of adjacent panels, and attaching panels to supports using concealed clips and fasteners in a weathertight installation.

1. **Aluminum-Zinc Alloy-Coated Steel Sheet**: ASTM A 792/A 792M, structural quality, Grade 50, Coating Class AZ50 (Grade 340, Coating Class AZM150), prepainted by the coil-coating process per ASTM A 755/A 755M.
2. Nominal Coated Thickness: 20 gage.
3. Panel Surface: Smooth with striations in pan.
4. Exterior Finish: Fluoropolymer two-coat system.
5. Color: As selected by Architect from manufacturer's standard colors.
6. Panel Width: 16 inches (406 mm).
7. Panel Seam Height: 2 inch (50.8 mm).
8. Joint Type: Mechanically seamed.

2.4 METAL ROOF PANEL ACCESSORIES

A. General: Provide complete metal roof panel assembly incorporating trim, copings, fasciae, gutters and downspouts, and miscellaneous flashings, in [manufacturer's standard profiles] [profiles as indicated]. Provide required fasteners, closure strips, thermal spacers, splice plates, support plates, and sealants as indicated in manufacturer's written instructions.

B. Flashing and Trim: Match material, thickness, and finish of metal panel face sheet.

C. Panel Clips: Provide panel clip of type specified, at spacing indicated on approved shop drawings.
1. **Single-Piece Fixed**: ASTM A 653/A 653M, G90 (Z180) hot-dip galvanized zinc coating, configured for concealment in panel joints, and identical to clips utilized in tests demonstrating compliance with performance requirements.

D. Panel Fasteners: Self-tapping screws and other acceptable corrosion-resistant fasteners recommended by roof panel manufacturer. Where exposed fasteners cannot be avoided, supply fasteners with EPDM or neoprene gaskets, with heads matching color of metal panels by means of factory-applied coating.

E. Joint Sealers: Manufacturer's standard or recommended liquid and preformed sealers and tapes, and as follows:

1. Tape Sealers: Manufacturer's standard non-curing butyl tape, AAMA 809.2.

F. **Steel Sheet Miscellaneous Framing Components**: ASTM C 645, with ASTM A 653/A 653M, G60 (Z180) hot-dip galvanized zinc coating.

G. **Snow Guards**: Approved by metal roof panel manufacturer. Refer to Section 07 72 53 "Snow Guards" for requirements for snow guards attached to metal roof panels.

2.5 FABRICATION

A. General: Provide factory fabricated and finished metal panels and accessories meeting performance requirements, indicated profiles, and structural requirements.

B. Fabricate metal panel joints configured to accept factory-applied sealant providing weathertight seal and preventing metal-to-metal contact and minimizing noise resulting from thermal movement.

C. Form panels in continuous lengths for full length of detailed runs, except where otherwise indicated on approved shop drawings.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's written instructions, approved shop drawings, and project drawings. Form from materials matching metal panel substrate and finish.

2.6 FINISHES

A. Finishes, General: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

A. Fluoropolymer Two-Coat System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF fluoropolymer color coat, AAMA 621.

B. Fluoropolymer Two-Coat Metallic System: 0.2 – 0.3 mil primer with 0.7 - 0.8 mil 70 percent PVDF metallic fluoropolymer color coat, AAMA 621.

C. Interior Finish: 0.5 mil (0.013 mm) total dry film thickness consisting of primer coat and wash coat of manufacturer's standard light-colored acrylic or polyester backer finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine metal panel system substrate and supports with Installer present. Inspect for erection tolerances and other conditions that would adversely affect installation of metal panel installation.

1. Inspect metal panel support substrate to determine if support components are installed as indicated on approved shop drawings. Confirm presence of acceptable supports at recommended spacing to match installation requirements of metal panels.
2. Panel Support Tolerances: Confirm that panel supports are within tolerances acceptable to metal panel system manufacturer but not greater than the following:

    a. 1/4 inch (6 mm) in 20 foot (6.1 m) in any direction.

B. Correct out-of-tolerance work and other deficient conditions prior to proceeding with insulated metal roof panel system installation.

3.2 PREPARATION

A. Flashings: Provide flashings as required to complete metal roof panel system. Install in accordance with Section 07 62 00 "Sheet Metal Flashing and Trim" and approved shop drawings.

3.3 METAL PANEL INSTALLATION

A. Mechanically-Seamed, Standing Seam Metal Roof Panels: Install weathertight metal panel system in accordance with manufacturer's written instructions, approved shop drawings, and project drawings. Install metal roof panels in orientation, sizes, and locations indicated, free of waves, warps, buckles, fastening stresses, and distortions. Anchor panels and other components securely in place. Provide for thermal and structural movement.

B. Attach panels to supports using clips, screws, fasteners, and sealants recommended by manufacturer and indicated on approved shop drawings.

1. Fasten metal panels to supports with concealed clips at each location indicated on approved shop drawings, with spacing and fasteners recommended by manufacturer.
2. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged.
3. Provide weatherproof jacks for pipe and conduit penetrating metal panels of types recommended by manufacturer.
4. Dissimilar Materials: Where elements of metal panel system will come into contact with dissimilar materials, treat faces and edges in contact with dissimilar materials as recommended by manufacturer.

3.4 ACCESSORY INSTALLATION

A. General: Install metal panel trim, flashing, and accessories using recommended fasteners and joint sealers, with positive anchorage to building, and with weather tight mounting. Provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel assembly, including trim, copings, flashings, sealants, closure strips, and similar items.
2. Comply with details of assemblies utilized to establish compliance with performance requirements and manufacturer's written installation instructions.
3. Provide concealed fasteners except where noted on approved shop drawings.
4. Set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently weather resistant.

B. Joint Sealers: Install joint sealers where indicated and where required for weathertight performance of metal panel assemblies, in accordance with manufacturer's written instructions.

1. Seal panels in accordance with insulated panel manufacturer's instructions, and project design drawings.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage an independent testing and inspecting agency acceptable to Architect to perform field tests and inspections and to prepare test reports.

3.6 CLEANING AND PROTECTION

A. Remove temporary protective films immediately in accordance with metal roof panel manufacturer's instructions. Clean finished surfaces as recommended by metal roof panel manufacturer.

B. Replace damaged panels and accessories that cannot be repaired to the satisfaction of the Architect.

END OF SECTION

SECTION 07550 - MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cold Applied 2-Ply Asphalt Roofing (StressPly)

1.2 RELATED SECTIONS

A. Section 06114 - Wood Blocking and Curbing: Wood nailers and cant strips.

B. Section 07220 - Insulation Board: Insulation and fastening.

C. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

D. Section 15120 - Piping Specialties: Roof Drains, Sumps.

1.3 REFERENCES

A. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

B. ASTM D 312 - Standard Specification for Asphalt used in Roofing.

C. ASTM D 451 - Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.

D. ASTM D 1970 - Specification for Sheet Materials, Self-Adhering Polymer Modified Bituminous, Used as Steep Roofing Underlayment for Ice Dam Protection.

E. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.

F. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.

G. ASTM D 4586 Standard Specification for Asphalt Roof Cement, Asbestos-Free.

H. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

I. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

J. ASTM D 6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.

K. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.

L. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings

M. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.

N. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.

O. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing Systems.

P. ASCE 7, Minimum Design Loads for Buildings and Other Structures

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Perform work in accordance with all federal, state and local codes.

B. Exterior Fire Test Exposure: Roof system shall achieve a UL, FM or WH Class rating for roof slopes indicated on the Drawings

C. Design Requirements:
1. Uniform Wind Uplift Load Capacity - Wind Uplift Calculation to be provided

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

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. Installation instructions.

C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.

D. Design Pressure Calculations: Submit design pressure calculations for the roof area in accordance with ASCE 7 and local Building Code requirements. Include a roof system attachment analysis report, certifying the system's compliance with applicable wind load requirements before Work begins.

E. Verification Samples: For each modified bituminous membrane ply product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Provide to certify products meet or exceed specified requirements.

G. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147. Testing must be performed at 77 deg. F. Tests at 0 deg. F will not be considered.

H. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified with documented ISO 9001 certification and minimum of twelve years of documented experience and must not have been in Chapter 11 bankruptcy during the last five years.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Garland Contractor.

D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to commencing Work of this section.

B. Review installation procedures and coordination required with related Work.

C. Inspect and make notes of job conditions prior to installation:
   1. Record minutes of the conference and provide copies to all parties present.
   2. Identify all outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
   3. Installation of roofing system shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface except store KEE-Stone FB 60 rolls flat on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9 COORDINATION

A. Coordinate Work with installing associated metal flashings as work of this section proceeds.

1.10 PROJECT 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

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. (The); 3800 E. 91st St., Cleveland, OH 44105. ASD. Toll Free: 800-321-9336. Phone: 216-641-7500. Fax: 216-641-0633. Web Site: www.garlandco.com.

2.2 COLD APPLIED 2-PLY ROOF SYSTEM - STRESSPLY, OPTIMAX, OR VERSIPLY

A. Base (Ply) Sheet: One ply bonded to the prepared substrate with Interply Adhesive:
   1. FlexBase 80:

B. Modified Cap (Ply) Sheet: One ply bonded to the prepared substrate with Interply Adhesive:
   1. StressPly Plus FR Mineral:

C. Interply Adhesive: (1 and 2)
   1. Weatherking :

D. Flashing Base Ply: One ply bonded to the prepared substrate with Interply Adhesive:
   1. FlexBase 80:

E. Flashing Cap (Ply) Sheet: One ply bonded to the prepared substrate with Interply Adhesive:
   1. StressPly Plus FR Mineral:

F. Flashing Ply Adhesive:
   1. Weatherking Flashing Adhesive:

2.3 ACCESSORIES:

A. Roof Insulation: In accordance with Section 07220.

B. Roof Insulation: Provide G-P Gypsum DenDeck Prime.

C. Walkway Pads - Commercial Innovations Walkway Pads: As recommended and furnished by the membrane manufacturer set in approved adhesive to control foot traffic on roof top surface and provide a durable system compliant non-slip walkway.

D. Pitch Pocket Sealer - Seal-Tite: Two part, 100% solids, self-leveling, polyurethane sealant for filling pitch pans as recommended and furnished by the membrane manufacturer.
   1. Durometer, ASTM D 2240: 40-50 Shore
   2. Elongation, ASTM D 412: 250%
   3. Tensile Strength, ASTM D 412: 200 @ 100 mil

E. Glass Fiber Cant - Glass Cant: Continuous triangular cross Section made of inorganic fibrous glass used as a cant strip as recommended and furnished by the membrane manufacturer.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Pre-Manufactured Coping Cap: R-Mer Edge Coping Cap Cover and Splice Plate.
   1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 24 gauge, 22 gauge or 20 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
   2. Aluminum, ASTM B209, alloy 3105-H14, in thickness of .040" nom. or .050" nom. or .063" nom

B. Pre-Manufactured Coping Cap: R-Mer Edge Coping Chairs
   1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 0.0635 nom./ 16 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.

C. Flashing Boot - Rubbertite Flashing Boot: Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

D. Vents and Breathers: Heavy gauge aluminum and fully insulated vent that allows moisture and air to escape but not enter the roof system as recommended and furnished by the membrane manufacturer.

E. Pitch pans, Rain Collar 24 gauge stainless or 20oz (567gram) copper. All joints should be welded/soldered watertight. See details for design.

F. Drain Flashings should be 4lb (1.8kg) sheet lead formed and rolled.

G. Plumbing stacks should be 4lb (1.8kg) sheet lead formed and rolled.

H. Liquid Flashing - Tuff-Flash: An asphaltic-polyurethane, low odor, liquid flashing material designed for specialized details unable to be waterproofed with typical modified membrane flashings.
   1. Tensile Strength, ASTM D 412: 400 psi
   2. Elongation, ASTM D 412: 300%
   3. Density @77 deg. F 8.5 lb/gal typical

I. Fabricated Flashings: Fabricated flashings and trim are specified in Section 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.

J. Manufactured Roof Specialties: Shop fabricated copings, fascia, gravel stops, control joints, expansion joints, joint covers and related flashings and trim are specified in Section 07710.
   1. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Inspect and approve the deck condition, slopes and fastener backing if applicable, parapet walls, expansion joints, roof drains, stack vents, vent outlets, nailers and surfaces and elements.

C. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

D. If substrate preparation and other conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. General: Clean surfaces thoroughly prior to installation.
   1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   2. Fill substrate surface voids that are greater than 1/4 inch wide with an acceptable fill material.
   3. Roof surface to receive roofing system shall be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.

4. Wherever necessary, all surfaces to receive roofing materials shall be power broom and vacuumed to remove debris and loose matter prior to starting work.
5. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
6. Fasteners and plates for fastening components mechanically to the substrate shall provide a minimum pull-out capacity of 300 lbs. (136 k) per fastener. Base or ply sheets attached with cap nails require a minimum pullout capacity of 40 lb. per nail.
7. Prime decks where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

B. Metal Deck: Metal deck shall be installed as specified in Section
1. Fastening of the deck should comply with the anticipated live and dead loads pertaining to the building as well as applicable Code.
2. Steel decks shall be minimum 22-gauge factory galvanized or zinc alloy coated for protection against corrosion.
3. Suitable insulation shall be mechanically attached as recommended by the insulation manufacturer.
4. Decks shall comply with the gauge and span requirements in the current Factory Mutual FM Approval Guide and be installed in accordance with Loss Prevention Data Sheet 1-28 or specific FM approval.
5. When re-roofing over steel decks, surface corrosion shall be removed, and repairs to severely corroded areas made. Loose or inadequately secured decking shall be fastened, and irreparable or otherwise defective decking shall be replaced.

3.3 INSTALLATION - GENERAL

A. Install modified bitumen membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors Association's Roofing & Waterproofing Manual, the Asphalt Roofing Manufacturers Association, and applicable codes.

B. General: Avoid installation of modified bitumen membranes at temperatures lower than 40-45 degrees F. When work at such temperatures unavoidable use the following precautions:
1. Take extra care during cold weather installation and when ambient temperatures are affected by wind or humidity, to ensure adequate bonding is achieved between the surfaces to be joined. Use extra care at material seam welds and where adhesion of the applied product to the appropriately prepared substrate as the substrate can be affected by such temperature constraints as well.

2. Unrolling of cold materials, under low ambient conditions must be avoided to prevent the likelihood of unnecessary stress cracking. Rolls must be at least 40 degrees F at the time of application. If the membrane roll becomes stiff or difficult to install, it must be replaced with roll from a heated storage area.

C. Commence installation of the roofing system at the lowest point of the roof (or roof area), working up the slope toward the highest point. Lap sheets shingle fashion so as to constantly shed water

3.4 INSTALLATION COLD APPLIED ROOF SYSTEM

A. Base Ply: Cut base ply sheets into 18 foot lengths and allow plies to relax before installing. Install base sheet in Interply Adhesive: applied at the rate required by the manufacturer. Shingle base sheets uniformly to achieve one ply throughout over the prepared substrate. Shingle in proper direction to shed water on each large area of roofing.
   1. Lap ply sheet ends 8 inches. Stagger end laps 12 inches minimum.
   2. Solidly bond to the substrate and adjacent ply with specified cold adhesive at the rate of 2 to 2-1/2 gallons per 100 square feet.
   3. Roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Use care to eliminate air entrapment under the membrane.
   4. Install subsequent rolls of modified across the roof as above with a minimum of 4 inch side laps and 8 inch staggered end laps. Lay modified membrane in the same direction as the underlayers but the laps shall not coincide with the laps of the base layers.
   5. Extend plies 2 inches beyond top edges of cants at wall and projection bases.
   6. Install base flashing ply to all perimeter and projection details.
   7. Allow the one ply of base sheet to cure at least 30 minutes before installing the modified membrane. However, the modified membrane must be installed the same day as the base plies.

B. Modified Cap Ply(s): Cut cap ply sheets into 18 foot lengths and allow plies to relax before installing. Install in interplay adhesive applied at the rate required by the manufacturer. Shingle sheets uniformly over the prepared substrate to achieve the number of plys specified. Shingle in proper direction to shed water on each large area of roofing.
   1. Lap ply sheet ends 8 inches. Stagger end laps 12 inches minimum.
   2. Solidly bond to the base layers with specified cold adhesive at the rate of 2 to 2-1/2 gallons per 100 square feet.
   3. Roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.

4. Install subsequent rolls of modified across the roof as above with a minimum of 4 inch side laps and 8 inch staggered end laps. Lay modified membrane in the same direction as the underlayers but the laps shall not coincide with the laps of the base layers.
5. Allow cold adhesive to set for 5 to 10 minutes before installing the top layer of modified membrane.
6. Extend membrane 2 inches beyond top edge of all cants in full moppings of the cold adhesive as shown on the Drawings.

C. Fibrous Cant Strips: Provide non-combustible perlite or glass fiber cant strips at all wall/curb detail treatments where angle changes are greater than 45 degrees. Cant may be set in approved cold adhesives, hot asphalt or mechanically attached with approved plates and fasteners.

D. Wood Blocking, Nailers and Cant Strips: Provide wood blocking, nailers and cant strips as specified in Section 06114.
1. Provide nailers at all roof perimeters and penetrations for fastening membrane flashings and sheet metal components.
2. Wood nailers should match the height of any insulation, providing a smooth and even transition between flashing and insulation areas.
3. Nailer lengths should be spaced with a minimum 1/8 inch gap for expansion and contraction between each length or change of direction.
4. Nailers and flashings should be fastened in accordance with Factory Mutual "Loss Prevention Data Sheet 1- 49, Perimeter Flashing" and be designed to be capable of resisting a minimum force of 200 lbs/lineal foot in any direction.

E. Metal Work: Provide metal flashings, counter flashings, parapet coping caps and thru-wall flashings as specified in Section 07620 or Section 07710. Install in accordance with the SMACNA "Architectural Sheet Metal Manual" or the NRCA Roofing Waterproofing manual.

F. Termination Bar: Provide a metal termination bar or approved top edge securement at the terminus of all flashing sheets at walls and curbs. Fasten the bar a minimum of 8 inches (203 mm) o/c to achieve constant compression. Provide suitable, sealant at the top edge if required.

G. Flashing Base Ply: Install flashing sheets by the same application method used for the base ply.
1. Seal curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
2. Prepare all walls, penetrations, expansion joints and where shown on the Drawings to be flashed with required primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.

3. Adhere to the underlying base ply with specified flashing ply adhesive unless otherwise specified. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
4. Solidly adhere the entire flashing ply to the substrate. Secure the tops of all flashings that are not run up and over curb through termination bar fastened at 6 inches (152 mm) O.C. and sealed at top.
5. Seal all vertical laps of flashing ply with a three-course application of trowel-grade mastic and fiberglass mesh.
6. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work as specified.
7. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work.
8. Secure the top edge of the flashing sheet using a termination bar only when the wall surface above is waterproofed, or nailed 4 inches on center and covered with an acceptable counter flashing.

H. Flashing Cap Ply:
1. Seal curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
2. Prepare all walls, penetrations, expansion joints and where shown on the Drawings to be flashed with required primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.
3. Adhere to the underlying base flashing ply with specified flashing ply adhesive unless otherwise specified. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
4. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work as specified.
5. Coordinate roof accessories, miscellaneous sheet metal accessory items with the roofing system work.
6. All stripping shall be installed prior to flashing cap sheet installation.
7. Heat and scrape granules when welding or adhering at cut areas and seams to granular surfaces at all flashings.
8. Secure the top edge of the flashing sheet using a termination bar only when the wall surface above is waterproofed, or nailed 4 inches on center and covered with an acceptable counter flashing.

I. Roof Walkways: Provide walkways in areas indicated on the Drawings.

3.5 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Pre-manufactured Snap-On Coping Cap:
   1. Install miters first.
   2. Position base flashing of the Built-Up and/or Modified Roofing membrane over the wall edge covering nailers completely, fastening 8 inches on center. Install membrane and cap sheet with proper material and procedure according to manufacturer's recommendations.
   3. Install minimum 16 gauge, 16 inch long by specified width anchor chair at [Contact Garland Representative] feet on center.
   4. Install 6 inch wide splice plate by centering over 16 inch long by specified width anchor chair. Apply two beads of sealant to either side of the splice plate's center. Approximately 2 inches from the coping cap joint. Install Coping Cap by hooking outside hem of coping on outside face of anchor chair. Press downward on inside edge of coping until "snap" occurs and hem is engaged on the entire chair.

B. Liquid Flashing:
   1. Mask target area on roof membrane with tape.
   2. Clean all non-porous areas with isopropyl alcohol.
   3. Apply 32 wet mil base coat of liquid flashing over masked area.
   4. Embed polyester reinforcement fabric into the base coat of the liquid flashing.
   5. Apply 48-64 wet mil top coat of the liquid flashing material over the fabric extending 2 inches (51 mm) past the scrim in all directions.
   6. Apply minerals immediately or allow the liquid flashing material to cure 15-30 days and then install reflective coating.

C. Roof Drain:
   1. Plug drain to prevent debris from entering plumbing.
   2. Taper insulation to drain minimum of 24 inches (609 mm) from center of drain.
   3. Run roof system plies over drain. Cut out plies inside drain bowl.
   4. Set lead/copper flashing (30 inch square minimum) in 1/4 inch bed of mastic. Run lead/copper into drain a minimum of 2 inches (50 mm). Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.
   5. Install base flashing ply (40 inch square minimum) in bitumen.
   6. Install modified membrane (48 inch square minimum) in bitumen.
   7. Install clamping ring and assure that all plies are under the clamping ring.
   8. Remove drain plug and install strainer.

D. Pitch Pocket:
   1. Run all plies up to the penetration.
   2. Place the pitch pocket over the penetration and prime all flanges.
   3. Strip in flange of pitch pocket with one ply of base flashing ply. Extend 6 inches (152 mm) onto field of roof.
   4. Install second layer of modified membrane extending 9 inches (228 mm) onto field of the roof.
   5. Fill pitch pocket half full with non-shrink grout. Let this cure and top off with pourable sealant.
   6. Caulk joint between roof system and pitch pocket with roof cement.

3.6 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.7 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.8 FIELD QUALITY CONTROL

A. Inspection: Provide manufacturer's field observations at start-up and at intervals of approximately 30 percent, 60 percent and 90 percent completion. Provide a final inspection upon completion of the Work.
   1. Warranty shall be issued upon manufacturer's acceptance of the installation.
   2. Field observations shall be performed by a Sales Representative employed full-time by the manufacturer and whose primary job description is to assist, inspect and approve membrane installations for the manufacturer.

3. Provide observation reports from the Sales Representative indicating procedures followed, weather conditions and any discrepancies found during inspection.
4. Provide a final report from the Sales Representative, certifying that the roofing system has been satisfactorily installed according to the project specifications, approved details and good general roofing practice.

3.9 SCHEDULES

A. Base (Ply) Sheet:
   1. FlexBase 80: 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a dual fiberglass reinforced scrim, performance requirements according to ASTM D 5147.
      a. Tensile Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 225 lbf/in XD 225 lbf/in
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 39.0 kN/m XD 39 kN/m
      b. Tear Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 1335 N XD 1335 N
      c. Elongation at Maximum Tensile, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 7% XD 7%
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 7% XD 7%
      d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.4 deg. C)

B. Modified Cap (Ply) Sheet:
   1. StressPly Plus FR Mineral: 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing membrane reinforced with a fiberglass and polyester composite scrim. ASTM D 6162, Type III Grade G
      a. Tensile Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
      b. Tear Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 500 lbf XD 500 lbf
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 2224 N XD 2224 N
      c. Elongation at Maximum Tensile, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 8% XD 8%
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
      d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34 deg. C)

C. Interply Adhesive:
   1. Weatherking: Rubberized, polymer modified cold process asphalt roofing bitumen V.O.C. compliant ASTM D 3019. Performance Requirements:
      a. Non-Volatile Content ASTM D 4479 70%
      b. Density ASTM D1475 8.9 lbs./gal.
      c. Viscosity Stormer ASTM D562 400-500 grams
      d. Flash Point ASTM D 93 100 deg. F min. (37 deg. C)
      e. Slope: up to 3:12

D. Flashing Base Ply:
   1. FlexBase 80: 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a dual fiberglass reinforced scrim, performance requirements according to ASTM D 5147.
      a. Tensile Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 225 lbf/in XD 225 lbf/in
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 39.0 kN/m XD 39 kN/m
      b. Tear Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 1335 N XD 1335 N
      c. Elongation at Maximum Tensile, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 7% XD 7%
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 7% XD 7%
      d. Low Temperature Flexibility, ASTM D 5147:
         1) Passes -30 deg. F (-34.4 deg. C)

E. Flashing Ply Adhesive:
   1. Weatherking Flashing Adhesive: Brush grade flashing adhesive.
      a. Non-Volatile Content ASTM D 4479 70 min.
      b. Density ASTM D 1475 8.6 lbs./gal. (1kg/l)
      c. Flash Point ASTM D 93 100 deg. F (37 deg. C)

F. Surfacing:
   1. Flashing Cap (Ply) Sheet:
      a. StressPly Plus FR Mineral: 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing membrane reinforced with a fiberglass and polyester composite scrim. ASTM D 6162, Type III Grade G
         1) Tensile Strength, ASTM D 5147
            a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
            b) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m

2) Tear Strength, ASTM D 5147
   a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 500 lbf XD 500 lbf
   b) 50 mm/min. @ 23 +/- 2 deg. C MD 2224 N XD 2224 N
3) Elongation at Maximum Tensile, ASTM D 5147
   a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 8% XD 8%
   b) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
4) Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34 deg. C)

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Paratet flashings.

B. Scuppers.

C. Roof and sill flashings.

D. Counterflashings over roofing.

E. Counterflashings at roof mounted mechanical equipment and vent stacks.

F. Counterflashings for roof hatches and skylights.

1.02 RELATED WORK

A. Section 07530 Roofing.

B. Section 07724 - Roof Hatches.

C. Section 07900 - Joint Sealers.

1.03 REFERENCES

A. ASTM B370 - Copper Sheet and Strip for Building Construction.

B. ASTM D226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

C. CDA (Copper Development Association) - Contemporary Copper, A Handbook of Sheet Copper Fundamentals, Design, Details and Specifications.

D. CDA - Copper Roofing - A Practical Handbook.

E. FS O-F-506 - Flux, Soldering, Paste and Liquid.

F. FS QQ-S-571 - Solder, Tin Alloy.

G. NRCA (National Roofing Contractors Association) - Roofing Manual.

H. SMACNA - Architectural Sheet Metal Manual.

1.04 SYSTEM DESCRIPTION

A. Work of this Section is to physically protect membrane roofing and cavity walls, heads and sills, etc. from damage that would permit water leakage to building interior.

1.05 QUALITY ASSURANCE

A. Applicator: Company specializing in sheet metal flashing work with 5 years minimum experience.

1.06 SUBMITTALS

A. Submit product data under provisions of Section 01300.

B. Describe material profile, jointing pattern, jointing details, fastening methods, and installation details.

C. Submit manufacturer's installation instructions under provisions of Section 01300.

D. Submit samples under provisions of Section 01300.

1.07 STORAGE AND HANDLING

A. Store products under provisions of Section 01600.

B. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation.

C. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

PART 2 PRODUCTS

2.01 SHEET MATERIALS

A. Copper: ASTM B370, cold rolled; 20 oz/sq ft, thick; natural finish.

2.02 ACCESSORIES

A. Fastener: Copper

B. Underlayment: ASTM D266; No. 15 asphalt saturated roofing felt. 6 mil (0.15 mm) polyethylene.

C. Slip Sheet: Rosin sized building paper.

D. Bedding Compound: Rubber-asphalt type.

E. Solder: FS QQ-S-571.

F. Flux: FS O-F-506.

2.03 FABRICATION

A. Form sections true to shape, accurate in size, square, and free from distortion or defects.

B. Fabricate cleats and starter strips of same material as sheet, interlockable with sheet.

C. Form pieces in longest practical lengths.

D. Hem exposed edges on underside 1/2 inch (13 mm); miter and seam corners.

E. Form material with flat lock seam.

F. Pretin edges of copper sheet.

G. Solder and seal metal joints. After soldering, remove flux. Wipe and wash solder joints clean.

H. Fabricate corners from one piece with minimum 18 inch long legs; seam for rigidity, seal with sealant.

I. Fabricate vertical faces with bottom edge formed outward 1/4 inch (6 mm) and hemmed to form drip.

J. Fabricate flashings to allow toe to extend 6 inches over roofing. Return and brake edges.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets in place, and nailing strips located.

B. Verify membrane termination and base flashings are in place, sealed, and secure.

C. Beginning of installation means acceptance of existing conditions.

D. Coordinate all flashings at termination bars at flat roof area with roof installer.

3.02 PREPARATION

A. Field measure site conditions prior to fabricating work.

B. Install starter and edge strips, and cleats before starting installation.

C. Install surface mounted reglets true to lines and levels. Seal top of reglets with sealant.

D. Insert flashings into reglets to form tight fit. Secure in place with lead wedges at maximum 24 inches on center. Seal flashings into reglets with sealant.

E. Secure flashings in place using concealed fasteners.

F. Lap and seal all joints.

G. Apply plastic cement compound between metal flashings and felt flashings.

H. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

I. Seal metal joints watertight.

3.03 INSTALLATION

A. Conform to drawing details and "Copper and Common Sense" handbook and NRCA manual.

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SECTION 07715 - ALUMINUM GUTTERS & LEADERS

PART 1 GENERAL

1.01 DESCRIPTION

A. GUTTERS

1. Furnish and install Industrial Gutter System at all roof areas with accessories as manufactured by Perimeter Systems, Division of Southern Aluminum Finishing Company (SAF) “Colonial” style system, or equal. Provide Profile No. G4-(R) manufactured of Aluminum .063” thickness 14 gauge, Black Kynar 500 finish.

2. Gutters shall be manufactured in 10’-0” lengths, tapered and notched to provide a 1” telescoping lap joint. Gutters shall be pre-punched at 12” O.C. to provide for thermal movement after installation.

3. Provide manufacturer’s standard support brackets and interior straps for installation at 30” O.C. Bracketry shall be of a compatible material to gutter, with matching finish and color.

B. DOWNSPOUTS

1. Furnish and install manufacturer’s standard downspout Profile No. DS manufactured of Aluminum, 050” thickness 16 gauge, Black Kynar 500 finish.

2. Downspout shall be manufactured in 10’-0” lengths, factory offset on one end to provide for a ¾” telescope joint. Downspout shall contain a factory mounted back, which is non-sealed to allow seepage of water in overflow conditions.

3. Elbows for downspouts shall be of welded construction, with matching finish applied after welding. Such finish shall be of quality equal to finish for non-welded parts. Grinding and spray painting of parts to match will not be permitted. Elbows will be provided with a factory offset on its lower end to allow a ¾” telescope joint.

4. Provide manufacturer’s standard wall brackets of compatible material to downspout with matching finish and color.

5. Provide & install PVC downspout adapter to connect to underground drainage system at each leader location, sized to accept leader. Field review to coordinate locations with designated leader locations.

1.02 QUALITY ASSURANCE

A. Installing contractor shall be responsible for installing gutter system in accordance with manufacturer's printed instructions. Follow primary roofing material manufacturer's printed instructions for installation of joining eave trims.

1.03 SUBMITTALS

A. Prior to start of installation, the installing contractor shall furnish details or catalog cuts indicating products to be used conform to these specifications.

1.04 DELIVERY & PRECAUTIONS

A. All products delivered shall be stored in a clean, dry location prior to installation.

B. Products furnished with strippable protective plastic film should have film removed prior to installation. Such film coated products shall not be exposed to sunlight for more than 30 minutes without removing film.

C. Workmen shall use diligent care to avoid care to avoid damage, scars, and abrasions to product when handling. Moreover, contractor shall wear protective gloves and clothing to avoid bodily injury when handling products.

PART 2 INSTALLATION

2.01 SUBSTRATE PREPARATION

A. All horizontal blocking to receive gutters shall be installed true and straight and free of splinters, knots, or other irregularities. Follow local building codes or Factory Mutual Loss Prevention Data 1-49 (whichever is greater) for proper attachment of plates.

B. Fascia boards shall be installed in a vertical fashion, true and straight and free of knots, splinters, or other irregularities. Soffits, extenders, or cladding to be applied to fascias shall be installed prior to gutter installation.

C. Wall Conditions: Wall surfaces, which shall be subject to water runoff from gutters, shall be protected when project conditions do not allow immediate installation.

2.02 INSTALLATION PROCEDURES

A. Review carefully and follow primary roof materials manufacturer's general recommendations as to installing waterproof membranes to this gutter system.

B. Support Bracket Installation: Locate low and high points of gutter installation and chalk a guide line to allow a maximum ¼"/40' slope. Install support brackets at 30" on center aligned with the chalk or other type of guideline. Take care to avoid locating bracket directly over downspout outlet locations. Attach brackets with 2" x #10 wood screw.

C. Gutter Installation: Install gutter sections from left to right (roof side) into support brackets. Insert each telescoping section into previous section for a distance of 1" seal and rivet at 2" O.C. Provide sealants and fasteners as provided by manufacturer. Nail rear upper portion of gutter with 2" self-drilling screws through pre-punched elongated holes at 12" O.C.

D. Inside Strap Installation: Install straps at 30" O.C. alternating with support brackets. Strap shall be hooked into leading edge (bead) of gutter and riveted at its rear side. In no case shall strap be nailed, screwed, or otherwise fastened which would restrain thermal movement of product.

E. Expansion Joints: At 40'-0" intervals, or as shown on plans, install manufacturer's standard elastomeric expansion joint assembly.

    1. Provide manufacturer's standard elastomeric expansion joint assembly. Install in strict accordance with printed instructions taking diligent care to allow:

        a. Proper spacing between gutter sections.
        b. Ample curing time for primers and adhesives prior to application of membrane.
        c. Smooth, wrinkle free application of membrane.

    2. Follow plans and details for proper location of expansion joints.

F. Miter Corners: Install manufacturer's welded miter units at locations shown on plans. Corners shall have 30" legs, pre-punched, notched, and telescoping to match gutter. All units shall be finished after fabrication, grinding and touch-up painting will not be allowed.

G. End Caps/Terminations: Install manufacturer's end caps at all end terminations. End caps shall be riveted at 2" O.C. and sealed.

H. Outlets: Locate all outlet locations and field cut hole in a neat workmanlike manner. Hole shall be located a distance of 1" from backside of gutter. Insert manufacturer's stainless steel outlet, fasten in place with 4 rivets (one being located on each flange), and seal.

SECTION 07900 - CAULKING AND SEALANTS

07900.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

07900.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of caulking and all related work, complete, in strict accordance with the Contract Drawings and as specified herein or reasonably implied.

    a. Complete caulking between structure and frames of all windows, doors, louvers, through wall conduit & piping, and any and all other items in exterior walls, between concrete, door saddles and other joints and/or openings without exception as required for tightness.

    b. Caulking around all interior frames.

    c. Caulking of control and/or expansion joints.

    d. Other caulking as shown on the drawings, and not specified under other sections of the specifications.

07900.0300 RELATED WORK SPECIFIED ELSEWHERE

1. Doors and Windows - Division 8.

07900.0400 DELIVERY AND STORAGE

1. Deliver, store and handle materials in a manner to prevent the inclusion of foreign materials and damage. Deliver and store packaged materials in original sealed containers until ready for use. Delivery materials in ample time to facilitate inspection and test.

2. Package materials showing evidence of damage will be rejected.

07900.0500 SAMPLES

1. Submit the following samples of material for approval, in accordance with the requirements of the Supplementary General Conditions:

a. Caulking compound: 1/2 pint containers of each in original manufacturer's containers with labels intact and seals unbroken.

b. Primer: Pint containers.

c. Oakum: 1 pound.

d. Joint Packing: 10'-0" strip.

e. Install sample caulked joint of each type, at the site and obtain approval of same before proceeding with the work.

07900.0600 MATERIALS

1. Caulking and Sealing Compound (Exterior): Construction joints around door frames and window enframements, under sills and door saddles and where shown on the drawings; shall be Tremco Manufacturing Company's "Dymetric" plus or equal. Colors as selected by the Owner/Architect.

2. Caulking Compound (Interior): For around windows and interior door frames, for door saddles and where shown on the drawings; shall be "Tremco Manufacturing Company's "Spectrem" or other approved equal. Colors as selected by the Onwer/Architect.

3. Primers: Apply as required to the surfaces to be caulked; shall be as made by the manufacturer of the caulking and sealing compounds as approved by the Architect; of composition which will not stain or discolor the materials with which it comes in contact; and applied in accordance with the manufacturer's instructions.

4. Oakum: Hand picked dry spun oakum. Use for interior work only.

5. Joint Packing: Approved closed cell type as made by Everlastic or equal non-absorbing and non-staining.

07900.0700 APPLICATION

1. General: Apply in accordance with the manufacturer's instructions as approved by the Architect and as herein specified.

2. Preparatory work:

a. Joints and spaces to be caulked shall be cleaned thoroughly of mortar and other foreign and deleterious materials before caulking.

b. Joints and spaces shall be not less than 1/4" wide and 1/2" deep.

c. Joints and spaces shall be thoroughly dry before installing caulking compound.

3. Priming: Immediately prior to caulking, prime sides of joints as required with specified primer.

4. Caulking shall not be applied at a temperature of below 40 degrees F.

5. Caulking:

a. Unless otherwise indicated and specified herein, caulking joints and spaces which are open to depth greater than 3/4" shall be solidly filled with picked oakum or joint packing to within 3/4" of surface before caulking. Pack tightly and make continuous throughout length of joints.

b. In joints less than 1/4" wide, omit packing and completely fill with caulking compound. Solidly, fill open depth of joints with caulking compound. (For joints other than masonry).

c. If maximum depth of joint is less than 3/4", due to design, then fill completely with caulking compound.

6. Method of Application: Apply caulking compound by approved type of caulking gun in accordance with the manufacturer's instructions, and as herein specified. Where use of gun is not practicable, use suitable hand caulking tools. Avoid applying compound to surfaces outside caulking joints.

a. Frames: Caulk joints at perimeter of outside face of all exterior doors, window enframements, louver and other frames and penetrations. Perimeter includes sills, heads, jambs, also mullions where detail requires caulking.

b. Jambs and Mullions: Caulk joints at bottom of jambs and mullions at exterior openings.

c. Door Saddles: Spread bed of caulking compound over entire seat of exterior metal door saddles and sills. Thickness of compound shall be sufficient to form solid bed. Remove excess compound after setting and neatly point joints between sills or saddles and sub-sills. Caulk joints between sills, saddles and frames at jambs and mullions.

d. Caulk around items passing through walls, at outside faces.

e. Caulking Generally: Caulk joints where indicated, specified or required for

tightness.

f. Pointing: Neatly point caulking and finish to match adjacent mortar joints, unless otherwise required. Point exterior joints window, door and other frames to make a slightly concave joint, the edges flush with the surfaces of the frames. Caulked joints on the interior side of the frames shall be neatly pointed flush with adjoining work.

7. Cleaning: Immediately clean thoroughly adjacent materials which have been soiled. Leave work in neat and clean condition as approved.

07900.0800 DEFECTIVE WORK

1. Work under this Section shall be watertight. Repair defects in work due to faults in materials, method and workmanship. Do all work necessary to make work watertight. Correct other defects. Make good any work damaged by such defects or by renewal of caulking.

07900.0900 GUARANTEE

1. Guarantee in accordance with the Supplementary General Conditions that the caulked joints will be thoroughly watertight for a period of two years after completion and acceptance, as evidenced by date of final payment.

* * * * *

DIVISION 8 - DOORS AND WINDOWS

SECTION 08100 - METAL DOORS AND FRAMES

08100.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

08100.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of all related work, complete, in strict accordance with the contract drawings, and as specified herein or reasonably implied.

2. Provide and install all hollow metal doors and steel door frames, as manufactured by Curries or equal as noted on schedule.

3. All material, labor and equipment necessary to furnish and deliver to the job site material as specified in this section.

08100.0300 RELATED WORK SPECIFIED ELSEWHERE

1. Metal doors and frames; wood doors and frames; structural steel frames; finish hardware; automatic door closers; glass and glazing; caulking and weatherstripping; field painting.

08100.0400 QUALIFICATIONS

1. Hollow metal doors and steel door frames, including appropriate anchorage, shall be fabricated from prime materials in accordance with manufacturer's normal standards and accepted industry practice. Assembly and installation, including field modifications and custom fabrication, shall be done by a hollow metal contractor.

08100.0500 SHOP DRAWINGS

1. All doors, frames and hollow metal work shall be fabricated as shown on the shop drawings, submitted to and approved by the architect before fabrication.

08100.0600 DELIVERY AND STORAGE OF MATERIALS

1. Doors and frames shall be delivered to the contractor at the job site. They shall be handled so as to avoid damage and stored upright in a protected area on wood skids, covered with tarpaulins or plastic, vented to avoid condensation and entrapped moisture, until ready for installation. Damaged or deteriorated materials shall be removed from the premises.

08100.0700 PRODUCTS

1. Materials

   a. Doors - Hollow metal, full flush seamless Type D steel construction, Series 400 and UL400, 1-3/4" thick, completely filled with small cell phenolic resin-impregnated kraft honeycomb core bonded to 16 ga. skin sheets with heat and pressure-activated adhesive, 14 ga. channel perimeter reinforcement spot-welded to skin sheets top and bottom, skin sheets continuous lock-seamed along vertical edges. Top of exterior swing-out doors filled flush with additional channel to prevent moisture accumulation. Lock edge bevel 1/8" to 2". Provide R-7 polystyrene for all exterior doors as noted on our schedule.

   b. Hinge and lock reinforcements integral with vertical perimeter channel, additional reinforcing box for lock specified, internal reinforcing for overhead-surface mounted closers, and for surface-mounted hardware as required, for field drilling and tapping by contractor. Hinge mortise drilled and tapped, 3 full threads minimum, for standard weight 4 1/2" x 4 1/2" hinges.

   c. Doors to be cleaned, phosphatized and primed with oven-baked enamel of neutral color, ready for finish painting, and shipped in individual cartons. Cartons to be protected from moisture during shipping and handling.

   d. Door Accessories:

      Kick plates – Plate size to equal door size less 2” x 12” high. Finish shall match door hardware and to be installed on both sides of door.

      Glazing beads - 18 ga. steel, profile with max. 1/16" projection from door face, neatly coped and mitered at corners, (exterior sided nonremovable, interior side screw-attached) provided with all glassed styles.

   e. F-Line Frames - Prime, cold-rolled steel, assembled, arc-welded, ground and finished smooth, mortised, reinforced, drilled and tapped for standard weight, full mortise template hinges and template strike, mortar guards at all hardware preparations. Provide 1 welded-in floor anchor and 3 lock-in anchors each jamb for field insertion, 24" o.c. max., and furnish with rubber mutes, 3 for single

doors, 2 for pairs.

Frames to be cleaned, phosphatized and primed with oven-baked enamel or neutral color, ready for finish painting by general contractor. Coordinate finish paint color with Owner.

Series F416 frames, 16 ga., for 1 3/4" doors, hinge reinforcements 7 ga., strike reinforcement 14 ga. prepared for 1 1/2 pr. 4 1/2" x 4 1/2" hinges and ANSI 115.1 4 7/8" strike and UL-F416 labeled frames as required on above schedules.

Prepare frame for silencers, provide three (3) single rubber silencers for single doors on strike side, and two (2) single silencers on frame head at double doors without mullions.

f. Labels - Nonremovable labels, of the hourly rating shown on door schedule, shall be permanently affixed to fire-rated doors and frames showing compliance with Underwriters Laboratories requirement (B-Label).

g. Provide frames with special cut at latch for HES electrical strike devices (at interior doors receiving HES 5600 strikes). HES electric strike devices shall be provided and installed by General Contractor in coordination with electrical contractor for power/control wiring.

08100.0800 EXECUTION

1. Doors - Hang doors level and plumb, shimming as necessary at hardware mortises to provide proper clearances and smooth operation with no binding.

2. F-Line Frames - Set plumb and square, securely anchor to floor construction and brace for erection of surrounding walls. Apply 1 coat of bituminous paint to frame surfaces that will be concealed in masonry walls.

3. Labeled Frames - Install labeled frames in accordance with NFPA Publications No. 80 and No. 101, and all applicable codes.

* * * * *

SECTION 08305 - ACCESS DOORS

1.01 GENERAL DESCRIPTION

A. Bidding requirements, conditions of the contract and pertinent portions of sections in Division 1 of these specifications, apply to the section as fully as though repeated herein.

B. Work under this section includes furnishing and installing SIX (6) 24" x 24" access panels. The panels are not indicated on the drawings. They shall be installed during the course of construction at locations deemed necessary. Provide framed openings as required to receive access panels.

C. Related work:

1. Section 09900, painting; field paint finish.

1.02 SUBMITTALS

A. Submit product data under provisions of Section 01300.

B. Include sizes, types, finishes, and details of adjoining work.

C. Submit manufacturer's installation instructions under provisions of Section 01300.

1.03 DELIVERY

A. Package, handle, deliver and store access panels at the project site in a manner that will avoid damage.

1.04 QUALITY ASSURANCE

A. Manufacture's Fire Rated Access Doors and frames to conform to UL Requirements.

PART 2 - PRODUCTS

2.01 MANUFACTURER

A. Access Panels listed as follows as provided by:

Larsen's Manufacturing Company
7421 Commerce Lane N.E.
Minneapolis, MN 55432
(612) 571-1181

2.02 MATERIAL

A. L-DWB: To be installed in sheetrock or drywall after the board is up.

B. Latch to be knurled knob with interior release lever.

C. Size as 24” X 24” for bidding purposes. Actual sizes in field will be determined.

2.03 FABRICATION

A. Furnish as necessary each access panel assembly manufactured complete with all parts ready for installation.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify that wall and ceiling openings are correctly dimensioned to receive walls.

3.02 INSTALLATION

A. Install according to manufacturers instructions.

3.03 ADJUST AND CLEAN

A. Adjust latch and lock mechanism to operate.

SECTION 08330 ROLL UP DOORS

1. Scope.

    a. Provide manual roll up doors with stainless steel slats or grille where noted on the drawings.

2. Quality Assurance.

    a. System shall be Atlas roll lite rolling fire door stainless steel finish complete with locks, hood 22 gauge with fusible link closing operation or approved equal.

3. Submittals.

    a. Manufacturers product literature.

4. Installation

    a. All materials, systems components, etc. shall be installed in strict compliance with the manufacturers printed product system specifications and installation instructions. Provide blockings, etc. as required to receive system installation.

DIVISION 8 – DOORS & WINDOWS

SECTION 08360

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Commercial sectional doors.

B. Electric Operators

1.2 RELATED SECTIONS

A. Section 05 50 00 - Metal Fabrications: Miscellaneous for steel supports.

B. Section 06 10 00 - Rough Carpentry. Door opening jamb and head members

C. Section 08 71 00 - Door Hardware: Hardware, locks, access panels.

D. Section 09 90 00 - Painting: Field painting.

E. Section 11 12 00 - Parking Control Equipment: Parking control equipment for remote door controls.

F. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

A. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

B. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.

C. ASTM E 283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.

D. ANSI/DASMA 105 – American National Standard Institute Test Method for Thermal Transmittance and Air Infiltration of Garage Doors

E. ASTM A 123 – Standard Specification for Zinc (hot-dipped galvanized) coatings on iron and steel products.

F. ASTM A 229 - Steel wire, oil-tempered for mechanical springs.

G. ASTM E 330 - Structural performance of exterior windows, curtain walls, and doors by uniform static air pressure difference.

H. ASTM E 413 - Classification for Rating Sound Insulation

I. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.

J. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

K. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

L. UL 325 - Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems Current Edition, Including All Revisions.

M. ANSI/DASMA 108 - Standard Method for Testing Sectional Garage Doors, Rolling Doors and Flexible Doors: Determination of Structural Performance Under Uniform Static Air Pressure Difference

N. ANSI/DASMA 102 - Specifications for Sectional Overhead-Type Doors

O. ANSI/DASMA 115 - Standard Method for Testing Sectional Doors, Rolling Doors, and Flexible Doors: Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure

P. FDA 21 CFR 177.1520 - Olefin polymers

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

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. Installation methods.

C. Performance Standards: Provide test data validating the following:
   1. Door Section: Gloss retention, fade resistance, FDA compliance, cold crack performance, load to rebound, dent resistance impact.
   2. Drive Train: Spring cycle life, track, hinges, rollers, cable assembly, cable strength.

3. Door Assembly: Thermal performance, deflection, wind load.

D. Shop Drawings:
1. Provide drawings indicating track details, head and jamb conditions, spring shafts, anchorage, accessories, finish colors, patterns and textures, operator mounts and other related information.
2. Regulatory Requirements and Approvals: Provide shop drawings in compliance with local Authority having Jurisdiction (AHJ).

E. Certifications:
1. Submit manufacturer's certificate that products meet or exceed specified requirements.
2. Submit installer qualifications.

F. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

G. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Utilize an authorized installer of door manufacturer who has demonstrated experience on projects of similar size and complexity.

B. Manufacturer Qualifications: Company with a minimum of five-year experience in producing the specified type of doors.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

1.7 PROJECT 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 recommended limits.

1.8 WARRANTY

A. Provide manufacturer’s standard warranty against defects in material and workmanship, as further described with each model in Part 2 of this Section.

B. Raynor warrants the electrical operator and component parts for two (2) years against defects in material and workmanship when purchased as operator only.

C. Raynor warrants the electrical operator and component parts against defects in material and workmanship for three (3) years, on the operator only, when purchased with any model of Raynor commercial sectional door.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Raynor, which is located at: 1101 East River Rd. P. O. Box 448; Dixon, IL 61021-0448; Toll Free Tel: 800-4-RAYNOR; Tel: 815-288-1431; Fax: 888-598-4790; Email: architectsupport@raynor.com; Web: www.raynor.com

B. Substitutions: Not permitted unless authorized by Owner (Ellenville Fire District).

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 SECTIONAL THERMAL SANDWICH DOOR

A. ThermaSeal TM300 as manufactured by Raynor Garage Doors:

1. Doors:
   a. Operation:
      1) Provide doors designed for electric motor operation.
   b. Jamb Construction:
      1) Masonry jambs with anchor bolt fasteners.
   c. Structural Performance Requirements:
      1) Wind Loads: 13.3 psf design load/ 20 psf test load standard
   d. International Energy Conservation Code (IECC) Requirements:
      1) Air Infiltration – Maximum air leakage of 0.4 cfm/ft2 is required. Testing shall be in accordance with DASMA 105 test procedure.
      2) Raynor ThermaSeal TM300 provides an air leakage rating of 19 cfm/ft2 with optional IECC Compliance Package.
      3) Raynor ThermaSeal TM300 provides an installed U-factor of 0.16

2. Sections:
   a. **ThermaSeal TM300**:
      1) Sections shall be pressure bonded to injected polyurethane foam insulated core. Hinge reinforcement strips shall be 20 gauge galvanized steel, located within section interior. End stiles to be 16 gauge galvanized steel.
      2) Material: Steel sandwich construction, 3 inches (76 mm) thick, roll formed from commercial quality, hot-dipped galvanized (G40 exterior) steel complying with ASTM A 653. Exterior skin shall be

constructed of 25 gauge steel and interior skin shall be 26 gauge steel with embossed stucco texture.

3) Finish: Exterior skin to have two coats of paint, one primer coat and one finish coat.
   a) Color: Red polyester paint. (Coordinate custom color with Owner & manufacturer)

4) Insulation: Expanded polyurethane with R-value of 24.54.

b. Seals: Interior and exterior skins to be separated by a molded thermal break and weather seal along section joint. Bottom of door to have flexible U-shaped vinyl seal retained in aluminum rail. Optional dual-durometer vinyl blade seal on top section to prevent airflow above header/

c. Trussing: Doors designed to withstand specified windload. Deflection of door in horizontal position to be maximum of 1/120th of door width.

3. Windows: Locations to comply with door elevation drawings.
   a. Window in Rectangular Two-Piece Black Frame:
      1) Size: 34 inches by 16 inches (864 mm by 406 mm) window in a rectangular two-piece black frame.
         a) Insulated, two panes of 1/8 inch (3.2 mm) thick DSB glass
   b. Full-view window consisting of aluminum stile and rail construction and color matched to door exterior with powdercoat paint. Full View to be provided as follows.
      1) Impact Rated Glazing: Provide as follows.
         a) <u>1/2 inch insulated glazing options</u>
            1) 1/2 inch (12.69 mm) **Insulated Clear Glass** consisting of two panes of 1/8 inch (3.2 mm) DSB insulated glass.

2. Track:
   a. Material: Hot-dipped galvanized steel (ASTM A 653), fully adjustable for adequate sealing of door to jamb or weatherseal.
   b. Configuration Type: Normal Headroom.
   c. Track Size: 2 inches (51 mm).

      1) Jamb Type: Steel, wood, or masonry.
         a) Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 2-5/16 x 4 inches (59 x 102 mm)

   d. Track Size: 3 inches (76 mm).
      1) Jamb Type: Steel, wood, or masonry.

a) Mounting: Floor-to-header angles. 13 gauge (2.2 mm) minimum continuous angles from floor to door header. Angle Size: 3-1/2 x 5 inches (89 x 127 mm) on 3-inch track.

e. Finish:
1) Galvanized.
2) ArmorBrite Powdercoat Finish: Color as selected by Architect
a) Color: (Verify with Owner & Architect).

3. Counterbalance:
a. Counterbalance System: Provided with aircraft-type, galvanized steel lifting cables with minimum safety factor of 5. Torsion Springs consisting of heavy-duty oil-tempered wire torsion springs on a continuous ball-bearing cross-header shaft.
1) Spring Cycle Requirements: Standard 10,000 cycles.

4. Hardware:
a. Hinges and Brackets: Fabricated from galvanized steel.
b. Track Rollers: 2 inches (50.8 mm) diameter consistent with track size, with hardened steel ball bearings.
c. Track Rollers: 3 inches (76.2 mm) diameter consistent with track size, with hardened steel ball bearings.
d. Perimeter Seal: Provide complete weather stripping system to reduce air infiltration. Weather stripping shall be replaceable.
1) For angle mounted doors provide angle clip-on seal.
e. Furnish door system with locks: Exterior lock with five-pin tumbler cylinder, night latch and steel bar engaging track.
f. Furnish door system with locks: Interior lock with dead bolt provided with hole to receive padlock provided by Owner.

5. ThermaSeal Limited Warranty: Raynor warrants the door sections against defects in material and workmanship, and deterioration due to rust-through for ten years from date of delivery to the original purchaser. Raynor also warrants the door sections against delamination of the insulation from the steel skins for ten years from date of delivery to the original purchaser. Window components are warranted against defects in material and workmanship for one year from date of delivery to the original purchaser. Raynor warrants all hardware and spring components against defects in material and workmanship for one year (or cycle life of the springs) from date of delivery to the original purchaser. Additional Limited Warranty requirements in accordance with manufacturer's full standard limited warranty documentation.

2.3 ELECTRIC OPERATORS

A. ControlHoist as manufactured by Raynor Garage Doors:

1. Model:
   a. Raynor ControlHoist Optima:
      1) Type: Trolley.
      2) Motor Horsepower Rating: Continuous 1/2 HP.
      3) Motor Horsepower Rating: Continuous 3/4 HP.
      4) Motor Horsepower Rating: Continuous 1 HP.
      5) Motor Horsepower Rating: Continuous 1-1/2 HP.
      6) Motor Horsepower Rating: Continuous 2 HP.
      7) Electrical Requirements: 208-230 volt three phase.
      8) Duty Cycle: 30 cycles/hour or 300 cycles/day.
      9) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.
         a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
      10) Entrapment protection:
         a) NEMA 1 Monitored photo electric eyes mounted on jambs.
   b. Raynor ControlHoist Standard:
      1) Type: Jackshaft.
      2) Type: Jackshaft with manual chain hoist.
      3) Type: Trolley.
      4) Motor Horsepower Rating: Continuous 1/3 HP.
      5) Motor Horsepower Rating: Continuous 1/2 HP.
      6) Motor Horsepower Rating: Continuous 3/4 HP.
      7) Electrical Requirements: 115 volt single phase.
      8) Electrical Requirements: 230 volt single phase.
      9) Electrical Requirements: 208-230 volt three phase.
      10) Electrical Requirements: 460 volt three phase.
      11) Duty Cycle: 30 cycles/hour or 300 cycles/day.

      12) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.

a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
b) Custom wiring.

13) Entrapment protection:
a) Wired Monitored electric reversing edge extending full width of door.
b) Wireless Monitored electric reversing edge extending full width of door.
c) NEMA 1 Monitored photo electric eyes mounted on jambs.
d) NEMA 4X Monitored photo electric eyes mounted on jambs.

c. Raynor ControlHoist Basic:
1) Type: Trolley.
2) Motor Horsepower Rating: Intermittent 1/2 HP.
3) Electrical Requirements: 115 volt single phase.
4) Duty Cycle: 14 cycles/hour.
5) Control Wiring: Solid state circuitry with provisions for connection of safety edge to reverse, external radio control hook-up and maximum run timer. Provisions for timers to close, monitored reversing devices, mid stop and lock bar sensor capability.
a) Provide three button momentary contact "open-stop", constant pressure on close (can be changed to momentary to close).
b) Two (2) three-button control operators shall be provided and installed by General Contractor for each overhead door. One (1) control shall be at the door location, one (1) control shall be located within the Radio Room (field coordinate locations as needed with Owner). Coordinate all control operator installs with project electrician.
6) Entrapment protection:
a) Wired Monitored electric reversing edge extending full width of door.
b) Wireless Monitored electric reversing edge extending full width of door.
c) NEMA 1 Monitored photo electric eyes mounted on jambs.
d) NEMA 4X Monitored photo electric eyes mounted on jambs.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared. Verify that site conditions are acceptable for installation of doors, operators, controls and accessories. Ensure that openings are square, flush and plumb.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 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.

3.3 INSTALLATION

A. General: Install door, track and operating equipment complete with all necessary accessories and hardware according to shop drawings, manufacturer's instructions.

B. Lubricate bearings and sliding parts, and adjust doors for proper operation, balance, clearance and similar requirements.

3.4 PROTECTION

A. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove and legally dispose of construction debris from project site.

B. Remove temporary coverings and protection of adjacent work areas. Repair or replace installed products damaged prior to or during installation.

C. Lubricate bearings and sliding parts, assure weather tight fit around door perimeter and adjust doors for proper operation, balance, clearance and similar requirements. Protect installed products until completion of project.

D. Touch-up, repair or replace damaged products before Substantial Completion.

SECTION 08 52 16 – PLASTIC-CLAD WOOD WINDOWS

PART 1 GENERAL

1.1 SUMMARY

1. Section Includes: Vinyl-clad wood-framed windows of the following types: Double Hung (standard & custom width / arch top)

B. Related Sections: Section(s) related to this section include:

1. Section 06100 – Rough Carpentry
2. Section 07900 – Caulking and Sealants

1.2 REFERENCES

A. General: Standards listed by reference form a part of this specification section. Standards listed are identified by issuing authority, abbreviation, designation number, title or other designation. Standards subsequently referenced in this Section are referred to by issuing authority abbreviation and standard designation.

B. American Architectural Manufacturers Association (AAMA):

1. AAMA 450 - Voluntary Performance Rating Method for Mulled Fenestration Assemblies.
2. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products.
3. AAMA 613 - Voluntary Performance Requirements and Test Procedures for Organic Coatings on Plastic Profiles.
4. AAMA 614 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Plastic Profiles.
5. AAMA 623 - Voluntary Specification, Performance Requirements and Test Procedures for Organic Coatings on Fiber Reinforced Thermoset Profiles.
6. AAMA 624 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Fiber Reinforced Thermoset Profiles.
7. AAMA 902 - Voluntary Specification for Sash Balances.
8. NAFS - North American Fenestration Standard/Specification for Windows, Doors, and Skylights.

C. Andersen Corporation: Andersen 400 Series Installation Guide.

D. ASTM International (ASTM):

1. ASTM C1036 - Standard Specification for Flat Glass.
2. ASTM C1048 - Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass.
3. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
4. ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
5. ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
6. 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.
7. ASTM E2190 - Standard Specification for Insulating Glass Unit Performance and Evaluation.
8. ASTM F2090 - Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms.

E. Insulating Glass Certification Council (IGCC): Insulating Glass Unit Certification.

F. International Standards Organization (ISO): ISO 14021 - Environmental Labels and Declarations -- Self-Declared Environmental Claims (Type II Environmental Labeling).

G. National Fenestration Rating Council (NFRC):

1. NFRC 100 - Procedure for Determining Fenestration Product U-Factors.
2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence.

H. U.S. Environmental Protection Agency (EPA): ENERGY STAR.

I. Window and Door Manufacturers Association (WDMA):

1. WDMA Hallmark Certification Program for Manufacturers.
2. WDMA I.S. 4 - Industry Specification for Preservative Treatment for Millwork.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: Conduct preinstallation meeting to clarify Project requirements, substrate conditions, manufacturer’s installation instructions and manufacturer’s warranty requirements.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance Requirements:

1. Comply with requirements of NAFS.

B. Windborne Debris Performance Requirements:

1. STM E1886 and ASTM E1996.

1.5 SUBMITTALS

A. Product Data: For each type of product required.

B. Shop Drawings: Showing methods of installation, plans, sections, elevations and details of walls, specified loads, flashings, vents, sealants, and interfaces with all materials not supplied by the window manufacturer, and identification of proposed component parts and finishes.

C. Samples: Selection and verification samples for finishes, colors and textures. Submit two complete sample sets of each type of material required.

D. Certificates: Signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Manufacturer Instructions: Manufacturer installation, storage, and other instructions.

G. Qualification Statements: For manufacturer and installer.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Member in good standing of the Insulating Glass Certification Council (IGCC).
2. Hallmark Certified Manufacturer and member in good standing of the Window and Door Manufacturers Association (WDMA).
3. Member in good standing of U.S. Green Building Council.
4. U.S. ENERGY STAR Partner.
5. Capable of demonstrating an extended history of window and door design, production and innovation.

B. Installer Qualifications:

1. Minimum five years of experience in the commercial installation of products required for the Project.
2. Experience on at least five projects of similar size, type and complexity as the Project.
3. An entity utilizing workers competent in techniques required by manufacturer for product types and applications indicated.

1.7 DELIVERY, STORAGE AND HANDLING

A. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Deliver materials to Project in manufacturer's original unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials and accessories protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by manufacturer off ground, under cover and not exposed to weather and construction activities.

1.8 WARRANTY

A. Special Warranty: Manufacturer's transferrable, non-prorated limited warranty.

1. Warranty Period, Glass: 20 years.
2. Warranty Period, Non-Glass Parts: 10 years.

B. Special Warranty: Installer's standard form in which installer agrees to repair or replace wood windows that fail due to poor workmanship or faulty installation within the specified warranty period.

1. Warranty Period: One year from date of Substantial Completion.

PART 2 PRODUCT

2.1 WOOD WINDOWS

A. General: Provide windows complying with the performance requirements indicated and tested according to NAFS.

B. Basis-of-Design Product: Subject to compliance with requirements provide Andersen Corporation; Andersen 400 Series (Storm Watch) windows.

C. Substitution Limitations: No substitutions

2.2 MATERIALS

A. Construction:

1. Frame: Finger-jointed or laminated veneer lumber capped with rigid vinyl, preservative treated WDMA I.S. 4.
2. Interior Sash: Solid lumber, kiln dried and suitable for stain or painted finish, preservative treated WDMA I.S. 4.
3. Exterior Sash: Co-extruded rigid vinyl or liquid-applied vinyl over finger-jointed lumber.
4. Interior Stop: Beveled

B. Wood Species: Clear Pine

C. Interior Finish:

1. Painted: Factory-applied before assembly, White

D. Exterior Finish:

1. Frame and Sash: AAMA 613 for color retention, Black
2. Trim: AAMA 623 for color retention, Black

2.3.1 WINDOW Designation 1 – 10.

A. Window Type: Double-Hung

B. Performance Grade Requirements:

1. Double-Hung Performance Class LC and Grade, Impact (Storm Watch Series) Resistant: PG50

C. Air Infiltration Requirements:

1. Air Infiltration Rate: < 0.2 cfm/sf².

D. Environmental Certifications:

1. ENERGY STAR performance requirements.
2. Indoor air quality performance.

E. Weatherstrip:

1. Type and Material for Hung: Vinyl covered foam gasket at head and sill, compressible vinyl bulb at checkrail and vinyl fins at jambs.

F. Attachment Flange:

1. Type and Material for Double-Hung or Gliding: None

G. Hardware:

1. Sash Lock Material: Die-cast Zinc
2. Sash Lift Type and Material: Surface mounted, die-cast zinc.
3. Sash Lock and Sash Lift Finish: Satin Nickel
4. Sash Lock and Sash Lift Material and Style: Die-cast zinc Classic Series
5. Tilt-Wash Mechanism Material and Color: Injection molded polymer, White
6. Balance Type and Material: Spring-loaded block and tackle, galvanized steel.
7. Jamb Liner Material and Color: Rigid vinyl, White
8. Window Opening Control Device: Provide device to restrict operable sash to less than four inches maximum clear opening and releasable, in compliance with ASTM F2090.

H. Divided Lights:

1. Simulated Divided Light: Permanent exterior and interior attachment, no spacer between glass panes

    a. Interior Style: Contoured Profile
    b. Exterior Style: Contoured profile.
    c. Width: 3/4 Inch
    d. Pattern: Prairie
    e. Exterior Color: Match Window
    f. Interior Finish: Match Window

I. Insect Screens:

1. Type: Conventional.

    a. Painted Finish and Color: Factory-applied baked-on silicone polyester enamel - Black.
    b. Insect Screen Material: Aluminum wire cloth

J. Exterior Trim and Accessories:

1. Type: 1-15/16 inch Sill Nose.
2. Material: Fibrex Composite material
3. Finish and Color: Black

K. Mullions: Laminated Veneer Lumber configured to be structurally sound and designed in accordance with AAMA 450.

2.10 IMPACT-RESISTANT GLAZING for ALL WINDOWS

A. Thermal Transmission (U-Factor), NFRC 100:

1. Casement: 0.34 with grilles
2. Double-Hung: 0.36 with grilles

B. Solar Heat Gain Coefficient (SHGC), NFRC 200:

1. Casement: 0.29 with grilles
2. Double-Hung: 0.28 with grilles

C. Visible Light Transmittance (VLT), NFRC 200:

1. Casement: 0.48 with grilles
2. Double-Hung: 0.47 with grilles

D. Sound Transmission Class (STC)/Outdoor Indoor Transmission Classification (OITC), ASTM E90:

1. Casement: 30/26
2. Double-Hung: 32/28

E. Glass Units: Provide insulating glass units certified through Insulating Glass Certification Council as conforming to the requirements of IGCC and ASTM E2190

1. Manufacturer Designation: Andersen Low-E4 Insulated Impact-Resistant Glass.
2. Glazing Configuration: Dual pane.
3. Tint: None
4. Seal and Spacer Type: Dual sealed insulating glass units with polyisobutylene primary seal, silicone secondary seal and stainless-steel spacers.
5. Glass Spacer Color: White
6. Glass Type: Annealed glass, ASTM C1036
7. Opacity: None

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that all substrate conditions are suitable for installation in compliance with manufacturer's recommendations.

B. Do not begin installation until substrates have been properly prepared and any conditions not in compliance with manufacturer's recommendations have been corrected.

3.2 INSTALLATION

A. General: Comply with manufacturer's product recommendations, including but not limited to the Andersen Unit Installation Guide, installation information in product literature and on product packaging. Comply with Drawings [**and Shop Drawings**] for installing windows, hardware, accessories, and other components.

B. Install windows plumb, level and square. Anchor windows securely to structure in correct orientation to flashing and adjacent construction as indicated. Comply with product installation instructions for proper flashing integration into wall system. Install windows so as to drain water penetration to the exterior.

C. Adjust sashes, insect screens, ventilators, hardware and accessories as applicable for correct fit. Adjust weatherstrip for smooth operation and weather-tight closure.

3.3 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: If requested by Owner, provide manufacturer's field service consisting of product use recommendations and periodic site visits for observation of product installation in accordance with manufacturer's recommendations.

   1. Site Visits: As required

B. Field Testing: Provide field testing of installed units.

   1. Test units in compliance with AAMA 502.
   2. Use test equipment calibrated according to ASTM E1105.

3.4 CLEANING

A. Refer to manufacturer for guidance on timing for when best to remove protective films and non-permanent labels after installation.

B. Remove excess sealant, soiling, dirt and other substances. Clean window frame and glass surfaces. Avoid damaging coatings and finishes.

C. Touch-up, repair or replace glass or other window components broken, scratched or damaged during construction prior to Substantial Completion.

D. Remove and lawfully dispose of construction debris from Project site.

3.5 PROTECTION

A. Protect installed windows and finish surfaces from damage during construction until completion of Project and acceptance by Owner.

SECTION 08700 FINISHING HARDWARE

08100.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms", whether attached hereto or not.

08700.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operation in connection with the installation of finishing hardware, complete, in strict accordance with the Contract Drawings, the Door Schedule and as herein specified or reasonably implied.

2. Provide all butts, locks, rosettes, estucheons, pulls, push plates, door closers, flush bolts, door stops, anti-panic bolts, kickplates, required panic hardware devices and all other items not specifically mentioned, but necessary and required to make a complete item of work in every respect.

3. All finishing hardware shall be received, stored and distributed and the responsibility for its safety assumed by the Contractor. The protection wrapped around pieces of hardware as it is installed and properly maintained until the final completion of the building.

4. Do not install finishing hardware in the building until all work has been fully completed and dry.

5. Hardware shall be accurately fitted and secured in place, adjusted to operate perfectly and free from scratches and/or other defacements.

6. The Contractor shall be responsible for the condition and operation of all finished hardware until the issuance of the Certificate of Final Acceptance or until the building is occupied, whichever event is sooner.

7. Face hardware shall, after being fitted, be removed before finish or painting is applied and neatly replaced after the finishing or painting is fully completed.

8. Install electric door strikes provided by owner in door frames. Coordinate wiring with the electrician.

9. Immediately prior to completion of all work, go over the entire building with the Architect and see that each piece of hardware is undamaged, in perfect working order.

08700.0300 QUALITY ASSURANCE

1. Manufacturer as quality standard for lock sets and latch sets: Schlage.

2. Standards for latch sets: Schlage.

3. Manufacturer as quality standard for hinges: Stanley Hardware.

4. All other requirements as noted on the drawings.

5. Provide lock sets on all exterior doors and doors called to be locked as called for in the door schedule. Panic bar all exterior doors.

6. Provide passage latch on all other doors not called for on the drawings and specifications.

08700.0400 SUBMITTALS

1. Manufacturer's literature.

08700.0500 PRODUCTS

1. Latch Sets

   A. All new lock and latch sets to be Schlagelock, "D" Series. (Verify with Owner)

      1. Function:

         a. Passage Latch - D105 Rhodes 625

         b. Key Lock - D53PD, D405, D80PD, L9462, D12D Rhodes 626

      2. Finish: Satin Chromium 626

      3. Style: Rhodes

   B. Approved substitutions shall be listed BHMA performance standards.

   C. Install electric strikes provided by Owner in door frames to be coordinated with Electrician.

   D. Refer to hardware groups on drawings

2. Door Stops (All Doors shall include stops, not on schedule. Coordinate type per door with architect)

A. Floor type as FB13/FB14R by Glynn Johnson Corp.

B. Wall type as 50C by Glynn Johnson Corp.

3. Hinges

A. All doors to have 1 1/2" pair, 4 1/2" standard weight, full mortise hinges.

4. Templates

A. Provide templates for installation.

5. Door Closers

A. Norton - Series 1600 or equal. Provide integral closer at storefront type entry and exit doors to be supplied by door manufacturer.

08700.0600 FINISHES

1. All finishes to match that specified for lock and latch sets above. (Verify with Owner)

08700.0700 CUTTING, FITTING AND PATCHING

1. Do all cutting and fitting of woodwork necessary to accommodate the work of other trades, patch and make good and work cut or damaged from any cause.

08700.0800 KEYING

1. All locksets shall be keyed in compliance with key schedule to be reviewed with and approved by the Owner. Keying shall include four (4) key combinations as follows:

- Master key; all doors.
- Key level 1; select doors.
- Key level 2: select doors.
- Key level 3; select doors.

* * * * *

08730 WEATHERSTRIPPING AND THRESHOLDS

08730.0100 GENERAL

1. The work under this Section is subject to all applicable provisions of the "Bidding Requirements", the "General Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

08730.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with the installation of all related work, complete, in strict accordance with the contract drawings, and as specified herein or reasonably implied.

2. Provide and install thresholds and weatherstripping on all exterior doors which must comply with ADA requirements for handicap access.

3. Provide thresholds on interior doors as noted on the drawings.

4. Provide carpet thresholds 404 Series.

08730.0300 MATERIALS

1. Provide thresholds and weatherstripping shall be aluminum alloy extrusions of 6063 hardness T-5 with mill finish complete with all fasteners as required for installation, as manufactured by National Guard Products, Inc

08730.0400 SUBMITTALS

1. Submit manufacturer's literature.

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DIVISION 9 - FINISHES

SECTION 09260 - GYPSUM BOARD SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Metal stud wall framing.

B. Metal channel ceiling framing.

C. Acoustic insulation.

D. Gypsum board.

E. Taped and sanded joint treatment.

1.02 RELATED WORK

1.03 Section 05400 - Cold Formed Metal Framing.

A. Section 07213: Thermal insulation.

C. Section 08111 - Standard Steel Doors and Frames.

D. Section 08305 - Access Doors: Metal access panels.

E. Section 09111 - Metal Stud Framing System.

F. Section 09900 - Painting.

1.05 REFERENCES

A. ANSI/ASTM C36 - Gypsum Wallboard.

B. ANSI/ASTM C79 - Gypsum Sheathing Board.

C. ANSI/ASTM C442 - Gypsum Backing Board.

D. ANSI/ASTM C475 - Joint Treatment Materials for Gypsum Wallboard Construction.

E. ANSI/ASTM C557 - Adhesive for Fastening Gypsum Wallboard.

F. ANSI/ASTM C630 - Water Resistant Gypsum Backing Board.

G. ANSI/ASTM C645 - Non-Load (Axial) Bearing Steel Studs, Runners (Track), and Rigid Furring Channels for Screw Application of Gypsum Board.

H. ANSI/ASTM C646 - Steel Drill Screws for the Application of Gypsum Sheet Material to Light Gage Steel Studs.

I. ANSI/ASTM C754 - Installation of Framing Members to Receive Screw Attached Gypsum Wallboard, Backing Board, or Water Resistant Backing Board.

J. ANSI/ASTM E90 - Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.

K. ANSI/ASTM E119 - Fire Tests of Building Construction and Materials.

L. FS HH-I-521 - Insulation Blankets, Thermal (Mineral Fiber, for Ambient Temperatures).

M. GA-201 - Gypsum Board for Walls and Ceilings.

N. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board.

1.06 SYSTEM DESCRIPTION

A. Acoustic Attenuation for Interior Partitions in accordance with ANSI/ASTM E90.

1.07 QUALITY ASSURANCE

A. Applicator: Company specializing in gypsum board systems work with 5 years documented experience approved by manufacturer.

1.08 SUBMITTALS

A. Submit product data under provisions of Section 01300.

B. Provide product data on metal framing, gypsum board, joint tape.

C. Submit samples under provisions of Section 01300.

D. Submit manufacturer's installation instructions under provisions of Section 01300.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - GYPSUM BOARD SYSTEM

A. Gold Bond or equal.

2.02 FRAMING MATERIALS

A. Studs and Tracks: ANSI/ASTM C645; GA 201 and GA 216; galvanized sheet steel.

B. Furring, Framing and Accessories: ANSI/ASTM C645.

C. Fasteners: ANSI/ASTM C514.

D. Adhesive: ANSI/ASTM C557.

2.03 GYPSUM BOARD MATERIALS

A. Standard Gypsum Board: ANSI/ASTM C36; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges.

B. Fire Rated Gypsum Board: ANSI/ASTM C36; fire resistive type, UL rated; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges.

C. Moisture Resistant Gypsum Board: ANSI/ASTM C630; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges.

2.04 ACCESSORIES

A. Acoustical Insulation: FS-HH-I-521; preformed mineral wool, friction fit type without integral vapor barrier membrane.

B. Acoustical Sealant: Non-hardening, non-skinning, for use in conjunction with gypsum board.

C. Corner Beads: Metal.

D. Edge Trim: GA 201 and GA 216; Type U exposed reveal bead.

E. Joint Materials: ANSI/ASTM C475; reinforcing tape, joint compound, adhesive, water, and fasteners.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that site conditions are ready to receive work.

B. Beginning of installation means acceptance of existing surfaces and substrate.

3.02 METAL STUD INSTALLATION

A. Install studding in accordance with ANSI/ASTM C754.

B. Metal Stud Spacing: 16 inches on center.

C. Partition Heights: Full height to floor or roof construction above. Install additional bracing for partitions extending above ceiling.

D. Door Opening Framing: Install double studs at door frame jambs. Install stud tracks on each side of opening, at frame head height, and between studs and adjacent studs.

E. Blocking: Bolt or screw steel channels to studs. Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, etc.

F. Coordinate installation of bucks, anchors, blocking, electrical and mechanical work placed in or behind partition framing.

3.03 WALL FURRING INSTALLATION

A. Erect wall furring for direct attachment to concrete block and concrete walls.

B. Erect Z furring channels vertically. Secure in place on alternate channel flanges at maximum 24 inches on center.

C. Space furring channels maximum 24 inches on center, not more than 4 inches from abutting walls.

D. Install thermal insulation vertically and hold in place with Z-furring channels spaced maximum 24 inches on center, not more than 3 inches at external corners and 12 inches at internal corners.

E. Erect free-standing metal stud framing tight to concrete masonry walls, attached by adjustable furring brackets in accordance with manufacturer's instructions.

3.04 CEILING FRAMING INSTALLATION

A. Install in accordance with ANSI/ASTM C754 manufacturer's instructions.

B. Coordinate location of hangers with other work.

C. Install ceiling framing independent of walls, columns, and above-ceiling work.

3.05 GYPSUM BOARD INSTALLATION

A. Install gypsum board in accordance with GA 201 and GA 216 manufacturer's instructions.

B. Erect single layer standard gypsum board in most economical direction, with ends and edges occurring over firm bearing.

C. Erect single layer fire rated gypsum board vertically, with edges and ends occurring over firm bearing.

E. Use screws when fastening gypsum board to metal furring or framing.

F. Treat cut edges and holes in moisture resistant gypsum board with sealant.

G. Place control joints consistent with lines of building spaces as directed.

H. Place corner beads at external corners as indicated. Use longest practical length. Place edge trim where gypsum board abuts dissimilar materials.

3.06 JOINT TREATMENT

A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.

B. Feather coats onto adjoining surfaces so that camber is maximum 1/32 inch.

C. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile.

D. Erect in accordance with manufacturer's instructions.

3.10 TOLERANCES

A. Maximum Variation from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION

SECTION 09312 - CERAMIC TILE WALL FINISH

PART 1 GENERAL

1.01 WORK INCLUDED

A. Ceramic tile walls and base, installed using thinset method, with cementitious grouted joints.

B. Ceramic washroom accessories.

1.02 RELATED WORK

A. Section 09210 - Gypsum Plaster.

B. Section 09220 - Portland Cement Plaster: Base coat for ceramic tile finish.

C. Section 09311 - Ceramic Tile Floor Finish.

1.03 REFERENCES

A. ANSI A108.1 - Ceramic Tile Installed with Portland Cement Mortar.

B. ANSI A108.4 - Ceramic Tile Installed with Water-Resistant Organic Adhesives.

C. ANSI A108.5 - Ceramic Tile Installed with Dry-Set Portland Cement Mortar.

D. ANSI A108.6 - Ceramic Tile Installed with Chemical Resistant, Water Cleanable Tile-Setting Epoxy.

E. ANSI A118.1 - Dry-Set Portland Cement Mortar.

F. ANSI-A118.3 - Chemical Resistant, Water Cleanable Tile- Setting Epoxy.

G. ANSI A118.4 - Latex-Portland Cement Mortar.

H. ANSI A136.1 - Organic Adhesives for Installation of Ceramic Tile.

I. TCA 137.1 - Recommended Standard Specifications for Ceramic Tile.

1.04 QUALITY ASSURANCE

A. Conform to ANSI - American National Standard Specifications for the Installation of Ceramic Tile.

B. Conform to ANSI - Recommended Standard Specifications for Ceramic Tile - TCA 137.1.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 01300.

B. Submit product data specifications and instructions for using adhesives and grouts.

C. Submit samples under provisions of Section 01300 for color selection.

D. Mount tile, adhesive, and grout on 16 x 16 inch plywood panel, representative of pattern, color variations, and grout joint size variations.

E. Submit manufacturer's certification that tile materials supplied conform to TCA 137.1.

1.06 MAINTENANCE DATA

A. Submit maintenance data.

B. Include cleaning methods, cleaning solutions recommended, stain removal methods, and polishes and waxes recommended.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 TILE MATERIALS

A. Refer to finish schedule, interior elevations & details.

2.02 MORTAR MATERIALS

A. Mortar Materials: ANSI Ceramic Tile Standard A-2.

2.03 ADHESIVE MATERIALS

A. Organic Adhesive: ANSI A136.1, thinset bond type.

B. Epoxy Adhesive: ANSI A118.3, thinset bond type.

2.04 MORTAR BED

A. Mortar Bed: ANSI A118.1, thinset bond coat, dry-set cementitious mortar.

2.05 GROUT TYPE

A. Grout: Cementitious type; color to be selected; resistant to shrinking.

2.06 MORTAR MIX AND GROUT

A. Mix and proportion pre-mix [setting bed and] grout materials in accordance with manufacturer's instructions.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install ceramic wall tile, in accordance with ANSI A108.1.

B. Cut and fit tile tight to protrusions and perpendicular interruptions. Form corners and bases neatly.

C. Form internal angles square and external angles bullnosed.

D. Sound tile after setting. Replace hollow sounding units.

E. Allow tile to set for minimum 48 hours prior to grouting.

3.02 PROTECTION

A. Prohibit activities near wall finish for 48 hours after installation.

END OF SECTION

Division 0900-4000
Floor Resurfacing 4000

Flooring Specification

SECTION 1 – GENERAL

1.1 SUBMITTALS

A. Product Data: Submit manufacturer's technical data, installation instructions and general recommendation for each resinous flooring material required. Include certification indicating compliance of materials with requirements.

B. Samples: Submit, for verification purposes, 4-inch square samples of each type of resinous flooring required, applied to a rigid backing, in color and finish indicated.

1.2 QUALITY ASSURANCE

A. Single Source Responsibility: Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer/installer (no subcontractors) with not less than twenty years of successful experience in manufacturing and installing principal materials described in this section. Manufacturer and installer must furnish certified documentation regarding the successful completion of at least 15 projects of similar size and complexity.

B. Pre-Installation Conference
   1. General contractor shall arrange a meeting not less than thirty days prior to starting work.
   2. Attendance
      a. General Contractor
      b. Architect/Owner's Representative
      c. Manufacturer/Installer

1.3 MATERIAL DELIVERY, STORAGE AND HANDLING

A. Material shall be delivered to job site and be checked by flooring installer for completeness and shipping damage prior to job start.

B. Material shall be stored in a dry enclosed area, protected from exposure to moisture. Temperature of storage area shall be maintained between 60 and 85°F (16 and 30° C).

1.4 PROJECT CONDITIONS

A. Concrete substrate shall be properly cured for a minimum of 30 days. A vapor barrier should be present for concrete subfloors on or below grade. Otherwise, contact the Engine Bay Floors Technical Department prior to the installation of the resinous flooring.

B. Utilities, including electric, water , heat (air temperature between 60 and 85°F (16 and 30° C) and finished lighting to be supplied by the owner.

C. Job area to be free of other trades during, and for a period of 24 hours, after floor installation.

D. Protection of finished floor from damage by subsequent trades shall be the responsibility of the General Contractor.

SECTION 2 – PRODUCTS

2.1 MANUFACTURERS

A. The products of Engine Bay Floors (800-573-9198) are identified below as the basis of design, or equal.

2.2 RESINOUS FLOORING SYSTEM

Floor Resurfacing 4000 Primer - a two component, greater than 95% solids, lower than 50 g/l VOC, epoxy primer cured with modified cycloaliphatic amine hardener with additive offering enhanced adhesion to concrete substrates.

Floor Resurfacing 4000 Mortar - a three component (epoxy resin, modified cycloaliphatic amine, silica sand mortar) with greater than 95% solids, lower than 50 g/l VOC, cementitious modified silica aggregate offering enhanced coefficient of thermal expansion resulting in better adhesion to concrete.

Floor Resurfacing 4000 Grout Coat - a three component (epoxy resin, modified cycloaliphatic amine, colorant) with greater than 95% solids, lower than 50 g/l VOC. The coating should be fast curing to minimize outgassing typically less than 6-7 hours and modified with adhesion promoters.

Floor Resurfacing 4000 Topcoat - a dimer aliphatic isocyanate urethane coating with UV blockers with greater than 92% solids, lower than 100 g/l VOC. Urethane cannot contain any extenders or diluents that are not reactive or do not come out of the film.

2.3 SYSTEM CHARACTERISTICS

A. Color and Pattern: As selected by engineer/architect/owners agent from manufacturer's standard colors. A minimum of three colors will be used.

B. Wearing Surface: Textured for slip resistance per engineer/architect/owner's agent from manufacturer's full range.

C. Integral Cove Base: 6 inches high with 1-1/2 inch radius.

D. Striping: Striping guide lines must be included. Striping shall be four inches in width. Color selected for these guide lines shall be one of three to be used. Exact location shall be confirmed by the engineer architect or owner.

E. Physical Strength Qualification: Flooring system must be durable enough to resist the constant loads of heavy engines and apparatus. The floor must be capable of dissipating high temperatures from hot tires and guaranteed to stay bonded and resistant to delamination. The contractor, in conjunction with the manufacturer, is responsible for gathering the data in regards to engine weights, load points, and temperature exposure required to guarantee this qualification.

2.3 SYSTEM COMPONENTS

A. Primer: Type recommended by manufacturer for substrate and body coat(s) indicated.

B. Body Coat(s):
1. Resin: Epoxy
2. Application method: troweled

C. Pigmented Grout Coating
1. Resin: Epoxy
2. Application method: squeegee/back roll

D. Pigmented Top Coating
1. Resin: Epoxy aliphatic polyester polyurethane
2. Application method: squeegee/back roll

2.5 ACCESSORY MATERIALS

A. Patching and Fill Material: Resinous product of resinous flooring manufacturer.

B. Joint Sealant: Type produced by manufacturer or resinous flooring system for type of service and joint condition indicated.

SECTION 3 – EXECUTION

3.1 INSPECTION

A. Ensure area is clean and dry with adequate heat, light and ventilation. The surface must be clean and dry, physically sound, and free of contamination. Surfaces must be free of holes, voids or defects. Cracks and abrupt changes in the surface profile must be corrected. Area shall be free of other trades to allow smooth flow of installation process to ensure optimum installation.

3.2 SURFACE PREPARATION

A. Prepare surface utilizing mechanical means where possible (i.e. self-contained Blastrac, scarifiers, scabblers, etc.)

B. Saw cut and chase perimeter edges to provide a “key-in” of material.

C. Ensure all static (non-moving) cracks are filled as recommended by manufacturer/installer.

D. Identify and mark all active (moving) joints.

E. Enlarged cracks and spalled areas shall be filled and leveled with an epoxy fill material before coatings are applied (Engine Bay Floor’s fine crack fill).

F. Pre-fill all divots/holes in the concrete surface that are larger than 2” with Engine Bay Floor’s epoxy patching compound.

G. Existing coatings greater than 4 mils must be removed by the PrepMaster diamond grinding process. No other method of removal will be accepted.

3.3 INSTALLATION

A. General: Apply components of 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 process.

3. At substrate expansion and isolation joints, provide joint in flooring to comply with flooring manufacturer's written recommendations.

B. Installation
1. Saw cut and chase perimeter edges to provide a "key-in" of material.
2. Prepare surface utilizing mechanical means where possible (i.e. self-contained Blastrac, scarifers, scabblers, etc.).
3. Notched rake apply hybrid epoxy mortar overlayment at ¼" minimum thickness.
4. Grind based after initial cure to ensure smooth appearance.
5. Apply pigmented 100% solids epoxy grout coat.
6. Broadcast for texture, (if desired).
7. Apply pigmented aliphatic polyester polyurethane topcoat.

C. Application

System Installation – Epoxy mortar system to be installed at a minimum total thickness of 250 mils. Finish coat to achieve even color consistency and non-slip texture as specified by owner.

3.4 FIELD QUALITY CONTROL

A. The right is reserved to invoke the following material testing procedure at any time, and any number of times during period of floor application.

B. If test results show material being used do not comply with specific requirements, Contractor may be directed by Owner to stop work; remove non-complying materials; pay for testing; reapply flooring materials to properly prepared surfaces which had previously been coated with unacceptable materials.

3.5 CURING, PROTECTION AND CLEANING

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.

SECTION 4 – WARRANTY

4.0 WARRANTY

A. Guarantee and Warranty: Warranty shall be from a single source manufacturer/polymer systems applicator. The polymer system shall be warranted against defects in materials and workmanship for a period of ten years. Repair or replace any or all portions of the work that fail under normal conditions or use during the warranty period, promptly and at no cost to the customer and by using methods and materials specified for the initial construction.

SECTION 09500 - SUSPENDED ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Suspended metal grid ceiling system.

B. Acoustical tile.

C. Fire rated assembly with gypsum board boxes over light fixtures.

D. Hold down clips and access clips.

E. Perimeter trim.

1.02 REFERENCES

A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

B. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

C. Armstrong Specification an Installation Guidelines.

D. UL - Underwriter's Laboratories System Ratings.

1.03 SYSTEM DESCRIPTION

A. Installed System: Conform to UL Assembly rating noted on plans.

1.04 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacture of ceiling suspension system and ceiling tile 10 years minimum experience.

B. Installer: Company with 5 years minimum experience.

1.05 SUBMITTALS

A. Submit product data.

B. Provide product data on metal grid system components, acoustic units, and related accessories.

C. Submit samples of ceiling tile and grid components.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Maintain uniform temperature of minimum 60 degrees F (16 degrees C) and humidity of 20 to 40 percent prior to, during, and after installation.

1.07 SEQUENCING/SCHEDULING

A. Do not install acoustical ceilings until building is enclosed, sufficient heat is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.

B. Schedule installation of acoustic units after interior wet work is dry.

1.08 EXTRA STOCK

A. Provide one extra quantity of each type of acoustic units to Owner.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - SUSPENSION SYSTEM

A. Refer to finish schedule for grid types.

2.02 SUSPENSION SYSTEM MATERIALS

B. Grid: ASTM C635, heavy duty, fire rated to 2 hour assembly, exposed T; components die cut and interlocking.

C. Accessories: Stabilizer bars clips splices edge moldings and hold down clips required for suspended grid system.

D. Grid Materials: Commercial quality cold rolled steel with galvanized coating.

E. Grid Finish: White.

2.03 ACCEPTABLE MANUFACTURERS - ACOUSTIC UNITS

A. Armstrong and Celotex tile as indicated on plans or equal.

2.04 ACOUSTIC UNIT MATERIALS

A. Acoustic Panels shall conform to the Armstrong Physical Data (Refer to Finish Schedule for designations).

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that existing conditions are ready to receive work.

B. Verify that layout of hangers will not interfere with other work.

C. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION

A. Install system in accordance with ASTM C636 and manufacturer's instructions and as supplemented in this Section.

B. Install fire rated system in accordance with UL Design No. G250.

C. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.

D. Supply hangers with instructions for their correct placement. If metal deck is not supplied with hanger tabs, coordinate the installation of hanger clips during steel deck erection. Provide additional hangers and inserts as required.

E. Hang 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 the regular spacing of hangers, reinforce the nearest affected hangers to span the extra distance.

G. Locate system on room axis according to reflected plan.

H. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.

I. Do not eccentrically load system, or produce rotation of runners.

J. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions. Field rabbet panel edge. Where bullnose concrete block corners or round obstructions occur, provide preformed closers to match edge molding.

K. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.

L. Lay directional patterned units one way with pattern parallel to shortest room axis. Fit border neatly against abutting surfaces.

M. Install acoustic units level, in uniform plane, and free from twist, warp and dents.

N. Install hold-down clips to retain panels tight to grid system.

O. Install light fixture boxes constructed of gypsum board above light fixtures in accordance with UL assembly requirements.

3.03 TOLERANCES

A. Variation from Flat and Level Surface: 1/8 inch in 10 ft.

B. Variation from Plumb of Grid Members Caused by Eccentric Loads: Two degrees maximum.

SECTION 09650 - RESILIENT FLOORING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Preparation of substrate surfaces.

B. Rubber bases at all areas which are effected by new work.

C. Application of vinyl tile with up to three (3) colors at any location with pattern as provided by Architect.

D. Application of rubber stair treads from first floor to basement.

E. Cleaning of all surfaces and areas of work.

1.02 RELATED WORK

A. Section 03346 - Concrete Floor Finishing: Finish trowelling of floor slab.

1.03 REFERENCES

A. FS SS-T-312 - Tile, Floor: Asphalt, Rubber, Vinyl, Vinyl- Asbestos.

B. FS L-F-450 - Flooring, Vinyl Plastic.

C. FS SS-W-40 - Wall Base: Rubber and Vinyl Plastic.

1.04 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 01300.

B. Describe floor pattern, scaled design, color of various materials, and location of floor accessories.

C. Submit samples under provisions of Section 01300.]

D. Include duplicate 12 x 12 inch sized samples of each flooring material, color, and pattern selected.

E. Include duplicate 12 x 12 inch long samples of base and stair tread selected.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Maintain minimum 70 degrees F (21 degrees C) air temperature at flooring installation area for three days prior to, during, and for 24 hours after installation.

B. Store flooring materials in area of application. Allow three days for material to reach equal temperature as area.

1.06 EXTRA STOCK

A. Deliver 25 sq ft of each color and pattern of floor tile material required for project, for maintenance use.

B. Clearly identify each box or roll.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Armstrong or equal.

2.02 FLOOR COVERING MATERIALS

A. Vinyl Tile: 12 x 12 inch size x 1/8 inch thick, marbleized pattern; color; to match existing.

2.03 BASE MATERIALS

A. Base: Conforming to FS SS-W-40, Type I rubber; top set coved, 4 inch high, 1/8 inch thick including premolded end stops and external corners, color as selected.

2.04 ACCESSORIES/ADHESIVES/SEALERS

A. Edge Strips: rubber type; factory finish; color selected by Architect/Engineer.

B. Sub-Floor Filler: White premix latex, mix with water to produce cementitious paste.

C. Primers and Adhesives: Waterproof; of types recommended by resilient flooring manufacturer for specific material.

D. Sealer and Wax: Type recommended by resilient flooring material manufacturer for material type and location.

PART 3 EXECUTION

3.01 INSPECTION

A. Ensure floor surfaces are smooth and flat with maximum variation of 1/8 inch in 10 feet (1 1/960).

B. Ensure concrete floors are dry (maximum 7 percent moisture content) and exhibit negative alkalinity, carbonization, or dusting.

3.02 PREPARATION

A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.

B. Clean floor and apply, trowel and float filler to leave smooth, flat hard surface. Prohibit traffic until filler is cured.

3.03 INSTALLATION - FLOORING

A. Open floor tile cartons, enough to cover each area, and mix tile to ensure shade variations do not occur within any one area.

B. Clean substrate. Spread cement evenly in quantity recommended by manufacturer to ensure adhesion over entire area of installation. Spread only enough adhesive to permit installation of flooring before initial set.

C. Set flooring in place; press with heavy roller to ensure full adhesion.

D. Lay flooring with joints and seams parallel to building lines to produce symmetrical tile pattern.

E. Install with minimum tile width 1/2 full size at room or area perimeter, to square grid pattern with all joints aligned with pattern grain parallel for all units and parallel to width of room.

F. Terminate resilient flooring at centerline of door openings where adjacent floor finish is dissimilar.

G. Install edge strips at unprotected or exposed edges where flooring terminates.

H. Scribe flooring to walls, columns, cabinets, floor outlets and other appurtenances to produce tight joints.

I. Install flooring in pan type floor access covers. Maintain floor pattern.

J. Continue flooring through areas to receive moveable type partitions without interrupting floor pattern.

K. Install feature strips and floor markings where indicated. Fit joints tightly.

3.04 INSTALLATION - BASE

A. Fit joints tight and vertical. Maintain minimum measurement of 18 inches (457 mm) between joints.

B. Miter internal corners. Use premolded sections for external corners and exposed ends.

C. Install base on solid backing. Adhere tightly to wall and floor surfaces.

D. Scribe and fit to door frames and other obstructions.

E. Install straight and level to variation of plus or minus 1/8 inch over 10 feet (1/960).

3.06 PROTECTION

A. Prohibit traffic from floor finish for 48 hours after installation.

3.07 CLEANING

A. Remove excess adhesive from floor, base, and wall surfaces without damage.

B. Clean, seal, and wax floor and base surfaces in accordance with manufacturer's instructions.

END OF SECTION

SECTION 09688 - CARPETING GLUE DOWN

PART 1 GENERAL

1.01 WORK INCLUDED

A. Prepare surfaces to receive carpeting.

B. Apply glue down carpeting on floor surfaces where indicated, complete with required accessories.

C. Install edge strips where carpeting terminates at other floor finishes.

1.02 RELATED WORK

A. Section 03346 - Concrete Floor Finishing: Finish trowelling of concrete floor slabs.

1.03 REFERENCES

A. FS DDD-C-0095 - Carpet and Rugs, Wool, Nylon, Acrylic, Modacrylic, Polyester, Polypropylene.

1.04 SUBMITTALS

A. Submit shop drawings under provisions of Section 01300.

B. Clearly indicate the location of all seams, method of joining seams, direction of carpet, type of adhesive to be used, method of integrating edge strips with carpet, and installation procedures.

C. Submit samples under provisions of Section 01300.

D. Submit one sample of each type of carpet to be used, sufficiently sized to clearly indicate construction. In addition, submit one duplicate sample of each color selected.

E. Also submit one 12 inch long sample of each type of edge stripping to be used.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not commence with carpet installation until painting and finishing work is complete and ceilings and overhead work, tested, approved, and completed.

B. Maintain room temperature at minimum 60 degrees F (15 degrees C) for at least 24 hours prior to installation, and relative humidity at approximately that at which the area is to be maintained.

C. Provide sufficient lighting.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Lees 24” x 24” Modular Compositions Collection Volume II Commercial Carpets or equal.

2.02 MATERIALS

A. Carpet: Ives Ellington manufactured by Lees.

B. Adhesive: Type recommended by carpet manufacturer to suit application and expected service.

C. Edge Strips: Rubber type; factory finish; color selected by Architect.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean floors of dust, dirt, solvents, oil, grease, paint, plaster, and other substances detrimental to proper performance of adhesive and carpet. Allow floors to thoroughly dry.

B. Ensure floors are level, with maximum surface variation of 1/4 inch in 10 feet, noncumulative.

C. Ensure concrete floors are free from scaling and irregularities and exhibit neutrality relative to acidity and alkalinity.

D. Use an approved cementitious filler to patch cracks, small holes, and for levelling.

3.02 INSTALLATION

A. Lay out pattern of carpet for Architect/Engineer approval.

B. Check matching of carpet before cutting and ensure there is no visible variation between dye lots.

C. Cut carpet, where required, in manner to allow proper seam and pattern match. Ensure cuts are straight and true and unfrayed.

E. Join seams in recommended manner so as not to detract from the appearance of the carpet installation and decrease its life expectancy. Ensure seams are straight, not overlapped or peaked and free of gaps.

F. Vacuum clean substrate. Spread adhesive in quantity recommended by manufacturer after primer application to ensure proper adhesion over full area of installation. Apply only enough adhesive to permit proper adhesion of carpet before initial set.

I. Cut and fit carpet neatly around projections through floor and to walls and other vertical surfaces.

J. Fit carpet snugly to walls or other vertical surfaces where no base is scheduled, leaving no gaps.

K. Do not place heavy objects such as furniture on carpeted surfaces for minimum of 24 hours or until adhesive is set.

L. Entire carpet installation is to be laid tight and flat to subfloor, well fastened at edges, and present a uniform pleasing appearance. Ensure monolithic color, pattern, and texture match within any one area.

M. Install edging strips where carpet terminates at other floor coverings. Use full length pieces only. Butt tight to vertical surfaces. Where splicing cannot be avoided, butt ends tight and flush.

N. Carpet in second floor lobby corridor, meeting room and conference room shall have 12" solid color edge and 8" accent strip at all perimeters typical.

END OF SECTION

SECTION 09900 PAINTING

09900.0100 GENERAL

1. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 - "General Requirements", which form a part hereof whether attached hereto or not.

09900.0200 WORK INCLUDED

1. Include all labor, materials and appliances and perform all operations in connection with painting and finishing and all related work, complete, in strict accordance with the Contract Drawings, the Schedule of Finishes and as specified herein.

2. Examine the Specifications and Drawings for the various other trades. Let it be understood that all surfaces normally requiring painting or colored finish that are left unfinished by the requirements of other Specifications shall be painted or finished as part of this Section.

3. All exposed surfaces, interior and exterior, of every description except glass and not designated in the contract drawings to be finished with a special coating as specified herein or to be factory finished or pre-finished, shall be finished as part of the work of this Section, all as required for a complete job or as specified herein including, but not limited to the following:

    a. Painting of all exterior metal work excepting aluminum, copper and other non-ferrous metals unless otherwise noted on the drawings.

    b. Painting of all interior metal work, trims, hollow metal work not factory finished as part of this contract and all exposed miscellaneous metal, etc., excepting non-ferrous metals.

    c. Interior painting and/or finishing of all gypsum board, doors, miscellaneous trim, door frames, molding, concrete block walls, etc.

    d. Exterior wood trim, fascias, soffits, wood siding, doors, etc., to be finished as hereinafter specified and as noted on drawings.

    e. Painting of all ferrous metal access panels, ducts, registers and grilles and convector enclosures, piping, conduit and component parts, etc., not factory finished. The inside of all ducts at register and grille openings shall be painted black.

    f. Paint colors, textures, finishes, etc., shall be as selected by the Architect.

09900.0300 MATERIALS

1. Painting and finishing products for use in work shall be standard best or top brands produced for each particular kind of material required, as manufactured by Pittsburgh Plate Glass Co., Pratt and Lambert, Benjamin Moore & Co. or Sherwin Williams. All materials shall bear original manufacturer's identifying label on each container.

    a. Each kind of coating for the several types of paint finish shall be factory mixed to match samples and colors and consistencies for immediate application to the surface involved.

2. Materials for succeeding coats on any one surface shall be products of same manufacturer furnishing first or primer-sealer coat for that particular surface, except where red lead paint or other metal primer is used. Compatibility with finish coats must be verified before application of finish.

3. Raw linseed oil: ASTM D-234

4. Boiled linseed oil: ASTM D-260

5. Turpentine: ASTM D-13

6. Shellac: Pure, white or orange gum, cut in pure denatured alcohol, using 5 pounds of gum to gallon. Orange shellac shall be used for painting over knots, sap and resinous woods.

7. Spackling Compound: Finely ground, grit-free; when dry shall set easily and take any finish.

8. Putty: ASTM D-219, Class "B", white lead whiting putty.

9. Patching Plaster: White, non-shrinking, containing no lime; uniform in set and quality.

10. Tinting colors: Where required for oil paint shall be ground in pure linseed oil. Colors shall be non-fading and shall be as recommended by manufacturer of tinting coating.

11. Required Samples and Colors:

    a. Colors: As selected by the Architect. Obtain approval before starting work. Color shall include up to three (3) colors per area to allow for accent walls & soffits, etc.

b. Following approval of manufacturers, submit samples of materials described herein in one pint containers. Approval of samples will be based upon information from paint manufacturers certifying that products proposed for use are standard, best or top brands produced by then for purpose intended and are readily obtainable as such in "over the counter" sales to consumer market. Do not proceed with work until samples are approved.

c. Before placing orders for materials, submit name or names of paint manufacturers and brands for approval. Such submission to be made within 30 days after approval.

d. Do not construe approval of advanced samples as total guarantee of acceptance of materials as they will be subjected to field inspection, from time to time, as work progresses.

e. Where directed, prepare a Schedule of Colors as selected by the Architect. Prepare sample panels in accordance with the Schedule of Colors to be approved before work proceeds. panels will be considered standard for workmanship throughout.

12. Other materials as hereinafter specified:

a. All materials used shall be in compliance with current Federal Regulations concerning use of lead in paint.

b. All paints, stains and coatings applied shall be in conformance with current Federal and/or local regulations regarding hydrocarbon emissions. (air pollution, etc.)

09900.0400 RELATED WORK SPECIFIED ELSEWHERE

1. Priming, back painting, factory finishing, painting of concealed work as described under various Divisions of the Contract.

2. Finishes - Division 9.

09900.0500 GENERAL REQUIREMENTS

1. Order materials in advance, in large enough quantities. Deliver in unopened containers in ample time to facilitate work.

2. Store materials on premises where directed. Keep storage space clean and accessible. Remove oil, paint soaked rags, waste, overall and the like at close of each day's work.

Take every precaution to avoid damage by fire.

3. Provide suitable coverings, clean drop cloths and the like to protect work of this Section, adjacent surfaces, equipment, objects such as adjacent woodwork, glass and metal work and the like.

4. Upon completion of work, remove from premises surplus materials, protective coverings, empty containers, rags, dirt, other debris resulting from work of this Section. Retouch finished work where ever necessary, as directed. Remove daubs, paint spatters and the like from walls, floors, glass, metal and other surfaces.

5. The Contractor shall take every precaution he deems necessary to prevent damage by fire. In addition, keep two (2) fire extinguishers, 5 pounds, CO2 or dry chemical type, Underwriters' approved, in paint storage room at all times, prominently located one near entrance to room, another near windows. Keep not less than three (3) buckets of sand near materials at all times. Buckets shall have round bottoms, shall be prominently located and painted bright red and shall have the word "FIRE" stenciled thereon in large, white letters. All other precautions and requirements as required by the institution and other authorities having jurisdiction shall be adhered to.

6. Rooms or spaces assigned for the storage and mixing of paint shall be kept locked. At least one key of each room or space shall be deposited with the Owner's field representative or custodial service so as to provide access thereto during non-working hours.

09900.0600 PREPARATION OF SURFACES

1. General: Properly prepare surfaces required to receive paint and other finishes. Broom clean rooms and spaces before painting is started. Surfaces to be painted shall be perfectly dry.

2. Sandpaper woodwork required to be painted or finished. Remove roughness; brush and remove dust. Wash off grease, dirt with approved cleaner. Give knots and sappy streaks, two thin coats of orange shellac. Cracks, nail holes and surface defects shall be filled with putty after priming coat, filler or shellac has been applied. Putty shall be brought up flush with surface.

3. Plaster Surfaces: Clean thoroughly of grit, grease, dirt, loose material, etc. Cut off, fill with patching plaster of affected surfaces. Give patched portions coat of primer-sealer in addition to other specified coats.

    a. The priming coat on plaster shall be tinted to the approximate shade of the final coat. All suction sports or "hot spots" in plaster or cement after the application of the first coat, shall be touched up before applying the second coat, to product an

even result in the finished coat. Obtain color schedules for rooms before priming walls.

4. Thoroughly clean bare metal surfaces required to be painted of foreign matter such as grease, rust, scale and dirt, before applying priming coat. Where solder flux has been used, clean with benzene before applying paint. Clean shop coated metal surfaces of foreign materials; touch up spots where marred. Remove rough surfaces by sandpapering.

5. Galvanized metal surfaces scheduled to be painted shall be thoroughly cleaned with solvent until they are completely free from dirt, oil and grease. Thoroughly treat the cleaned surface with phosphoric acid etch. Remove all excess etching solution and allow to dry completely before application of paint.

6. Dents, cracks and the like, hollow places, open joints and other irregularities in metal work to be painted shall be filled with approved metal filler suitable for purpose. After setting, sand to smooth hard finish.

09900.0700 MIXING

1. Mix materials thoroughly. Strain if necessary before using. Addition of thinners, such as linseed oil or turpentine shall be added to ready mixed materials only in accordance with paint manufacturers' printed instructions. If no printed instructions appear on containers, obtain this information in writing from paint manufacturer.

09900.0800 WORKMANSHIP

1. General

   Use only qualified painters for the mixing and application of paint on exposed surfaces. In the acceptance or rejection of installed painting, no allowance will be made for lack of skill on the part of painters. All paint shall be applied in accordance with the materials manufacturer's instructions.

2. Environment

   a. Do no painting or finishing when air is dust laden nor where weather or temperature conditions are suitable. Temperature within building shall be maintained at a minimum of 60 degrees F. during painting and drying period.

   b. Plaster, mortar, brick, concrete or any masonry related surfaces shall not be painted if its moisture content exceeds 12% -- an alkali resistant primer is to be used in place of scheduled primer if moisture content is between 8% and 12%.

c. Exterior wood shall not be painted if moisture content exceeds 15%.

d. When necessary, an approved moisture meter will be used to determine moisture conditions.

3. Operating Units

When painting operating units, do not apply paint to sliding contact surfaces, where bare metal is necessary for proper operation.

4. Undercoats shall approximate shade of finish coat.

5. Exposed Duct Covering: Painted top, bottom, sides and ends, except where these surfaces are inaccessible.

6. Number of Coats: Except as otherwise specified under paragraph SCHEDULE, paint coats described herein are in addition to prime coats applied under this and other Sections: unless otherwise specified.

7. Mechanics: All work shall be executed by skilled mechanics in conformance with the requirements of the specifications.

8. Conditions for Painting: Surfaces shall be clean, dry and free from frost. Atmosphere must be free from dust and dirt, preventing the lodgement of foreign material on fresh paint. Floors must be broom swept clean before painting is started.

9. Sanding: Except for final coat, each coat on metal shall be thoroughly and uniformly sanded with No. 00 sandpaper, or other equal abrasive, removing all surface defects and providing a smooth, even surface for subsequent coats.

10. Puttying: Putty-stop nail holes, imperfections and defacements after priming coat of paint, filler or shellac has been applied. Putty stopping shall be brought flush with finished surface in a neat and workmanlike manner. Defacement about interior metal work shall be corrected. Open joints, broken surfaces by unused holes, screws; bolts and the like shall be closed and smoothed, producing a finished piece of work.

11. Fixture Removals: Hardware, lighting fixtures, switch and receptacle plates, etc., shall be removed wherever practicable before painting and replaced after completion of painting, or these items which are in place shall be adequately protected during painting operations.

Plumbing or heating equipment adjacent to surfaces which are to be painted shall be disconnected and removed if necessary to complete all of painting required by these Specifications and shall be replaced upon completion of painting, the removal and

replacement of fixtures and equipment shall be done by the trades responsible for the installation thereof.

12. All work where a coat of material has been applied must be inspected and approved by the Architect before the application of the succeeding specified coat, otherwise no credit for the coat applied will be given and the Contractor automatically assumes the responsibility to recoat the work in question. The Contractor shall furnish the Architect a report of the particular coat applied when completed for inspection and approval to comply with the above.

13. If this Contractor finds problems arising in connection with the successful application of the paint, stain or coating to a surface so as to prevent a good, workmanlike job, work on that area should be stopped at once. The Architect, paint supplier to be contacted directly to see what must be done to rectify the condition.

    Failure to do so by the subcontractor shall be construed as acceptance of the surface and conditions with the full responsibility thereof to produce a satisfactory job.

14. Protection: Provide, install and maintain over entire period of painting work all drop cloths, barricades and other forms of protection as may be necessary to safeguard and keep clean such adjoining work of others as will not be painted and as required to preserve painted work free from damages of every nature. Freshly painted surfaces shall be legibly posted as such immediately following their completion.

09900.0900 COATS AND COLORS

1. The number of coats herein specified are the minimum to be applied over exposed surfaces or shop coats as designated. Each coat shall be of proper ground color for each succeeding coat and shall appreciably differ in tint. Colors shall be as selected by the Architect.

2. Unless otherwise specified, paint designation refers to the "Pittsburgh Paints". Products of equal quality as manufactured by other manufacturers may be used, as approved by the Architect.

3. Color in general will be limited to:

    a. There shall be up to two (2) deep tone accent colos used in each space.

    b. Colors in general will be soft pastel colors.

09900.1000 SCHEDULE

All references to products of PPG Industries (Pittsburgh Paints)

1. Exterior Ferrous Metal:

   1 Coat PPG Speedhide Inhibitive Primer, 7-858; 2 coats PPG Speedhide Exterior/Interior Alkyd Enamel, 7-814 series.

2. Exterior Galvanized Metal:

   1 coat PPG Speedhide Galvanized Steel Primer, 9-712; 2 coats PPG Speedhide Exterior/Interior or Alkyd enamel, 7-814 series.

3. Wood (not specified or noted elsewhere):

   1 coat PPG Speedhide 6-855 Enamel Primer
   2 coats PPG 7-814 Series Alkyd Gloss Enamel

4. Interior Ferrous Metal

   a. Prime with PPG Speedhide Interior Primer, 7-858 (red) or 6-208 (red) or 6-212 (white).

   b. Finish coat: 1 coat PPG Speedhide Alkyd enamel, semi-gloss 7-814 series or gloss, 6-250 series. (As designated by Architect).

5. Interior Galvanized Steel

   Same as ferrous metal except that primer shall be PPG Speedhide Galvanized Steel Primer, 90-712.

6. Interior Dry Wall

   a. Ceilings: 1 coat PPG Speedhide Latex Sealer/Primer, 6-2; 2 coat PPG Speedhide Alkyd flat, 6-51 series.

   b. Walls: 1 coat PPG Speedhide Latex Sealer/Primer, 6-2; 2 coat PPG Speedhide Alkyd flat, 6-70 series.

7. Interior Conc. Block Walls

   a. 1 coat PPG Maestro-prime quick drying primer & Sealer 6-12 3.6 mils per coat.

   b. 2 coats PPG fast dry Alkyd Industrial Gloss Enamel 7-814 lines series. MWF 3.6 mils per coat. Color as selected by Architect.

8. Insulated Pipes, Conduits, Etc.

   1 Coat PPG Speedhide Latex Sealer, 6-2

   2 Coats to match adjacent wall/ceiling finish.

9. Uncovered Piping (Ducts)

   PPG Speedhide Inhibitive Metal Primer (white) 6-70.

   PPG Speedhide LoSheen Alkyd Enamel, 6-70 series.

10. Other items (requiring finishing as shown by the drawings, details or finish schedule).

09900.1100 CLEANING

1. When so directed by the Architect, the Contractor shall go over all of the building where he has worked, retouch where necessary, restore where damaged or defaced and clean off all paint spots from floors, walls, finish hardware, glass and other unpainted surfaces and shall leave all painted surfaces clean and in a satisfactory condition.

2. At the end of each working day and upon completion of all work, all surplus materials, empty packages and/or containers and all debris shall be removed from the site.

09900.1200 GUARANTEE

1. All work under this Section of the Specifications shall be guaranteed against checking, cracking, peeling, chalking, discoloration or other defects due to improper materials or workmanship, due to improper preparation of the surface, or due to the painting, varnishing, etc. of surfaces which were not in proper condition to receive, paint, varnish or other painters' materials and such unsatisfactory work shall be refinished at no additional cost to the Owner.

09900.1300 PAINT MANUFACTURER'S REPRESENTATIVE

1. Notify and permit representatives of paint manufacturers, whose materials are used, access to the premises for the purpose of inspecting materials and proper use thereof.

* * * * *

SECTION 10200
LOUVERS & VENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes: Metal wall louvers and screens exposed to view in finish work, including:
1. Exterior metal louvers.
2. Louvers at locations where HVAC ductwork terminates at exterior walls.
3. Other exposed exterior and interior louvers indicated on Drawings.

B. Extent: Extent of exterior louvers is shown on architectural drawings. Coordinate requirements, quantities and sizes with mechanical drawings. Louvers not shown on architectural drawing, but indicated on mechanical drawings shall be provided as part of work of this section.

C. Related Sections: Section(s) related to this section include:
1. Sealant and Caulking: Division 7 Joint Treatment Section.
2. Dampers and Ductwork: Division 15 Dampers and Ductwork Sections.
3. Grilles and Registers: Division 15 Grilles and Registers Sections.

1.02 REFERENCES

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified buy issuing authority, authority abbreviation, designation number, title, or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. American Society for Testing and Materials (ASTM):
1. ASTM B209 - Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
2. ASTM B221 - Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.

C. Air Movement and Control Association (AMCA):
1. AMCA Standard 500 - Test Method for Louvers, Dampers, and Shutters.
2. AMCA Publication 261 - Directory of Licenses Products, current edition.

D. Sheet Metal and Air Condition Contractors National Association (SMACNA)
1. SMACNA - Architectural Sheet Metal Manual, current edition

E. American Architectural Manufacturer's Association (AAMA):

1. AAMA Standard 605 - Voluntary Specification for High Performance Organic Coating on Architectural Extrusions and Panels.

1.03 SYSTEM DESCRIPTION

A. Performance Requirements: Provide louvers, which have been manufactured, fabricated and installed to maintain performance criteria stated by manufacturer without defects, damage, or failure.

B. Louver Performance: where louvers are indicated to comply with specific performance requirements, provide units whose performance ratings have been determined in compliance with Air Movement and Control Association (AMCA) Standard 500.

1.04 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division 1 Submittal Procedures section.

B. Product Data: Submit product data sheet for specified products.
1.Performance Certificates: Submit performance certification, if not included in product data

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.
1. Include information necessary for fabrication and installation of louvers. Indicate materials, sizes, thickness, fastenings and profiles.

D. Quality Assurance Submittals: Submit the following:
1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
   a. Submit certified test results from an approved testing laboratory showing that the louvers proposed meet the criteria specified herein.
2. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria, and physical requirements.

1.05 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer’s ordering instructions and lead-time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer’s original, unopened, undamaged containers with identification labels intact.

1. Deliver, store and handle products to avoid any distortion or damage due to moisture, physical abuse or other cause Louvers shall be free from nicks, scratches and blemishes. Replace defective or damaged materials with new.

1.06 PROJECT CONDITIONS

A. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.07 WARRANTY

A. Project warranty refers to Conditions of the Contract for project warranty provisions. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights owner may have under Contract Documents.

PART II PRODUCTS

2.01 WALL LOUVERS

A. Manufacturer: Industrial Louvers Inc. (ILI).
1. Contact: 511 South 7th Street, Delano, MN 55328; Telephone: (763) 972-2981; Fax: (763) 972-2911.

B. Other Available Manufacturers – subject to compliance with requirements stated within.

2.02 DRAINABLE BLADE LOUVERS

A. ILI Model 458XP:
1. Extruded aluminum frame and blades shall be designed to collect and drain water to exterior at sill by means of gutters in front edges of blades and of channels in jambs. Frames and blade thickness to be .081" (2.06 mm) extruded aluminum 6063 alloy. Sill and jamb frames shall be continuously welded and caulked to prevent water penetration to interior wall construction. Blades are attached by means of all-welded construction.

2. Louvers shall bear the AMCA Certified Ratings Seal for both air performance and water penetration. Louvers shall have a minimum of 8.91 sq., ft. (0829 m2) (56 %) free area on 48" x48" (1219 x 1219) louver. Rating shall show a maximum water penetration of .01 oz. at an air flow rate of 1046 FPM. Static Pressure Loss shall be not more than 15 inch of water gauge at an air flow of 914 FPM free area velocity.

2.03 LOUVER ACCESSORIES

A. Exterior Aluminum Sill: Provide sill flashing of same material and finish as louvers where indicated on the drawings.
B. Louver Screens: Provide framed removable screens for exterior louvers.
    1. Screens shall be ½" (12.7 mm) mesh .063 (1.6 mm) flattened expanded aluminum mounted in extruded aluminum rewireable frames.
    2. Locate screens on inside face of louvers.
    1. Screen frames shall have welded corners and be secured to the louver frame with machine screws, at each corner and at 12" (304.8 mm) c.o. between.

2.04 MATERIALS

A. Aluminum Sheet: ASTM B209 Alloy 3003 or 5005 with temper as required for forming or as otherwise recommended by metal producer to provide required finish.
B. Aluminum Extrusions: ASTM B221, Alloy 6063.
C. Fastenings: Provide stainless steel screws and fasteners for aluminum louvers and zinc-coated or stainless steel screws and fasteners for steel louvers. Provide other accessories as required for complete and proper installation.

2.05 FABRICATION

A. Fabrication Requirements:
    1. Performance: Fabricate as required for optimum performance with respect to water penetration, strength, durability and uniform appearance.
    2. Size:
        a. Fabricate louvers in masonry walls to outside dimensions indicated, with allowance of ¼" (6.4 mm) on each side for sealant joints.
        b. Verify sizes with final HVAC shop drawings, including detail dimensions of ductwork, dampers or other fittings abutting louvers.
    3. Field Measurements: Verify size, location and placement of louver units prior to fabrication.
    4. Shop Assembly:
        a. Fabricate to minimize field adjustments, splicing, mechanical joints and field assembly of units.
        b. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling.
        c. Clearly mark units for reassemble and coordinated installation.
    5. Accessories: Include supports, anchorages and accessories required for complete assembly.
    6. Vertical Mullions: Provide vertical mullions of type and spacing indicated but not further apart than recommended by the manufacturer.
    7. Horizontal Mullions: Provide horizontal mullions at horizontal joints between louver units except where continuous vertical assemblies are indicated.

8. Connections: Join frame and blade members to one another by welding, except where field bolted connections between frame members are made necessary by size of louvers.
9. Spacing: Maintain equal blade spacing to produce uniform appearance.

1.06 FINISHES (FACTORY)

A. Shop Finishing: Factory finish louvers and accessories with an organic coating.
   1. Organic Coating: Clean and prime exposed aluminum surfaces and apply a Kynar 500/Hylar 5000 2-coat finish conforming to AAMA 605 in a standard color. Minimum dry film thickness shall be 1.2 mil.

B. Finish Protection: Provide finish protection as recommended by louver manufacturer.

PART 3 EXECUTION

3.01 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions, and product carton instructions for installation.

3.02 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have been previously installed under other sections, are acceptable for product installation in accordance with manufacturer's instructions.

3.03 INSTALLATION Louver Installation:

1. Louvers shall be installed in accordance with manufacturers approved shop drawings and as shown. Provide all necessary fastenings and anchors required to a complete installation. Units to be installed plumb, level and in proper alignment with adjacent work.
2. Form tight joints within work of this Section. Fit exposed connections accurately.
3. Louvers shall be protected from damage from subsequent building operations.
4. Protect metal surfaces from corrosion or galvanic action by application of a heavy coating of bituminous paint on surfaces, which shall be in contact with concrete, masonry or dissimilar metals.

SECTION 10155

PLASTIC TOILET COMPARTMENTS

10 2116-05 Solid Plastic Toilet Compartments (Eclipse - floor mounted, overhead braced)

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Plastic toilet compartments and urinal screens.

B. Related Sections:
1. Division 01: Administrative, procedural, and temporary work requirements.

1.2 REFERENCES

A. ASTM International (ASTM):
1. A167 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
2. B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.3 SYSTEM DESCRIPTION

A. Compartment Configurations:
1. Toilet partitions: Floor mounted, overhead braced.
2. Urinal screens: Wall mounted.

1.4 SUBMITTALS

A. Submittals for Review:
1. Shop Drawings: Include dimensioned layout, elevations, trim, closures, and accessories.
Product Data: Manufacturer's descriptive data for panels, hardware, and accessories.
Samples: [2 x 3] inch samples showing available colors.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum [5] years experience in manufacture of plastic toilet compartments with products in satisfactory use under similar service conditions.

B. Installer Qualifications: Minimum [5] years experience in work of this Section.

1.6 WARRANTIES

A. Provide manufacturer’s 5 year warranty against breakage, corrosion, and delamination under normal conditions.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on Resistal products by Scranton Products. (www.scrantonproducts.com)

B. Substitutions; Under provisions of Division 01.

2.2 MATERIALS

A. Doors, Panels and Pilasters:
   1. Constructed of two sheets of 1/8 inch thick high density polyethylene (HDPE), thermoformed with touch points into single engineered panel, with structural inserts on top ad middle rails.
   2. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
   3. 1 inch thick with thermoformed edges.
   4. Color: To be selected from manufacturer's full color range.

B. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper.

C. Stainless Steel: ASTM A167, Type 304.

2.3 HARDWARE

A. Hinges:
   1. 8 inches long, fabricated from heavy-duty extruded aluminum with bright dip anodized finish, wrap-around flanges, through bolted to doors and pilasters with stainless steel, Torx head sex bolts.
   2. Hinges operate on field-adjustable nylon cams, field adjustable in 30 degree increments.

B. Door Strike and Keeper:
   1. 6 inches long, fabricate from heavy-duty extruded aluminum with bright dip anodized finish, secured to pilasters with stainless steel tamper resistant Torx head sex bolts.
   2. Bumper: Extruded black vinyl.

C. Latch and Housing:
   1. Heavy-duty extruded aluminum.
   2. Latch housing: Bright dip anodized finish.
   3. Slide bolt and button: Black anodized finish.

D. Coat Hook/Bumper:
   1. Combination type, chrome plated Zamak.
   2. Equip outswing handicapped doors with second door pull and door stop.

E. Door Pulls: Chrome plated Zamak.

2.4 COMPONENTS

A. Doors and Dividing Panels: 55 inches high, mounted 14 inches above finished floor.

B. Pilasters: 82 inches high, fastened to 3 inch high pilaster sleeves with stainless steel tamper resistant Torx head sex bolt.

C. Pilaster Sleeves: 3 inches high, [one-piece molded HDPE,] [20 gage stainless steel,] secured to pilaster with stainless steel tamper resistant Torx head sex bolt.

D. Wall Brackets: 54 inches long, [Extruded PVC,] [heavy-duty aluminum, 1-1/2 inch stirrup type, bright dip anodized finish,] fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts.

E. Headrail: Heavy-duty extruded aluminum, anti-grip design, integrated curtain track, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant Torx head sex bolt and at top of pilaster with stainless steel tamper resistant Torx head screws.

F. Headrail Brackets: 20 gage stainless steel, satin finish, secured to wall with stainless steel tamper

resistant Torx head screws.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install compartments in accordance with manufacturer’s instructions and approved Shop Drawings.

B. Install rigid, straight, plumb, and level.

C. Locate bottom edge of doors and panels 14 inches above finished floor.

D. Provide uniform, maximum 3/8 inch vertical clearance at doors.

E. Not Acceptable: Evidence of cutting, drilling, or patching.

3.2 ADJUSTING

A. Adjust doors and latches to operate correctly.

END OF SECTION

SECTION 10500 - LOCKERS

1. Scope:

   a. Provide & install metal lockers where indicated on drawings.

2. Quality Assurance:

   a. Lockers shall be all welded lockers by Gear Grid or equal.

3. Materials:

   a. Prime, high grade Class I mild annealed, cold-rolled steel free from surface imperfections. A.S.T.M.-A1008 Galvanized steel available for high humidity atmospheres. A.S.T.M.-A653. Bolts to be zinc-plated or subjected to other rust retardant treatment.
   b. All lockers shall be pre-assembled, with all seams and joints welded for rigidity and durability.
   c. Body – 16 gauge steel, flanged to give double thickness of metal at back vertical corners. 18 gauge backs.
   d. Door Frame – 16 gauge formed steel channels. Vertical members shall Have an additional flange to form continuous door strike. Corners Shall be lapped and welded into a rigid assembly. In addition, bottom cross members shall have tang at each end that fits through slot in rear flange of upright frame member to prevent twisting out of alignment. Top and bottom cross members shall provide support for front edge of locker top and locker bottom.
   e. One-piece, 14 gauge steel on single, double and triple tier with both vertical edges formed into channel shaped formation; top and bottom shall be flanged at 90° angle. On multiple tier lockers, hinge sides shall be formed into channel shaped formation with other three sides flanged at 90° angle.
   f. Ventilation – Six (6) 6” louvers top and bottom

4. Submittals:

   a. Manufacturer's catalog cuts for specified items and shop drawing of installation based on field verified dimensions. Color chart required for Owner selection.

5. Products:

   a. Lockers shall be 20”W x 20”D x 74 1/2”H standard sized locker with stainless steel recessed handle and padlock provisions.

b. Lockers shall include:
- 6”x6”x12” lockable/secure storage cabinet
- top adjustable shelf
- top standard power strip.

c. Wall mounted at walls and fixed legs at center locations.

d. Slip joint filler for mounting as required.

e. Recess trim at ends as required.

6. Installation:

a. Assemble and mount lockers in strict accordance with manufacturer’s specifications.

SECTION 10520 – FIRE EXTINGUISHER CABINETS

1. Scope:

    a. Provide & install eight (8) fully recessed fire extinguisher cabinets, to be installed where directed by Architect.

2. Quality Assurance:

    a. Materials will be Larsen or equal.

3. Submittals:

    a. Manufacturers catalog cuts for specified items.

4. Products:

    a. Larsen Cosmopolitan 1035 V10 Recessed Stainless Cabinet with Flat Trim Series 1835.

    b. Provide double strength glass contemporary V profile.

    c. Finish to be Brushed Stainless Steel.

5. Installation:

    a. Mount to solid blocking as per manufacturers specifications. Trim vinyl wall cover to rough opening prior to installation.

    b. Review & adjust wall thickness at all install locations to allow for fully recessed cabinet. Coordinate recesses with carpenter and mason for wall types as required.

SECTION 10800 - TOILET ACCESSORIES

1. Scope:

    a. Provide accessories at all restroom locations, and where as indicated on drawings.

2. Quality Assurance:

    a. Materials will be American Specialties, Inc. or equal.

3. Submittals:

    a. Manufacturers catalog cuts for specified items.

4. Products:

    Refer to drawings and schedules.

5. All finishes shall be #4 satin stainless steel.

6. Installation:

    a. Mount all, accessories to solid blocking as per manufacturers specifications.

SECTION 10850 – MOVABLE PARTITIONS

Part 1 – General

1.1 Description

A. General:

1. Furnish and install operable partitions and suspension system. Provide all labor, materials, tools, equipment, and services for operable walls in accordance with provisions of contract documents.

1.2 Related work by others

A. Preparation of opening will be by General Contractor. Any deviation of site conditions contrary to approved shop drawings must be called to the attention of the architect.

B. All header, blocking, support structures, jambs, track enclosures, surrounding insulation, and sound baffles as required in 1.4 Quality Assurance.

C. Pre-punching of support structure in accordance with approved shop drawings.

C. Paint or otherwise finishing all trim and other materials adjoining head and jamb of operable partitions.

1.3 Submittals

A. Complete shop drawings are to be provided prior to fabrication indicating construction and installation details. Shop drawings must be submitted within 60 days after receipt of signed contract.

1.4 Quality Assurance

A. Installation shall be performed by an installer certified by the manufacturer.

B. Preparation of the opening shall conform to the criteria set forth by ASTM E557 Standard Practice for Architectural Application and Installation of Operable Partitions.

C. The partition STC (Sound Transmission Classification) shall be achieved per the standard test method ASTM E90-99 and E413-87. Test run under ASTM procedures prior to E90-99 shall not be permitted. All tests must be from an independent, currently operating, NVLAP-accredited laboratory available to verify results.

1.5 Product delivery, storage, and handling

A. Proper storage of partitions before installation, and continued protection during and after installation will be the responsibility of the General Contractor.

1.6 Warranty

A. Partition panels shall be guaranteed for a period of five years with all mechanical parts including track and carriers guaranteed for a period of ten years. This guarantee is against defects in material or workmanship of manufacturer's product, excluding abuse.

Part 2 – Products

2.1 Manufacturers

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
    1. Moderco Inc.

2.2 Operation

A. Signature 841 manually operated, top supported individual panels.

B. Initial seal (select one):
    1. Bulb seal.
    2. Fixed wall jamb. (Optional)

C. Final closure (select one):
    1. Telescopic closure panel equipped with a telescopic jamb mounted to a rack and pinion mechanism and extended with a lever handle.
    2. Hinged closure panel (up to 12'-0" [3658mm] height). (Optional)
        a. Same construction and face finish as partition panels.
        b. Standard hardware:
            (i). Flush pulls and roller latch.
        c. Optional hardware (select one):
            (i). Panic bar with non-lockable lever.
            (ii). Panic bar with lockable lever.
            (iii). Deadbolt lock.

2.3 Panel construction

A. Nominal 4" [102mm] thick panels, up to 48 1/2" [1230mm] width. Framing members to be steel-braced mechanically fastened 6065-T5 aluminum alloy extrusions. Thinnest extrusion section to be no less than 3/32" [2.5mm]. Trolley pipes welded to 1 1/2" X 1 1/2" X 3/32" [38mm X 38mm X 2.5mm] steel tube mechanically fastened to top frame extrusion. Panel cavity to be filled with acoustical insulation. Panel faces to be removable and replaceable on site to accommodate changes in room function, interior finishes, etc.

B. Acoustical rating (53 STC):

C. Panel face construction:

1. STC 53, galvannealed steel skins laminated to 1/2" [13mm] gypsum board. Steel thickness based on STC rating.
2. STC 53, 1/2" [13mm] tackable gypsum board with galvannealed steel liner. Steel thickness based on STC rating.
3. STC 43: 1/2" [13mm] tackable gypsum board.
4. STC 53, with optional plastic laminate or wood veneer finish: 1/2" [13mm] Particle board with galvannealed steel liner. Steel thickness based on STC rating.
    a. Standard Particle board.
    b. ULEF/NAUF Particle board.
5. STC 43 with optional plastic laminate or wood veneer finish: 1/2" [13mm] Particle board.
    a. Standard Particle board.
    b. ULEF/NAUF Particle board.

D. Hinges for pass door and pocket door:

1. (With protective trims) Discreet steel hinges blend into the shape of the frame extrusion.
2. (With trimless edges) Discreet steel hinges to project no more than 1/4" [6mm] from the panel face.

E. Vertical trims (select one):

1. Protective trims cover and protect all edges of the panel faces and face finish.
2. Trimless vertical edges.

F. Panel weight:

1. Between 6 to 10.5 lbs/sq.ft [29.5 to 51.5 kg/sq.m] (based on STC rating).

2.4 Panel finishes

A. Face finish shall be (select as required):
1. Factory applied Class A reinforced vinyl wallcovering with woven backing, weighing 21 oz/lin.yard [545 g/lin.m]. Color selected from manufacturer's standard color selector.
2. Factory applied Class A polyester or olefin/polyester stain-resistant fabric. Color selected from manufacturer's standard color selector.
3. Factory applied Class A vertically ribbed polyester carpet (NRC 0.20). Color selected from manufacturer's standard color selector.
4. Customer's own material (C.O.M.) supplied to and applied by manufacturer. (Subject to approval.)
5. Customer's specified material (C.S.M.) procured and applied by manufacturer. (Subject to approval.)
6. Full height steel marker board.
7. Full height porcelain marker board (with protective trims only).
8. Full height natural cork bulletin board (with protective trims only).
9. Vinyl- or fabric-covered full height natural cork bulletin board.
10. Full height Forbo bulletin board (with protective trims only).
11. Formica high pressure laminate.
12. Wood veneer.
13. Uncovered (not available for 43 or 47 STC panels with trimless vertical edges).

B. Panel frame finish shall be (select one):
1. Clear satin anodized.
2. Powder coating. Color selected from RAL Classic color system.
3. Custom powder coating. (Color chip to be supplied to Moderco. Moderco's color-match must be approved by architect prior to any material being released for fabrication)

2.5 Sound seals

A. Vertical seals:
1. Dual aluminum and pvc tongue and groove interlocking seals in each panel edge.

B. Horizontal seals (select one):
1. Type FA: 1" [25mm] fixed pvc top sweeps and automatically operated bottom seals. Bottom seals automatically drop as panel are positioned without use of a tool. Bottom seals retract automatically when panel is pulled away from wall or adjacent panel. (Not available on 53 and 55 STC.) The last panel will have fixed bottom sweeps.
    a. FA-2:2" [51mm] floor clearance with 1 1/2" [38mm] operating range.

2. Type FM: 1" [25mm] fixed pvc top sweeps and manually operated bottom seals. Bottom seals extend and retract with half a turn of a removable lever handle. (Not available on 53 and 55 STC.)
   (Select one)
   a. FM-1: 1" [25mm] floor clearance with 5/8" [16mm] operating range.
   b. FM-1.5: 1 1/2" [38mm] floor clearance with 3/4" [19mm] operating range.
   c. FM-2: 2" [51mm] floor clearance with 1" [25mm] operating range.
   d. FM-2.5: 2 1/2" [64mm] floor clearance with 2" [51mm] operating range.
   e. FM-4: 4" [102mm] floor clearance with 3 1/2" [89mm] operating range.
3. Type MM: Manually operated top and bottom seals. Top and bottom seals extend and retract simultaneously with half a turn of a removable lever handle. (Select one)
   a. MM-1 *: 1" [25mm] track clearance. 1" [25mm] floor clearance with 5/8" [16mm] operating range.
   b. MM-1.5: 1" [25mm] track clearance. 1 1/2" [38mm] floor clearance with 3/4" [19mm] operating range.
   c. MM-2: 1" [25mm] track clearance. 2" [51mm] floor clearance with 1" [25mm] operating range.
   d. MM-2.5: 1" [25mm] track clearance. 2 1/2" [64mm] floor clearance with 2" [51mm] operating range.
   e. MM-4: 1" [25mm] track clearance. 4" [102mm] floor clearance with 3 1/2" [89mm] operating range.

** Type MM-1 horizontal seals are standard for STC 53 panels. Type MM-1 horizontal seals are standard for STC 55 panels with the addition of fixed top sweeps.*

2.6 Suspension system

A. Track and trolleys (select one):
   1. #23-T aluminum track: 6063-T6 aluminum alloy extrusion with integral soffit trim supported by pairs of 3/8" [10mm] dia. threaded rods connected to structural support, with or without optional hanger brackets.
      a. #23 trolley: Each trolley shall have two counter-rotating precision ground ball bearing wheels with nylon tires.
      b. Multi-directional design: Trolley shall allow the panel to navigate through L, T and X intersections without mechanical switching devices.
      c. Usage: For panels up to 15'-3" [4648mm] height.
      d. Each panel to be supported by two trolleys.

3. #72 steel track: 11 ga. roll-formed steel with integral soffit trim supported by pairs of 3/8" [10mm] dia. threaded rods connected to structural support with hanger brackets. (Optional)
    a. #72 trolley: Each trolley shall have four precision ground ball bearing wheels with steel tires.
    b. Multi-directional design: Trolleys shall be automatically guided through a pre-programmed stacking track switch.
    c. Usage: For panels up to 15'-3" [4648mm] height.
    d. Each panel to be supported by two trolleys.
4. #33-T aluminum track: 6063-T6 aluminum alloy extrusion with integral soffit trim supported by pairs of 3/8" [10mm] dia. threaded rods connected to structural support, with or without optional hanger brackets.
    a. #33 trolley: Each trolley shall have two counter-rotating precision ground ball bearing wheels with nylon tires.
    b. Multi-directional design: Trolley shall allow the panel to navigate through L, T and X intersections without mechanical switching devices.
    c. Usage: For panels between 15-3" [4648mm] and 22'-3" [6781mm] height.
    d. Each panel to be supported by two trolleys.
5. #55-T aluminum track: 6063-T6 aluminum alloy extrusion with integral soffit trim supported by pairs of 3/8" [10mm] dia. threaded rods connected to structural support, with or without optional hanger brackets.
    a. #55 trolley: Each trolley shall have four precision ground ball bearing wheels with steel tires.
    b. Multi-directional design: Trolleys shall be automatically guided through pre-programmed or electrically operated track switches.
    c. Usage: For panels over 22'-3" [6781mm] height.
    d. Each panel to be supported by two trolleys.

B. Track finish (select applicable):
    1. Aluminum track finish shall be (select one):
        a. Clear satin anodized.
        b. Powder coating. Color selected from RAL Classic color system.
        c. Custom powder coating. (Color chip to be supplied to Moderco. Moderco's color-match must be approved prior to any material being released for fabrication)
    2. Steel track finish shall be (select one):
        a. White powder coating.
        b. Powder coating. Color selected from RAL Classic color system.
        c. Custom powder coating. (Color chip to be supplied to Moderco. Moderco's color-match must be approved prior to any material being released for fabrication)

Part 3 – Execution

3.1 Installation

A. The complete installation of the operable wall system shall be by an authorized factory-trained installer and be in strict accordance with the approved shop drawings and manufacturer's installation instructions.

3.2 Cleaning

A. All track and panel surfaces shall be wiped clean and free of handprints, grease, and soil.

B. Packing and other installation debris shall be removed from the job site.

3.3 Training

A. Installer shall demonstrate proper operation and maintenance procedures to owner's representative.

B. Operating handle and owner's manuals shall be provided to owner's representative.

DIVISION 11 – EQUIPMENT

SECTION 11132 – PROJECTION SCREENS

1. GENERAL

   a. The work under this section is subject to all applicable provisions of the "Bidding Requirements", the "Conditions of the Contract", "Contract Forms" and Division 1 – "General Requirements", which form a part hereof whether attached hereto or not.

2. WORK INCLUDED

   a. Include all labor, materials, and appliances and perform all operations in connection with providing and installing projection screens.

3. MATERIALS

   a. Examine the Specifications and Drawings for the various other trades. Let it be understood that all surfaces normally requiring painting or colored finish that are left unfinished by the requirements of other Specifications shall be painted or finished as part of this Section

   b. DA-LITE or equal projection screens, 6 ft. (H) x 8 ft. (W), electrically operated 115 volt (60 Hz), 1.3 amps. Shall have specially designed motor mounted inside the roller with a patented noise silencer to be three wire quick reversal type, oiled for life, with automatic thermal overload cutout, integral gears, capacitor and an electric brake to prevent coasting. To have preset but adjustable limit switches to automatically stop picture surface in the "up" and "down" positions. The roller to be of rigid metal, 3" in diameter, mounted on two vibration and noise absorbing supports. Screen fabric to be flame retardant and mildew resistant fiberglass with glass beaded, matte white or spectra picture surface with black masking borders standard. Bottom of fabric shall be formed into a pocket holding a 3/8" metal rod. The ends of the rod shall be protected by heavy duty plastic caps. Case to be of wood with metal-lined wiring compartment. A section of the bottom of the case shall be an aluminum door equipped with hinges so that it opens and closes automatically with the lowering and raising of the picture surface. When the picture surface is being lowered, the door shall drop open by gravity. When the picture surface is being raised, the two ends of the slat in the bottom pocket of the screen fabric shall engage two hooks on the door to lift it to the closed position where a limit switch shall cut off the electrical current to the screen. The

balance of the bottom of the case shall be a second hinged aluminum door with manual openings to provide access. Hinges shall be mounted to allow matching of the doors to the ceiling. Case to be finished with a primer coat, ready to accept final finish by others. To be complete with the three position control switch in box with cover plate. Screen to be listed by Underwriter's Laboratories and CSA.

END OF SECTION

DIVISION 12 – KITCHEN EQUIPMENT

SECTION - SUMMARY OF WORK

GENERAL

1. Provide and install all kitchen and related equipment including but not limited to the following. Refer to the plans and equipment schedules for a complete scope of work.

- Provide and install all equipment shall be in accordance with the selected equipment as included on the kitchen plan, schedules and related drawings.
- Substitutions of equivalent equipment shall be subject to review and acceptance by the owner. If alternates are rejected, the specified item must be provided.
- Deliver the equipment to the site and transport it to the designated locations.
- Equipment shall be un-crated, assembled and installed including all final connections.
- All packing debris shall be removed from site and legally disposed of.
- Upon completion of all installations, provide demonstration and training to designated fire department personnel.
- Collate and bind all equipment catalogs, warranties, installation and operation instructions in a binder and turn over to owner's representative.

SECTION 14210 (14 21 23) - ELECTRIC TRACTION PASSENGER ELEVATORS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Electric traction passenger elevators.

1.2 RELATED SECTIONS

A. Section 015000 – Temporary Facilities and Controls: Protection of floor openings and personnel barriers; temporary power and lighting.
B. Section 033000 – Cast-in-Place Concrete: Elevator pits.
C. Section 036000 – Grouts (Grouting): Grouting door frames and sills.
D. Section 042000 – Masonry Units (Unit Masonry): Setting sleeves, inserts, and anchoring devices in masonry for guide-rail brackets.
E. Section 051200 – Metal Stairs Structural Steel (Structural Steel Framing): Support steel, divider beams, and hoist beams.
F. Section 055000 – Gypsum Metal Fabrications: Pit ladders, supports for entrances in drywall hoistways.
G. Section 061053 – Miscellaneous Rough Carpentry: Temporary platform assembly.
H. Section 071600 – Cementitious Waterproofing: Waterproofing of elevator pit.
I. Section 092900 – Gypsum Board: Hoistway walls.
J. Section 099000 – Paints and Coatings (Painting and Coating): Field painting of elevator entrances over primer.
K. Section 283100 – Detection and Alarm (Fire Detection and Alarm): Heat, smoke, and products of combustion sensing devices, fire alarm signal lines to contacts in machine space.
L. Section 23000 – Heating, Ventilating, and Air Conditioning Equipment (Heating, Ventilating, and Air-Conditioning (HVAC)): Heating, cooling, and ventilation of control and machinery space.
M. Section 260500 – Wiring Methods (Common Work Results for Electrical): Light outlets, convenience outlets, light switches, and conduits.
N. Section 262400 – Switchboards, Panelboards, and Control Centers (Switchboards and Panelboards): Disconnect switches.
O. Section 265000 – Lighting: Light fixtures.
P. Section 221429 – Sump Pumps: For sump pumps, sumps, and sump covers in elevator pits.
Q. Section 271500 – Communications Horizontal Cabling: For Telephone service for elevators and for Internet connection to elevator controllers for remote monitoring.
R. Section 273000 – Telephone and Intercommunication Equipment (Voice Communications): telephone outlets and elevator telephones.
S. Section 31000 – Earthwork: Excavation of elevator pit.

1.3 REFERENCES

A. ANSI/ASME A17.1/CAN/CSA B44 – Safety Code for Elevators and Escalators.
B. ADAAG – Americans with Disabilities Act Accessibility Guidelines.
C. ANSI/NFPA 70 – National Electrical Code.
D. ANSI/NFPA 80 – Fire Doors and Windows.
E. ANSI/UL 10B – Fire Tests of Door Assemblies.
F. CAN/CSA C22.1 – Canadian Electrical Code.
G. Model and Local Building CodesH. ISO 9001: 2000 - Quality Management Systems - Requirements.

1.4 DESIGN REQUIREMENTS

A. Arrange elevator components in control closet or machinery space so equipment can be removed for repairs or replaced with minimal disturbance to other equipment and components.
B. Where permitted by code, provide all elevator equipment including controls, drives, transformers, and rescue features within the elevator hoistway.

1.5 SUBMITTALS

A. Comply with Section 013300 (01 33 00) – Submittal Procedures.
B. Product Data: Submit manufacturer/installer's product data, including,
C. Shop Drawings: Submit manufacturer/installer's shop drawings, including plans, elevations, sections, and details, indicating location of equipment, loads, dimensions, tolerances, materials, components, fabrication, fasteners, hardware, finish, options, accessories, and other information to render totally functional elevators.

    a. Descriptive brochures or detail drawings of car and hall fixtures, cab ceilings, and product features.
    b. Power Information: Horsepower, starting current, running current, machine and control heat release, and electrical requirements.

D. Samples: Submit manufacturer/installer's samples of standard colors and finishes of finish materials.
E. Operation and Maintenance Manual: Submit manufacturer/installer's operation and maintenance manual; including operation, maintenance, adjustment, and cleaning instructions; trouble shooting guide; renewal parts catalogs; and electrical wiring diagrams.
F. Warranty: Submit manufacturer/installer's standard warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer/Installer's Qualifications: Specialize in manufacturing and installing elevator equipment, with a minimum of 10 years successful experience.

B. Regulatory Requirements:
   a. Elevator design, clearances, construction, workmanship, materials, and installation, unless specified otherwise, shall be in accordance with ANSI/ASME A17.1, handicap accessibility, Americans with Disabilities Act, and other codes having legal jurisdiction.
   b. ANSI/ASME A17.1 shall govern, except where codes having legal jurisdiction include more rigid requirements or conflict with ANSI/ASME A17.1.
   c. Elevator shall follow design and manufacturing procedures certified in accordance with ISO 9001-2000 to meet product and service requirements for quality assurance for new products.
   d. Where product is in variance to the published ANSI/ASME A17.1 model code, provide a 3rd party AECO certification demonstrating equivalent function, safety, and performance.

C. Pre-installation Meeting:
   a. Convene pre-installation meeting before start of installation of elevators.
   b. Require attendance of parties directly affecting work of this section, including Contractor, Architect, and elevator manufacturer/installer.
   c. Review examination, installation, field quality control, adjusting, cleaning, protection, and coordination with other work.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site in manufacturer/installer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer/installer.
B. Storage: Store materials in clean, dry area indoors in accordance with manufacturer/installer's instructions.
C. Handling: Protect materials during handling and installation to prevent damage.

1.8 PROJECT CONDITIONS

A. Temporary Electrical Power:
   a. Owner will arrange for temporary 220 VAC, single-phase, 60 Hz., GFCI-protected electricity to be available for installation of elevator components.
   b. Comply with Section 015100 – Temporary Utilities.
B. Installation of the Elevator:
   a. General Contractor will provide permanent three-phase power prior to installation start.
   b. General Contractor will provide clear, rollable access to a 20' x 10' secure and dry storage area prior to delivery.

   c. General Contractor will provide a clean, dry, and complete hoistway along with temporary installation platform and all required OSHA-compliant barricades prior to delivery.

C. Temporary Use of Elevator:
   a. Owner will negotiate with manufacturer/installer for temporary use of elevator, if required.
   b. Temporary use of elevator shall be in accordance with terms and conditions of manufacturer/installer's temporary acceptance form.

1.9 SCHEDULING

A. Coordinate elevator work with work of other trades, for proper time and sequence to avoid construction delays.

1.10 WARRANTY

A. Manufacturer/installer shall guarantee materials and workmanship of equipment installed under these specifications and make good, defects not due to ordinary wear or to improper use, which may develop within 1 year after completion of installation or acceptance thereof by beneficial use, whichever is earlier.

1.11 MAINTENANCE SERVICE

A. Elevator maintenance service shall be performed by elevator manufacturer/installer.
B. Elevators shall receive regular maintenance on each unit for period of 12 months after completion of work specified herein or acceptance thereof by beneficial use, whichever is earlier.
C. Trained employees shall make periodic examinations and perform work including necessary adjusting, greasing, oiling, and replacing parts to keep elevators in operation, except parts that require replacement because of accidents, vandalism, misuse, or negligence by parties other than manufacturer/installer.
D. Manufacturer/installer shall perform all Work, except emergency minor adjustment call-back service, during regular working hours. Manufacturer/installer shall provide emergency minor adjustment call-back service, during regular working hours.
E. Should Owner request that examinations, cleaning, lubrication, adjustments, repairs, replacements, or emergency minor adjustment call-back service, unless specified herein, be performed on other than manufacturer/installer's regular working hours of regular working days, manufacturer/installer shall absorb straight-time labor charges and Owner will compensate manufacturer/installer for overtime premium, travel time, and expense at normal billing rates.
F. Elevator Control System:
   a. Include built-in remote diagnostic module to relay constant status of elevators and control system to a 24-hour, 7-days-a-week central-monitoring facility.
   b. Remote Monitoring Device: Transmit information on current status of elevators, including malfunctions, system errors, and shutdown.

PART 2 – PRODUCTS

2.1 MANUFACTURER/INSTALLER

A. Schindler Elevator Corporation, Website www.us.schindler.com.
B. Elevator shall be installed by elevator manufacturer.

2.2 ELEVATOR SYSTEM AND COMPONENTS

A. Electric Traction Passenger Elevators: Basis of design is the Schindler 5000 Gearless Traction Elevator.

B. Elevator Equipment Summary:
   a. Application: Machine Room Less (MRL)
   b. Counterweight Location: Right side
   c. Machine Location: Machine room Less
   d. Control Space Location: Front Landing, Floor 2
   e. Service: Hospital/service
   f. Quantity: 1 Unit
   g. Capacity: 5000 lbs
   h. Speed: 150 fpm
   i. Travel: 18’-8"
   j. Landings: 2
   k. Front Openings: 2
   l. Rear Openings: 0
   m. Rear Door Hand: N/A
   n. Operation: Conventional selective collective
   o. Clear Inside Dimensions: 5' 4.3" Wide X 8' 7.6" Deep
   p. Cab Height: 7' 9"
   q. Guide Rails: Equivalent to 12 lb. per foot
   r. Entrance Type and Width: Two Speed Side Opening 4’ 0" Wide X 7’ 0" High doors
   s. Entrance Height: 7'-0"
   t. Power Supply: 208 Volts 3 Phase 60 Hz

C. Performance:
   a. Car Speed: -10% to +5% of contract speed under any loading condition or direction of travel.
   b. Car Capacity: Safely lower, stop and hold up to 125% of rated load per code.

D. Ride Quality:
   a. Vertical Vibration (maximum): 25 mg
   b. Horizontal Vibration (maximum): 15 mg
   c. Vertical Jerk (maximum): 1.3 ft/sec^3
   d. Acceleration (maximum): 1.6 ft/sec^2
   e. In Car Noise: 53-60 dB(A)
   f. Stopping Accuracy: ±5mm
   g. Starts per hour (maximum): 180

E. Elevator Operation:
   a. Simplex Collective Operation: Using a microprocessor based controller, operation shall be automatic by means of the car and hall buttons. When all calls have been answered, the car shall park at the last landing served.
   b. Group Automatic Operation with Demand-Based Dispatching: Provide reprogrammable group automatic system that assigns cars to hall calls based on a dispatching algorithm designed to minimize passenger waiting time.

F. Operating Features - Standard:
    a. Door Light Curtain Protection
    b. Static AC Drive
    c. Phase Monitor Relay
    d. Cab Overload with Indicator
    e. Load-weighing
    f. Central Alarm
    g. Remote Monitoring
    h. Firefighter's Operation
    i. Automatic Evacuation
        1. When the main line power is lost for longer than 5 seconds the emergency battery power supply provides power automatically to the elevator controller. If the car is at a floor when the power fails, it remains at that floor, opens its doors, and shuts down. If the car is between floors, it is raised or lowered to the first available landing, opens it doors, and shuts down.
    j. Independent Service

2.3 EQUIPMENT: CONTROL COMPONENTS AND CONTROL SPACE

A. Controller: Provide microprocessor based control system to perform all of the functions of safe elevator operation, as well as perform car and group operational control.
    a. All high voltage (110v or above) contact points inside the inspection and test panel shall be protected from accidental contact in a situation where the access panels are open.
    b. The controller shall be distributed throughout the elevator system located in the overhead, cab and inspection and test panel. The inverter will be mounted in the overhead adjacent to the hoist machine and an inspection and test panel will be located in the door jamb at the top floor or one floor below the top floor. No elevator equipment mechanical rooms or closets are required.
    c. Provide multi-bus control architecture to reduce cabling, material and waste.

B. Drive: Provide a Variable Voltage Variable Frequency AC Closed Loop drive system. Provide stable start without high peak current, quickly reaching a low energy consumption level.
C. Inspection and Test Panel: Integrated control equipment, main inspection and test panel in door frame at top level served or at one floor below the top level served.

2.4 EQUIPMENT: HOISTWAY COMPONENTS

A. Machine:
    a. Gearless asynchronous AC motor with integral drive sheave, service and emergency brakes.
    b. Design machine to enable direct power transfer, thereby avoiding loss of power.
    c. Design machine to be compact, lightweight and durable to optimize material usage and save space.
    d. Mount to structural support channels on top of guide rail system as applicable in hoistway overhead.

B. Governor:
    a. Tension type over-speed governor with remote manual reset.
    b. Mount to structural support channels as applicable in hoistway overhead.
C. Buffers, Car and Counterweight: Compression spring type buffers to meet code.
D. Hoistway Operating Devices:
    a. Emergency Stop switch in the pit.
    b. Terminal stopping switches.
    c. Emergency stop switch on the machine.
E. Positioning System: System consisting of proximity sensors and door zone vanes.
F. Guide Rails and Attachments: Provide Tee-section steel rails with brackets and fasteners. Side counterweight arrangements shall have a dual purpose bracket that combines both counterweight guide rails, and one of the car guide rails to building fastening.
G. Suspension System: Non circular Elastomeric coated suspension media with high tensile grade steel cords.
H. Governor rope: Steel wire rope with 6 mm diameter.

2.5 EQUIPMENT: HOISTWAY ENTRANCES

A. Hoistway Doors and Frames:
    a. UL rated with required fire rating.
    b. Doors: Rigid flush panel construction with reinforcement ribs.
    c. Frames: Securely fasten at corners to form unit frame. Frames shall be bolted.
B. Finish:
    a. Exposed Areas of Corridor Frames: Stainless Steel - All Floors
    b. Doors: Stainless Steel - All Floors
    c. Doors: Painted Primer - All Floors
    d. Sills: Aluminum - All Floors
C. Entrance Markings and Jamb Plates: Provide standard entrance jamb tactile markings on both jambs, at all floors.
D. Plate Mounting: Refer to manufacturer drawings.

2.6 EQUIPMENT: CAR COMPONENTS

A. Car Frame and Safety: Provide car frame with adequate bracing to support the platform and car enclosure. The safety shall be integral to the car frame and shall be flexible guide clamp type.
B. Platform: Provide platform of steel construction with plywood subfloor and aluminum threshold.
C. Car Guides: Provide sliding guide shoes mounted to top and bottom of both car and counterweight frame. Arrange each guide shoe assembly to maintain constant contact on the rail surfaces. Provide retainers in areas with Seismic design requirements.
D. Provide central guiding system to reduce mechanical friction and energy consumption.

E. Steel Cab:
   a. Fire rating: Provide Class B fire rating for cab, or Class A fire rating where required by local Code.
   b. Design cab to comply with LEED Indoor Environmental Quality requirements through use of Low-Emitting Materials on walls, ceiling and subflooring.
   c. Car wall finish: Stainless Steel 304 5WL
   d. Base and frieze: Aluminum.
   e. Car front finish: Brushed stainless steel.
   f. Car door finish: Brushed stainless steel.
   g. Ceiling: Brushed Stainless Steel #441 Stainless Steel With Down Lit Led Lighting. Provide lighting consisting of round spot lights.
   h. Handrail: 1 3/8" Round And Curved brushed stainless steel 304. Provide at side and rear walls.
   i. Flooring: By others. Not to exceed 3/8" finished depth.
   j. Ventilation: Provide one-speed fan in canopy.
   k. Emergency Car Lighting: Provide an emergency power unit employing a 12 volt sealed rechargeable battery and static circuits to illuminate the elevator car and provide current to the alarm bell in the event of building power failure.
   l. Emergency Siren: Provide siren mounted on top of the car that is activated when the Alarm button in the car operating panel is engaged.
   m. Emergency Exit Switch: Provide an electrical contact to open the safety circuit when the emergency car top exit is opened. When the exit door is opened, the top exit switch shall signal the control and the car will be unable to move.
   n. Emergency Exit Lock: Provide an emergency exit lock where required by local code.
   o. Emergency Exit Guard: Provide emergency exit guard on top of car when required for hoistway wall to platform clearance exceeds 12" or for multiple cars in hoistway.

2.7 DOOR OPERATOR AND REOPENING DEVICES

A. Door Operator: Provide a closed loop VVVF high performance door operator with frequency controlled drive for fast and reliable operation to open and close the car and hoistway doors simultaneously.
B. 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. Provide emergency devices and keys for opening doors from the landing as required by local code.
C. 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. Provide door open button in the car operating panel. Momentary pressing of this button shall reopen the doors and reset the time interval.
D. Provide door hangers and tracks for each car and hoistway door. Contour tracks to match the hanger sheaves. Design hangers for power operation with provisions for vertical and lateral adjustment. Hanger sheaves shall have polyurethane tires and pre-lubricated sealed for life bearings.

E. Electronic Door Safety Device: Equip car doors with concealed transmitter and receiver infrared beam devices to detect presence of object in process of passing through hoistway entrance and car doorway (light curtain device).
    1. Use multi-beam scanning without moving parts to detect obstructions in door opening.
    2. Detector Device: Prevent doors from closing, or if they have already started closing, cause doors to reopen and remain open while object is within detection zone.

2.8 EQUIPMENT: SIGNAL DEVICES AND FIXTURES

A. Car Operating Panel: Provide a car operating panel with all push buttons, key switches and message indicators for elevator operation.
    a. Full height car operating panel shall be surface-mounted on front return.
    b. Comply with handicap requirements.
    c. Push Buttons: Mechanical, illuminating using long-lasting LEDs for each floor served.
    d. Emergency Buttons: Provide in accordance with code. Emergency alarm button, door open and door close buttons.

B. Features of the Car Operating Panel Shall Include:
    a. Audible chime to signal that the car is either stopping at or passing a floor served by the elevator.
    b. Raised markings and Braille provided to the left hand side of each push button.
    c. Car Lantern: Provide LED illuminated car lantern with direction arrows to comply with local code when hall lanterns are not provided.
    d. Door open and close push buttons.
    e. Firefighter's hat and Phase 2 Key-switch
    f. Inspection key-switch.
    g. Key-switch for optional Independent Service Operation
    h. Illuminated alarm button with raised marking.
    i. Elevator Data Plate marked with elevator capacity and car number.
    j. Help Button: Activation of help button will initiate two-way communication between car and a location inside the building, switching over to alternate location if call is unanswered, where personnel are available to take the appropriate action. Visual indicators are provided for call initiation and call acknowledgement.

C. Hall Fixtures: Provide hall fixtures with necessary push buttons and key switches for elevator operation.
    a. Push buttons: Metallic tactile push buttons, up button and down button at intermediate floors, single button at each terminal floor.
    b. Height: Comply with handicap requirements.
    c. Illumination: Illuminating using long-lasting low power LEDs.

D. Hall Lanterns and Position Indicators.
    a. LED illuminated direction arrows with audible and visible call acknowledgement.

E. Hoistway access switches: Provide key-switch at top and/or bottom floor in entrance jamb as required by local code.

F. Firefighter's Phase 1 Service: Key switch in brushed stainless steel cover plate.

G. Fixture Cover Plates: For push buttons, hall lanterns and position indicators, resistant white back-printed glass, no screws required for mounting. Provide stainless steel cover plates for Firefighter's Phase I switch and hoistway access switches, with tamper resistant screws in same finish.
H. Mounting: Mount hall fixtures in entrance frames.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine hoistways, hoistway openings, and pits before starting elevator installation.
B. Verify hoistway, pit, overhead, and openings are of correct size, within tolerances, and are ready for work of this section.
C. Verify walls are plumb where openings occur and ready for entrance sill installation. Traditional sill angle or concrete sill support shall not be required.
D. Verify hoistway is clear and plumb, with variations not to exceed -0 to +1 inch at any point. Verify projections greater than 4" must be beveled not less than 75 degrees from horizontal. No negative tolerance is permitted for minimum hoistway dimensions.
E. Verify minimum 2-hour fire-resistance rating of hatch walls.
F. Notify Architect in writing of dimensional discrepancies or other conditions detrimental to proper installation or performance of elevators.
G. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to manufacturer/installer.

3.2 INSTALLATION

A. Install elevators in accordance with manufacturer/installer's instructions and ANSI/ASME A17.1.
B. Set entrances in vertical alignment with car openings, and aligned with plumb hoistway lines.

3.3 FIELD QUALITY CONTROL

A. Perform tests of elevator as required by ANSI/ASME A17.1 and governing codes.

3.4 ADJUSTING

A. Adjust elevators for proper operation in accordance with manufacturer/installer's instructions.
B. Adjust elevators for smooth acceleration and deceleration of car so not to cause passenger discomfort.
C. Adjust doors to prevent opening of doors at landing on corridor side, unless car is at rest at that landing, or is in leveling zone and stopping at that landing.
D. Adjust automatic floor leveling feature at each floor to within 1/4 inch of landing.
E. Repair minor damages to finish in accordance with manufacturer/installer's instructions and as approved by Architect.
F. Remove and replace damaged components that cannot be successfully repaired as determined by Architect.

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3.5 CLEANING

A. Clean elevators promptly after installation in accordance with manufacturer/installer's instructions.
B. Do not use harsh cleaning materials or methods that could damage finish.

3.6 PROTECTION

A. Protect installed elevators from damage during construction in accordance with the negotiated temporary use agreement between Owner and manufacturer's installer.

END OF SECTION

NEW FACILITY BID
203 SOUTH MAIN ST.
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO Box 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
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Mechanical Specifications

Issued for bid
September 17, 2026

HVAC

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PART 1 - GENERAL

THE PROJECT IS BEING AWARDED AS A SINGLE PRIME GENERAL CONSTRUCTION CONTRACT. ALL MECHANICAL WORK SHALL BE BID AS A SUBCONTRACT TO THE GENERAL CONTRACTOR.

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. HVAC contractor to supply and install all mechanical HVAC systems for the new firehouse facility in accordance with the mechanical systems drawings. All systems shall be installed complete and in working order.

C. Supply and install intake and venting, for boiler and domestic hot water heater and include condensate drains, neutralization kits and piping to plumbing system for boiler, domestic hot water heater and air handling units.

D. Contractors shall furnish all tools, machinery, equipment, scaffolding, appurtenances and appliances necessary for the satisfactory handling and execution of their work.

E. Provide and install kitchen hood and ansul systems including preparation and filing of all permit documents with the village of Ellenville fire marshal office..

F. The work under these contracts shall include all labor, materials and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of the Code and all local authorities having jurisdiction.

G. All work shall be done in such locations and at such times as directed.

H. The contractors shall place and store his materials as directed.

I. The contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his machines, materials, employees, or work and shall pile in neat piles outside of each building as directed. He shall cooperate with all other trades appurtenant to his work. At the completion of the work, he shall remove all his tools, scaffolding and surplus materials.

J. Contractors shall be responsible for initiating, maintaining and supervising all safety precautions in accordance with O.S.H.A. requirements.

K. In the event that part of the building will be occupied during construction, the interior of the building will be separated and the Contractor will schedule his work accordingly.

L. Supply and install interior radiant slab heating system as add alternate. Coordinate

installations with concrete contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section General Conditions - Temporary facilities and controls, including temporary heat, light, power and water. Cooperate in ensuring adequate protection.

B. Section General Conditions - General material, equipment and workmanship standards.

C. Section 03100 - Concrete.

1.02 DRAWINGS AND COORDINATION

A. It is not the intention of the drawings to show every item, piece of equipment and detail but rather to show systems to be installed. Provide systems with all appurtenant equipment to make a complete operating system.

B. Inspect the work area prior to commencing the job. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes which affect the function or appearance of systems.

C. Dimensions, elevations and locations are shown approximately. Verify measurements in field and coordinate with other trades.

D. Architect reserves the right to order changes in layout of such items as piping, ducts and equipment if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

E. In some cases, drawings are based on products of one manufacturer, as listed in the specifications. Be responsible for modifications made necessary by substitution of products of other manufacturers.

F. Do not install part of a system until all critical components of the system and related systems have been approved. Coordinate parts of system.

G. Coordinate work with work specified in other sections. Relocate work if required for proper installation and functioning of other systems.

H. Install products in accordance with manufacturers' instructions. Notify Architect if contract documents conflict with manufacturers' instructions. Comply with Architect's interpretations.

I. Provide and install all brackets, supports, anchors and frames required for installation of work specified in this division. Provide all required pitch pockets for both mechanical and electrical needs of work herein.

J. Provide all cutting and patching, excavation and backfilling required for installation of work specified in this Division.

K. Provide and install a motor starter as required.

1.03 PROJECT RECORD DRAWINGS

A. Submit shop drawings in accordance with Section 15011H.

B. Note that the General Conditions specify that project record drawings be prepared.

1.04 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down if necessary.

B. Install equipment with adequate clearances for maintenance and operation both of the equipment and of adjacent equipment.

1.05 PRELIMINARY OPERATION

A. Provide start-up lubrication in accordance with manufacturer's recommendations. Operate mechanical systems with required supervision for at least 2 full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.06 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of mechanical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified. Demonstrate the following:
   1. Equipment installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.
   2. Safety and temperature controls operating as specified.
   3. Systems properly flushed, cleaned and free of contaminants.
   4. Systems properly balanced.
   5. Motors equipped with proper overload protection and not operating under overload. Obtain ammeter readings.
   6. Instruments recording properly.

1.07 WARRANTY

A. Submit written warranty or warranties covering work specified in this division. Period: 1 year from the date of substantial completion of the building or of the equipment being warranted, whichever is later. Owner is to receive full use of equipment for period of warranty.

1.08 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Submit three (3) typed copies of maintenance and operating instructions for equipment having moving parts and parts which may reasonably be anticipated to require replacement.
   1. List replacement parts and order procedure.
   2. Include lubrication instructions and schedule, with types of lubricant to be used.
   3. Include maintenance and service procedures.

B. Instruct Owner's personnel in use of equipment specified in this Division.

C. Submit three (3) typed copies of maintenance and operating manuals for equipment specified in this Division.

D. Provide complete demonstration and training of systems operations to designated fire district personnel upon completion.

1.09 MECHANICAL SYSTEMS IDENTIFICATION

A. See Section 15190H - Mechanical Identification.

1.10 FIELD QUALITY CONTROL

A. Test piping systems hydrostatically at 150% of expected working pressure unless otherwise specified.

B. Reports shall list system tested, date, results, description of correction of faults, and witnesses.

C. Maintain tests 4 hours, unless otherwise specified.

D. Preform preliminary tests before witnessed tests.

E. Give Architect 48 hours notice of tests. Architect will observe tests.

1.11 CODES AND ORDINANCES

A. Conform to the requirements of codes and ordinances of authorities having jurisdiction, as specified in the General Conditions. In particular, conform to the requirements of the State of New York Building Code.

B. Conform to the State of New York Building Code energy conservation requirements, including certification, labelling and maintenance instructions for equipment.

C. If Contract Documents conflict with codes and ordinances, notify Architect. If requirements of Contract Documents exceed requirements of codes and ordinances, comply with requirements of Contract Documents.

1.12 REMOVAL AND DISPOSAL OF WASTE MATERIALS

A. Take down and remove existing mechanical equipment indicated to be removed. Turn over all equipment to owner or dispose of by direction of the owner's authorized representative.

B. Remove and dispose of all debris and waste materials from the site in a safe and legal manner.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Pipe, duct, and equipment hangers, supports, and associated anchors.

C. Equipment bases and supports.

D. Sleeves and seals.

E. Flashing and sealing equipment and pipe stacks.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish hanger and support inserts and sleeves to Section 3A for placement into formwork.

1.03 RELATED WORK

A. Section 03100: Concrete equipment bases.

B. Section 15242H - Vibration Isolation.

C. Section 15260H - Piping Insulation.

D. Section 15280H - Equipment Insulation.

E. Section 15671H - HVAC system.

1.04 REFERENCES

A. ANSI/ASME B31.1 - Power Piping.

1.05 SUBMITTALS

A. Submit shop drawings in accordance with Section 15011H.

B. Indicate hanger and support framing and attachment methods.

PART 2 PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.

B. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

D. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

E. Vertical Support: Steel riser clamp.

F. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, lock nut nipple, floor flange, and concrete pier or steel support.

G. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

H. Shield for Insulated Piping 2 Inches and Smaller: 18 gage galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

I. Shield for Insulated Piping 2-1/2 Inches and Larger (Except Cold Water Piping): Pipe covering protective saddles.

J. Shields for Insulated Cold Water Piping 2-1/2 Inches and Larger: Hard block non-conducting saddles in 90 degree segments, 12 inch minimum length, block thickness same as insulation thickness.

K. Shields for Vertical Copper Pipe Risers: Sheet lead.

2.02 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

2.03 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.04 FLASHING

A. Metal Flashing: 26 gage galvanized steel.

B. Lead Flashing: 5 lb./sq. ft. sheet lead for waterproofing; one lb./sq. ft. sheet lead for soundproofing.

C. Flexible Flashing: 47 mil. thick sheet butyl; compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.05 EQUIPMENT CURBS

A. By equipment manufacturer, when available or fabricate curbs of manufacturer approved material. All curbs shall be insulated.

2.06 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gage galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18 gage steel. All pipe sleeves shall be 2 standard sizes larger than the pipe passing through.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed.

D. Sleeves for Round Ductwork: Form with galvanized steel.

E. Sleeves for Rectangular Ductwork: Form with galvanized steel.

F. Stuffing Insulation: Glass fiber type, non- combustible.

G. Calk: Acrylic sealant.

2.07 FABRICATION

A. Size sleeves large enough to allow for movement due to expansion and contraction, two standard sizes larger than the pipe passing through. Provide for continuous insulation wrapping.

B. Design hangers without disengagement of supported pipe.

C. Provide copper plated hangers and supports for copper piping.

2.08 FINISH

A. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

PART 3 EXECUTION

3.01 INSERTS

A. Provide inserts to Section 03100 for placement in concrete formwork.

B. Where inserts are omitted, drill through concrete slab from below and provide thru-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1/2 to 1-1/4 inch	6'-0"	3/8"
1-1/2 to 2 inch	6'-0"	3/8"
2-1/2 to 3 inch	10'-0"	1/2"
Copper 2 inch and smaller	6'-0"	3/8"
Copper 2 inch and larger	10'-0"	3/8"

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

F. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

G. Support riser piping independently of connected horizontal piping.

3.03 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases of concrete type specified in Section 03100.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct support of steel members. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

3.04 FLASHING

A. Provide flexible flashing and metal counterflashing where piping and ductwork penetrate weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

C. Provide manufacturers curbs for mechanical roof installations. Flexible sheet flash and counterflash with sheet metal; seal watertight.

3.05 SLEEVES

A. Set sleeves in position in formwork. Provide reinforcing around sleeves.

B. Extend sleeves through floors one inch above finished floor level. Calk sleeves full depth and provide floor plate.

C. Where piping or ductwork penetrates floor, ceiling, or wall, close off space between pipe or duct and adjacent work with fire stopping insulation and calk seal. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Identification of mechanical products installed under Division 15.

1.02 RELATED WORK

A. Section 09900 - Painting: Identification painting.

1.03 REFERENCES

A. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems.

1.04 SUBMITTALS

A. Submit product data in accordance with Section 15011H.

B. Submit list of wording, symbols, letter size, and color coding for mechanical identification.

C. Submit typed valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Seton.

B. Emed.

C. W. H. Brady - Signmark

2.02 MATERIALS

A. Color: Unless specified otherwise, conform with ANSI/ASME A13.1.

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light contrasting background color. Seton Setonply Style 2060.

D. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges. Seton Style 250-BL.

E. Stencils: With clean cut symbols and letters of following size:

OUTSIDE DIAMETER OF INSULATION OR PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2-1/2"
Over 10"	32"	3-1/2"
Ductwork and Equipment	---	2-1/2"

F. Stencil Paint: In accordance with Section 09900, semi-gloss enamel. Seton Coverall Pipe Paint Style CPP.

G. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and fluid being conveyed. Seton Setmark pipe markers.

H. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape of not less than 6 inch wide by 4 mil. thick, manufactured for direct burial service. Seton Underground Warning Tapes.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.02 INSTALLATION

A. Plastic Nameplates: Install with corrosive-resistant mechanical fasteners, or adhesive.

B. Metal Tags: Install with corrosive-resistant chain.

C. Stencil Painting: Apply in accordance with Section 09900.

D. Plastic Pipe Markers: Install in accordance with manufacturer's instructions.

E. Plastic Tape Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.

F. Underground Plastic Pipe Markers: Install 6 to 8 inches below finished grade, directly above buried pipe.

G. Equipment: Identify air handling units, pumps, and, tanks, plastic nameplates. Small devices, such as in-line pumps, may be identified with metal tags.

H. Controls: Identify control panels and major control components outside panels with plastic nameplates.

I. Valves: Identify valves in main and branch piping with tags.

J. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping (under 1 1/2 inches). Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction.

K. Ductwork: Identify ductwork with stenciled painting. Identify as to air handling unit number, and area served. Locate identification at air handling unit, at each side of penetration of structure or enclosure, and at each obstruction.

3.03 VALVE CHART AND SCHEDULE

A. Provide typed valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed. Seton Valve Chart Frame #A11P.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Inertia bases.

C. Vibration isolation.

1.02 RELATED WORK

A. Section 15010H - HVAC system.

1.03 REFERENCES

A. ASHRAE - Guide to Average Noise Criteria Curves.

1.04 QUALITY ASSURANCE

A. Maintain ASHRAE criteria for average noise criteria curves for all equipment at full load condition.

1.05 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 15011H.

B. Indicate inertia bases on shop drawings.

C. Indicate vibration isolator locations, with static and dynamic load on each, on shop drawings and described on product data.

D. Submit manufacturer's installation instructions under provisions of Section 15011H.

1.06 CERTIFICATES

A. Submit manufacturer's certificate under provisions of Section 15011H that isolators are properly installed and properly adjusted to meet or exceed specified requirements.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Mason Industries.

2.02 INERTIA BASES

A. Type A: Integral structural steel fan and motor base with motor slide rails.

2.03 VIBRATION ISOLATORS

A. Type 1: Elastomer mount with threaded insert and hold down holes.

B. Type 2: Closed spring mount with top and bottom housing separated with neoprene rubber stabilizers.

2.04 FABRICATION

A. Provide pairs of neoprene side snubbers or restraining springs where side torque or thrust may develop.

B. Color code spring mounts.

C. Select springs to operate at 2/3 maximum compression strain, with 1/4 inch ribbed neoprene pads.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install vibration isolators for motor driven equipment.

B. Set steel bases for one inch clearance between housekeeping pad and base. Set concrete inertia bases for 2 inch clearance. Adjust equipment level.

C. Provide spring isolators on piping connected to isolated equipment as follows: Up to 4 inch diameter, first three points of support; 5 to 8 inch diameter, first four points of support; 10 inch diameter and over, first six points of support. Static deflection of first point shall be twice deflection of isolated equipment.

3.02 SCHEDULE

ISOLATED EQUIPMENT	ISOLATOR Type	Thickness
Condensing Units	Type	1
Air Handlers	Type	2
Fans	Type	2

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Piping insulation.

C. Jackets and accessories.

1.02 RELATED WORK

A. Section 09900 - Painting: Painting insulation jacket.

B. Section 15190H - Mechanical Identification.

1.03 REFERENCES

A. ANSI/ASTM C195 - Mineral Fiber Thermal Insulation Cement.

C. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation.

D. ANSI/ASTM C578 - Preformed, Block Type Cellular Polystyrene Thermal Insulation.

E. ASTM B209 - Aluminum and Aluminum-alloy Sheet and Plate.

F. ASTM C449 - Mineral Fiber Hydraulic-setting Thermal Insulating and Finishing Cement.

G. ASTM E84 - Surface Burning Characteristics of Building Materials.

H. NFPA 255 - Surface Burning Characteristics of Building Materials.

I. UL 723 - Surface Burning Characteristics of Building Materials.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in piping insulation application with three years minimum experience.

B. Materials: Flame spread/fuel contributed/smoke developed rating of 25/-/50 in accordance with NFPA 255, UL 723.

1.05 SUBMITTALS

A. Submit product data in accordance with Section 15011H.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manville.

B. Dow Corning.

C. Certainteed.

2.02 INSULATION

A. Type A: Glass fiber insulation; ANSI/ASTM C547; 'k' value of 0.24 at 75 degrees F; noncombustible. Manville Micro-Loc.

B. Type B: Closed cell insulation; ASTM C0534; 'k' valve of 0.255 at 75 degrees F; noncombustible. Halstead Insul-Tube.

C. Type C: Calcium silicate; ASTM C533; 'k' valve of 0.44 at 300 degrees F. Manville Thermo-12.

2.03 JACKETS

A. Interior Applications:
   1. Vapor Barrier Jackets: Kraft reinforced foil vapor barrier with self-sealing adhesive joints.
   2. Canvas Jackets: UL listed treated cotton fabric, 6 oz/sq. yd.

2.04 ACCESSORIES

A. Insulation Bands: 3/4 inch wide; 0.015 inch thick galvanized steel.

B. Metal Jacket Bands: 3/8 inch wide; 0.015 inch thick aluminum. 0.010 inch thick stainless steel.

C. Insulating Cement: ANSI/ASTM C195; hydraulic setting mineral wool.

D. Finishing Cement: ASTM C449.

E. Fibrous Glass Cloth: Untreated; 9 oz/sq. yd. weight.

F. Adhesives: Compatible with insulation.

PART 3 EXECUTION

3.01 PREPARATION

A. Install materials after piping has been tested and approved.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Continue insulation with vapor barrier through penetrations.

C. In exposed piping, locate insulation and cover seams in least visible locations.

D. On insulated piping with vapor barrier, insulate fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.

E. On insulated piping without vapor barrier and piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation at such locations.

F. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or other heavy density insulating material suitable for the planned temperature range. Factory fabricated inserts may be used.

G. Neatly finish insulation at supports, protrusions, and interruptions.

H. Jackets:

1. Indoor, Concealed Applications: Insulated pipes conveying fluids above ambient temperature shall have standard jackets, with vapor barrier, factory-applied. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass cloth and adhesive.
2. Indoor, Concealed Applications: Insulated dual-temperature pipes or pipes

conveying fluids below ambient temperature shall have vapor barrier jackets, factory-applied. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe, and finish with glass cloth and vapor barrier adhesive.

3. Indoor, Exposed Applications: For pipe exposed in mechanical equipment rooms or in finished spaces, insulate as for concealed applications. Finish with PVC jacket; size for finish painting.

3.03 SCHEDULE

PIPING	TYPE	INSULATION PIPE SIZE Inch	INSULATION THICKNESS Inch
Domestic Cold Water	A	All	1-1/2
Heating Water Supply and Return	A	All	1-1/2
Refrigerant Suction	B	All	1/2
Refrigerant Hot Gas	B	All	1/2
Cooling Coil Condensate	A	All	1-1/2

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Ductwork insulation.

C. Insulation jackets.

1.02 RELATED WORK

A. Section 09900 - Painting: Painting insulation jackets.

B. Section 15190H - Mechanical Identification.

1.03 REFERENCES

A. ANSI/ASTM C553 - Mineral Fiber Blanket and Felt Insulation.

B. ANSI/ASTM C612 - Mineral Fiber Block and Board Thermal Insulation.

C. ASTM E84 - Surface Burning Characteristics of Building Materials.

D. NFPA 255 - Surface Burning Characteristics of Building Materials.

E. UL 723 - Surface Burning Characteristics of Building Materials.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in ductwork insulation application with three years minimum experience.

B. Materials: UL listed; flame spread/fuel contributed/smoke developed rating of 25/-/50 in accordance with NFPA 255, UL 723.

1.05 SUBMITTALS

A. Submit product data in accordance with Section 15011H.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - INSULATION

A. Knauf.

B. Johns Manville.

C. Certainteed.

2.02 MATERIALS

A. Type A: Flexible glass fiber; ANSI/ASTM C612; commercial grade; 'k' value of 0.29 at 75 degrees F; foil scrim facing for air conditioning ducts. Knauf Duct Wrap with Commercial Foil Skrim (FCK) .75 PCF.

B. Type B: Rigid glass fiber; ANSI/ASTM C612, Class 1; 'k' value of 0.24 at 75 degrees F; 0.002 inch foil scrim facing for air conditioning ducts. Knauf Air Duct.

C. Type C: Flexible glass fiber; ANSI/ASTM C553; 'k' value of 0.24 at 75 degrees F; 1.5 lb./cu. ft.; coated air side for maximum 4,000 ft./min. air velocity Knauf Duct Liner.

D. Adhesives: Waterproof fire-retardant type.

E. Indoor Jacket: 6 oz./sq. yd. canvas. Presized glass cloth, minimum 7.8 oz./sq. yd.

F. Outdoor Jacket: Coated glass fiber sheet, 30 lb./sq. yd.

G. Lagging Adhesive: Fire resistive to NFPA 255, UL 723.

H. Impale Anchors: Galvanized steel, 12 gage, self- adhesive pad.

I. Joint Tape: Glass fiber cloth, open mesh.

J. Tie Wire: Annealed steel, 16 gage.

PART 3 EXECUTION

3.01 PREPARATION

A. Install materials after ductwork has been tested and approved.

B. Clean surfaces for adhesives.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Provide insulation with vapor barrier when air conveyed may be below ambient temperature.

C. Exterior Insulation (Type A or Type B) Application:
1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
2. Secure insulation without vapor barrier with staples, tape, or wires.
3. Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.

D. Liner (Type C) Application:
1. Adhere insulation with adhesive for 100 percent coverage. Secure insulation with mechanical fasteners on 15-inch centers maximum on top and side of ductwork with dimension exceeding 20 inches. Seal and smooth joints. Do not use nail-type fasteners. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
2. Ductwork dimensions indicated are net inside dimensions required for air flow. Increase ductwork to allow for insulation thickness.

E. Walk-in Plenum Application:
1. Adhere insulation on interior surface of plenum with adhesive for 100 percent coverage. Secure insulation with mechanical fasteners. Seal and smooth joints. Do not use nail- type fasteners.

F. Continue insulation with vapor barrier through penetrations.

3.03 SCHEDULE

A. Insulation shall be as per below schedule unless specifically stated otherwise in the contract drawings.

DUCTWORK	INSULATION TYPE	THICKNESS Inch	FINISH
Exhaust Ducts Within 10 ft. of Exterior Openings and Exhaust Ducts	A	1"	Foil

Exposed to Outdoor Air			
Outside Air Intake Ducts	A	1-1/2"	Foil
Plenums	B	1"	Foil
Plenums (Cooling System)	B	1"	Foil
Supply Ducts	A	1-1/2"	Foil
Return Ducts	A	1-1/2"	Foil
Internal Acoustic Lining	C	1"	Mat
Internal Lining in Supply Ducts	C	1"	Mat
Relief Ducts in Mechanical Rooms	A	1"	Foil

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Pipe and pipe fittings.

C. Valves.

D. Heating water piping system.

1.02 RELATED WORK

A. Section 08305 - Access Doors.

B. Section 09900 - Painting.

C. Section 15121H - Expansion Compensation.

D. Section 15140H - Supports and Anchors.

E. Section 15190H - Mechanical Identification.

F. Section 15260H - Piping Insulation.

1.03 REFERENCES

A. ANSI/ASME - Boiler and Pressure Vessel Code.

B. ANSI/ASME Sec 9 - Welding and Brazing Qualifications.

C. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings Class 150 and 300.

D. ANSI/ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV.

E. ANSI/ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.

F. ANSI/ASME B31.9 - Building Services Piping.

G. ANSI/AWS A5.8 - Brazing Filler Metal.

H. ANSI/AWS D1.1 - Structural Welding Code.

I. ASTM A53 - Pipe, Steel, Black and Hot-Dipped Zinc Coated, Welded and Seamless.

J. ASTM A1 20 - Pipe, Steel, Black and Hot-Dipped Zinc Coated (Galvanized), Welded and Seamless, for Ordinary Uses.

K. ASTM A234 - Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures.

L. ASTM B32 - Solder Metal.

M. ASTM B88 - Seamless Copper Water Tube.

1.04 REGULATORY REQUIREMENTS

A. Conform to ANSI/ASME B31.9.

1.05 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Welding Materials and Procedures: Conform to ANSI/ASME SEC 9 and applicable state labor regulations.

C. Welders Certification: In accordance with ANSI/ASME SEC 9.

1.06 SUBMITTALS

A. Submit product data in accordance with Section 15011H.

B. Include data on pipe materials, pipe fittings, valves, and accessories.

C. Include welders certification of compliance with ANSI/ASME SEC 9.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

C. Deliver and store valves in shipping containers with labelling in place.

PART 2 PRODUCTS

2.01 HEATING WATER ABOVE GROUND

A. Copper Tubing: ASTM B88, Type L, hard drawn.
   1. Fittings: ANSI/ASME B16.23 cast brass of ANSI/ASME B16.29 solder wrought copper.

   2. Joints: ASTM B32, solder, Grade 95TA.

2.02 CONDENSATE WATER PIPING, ABOVE GROUND

A. Copper Tubing: ASTM B88, Type L, hard drawn.
   1. Fittings: ANSI/ASME B16.23 cast brass, or ANSI/ASME B16.29 solder wrought copper.
   2. Joints: ASTM B32, solder, Grade 95TA.

2.03 EQUIPMENT DRAINS AND OVERFLOWS

A. Copper Tubing: ASTM B88, Type L, hard drawn.
   1. Fittings: ANSI/ASME B16.23 cast brass, or ANSI/ASME B16.29 solder wrought copper.
   2. Joints: ASTM B32, solder, Grade 95TA.

2.04 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 2 Inches and Under: 150 psig malleable iron unions for threaded ferrous piping; bronze unions for copper pipe, soldered joints.

B. Pipe Size Over 2 Inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping.

C. Grooved and Shouldered Pipe End Couplings: Malleable iron housing clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; C-shape elastomer composition sealing gasket for operating temperature range from -30 degrees F to 230 degrees F; steel bolts, nuts, and washers; galvanized couplings for galvanized pipe.

2.05 ACCEPTABLE MANUFACTURERS - GATE VALVES

A. Nibco Model T-113.
B. American Model 325.
C. Watts Model GV, GVS.

2.06 GATE VALVES

A. Up to 2 Inches: Bronze body, bronze trim, rising stem, handwheel, inside screw, double wedge or disc, solder or threaded ends.

B. Over 2 Inches: Iron body, bronze trim, rising stem, handwheel, OS&Y, single or double wedge, flanged ends.

2.07 ACCEPTABLE MANUFACTURERS - GLOBE VALVES

A. Watts Model GLV.

B. American Fig. 13.

C. Nibco Model T-21.

2.08 GLOBE VALVES

A. Up to 2 Inches: Bronze body, bronze trim, rising stem and handwheel, inside screw, renewable composition disc, solder or screwed ends, with backseating capacity.

B. Over 2 Inches: Iron body, bronze trim, rising stem, handwheel, OS&Y, plug-type disc, flanged ends, renewable seat and disc.

2.09 ACCEPTABLE MANUFACTURERS - BALL VALVES

A. Appolo - Conbraco Model 70-100.

B. Nibco Mode 585.

C. Watts Model G-6400.

2.10 BALL VALVES

A. Up to 2 Inches: Bronze Chromium plated ball, teflon seats and stuffing box ring, lever handle, solder or threaded ends.

B. Over 2 Inches: Cast steel body, chrome plated steel ball, teflon seat and stuffing box seals, lever handle, flanged.

2.11 ACCEPTABLE MANUFACTURERS - SWING CHECK VALVES

A. Watts Model CV.

B. Nibco Model T-480.

C. Jenkins.

2.12 SWING CHECK VALVES

A. Up to 2 Inches: Bronze 22 degree swing disc, solder or screwed ends.

B. Over 2 Inches: Iron body, bronze trim, 22 degree swing disc, renewable disc and seat, flanged ends.

2.13 ACCEPTABLE MANUFACTURERS - SPRING LOADED CHECK VALVES

A. Watts Model CV.

B. Nibco Model T-480.

2.14 SPRING LOADED CHECK VALVES

A. Iron body, bronze trim, stainless steel spring, renewable composition disc, screwed, wafer or flanged ends.

2.15 ACCEPTABLE MANUFACTURERS - RELIEF VALVES

A. Watts.

B. B & G.

2.16 RELIEF VALVES

A. Bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labelled.

PART 3 EXECUTION

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. After completion, fill, clean, and treat systems.

3.02 INSTALLATION

A. Route piping in orderly manner, plumb and parallel to building structure, and maintain gradient.

B. Install piping to conserve building space, and not interfere with use of space and other work. Run all piping concealed.

C. Group piping whenever practical at common elevations.

D. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 15121.

E. Provide clearance for installation of insulation, and access to valves and fittings.

F. Provide access where valves and fittings are not exposed.

G. Slope piping and arrange systems to drain at low points. Use eccentric reducers to maintain top of pipe level.

H. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

I. Prepare pipe, fittings, supports, and accessories for finish painting. Refer to Section 09900.

J. Install valves with stems upright or horizontal, not inverted.

3.03 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe.

D. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.

E. Install ball valves for throttling, bypass, or manual flow control services.

F. Provide spring loaded check valves on discharge of condenser water pumps.

G. Use plug cocks for throttling service. Use non-lubricated plug cocks only when shut-off or isolating valves are also provided.

H. Use only butterfly valves in chilled and condenser water systems for throttling and isolation service.

I. Use lug end butterfly valves to isolate equipment.

J. Provide 3/4 inch gate drain valves at main shut-off valves, low points of piping, bases of vertical risers, and at equipment. Pipe to nearest drain.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Low pressure ducts.

C. Dryer ducts and kitchen exhaust hood ductwork.

D. Duct cleaning.

1.02 RELATED WORK

A. Section 09900 - Painting: Weld priming, weather resistant, paint or coating.

B. Section 15140H - Supports and Anchors: Sleeves.

C. Section 15290H - Duct Insulation.

D. Section 15910H - Ductwork Accessories.

E. Section 15990H - Testing, Adjusting and Balancing.

1.03 REFERENCES

A. ASHRAE - Handbook 1981 Fundamentals; Chapter 33 - Duct Design.

B. ASHRAE - Handbook 1983 Equipment; Chapter 1 - Duct Construction.

C. ASTM A 90 - Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles.

D. ASTM A 167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

E. ASTM A 525 - General Requirements for Steel Sheet, Zinc- Coated (Galvanized) by the Hot-Dip Process.

F. ASTM A 527 - Steel Sheet, Zinc-Coated (Galvanized) by Hot-Dip Process, Lock Forming Quality.

G. ASTM B209 - Aluminum and Aluminum Alloy Sheet and Plate.

H. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

I. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.

J. SMACNA - Low Pressure Duct Construction Standards.

K. UL 181 - Factory-Made Air Ducts and Connectors.

1.04 DEFINITIONS

A. Duct Sizes: Inside clear dimensions. For lined ducts, maintain sizes inside lining.

B. Low Pressure: Three pressure classifications: 1/2 inch WG positive or negative static pressure and velocities less than 2,000 fpm; 1 inch WG positive or negative static pressure and velocities less than 2,500 fpm and 2 inch WG positive or negative static pressure and velocities less than 2,500 fpm.

1.05 REGULATORY REQUIREMENTS

A. Construct ductwork to NFPA 90A and NFPA 90B and NFPA 96 standards as applicable.

1.06 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011H.

B. Indicate duct fittings, particulars such as gages, sizes, welds, and configuration prior to start of work.

C. Submit samples.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Non-combustible or conforming to requirements for Class 1 air duct materials, or UL 181.

B. Steel Ducts: ASTM A525 or ASTM A527 galvanized steel sheet, lock-forming quality, having zinc coating of 1.25 oz. per sq. ft. for each side in conformance with ASTM A90.

C. Fasteners: Rivets, bolts, or sheet metal screws.

D. Sealant: Non-hardening, water resistant, fire resistive, compatible with mating materials; liquid used alone or with tape, or heavy mastic.

E. Hanger Rod: Steel, galvanized; threaded both ends, threaded one end, or continuously threaded.

2.02 LOW PRESSURE DUCTWORK

A. Fabricate and support in accordance with SMACNA Low Pressure Duct Construction Standards and ASHRAE handbooks, except as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts. No variation of duct configuration or sizes permitted except by written permission of architect/engineer.

C. Construct T's, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows are used, provide air foil turning vanes. Where acoustical lining is indicated, provide turning vanes of perforated metal with glass fiber insulation.

D. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible. Divergence upstream of equipment shall not exceed 30 degrees; convergence downstream shall not exceed 45 degrees.

E. Provide easements where low pressure ductwork conflicts with piping and structure. Where easements exceed 10 percent duct area, split into two ducts maintaining original duct area.

F. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.

G. Use double nuts and lock washers on threaded rod supports.

H. Provide and install flanges, sleeves, transitions as required for the installation of coils in ductwork, conform to SMACNA for construction.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pitot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure against air leakage. Where

openings are provided in insulated ductwork, install insulation material inside a metal ring.

B. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.

C. Set plenum doors 6 to 12 inches above floor. Arrange door swings so that fan static pressure holds door in closed position.

D. Provide residue traps in kitchen hood exhaust ducts at base of vertical risers with provisions for cleanout. Use stainless steel for ductwork exposed to view and stainless steel or galvanized steel for ducts where concealed.

E. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.

3.02 DUCTWORK APPLICATION SCHEDULE

AIR SYSTEM	MATERIAL
Low Pressure Supply (Heating Systems)	Steel
Low Pressure Supply (System with Cooling Coils)	Steel
Return and Relief	Steel
General Exhaust	Steel
Outside Air Intake	Steel
Combustion Air	Steel

3.03 ADJUSTING AND CLEANING

A. Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.

B. Clean duct systems with high power vacuum machines. Protect equipment which may be harmed by excessive dirt with filters, or bypass during cleaning. Provide adequate access into ductwork for cleaning purposes.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Volume control dampers.

C. Fire dampers.

D. Backdraft dampers.

E. Air turning devices.

F. Flexible duct connections.

G. Duct access doors.

H. Duct test holes.

1.02 RELATED WORK

A. Section 15890H - Ductwork.

1.03 REFERENCES

A. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

B. SMACNA - Low Pressure Duct Construction Standards.

C. UL 33 - Heat Responsive lINKS for Fire-Protection Service.

D. UL 555 - Fire Dampers and Ceiling Dampers.

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011H.

B. Provide shop drawings for shop fabricated assemblies indicated, including volume control dampers duct access doors, duct test holes.

C. Submit manufacturer's installation instructions for fire dampers.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - Volume Control Damper

A. Air Balance.

B. Arlan Model OBD

2.02 VOLUME CONTROL DAMPERS.

A. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards, and as indicated.

B. Fabricate splitter dampers of material same gage as duct to 24 inches size in either direction, and two gages heavier for sizes over 24 inches.

C. Fabricate splitter dampers of double thickness sheet metal to streamline shape. Secure blade with continuous hinge or rod. Operate with minimum 1/4 inch diameter rod in self aligning, universal joint action flanged bushing with set screw.

D. Fabricate single blade dampers for duct sizes to 9-1/2 x 30 inch.

E. Fabricate multi-blade damper of opposed blade pattern with maximum blade sizes 12 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.

F. Except in round ductwork 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon or sintered bronze bearings.

G. Provide locking, indicating quadrant regulators on single and multi-blade dampers.

H. On insulated ducts mount quadrant regulators on stand-off mounting brackets, bases, or adapters.

2.03 ACCEPTABLE MANUFACTURERS - FIRE DAMPERS

A. Air Balance.

B. Arlan Model UL10.

2.04 FIRE DAMPERS

A. Fabricate in accordance with NFPA 90A and UL 555, and as indicated.

B. Fabricate ceiling firestop flaps of galvanized steel, 22 gage frame and 16 gage flap, two layers 0.125 inch ceramic fiber on top side, with locking clip.

C. Fabricate ceiling dampers of galvanized steel, 22 gage frame, stainless steel closure spring, and light weight, heat retardant non-asbestos fabric blanket closure.

D. Fabricate curtain type dampers of galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for horizontal installations. Configure with blades out of air stream except for low pressure ducts up to 12 inches in height.

E. Fabricate multiple blade fire dampers with 16 gage galvanized steel frame and blades, oil-impregnated bronze or stainless steel sleeve bearings and plated steel axles, 1/8 x 1/2 inch plated steel concealed linkage, stainless steel closure spring, blade stops, and lock.

F. Fusible links, UL 33, shall separate at 160 degrees F. Provide adjustable link straps for combination fire/balancing dampers.

2.05 BACKDRAFT DAMPERS - Arlan Model BDD or equal.

A. Gravity backdraft dampers, size 18 x 18 inches or smaller, furnished with air moving equipment, may be air moving equipment manufacturers standard construction.

B. Fabricate multi-blade, parallel action gravity balanced backdraft dampers of 16 gage galvanized steel, with center pivoted blades of maximum 6 inch width, with felt or flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit setting for varying differential static pressure.

2.06 AIR TURNING DEVICES

A. Multi-blade device with blades aligned in short dimension; steel or aluminum construction; with individually adjustable blades, mounting straps.

2.07 FLEXIBLE DUCT CONNECTIONS

A. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards, and as indicated.

B. UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 90A, minimum density 36 oz. per sq. yd., approximately 2 inches, crimped into metal edging strip.

2.08 DUCT ACCESS DOORS - Arlan Fire Limit Model 50A insulated or equal.

A. Fabricate in accordance with SMACNA Low Pressure Duct Construction Standards and as indicated.

B. Review locations prior to fabrication.

C. Fabricate rigid and close-fitting doors of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ductwork, install minimum one inch thick insulation with sheet metal cover.

D. Access doors smaller than 12 inches square may be secured with sash locks.

E. Provide two hinges and two sash locks for sizes up to 18 inches square, three hinges and two compression latches with outside and inside handles for sizes up to 24 x 48 inches. Provide an additional hinge for larger sizes.

F. Access doors with sheet metal screw fasteners are not acceptable.

2.09 DUCT TEST HOLES

A. Cut or drill temporary test holes in ducts as required. Cap with neat patches, neoprene plugs, threaded plugs, or threaded or twist-on metal caps.

B. Permanent test holes shall be factory fabricated, air tight flanged fittings with screw cap. Provide extended neck fittings to clear insulation.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install accessories in accordance with manufacturer's instructions.

B. Provide balancing dampers at points on low pressure supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Use splitter dampers only where indicated.

C. Provide balancing dampers on medium and high pressure systems where indicated.

D. Provide fire dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by authorities having jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant springs, bearings, bushings and hinges.

E. Demonstrate re-setting of fire dampers to authorities having jurisdiction and Owner's representative.

F. Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.

G. Provide flexible connections immediately adjacent to equipment in ducts associated

with fans and motorized equipment.

H. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, and elsewhere as indicated. Provide minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated.

I. Provide duct test holes where indicated and required for testing and balancing purposes.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Diffusers.

C. Grilles.

D. Louvers.

1.02 RELATED WORK

A. Section 09900 - Painting: Painting of ductwork visible behind outlets and inlets.

1.03 REFERENCES

A. ADC 1062 - Certification, Rating and Test Manual.

B. AMCA 500 - Test Method for Louvers, Dampers and Shutters.

C. ANSI/NFPA 90A - Installation of Air Conditioning and Ventilating Systems.

D. ARI 650 - Air Outlets and Inlets.

E. ASHRAE 70 - Method of Testing for Rating the Air Flow Performance of Outlets and Inlets.

F. SMACNA - Low Pressure Duct Construction Standard.

1.04 QUALITY ASSURANCE

A. Test and rate performance of air outlets and inlets in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.

B. Test and rate performance of louvers in accordance with AMCA 500.

1.05 REGULATORY REQUIREMENTS

A. Conform to ANSI/NFPA 90A.

1.06 SUBMITTALS

A. Submit product data in accordance with Section 15011H.

B. Provide product data for items required for this project.

C. Submit schedule of outlets and inlets indicating type, size, location, application, and noise level.

D. Review requirements of outlets and inlets as to size, finish, and type of mounting prior to submitting product data and schedules of outlets and inlets.

E. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - CEILING DIFFUSERS

A. Titus.

B. Tuttle & Bailey.

C. Carnes.

2.02 SQUARE CEILING DIFFUSERS

A. Square, adjustable pattern, stamped, multicore type diffuser to discharge air in 360 degree pattern with sectorizing baffles where indicated.

B. Provide snap-in inverted T-bar type frame as required by ceiling construction.

C. Fabricate of steel with baked enamel finish. Color by Architect.

2.03 ACCEPTABLE MANUFACTURERS - GRILLES

A. Titus.

B. Tuttle & Bailey.

C. Carnes.

2.04 CEILING SUPPLY REGISTERS/GRILLES

A. Streamlined and individually adjustable curved blades to discharge air along face of grille. Paint finish to be baked enamel. Color by Architect.

2.05 CEILING EXHAUST AND RETURN REGISTERS/GRILLES

A. Streamlined blades, depth of which exceeds 3/4 inch spacing, with spring or other device to set blades. Finish to be baked enamel. Color by Architect.

2.06 ACCEPTABLE MANUFACTURERS - LOUVERS

A. Titus.

B. Carnes.

C. Grillmaster.

2.07 LOUVERS

A. Provide 6-inch-deep louvers with blades on 45-degree slope with center baffle and return bend, heavy channel frame, birdscreen with 1/2-inch square mesh for exhaust and 3/4 inch for intake.

B. Fabricate of 12 gage extruded aluminum, welded assembly, with factory prime coat Kaynar 500 fluoro-polymer finish. Color by Architect.

C. Furnish with interior angle flange jambs and exterior flat flange for installation.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install items in accordance with manufacturers' instructions.

B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement. Refer to Section 09900.

C. Install diffusers to ductwork with air tight connection.

D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, regardless of whether dampers are specified as part of the diffuser, or grille and register assembly.

E. Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 9A.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Complete system of automatic controls.

C. Electric control system.

D. Electronic control system.

E. Control devices, components, wiring and material.

F. Instructions for Owners.

G. Comply with requirements of electrical specifications.

1.02 RELATED WORK

A. Section 15910H - Ductwork Accessories.

B. Section 16010E - General Provisions Electrical.

1.03 REFERENCES

A. Not used.

1.04 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011H.

B. Provide damper shop drawings which show data such as arrangement, velocities, and static pressure drops for each system.

C. Provide complete operating data, system drawings, wiring diagrams, and written detailed operational description of sequences, and description and engineering data on each control system component. Include sizing as requested.

D. At completion of work, submit report of check-out of automatic control system.

E. Provide control diagrams for each system, framed under glass for wall mounting.

F. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Honeywell.

B. Johnson.

C. Lennox.

2.02 SYSTEM REQUIREMENTS

A. Provide control systems consisting of thermostats, control valves, dampers, operators, indicating devices, interface equipment, and other apparatus required to operate mechanical systems and to perform functions specified. Refer to drawings for control requirements.

B. Provide necessary materials and fieldwork necessary to connect control components factory supplied as part of equipment controlled, unless specified otherwise. Generally, self- contained valves, filter gauges, liquid level controllers and similar instruments are not to be installed under this Section.

C. Unless specified otherwise, provide fully proportional components.

2.04 CONTROL VALVES

A. Provide valves in accordance with general valve specification. Provide position indicators on valves and pilot positions on sequenced valves.

B. Select valves to fail safe in normally open or closed position as dictated by freeze, humidity, fire, or temperature protection.

C. Select two-way valves for liquids to have equal percentage characteristics. Select three-way valves to have linear characteristics. Size valve operators to close valves against pump shut off head. Size for maximum 3 psi drop.

PART 3 EXECUTION

3.01 INSTALLATION

A. Check and verify location of thermostats and other exposed control sensors with plans and room details before installation. Locate thermostats 60 inches above floor.

B. Interlock alarms with starter switching to bypass alarm when equipment is manually disconnected. Provide all starters and on-off switches.

C. At completion of installation provide minimum of 27 days instruction period for operating personnel.

D. Provide for complete service of controls system, including call-backs, for one year running concurrent with connection period.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Flow meters.

C. Pressure gages and pressure gage taps.

D. Thermometers and thermometer wells.

E. Static pressure and filter gages.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Section 15510H - Hydronic Piping: Installation of thermometer wells, pressure gage tappings.

1.03 RELATED SECTIONS

A. Section 15952H - Controls and Instrumentation.

B. Section 15985H - Sequence of Operation.

C. Section 15990H - Testing, Adjusting and Balancing.

1.04 REFERENCES

A. ASME B40.1 - Gages - Pressure Indicating Dial Type - Elastic Element.

B. ASME MFC-3M - Measurement of Fluid Flow in Pipes Using Orifice, Nozzle and Venturi.

C. ASTM D2458 - Method of Flow Measurement by The Venturi Motor Tube.

D. ASTM E1 - Specification for ASTM Thermometers.

E. ASTM E77 - Verification and Calibration of Liquid-in-Glass Thermometers.

F. AWWA C706 - Direct Reading Remote Registration Systems for Cold Water Meters.

G. AWWA M6 - Water Meters - Selection, Installation, Testing, and Maintenance.

H. FS-GG-G-76 - Gages, Pressure and Vacuum, Dial Indicating (for Air, Steam, Oil,

Water, Ammonia, Chloro- Flourhydrocarbon Gases, and Compressed Gases).

I. ISA RP 3.2 - Flange Mounted Sharp Edged Orifice Plates for Flow Measurement

J. UL 393 - Indicating Pressure Gages for Fire and Protection Services.

K. UL 404 - Gages, Indicating Pressure, for Compressed Gas Service.

1.05 SUBMITTALS

A. Submit under provisions of Section 15011H.

B. Product Data: Include list which indicates use, operating range, total range and location for manufactured components.

C. Submit manufacturer's installation instructions under provisions of Section 15011H.

1.06 PROJECT RECORD DOCUMENTS

A. Submit "as-built" record documents.

B. Accurately record actual locations of instrumentation.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Marshalltown.

2.02 PRESSURE GAGES

A. ASME B40.1, UL 393, UL 404 2-1/2 inch diameter drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background, one percent mid-scale accuracy, scale calibrated in psi, Fig. 83K manufactured by Marshalltown.

2.03 PRESSURE GAGE TAPS

A. Gage Cock: Lever handle, brass for maximum 150 psig, Fig. 125 manufactured by Marshalltown.

B. Needle Valve: Steel for maximum 150 psig, Fig. 200 manufactured by Marshalltown.

C. Pulsation Damper: Pressure snubber, brass with 1/4 inch connections, Fig. 129 manufactured by Marshalltown.

D. Syphon: Steel, Schedule 40, 1/4 inch angle or straight pattern, Model 126 or 127 manufactured by Marshalltown.

2.06 STEM TYPE THERMOMETERS

A. ASTM E1, 9 inch scale, red appearing mercury, lens front tube, cast aluminum case with enamel finish and clear glass or polycarbonate window, brass stem, 2 percent of scale accuracy to ASTM E77 scale calibrated in degrees F, 91000 Series manufactured by Marshalltown.

2.07 DIAL THERMOMETERS

A. ASTM E1, 3-1/2 inch diameter dial in steel case, bimetallic helix actuated with silicone fluid damping, white with black markings and black pointer hermetically sealed lens, stainless steel stem, one percent of full scale accuracy, calibrated in degrees F, Model SJ Series manufactured by Marshalltown.

2.08 THERMOMETER SUPPORTS

A. Socket: Brass separable sockets for thermometer stems with or without extensions as required, and with cap and chain.

B. Flange: 3 inch outside diameter reversible flange, designed to fasten to sheet metal air ducts, with brass perforated stem.

2.09 TEST PLUGS

A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with neoprene core for temperatures up to 200 degrees F.

B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gages, one gage adapter with 1/8 inch probes, two one inch dial thermometers.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide one pressure gage per pump, installing taps before strainers and on suction and discharge of pump. Pipe to gage.

C. Install pressure gages with pulsation dampers. Provide gage cock to isolate each gage.

D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets.

E. Install thermometers in air duct systems on flanges.

F. Install thermometer sockets adjacent to controls system thermostat, transmitter, or sensor sockets. Refer to Section 15975. Where thermometers are provided on local panels, duct or pipe mounted thermometers are not required.

G. Locate duct mounted thermometers minimum 10 feet downstream of mixing dampers, coils, or other devices causing air turbulence.

I. Coil and conceal excess capillary on remote element instruments.

J. Provide instruments with scale ranges selected according to service with largest appropriate scale.

K. Install gages and thermometers in locations where they are easily read from normal operating level.

L. Locate test plugs adjacent to thermometers and thermometer sockets, adjacent to pressure gages and pressure gage taps, adjacent to control device sockets.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Testing, adjustment, and balancing of air systems.

C. Testing, adjustment, and balancing of hydronic systems.

D. Measurement of final operating condition of HVAC systems.

1.02 RELATED SECTIONS

A. Section 15556H - Cast Iron Boilers.

B. Section 15671H - Air Cooled Condensing Units.

C. Section 15855H - Air Handling Units with Coils.

D. Section 15870H - Power Ventilators.

E. Section 15890H - Ductwork.

F. Section 15910H - Ductwork Accessories.

G. Section 15952H - Controls and Instrumentation: Controls, compressors, and sequence of operation.

1.03 REFERENCES

A. AABC - National Standards for Field Measurement and Instrumentation, Total System Balance.

B. ASHRAE - 1984 Systems Handbook: Chapter 37, Testing, Adjusting and Balancing.

C. NEBB - Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.

1.04 SUBMITTALS

A. Submit name of adjusting and balancing agency for approval within 30 days after award of Contract.

B. Submit test reports as a submittal in accordance with Section 15011H.

C. Prior to commencing work, submit draft reports indicating adjusting, balancing, and equipment data required.

D. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.

E. Provide reports in soft cover, letter size, 3-ring binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

F. Include detailed procedures, agenda, sample report forms, prior to commencing system balance.

1.06 REPORT FORMS

A. Submit reports on AABC National Standards for Total System Balance.

B. Forms shall include the following information:
   1. Title Page:
      a. Company name
      b. Company address
      c. Company telephone number
      d. Project name
      e. Project location
      f. Project Architect
      g. Project Engineer
      h. Project Contractor
      i. Project altitude
   2. Instrument List:
      a. Instrument
      b. Manufacturer
      c. Model
      d. Serial number
      e. Range
      f. Calibration date
   3. Air Moving Equipment:
      a. Location
      b. Manufacturer
      c. Model
      d. Air flow, specified and actual
      e. Return air flow, specified and actual

f. Outside air flow, specified and actual
g. Total static pressure (total external), specified and actual
h. Inlet pressure
i. Discharge pressure
j. Fan RPM

4. Exhaust Fan Data:
   a. Location
   b. Manufacturer
   c. Model
   d. Air flow, specified and actual
   e. Total static pressure (total external), specified and actual
   f. Inlet pressure
   g. Discharge pressure
   h. Fan RPM
5. Return Air/Outside Air Data:
   a. Identification/location
   b. Design air flow
   c. Actual air flow
   d. Design return air flow
   e. Actual return air flow
   f. Design outside air flow
   g. Actual outside air flow
   h. Return air temperature
   i. Outside air temperature
   j. Required mixed air temperature
   k. Actual mixed air temperature
   l. Design outside/return air ratio
   m. Actual outside/return air ratio
6. Electric Motors:
   a. Manufacturer
   b. HP/BHP
   c. Phase, voltage, amperage; nameplate, actual, no load.
   d. RPM
   e. Service factor
   f. Starter size, rating, heater elements
7. V-Belt Drive:
   a. Identification/location
   b. Required driven RPM
   c. Driven sheave, diameter and RPM
   d. Belt, size and quantity
   e. Motor sheave, diameter and RPM
   f. Center to center distance, maximum, minimum, and actual
8. Duct Traverse:
   a. System zone/branch
   b. Duct size

c. Area
d. Design velocity
e. Design air flow
f. Test velocity
g. Test air flow
h. Duct static pressure
i. Air temperature
j. Air correction factor

9. Air Monitoring Station Data:
   a. Identification/location
   b. System
   c. Size
   d. Area
   e. Design velocity
   f. Design air flow
   g. Test velocity
   h. Test air flow
10. Pump Data:
   a. Identification/number
   b. Manufacturer
   c. Size/model
   d. Impeller
   e. Service
   f. Design flow rate, pressure drop, BHP
   g. Actual flow rate, pressure drop, BHP
   h. Discharge pressure
   i. Suction pressure
   j. Total operating head pressure
   k. Shut off, discharge and suction pressures
   l. Shut off, total head pressure
11. Cooling Coil Data:
   a. Identification/number
   b. Location
   c. Service
   d. Manufacturer
   e. Air flow, design and actual
   f. Entering air DB temperature, design and actual
   g. Entering air WB temperature, design and actual
   h. Leaving air DB temperature, design and actual
   i. Leaving air WB temperature, design and actual
   j. Water flow, design and actual
   k. Water pressure drop, design and actual
   l. Entering water temperature, design and actual
   m. Leaving water temperature, design and actual
   n. Air pressure drop, design and actual

12. Flow Measuring Station:
    a. Identification/station
    b. Location
    c. Size
    d. Manufacturer
    e. Model
    f. Design flow rate
    g. Design pressure drop
    h. Actual/final pressure drop
    i. Actual/final flow rate
    j. Station calibrated setting
13. Duct Leak Test:
    a. Description of ductwork under test
    b. Duct design operating pressure
    c. Duct design test static pressure
    d. Duct capacity, air flow
    e. Maximum allowable leakage duct capacity times leak factor
    f. Test apparatus
        1) Blower
        2) Orifice, tube size
        3) Orifice size
        4) Calibrated
    g. Test static pressure
    h. Test orifice differential pressure
    i. Leakage
14. Combustion Test:
    a. Boiler manufacturer
    b. Model
    c. Firing rate
    d. Overfire draft
    e. Gas meter timing dial size
    f. Gas meter time per revolution
    g. Gas pressure at meter outlet
    h. Gas flow rate
    i. Heat input
    j. Burner manifold gas pressure
    k. Percent carbon monoxide (CO)
    l. Percent carbon dioxide (CO2)
    m. Percent oxygen (O2)
    n. Percent excess air
    o. Flue gas temperature at outlet
    p. Ambient temperature
    q. Net stack temperature
    r. Percent stack loss
    s. Percent combustion efficiency

t. Heat output

1.07 PROJECT RECORD DOCUMENTS

A. Submit record documents.

B. Accurately record actual locations of flow measuring stations, balancing valves and rough setting.

1.08 QUALITY ASSURANCE

A. Agency shall be company specializing in the adjusting and balancing of systems specified in this Section with minimum three years experience. Perform Work under supervision of Balancing and Adjusting Supervisor.

B. Total system balance shall be performed in accordance with AABC National Standards for Field Measurement and Instrumentation, Total System Balance. ASHRAE - 1984 Systems Handbook.

1.09 SEQUENCING AND SCHEDULING

A. Sequence work.

B. Schedule work.

C. Sequence work to commence after completion of systems and schedule completion of work before Substantial Completion of Project.

D. Schedule and provide assistance in final adjustment and test of life safety system with Fire Authority.

PART 2 PRODUCTS Not Used

PART 3 EXECUTION

3.01 EXAMINATION

A. Before commencing work, verify that systems are complete and operable. Ensure the following:
1. Equipment is operable and in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.

5. Duct systems are clean of debris.
6. Correct fan rotation.
7. Fire and volume dampers are in place and open.
8. Coil fins have been cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Duct system leakage has been minimized.
12. Hydronic systems have been flushed, filled, and vented.
13. Correct pump rotation.
14. Proper strainer baskets are clean and in place.
15. Service and balance valves are open.

B. Report any defects or deficiencies noted during performance of services to Architect/Engineer.

C. Promptly report abnormal conditions in mechanical systems or conditions which prevent system balance.

D. If, for design reasons, system cannot be properly balanced, report as soon as observed.

E. Beginning of work means acceptance of existing conditions.

3.02 PREPARATION

A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect/Engineer to facilitate spot checks during testing.

B. Provide additional balancing devices as required.

3.03 INSTALLATION TOLERANCES

A. Adjust air handling systems to plus or minus 5 percent for supply systems and plus or minus 10 percent for return and exhaust systems from figures indicated.

B. Adjust hydronic systems to plus or minus 10 percent of design conditions indicated.

3.04 ADJUSTING

A. Adjust work.

B. Recorded data shall represent actually measured, or observed condition.

C. Permanently mark settings of valves, dampers, and other adjustment devices allowing

settings to be restored. Set and lock memory stops.

D. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.

E. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

F. At final inspection, recheck random selections of data recorded in report. Recheck points or areas as selected and witnessed by the Owner.

G. Check and adjust systems approximately six months after final acceptance and submit report.

3.05 AIR SYSTEM PROCEDURE

A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities.

B. Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.

C. Measure air quantities at air inlets and outlets.

D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.

E. Use volume control devices to regulate air quantities only to extent that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.

F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.

G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.

H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.

I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.

J. Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.

K. Where modulating dampers are provided, take measurements and balance at extreme conditions.

L. Measure building static pressure and adjust supply, return, and exhaust air systems to provide required relationship between each to maintain approximately 0.05 inches positive static pressure near the building entries.

3.06 WATER SYSTEM PROCEDURE

A. Adjust water systems to provide required or design quantities.

B. Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gages to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.

C. Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.

D. Effect system balance with automatic control valves fully open to heat transfer elements.

E. Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.

F. Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.

END OF SECTION

PROPOSED NEW FACILITY BID
203 SOUTH MAIN ST.
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO Box 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
(631) 727-5352

Plumbing Specifications

Issued for Bid
September 17, 2026

PLUMBING

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PART 1 - GENERAL

THE PROJECT IS BEING AWARDED AS A SINGLE PRIME GENERAL CONSTRUCTION CONTRACT. ALL PLUMBING WORK SHALL BE BID AS A SUBCONTRACT TO THE GENERAL CONTRACTOR.

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Plumbing contractor shall supply and install new sanitary drainage & vent systems, complete including piping and connection to existing public sanitary sewer. Provide LP gas service piping for all building, heating and kitchen cooking and kitchen preparation equipment, LP gas to hot water boiler, hot water heaters. Provide and install compressed air reels, gauges, controls, and compressed air piping to air compressor on the mezzanine mechanical area. Install all kitchen and bar waste domestic hot cold, and hot water recirculation piping. Install LP gas piping with individual shut off valves to all kitchen equipment. The Plumbing contractor shall furnish and install all fixtures plumbing fixtures including stainless sinks at gear wash. Kitchen and service bars areas, water closets, lavatories, urinals, showers, mop sink, service sink in the housekeeping, domestic hot water heaters with expansion tank, shower, water coolers, eyewash, hose bibs, wall hydrants, floor drains, floor sinks, funnel drains, hot water temperature mixing valves, check valves, roof drains , hand sinks, pantry sink, cleanouts, ceiling mounted compressed air reels, circulating pumps, water hammer arrestors, hardwired flush valves and faucets, and all piping valves fittings necessary to install a complete job in accordance with all specifications and drawings. connection to equipment to be provided and installed by plumbing contractor. All electrical work installed with the plumbing work shall comply with the requirements of electrical specifications.

C. This contractor shall file and obtain all plumbing permits required from the Village of Ellenville. It is this contractor's responsibility to file all paperwork required to obtain all approvals for waste plumbing and water systems.

D. Contractors shall furnish all tools, machinery, equipment, scaffolding, appurtenances and appliances necessary for the satisfactory handling and execution of their work.

E. The work under these contracts shall include all labor, materials and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of the Code and all local authorities having jurisdiction.

F. All work shall be done in such locations and at such times as directed.

G. The contractors shall place and store his materials as directed.

H. The contractor shall at all times keep the premises free from accumulations of waste

material or rubbish caused by his machines, materials, employees, or work and shall pile in neat piles outside of each building as directed. He shall cooperate with all other trades appurtenant to his work. At the completion of the work, he shall remove all his tools, scaffolding and surplus materials.

I. Contractors shall be responsible for initiating, maintaining and supervising all safety precautions in accordance with O.S.H.A. requirements.

J. In the event that part of the building will be occupied during construction, the interior of the building will be separated and the Contractor will schedule his work accordingly.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03300 - Concrete.

B. Section 07620 - Flashing of mechanical work.

C. Section 09900 - Finish painting.

D. Section 15010S - General Provisions Sprinkler.

E. Section 15010H - General Provisions Mechanical.

F. Section 16010E - General Provisions Electrical.

1.03 DRAWINGS AND COORDINATION

A. It is not the intention of the drawings to show every item, piece of equipment and detail but rather to show systems to be installed. Provide systems with all appurtenant equipment to make a complete operating system.

B. Inspect the work area prior to commencing the job. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes, which affect the function or appearance of systems.

C. Dimensions, elevations and locations are shown approximately. Verify measurements in field and coordinate with other trades.

D. Architect reserves the right to order changes in layout of such items as piping and equipment if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

E. In some cases, drawings are based on products of one manufacturer, as listed in the specifications. Be responsible for modifications made necessary by substitution of

products of other manufacturers.

F. Do not install part of a system until all critical components of the system and related systems have been approved. Coordinate parts of system.

G. Coordinate work with work specified in other sections. Relocate work if required for proper installation and functioning of other systems.

H. Install products in accordance with manufacturers' instructions. Notify Architect if contract documents conflict with manufacturers' instructions. Comply with Architect's interpretations.

I. Provide and install all brackets, supports, anchors and frames required for installation of work specified in this division.

J. Provide all cutting and patching, excavation and backfilling required for installation of work specified in this Division.

K. Provide and install all motor starters as required by equipment furnished under this contract.

1.04 PROJECT RECORD DRAWINGS

A. Submit shop drawings in accordance with Section 15011P.

B. Note that the General Conditions specify that project record drawings be prepared.

1.05 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down if necessary.

B. Install equipment with adequate clearances for maintenance and operation both of the equipment and of adjacent equipment.

1.06 PRELIMINARY OPERATION

A. Provide start-up lubrication in accordance with manufacturer's recommendations. Operate mechanical systems with required supervision for at least 2 full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.07 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of mechanical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified. Demonstrate the following:
   1. Equipment installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.
   2. Safety and temperature controls operating as specified.

3. Systems properly flushed, cleaned and free of contaminants.
4. Systems properly balanced.
5. Motors equipped with proper overload protection and not operating under overload. Obtain ammeter readings.
6. Instruments recording properly.

1.08 WARRANTY

A. Submit written warranty or warranties covering work specified in this division. Period: 1 year from the date of substantial completion of the building or of the equipment being warranted, whichever is later. Owner is to receive full use of equipment for period of warranty.

1.09 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Submit three (3) typed copies of maintenance and operating instructions for equipment having moving parts and parts, which may reasonably be anticipated to require replacement.
   1. List replacement parts and order procedure.
   2. Include lubrication instructions and schedule, with types of lubricant to be used.
   3. Include maintenance and service procedures.

B. Instruct Owner's personnel in use of equipment specified in this Division.

C. Submit three (3) typed copies of maintenance and operating manuals for equipment specified in this Division.

1.10 MECHANICAL SYSTEMS IDENTIFICATION

A. See Section 15190P - Mechanical Identification.

1.11 FIELD QUALITY CONTROL

A. Test piping systems hydrostatically at 150% of expected working pressure unless otherwise specified.

B. Reports shall list system tested, date, results, description of correction of faults, and witnesses.

C. Maintain tests 4 hours, unless otherwise specified.

D. Perform preliminary tests before witnessed tests.

E. Give Architect 48 hours notice of tests. Architect will observe tests.

1.12 CODES AND ORDINANCES

A. Conform to the requirements of codes and ordinances of authorities having jurisdiction, as

specified in the General Conditions. In particular, conform to the requirements of the State of New York Plumbing Code.

B. Conform to the State of New York Plumbing Code energy conservation requirements, including certification, labeling and maintenance instructions for equipment.

C. If Contract Documents conflict with codes and ordinances, notify Architect. If requirements of Contract Documents exceed requirements of codes and ordinances, comply with requirements of Contract Documents.

1.13 REMOVAL AND DISPOSAL OF WASTE MATERIALS

A. Remove and dispose of all debris and waste materials from the site in a safe and legal manner.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Pipe, supports, and associated anchors.

C. Equipment bases and supports.

D. Sleeves and seals.

E. Flashing and sealing equipment and pipe stacks.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish hanger and support inserts and sleeves to Section 03300 for placement into formwork.

1.03 RELATED WORK

A. Section 03300 - Concrete equipment bases.

B. Section 15260P - Piping Insulation.

C. Section 15410P - Plumbing System.

1.04 REFERENCES

A. ANSI/ASME B31.1 - Power Piping.

1.05 SUBMITTALS

A. Submit shop drawings in accordance with Section 15011P.

B. Indicate hanger and support framing and attachment methods.

PART 2 PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.

B. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

C. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

D. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

E. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke.

F. Vertical Support: Steel riser clamp.

G. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

H. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

I. Shield for Insulated Piping 2 Inches and Smaller: 18 gage galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

J. Shield for Insulated Piping 2-1/2 Inches and Larger (Except Cold Water Piping): Pipe covering protective saddles.

K. Shields for Insulated Cold Water Piping 2-1/2 Inches and Larger: Hard block non-conducting saddles in 90 degree segments, 12 inch minimum length, block thickness same as insulation thickness.

L. Shields for Vertical Copper Pipe Risers: Sheet lead.

2.02 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

2.03 INSERTS

A. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.04 FLASHING

A. Metal Flashing: 26 gage galvanized steel.

B. Lead Flashing: 5-lb./sq. ft. sheet lead for waterproofing; one lb./sq. ft. sheet lead for soundproofing.

C. Flexible Flashing: 47 mil. Thick sheet butyl; compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.05 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gage galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18-gage steel. All pipe sleeves shall be 2 standard sizes larger than the pipe passing through.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed.

D. Stuffing Insulation: Glass fiber type, non- combustible.

E. Calk: Acrylic sealant.

2.06 FABRICATION

A. Size sleeves large enough to allow for movement due to expansion and contraction, two standard sizes larger than the pipe passing through. Provide for continuous insulation wrapping.

B. Design hangers without disengagement of supported pipe.

C. Provide copper plated hangers and supports for copper piping.

2.07 FINISH

A. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

PART 3 EXECUTIONS

3.01 INSERTS

A. Provide inserts to Section 03300 for placement in concrete formwork.

B. Where inserts are omitted, drill through concrete slab from below and provide thru-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1/2 to 1-1/4 inch	6'-0"	3/8"
1-1/2 to 2 inch	6'-0"	3/8"
2-1/2 to 3 inch	10'-0"	1/2"
4 to 6 inch	10'-0"	5/8"
8 to 10 inch	19'-0"	7/8"
Copper 2 inch and smaller	6'-0"	3/8"
Copper 2 inch and larger	10'-0"	3/8"

B. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

F. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

G. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

H. Support riser piping independently of connected horizontal piping.

3.03 FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs.

B. Flash vent and soil pipes projecting 3 inches minimum above finished roof surface with lead worked one inch minimum into hub, 8 inches minimum clear on sides with 24 x 24 inches sheet size. For pipes through outside walls, turn flanges back into wall and calk, metal counter flash and seal.

C. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36 inch sheet size. Fasten flashing to drain clamp device.

D. Seal floor shower and mop sink drains watertight to adjacent materials.

E. Provide acoustical lead flashing around pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

3.04 SLEEVES

A. Set sleeves in position in formwork. Provide reinforcing around sleeves.

B. Extend sleeves through floors one inch above finished floor level. Calk sleeves full depth and provide floor plate.

C. Where piping penetrates floor, ceiling, or wall, close off space between pipe and adjacent
work with fire stopping insulation and calk seal. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

D. Install chrome plated steel escutcheons at finished surfaces.

3.05 EQUIPMENT BASES AND SUPPORTS

A. Provide equipment bases concrete type specified in Section 3A.

B. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment.

C. Construct support of steel members. Brace and fasten with flanges bolted to structure.

D. Provide rigid anchors for pipes after vibration isolation components are installed.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Identification of mechanical products installed under Division 15.

1.02 RELATED WORK

A. Section 09900 - Painting: Identification painting.

1.03 REFERENCES

A. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems.

1.04 SUBMITTALS

A. Submit product data in accordance with Section 15011P.

B. Submit list of wording, symbols, letter size, and color-coding for mechanical identification.

C. Submit typed valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Seton.

B. Emed.

2.02 MATERIALS

A. Color: Unless specified otherwise, conform with ANSI/ASME A13.1.

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light contrasting background color. Seton Setonply Style 2060.

C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges. Seton Style 250.

D. Stencils: With clean-cut symbols and letters of following size:

OUTSIDE DIAMETER OF INSULATION OR PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2-1/2"
Over 10"	32"	3-1/2"
Equipment	---	2-1/2"

E. Stencil Paint: In accordance with Section 09900, semi-gloss enamel. Seton Coverall Paint Style CPP.

F. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and fluid being conveyed. Seton Set Mark.

G. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape of not less than 6 inch wide by 4 mil. Thick, manufactured for direct burial service. Seton Weather Code.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.02 INSTALLATION

A. Plastic Nameplates: Install with corrosive-resistant mechanical fasteners, or adhesive.

B. Metal Tags: Install with corrosive-resistant chain.

C. Stencil Painting: Apply in accordance with Section 09900.

D. Plastic Pipe Markers: Install in accordance with manufacturer's instructions.

E. Plastic Tape Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.

F. Underground Plastic Pipe Markers: Install 6 to 8 inches below finished grade, directly above buried pipe.

G. Equipment: Identify air handling units, pumps, heat transfer equipment, tanks, and water treatment devices with plastic nameplates. Small devices, such as in-line pumps, may be identified with metal tags.

H. Controls: Identify control panels and major control components outside panels with plastic nameplates.

I. Valves: Identify valves in main and branch piping with tags.

J. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping (under 1 1/2 inches). Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction.

3.03 VALVE CHART AND SCHEDULE

A. Provide typed valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed. Seton Valve Chart Frame #A11P.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Piping insulation.

C. Jackets and accessories.

1.02 RELATED WORK

A. Section 09900 - Painting: Painting insulation jacket.

B. Section 15190P - Mechanical Identification.

1.03 REFERENCES

A. ANSI/ASTM C195 - Mineral Fiber Thermal Insulation Cement.

C. ANSI/ASTM C547 - Mineral Fiber Preformed Pipe Insulation.

D. ANSI/ASTM C578 - Preformed, Block Type Cellular Polystyrene Thermal Insulation.

E. ASTM B209 - Aluminum and Aluminum-alloy Sheet and Plate.

F. ASTM C449 - Mineral Fiber Hydraulic-setting Thermal Insulating and Finishing Cement.

G. ASTM E84 - Surface Burning Characteristics of Building Materials.

H. NFPA 255 - Surface Burning Characteristics of Building Materials.

I. UL 723 - Surface Burning Characteristics of Building Materials.

1.04 QUALITY ASSURANCE

A. Applicator: Company specializing in piping insulation application with three years minimum experience.

B. Materials: Flame spread/fuel contributed/smoke developed rating of 25/-/50 in accordance with NFPA 255, UL 723.

1.05 SUBMITTALS

A. Submit product data in accordance with Section 15011P.

B. Include product description, list of materials and thickness for each service, and locations.

C. Submit manufacturer's installation instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Manville.

B. Dow Corning.

C. Certainteed.

2.02 INSULATION

A. Type A: Glass fiber insulation; ANSI/ASTM C547; 'k' value of 0.24 at 75 degrees F; noncombustible. Manville Micro-Loc.

2.03 JACKETS

A. Interior Applications:
   1. Vapor Barrier Jackets: Kraft reinforced foil vapor barrier with self-sealing adhesive joints.
   2. Canvas Jackets: UL listed treated cotton fabric, 6-oz./sq. yd.

2.04 ACCESSORIES

A. Insulation Bands: 3/4 inches wide; 0.015-inch thick galvanized steel.

B. Metal Jacket Bands: 3/8 inch wide; 0.015-inch thick aluminum. 0.010 inch thick stainless steel.

C. Insulating Cement: ANSI/ASTM C195; hydraulic setting mineral wool.

D. Finishing Cement: ASTM C449.

E. Fibrous Glass Cloth: Untreated; 9 oz./sq. yd. weight.

F. Adhesives: Compatible with insulation.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Install materials after piping has been tested and approved.

3.02 INSTALLATION

A. Install materials in accordance with manufacturer's instructions.

B. Continue insulation with vapor barrier through penetrations.

C. In exposed piping, locate insulation and cover seams in least visible locations.

D. On insulated piping with vapor barrier, insulate fittings, valves, unions, flanges, strainers, flexible connections, and expansion joints.

E. On insulated piping without vapor barrier and piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation at such locations.

F. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or other heavy density insulating material suitable for the planned temperature range. Factory fabricated inserts may be used.

G. Neatly finish insulation at supports, protrusions, and interruptions.

H. Jackets:

1. Indoor, Concealed Applications: Insulated pipes conveying fluids above ambient temperature shall have standard jackets, with vapor barrier, factory-applied. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass cloth and adhesive.

2. Indoor, Concealed Applications: Insulated dual-temperature pipes or pipes conveying fluids below ambient temperature shall have vapor barrier jackets, factory-applied. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe, and finish with glass cloth and vapor barrier adhesive.

3. Indoor, Exposed Applications: For pipe exposed in mechanical equipment rooms or in finished spaces, insulate as for concealed applications. Finish with PVC jacket; size for finish painting.

3.03 SCHEDULE

PIPING	TYPE	INSULATION PIPE SIZE Inch	THICKNESS Inch
Domestic Hot Water Supply & Recirculation	A	1”	1"
Domestic Cold Water	A	1.5”	1.5"
Roof Drains	A	4”	1.5"

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Pipe and pipefittings. All copper piping shall be soldered fittings and connections. The use of press fittings is not permitted as part of this contract.

C. Valves.

D. Sanitary sewer piping system.

E. Domestic water piping system.

F. Vent piping system.

G. Natural gas piping system.

H. Sprinkler Service Piping System

I. Roof Drainage Piping System

J. Compressed Air System

L. Kitchen/Bar Sanitary System

1.02 RELATED WORK

A. Section 02222 - Excavation.

B. Section 02223 - Backfilling.

C. Section 02225 - Trenching.

D. Section 09900 - Painting.

E. Section 15140P - Supports and Anchors.

F. Section 15190P - Mechanical Identification.

G. Section 15260P - Piping Insulation.

H. Section 15430P - Plumbing Specialties.

I. Section 15440P - Plumbing Fixtures.

J. Section 15450P – Plumbing Equipment

1.03 REFERENCES

A. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings Class 150 NS 300.

B. ANSI/ASME B16.23 - Cast Copper Alloy Solder Joint Drainage Fittings - DWV.

C. ANSI/ASME B16.29 - Wrought Copper and Wrought Copper Alloy Solder Joint Drainage Fittings - DWV.

D. ANSI/ASME Sec. 9 - Welding and Brazing Qualifications.

E. ANSI/ASTM B32 - Solder Metal.

F. ASME - Boiler and Pressure Vessel Code.

G. ASTM A74 - Cast Iron Soil Pipe and Fittings.

H. ASTM B88 - Seamless Copper Water Tube.

I. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.

J. AWS A5.8 - Brazing Filler Metal.

K. AWWA C601 - Standard Methods for the Examination of Water and Waste Water.

L. CISPI 301 - Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary Systems.

1.04 QUALITY ASSURANCE

A. Valves: Manufacturer's name and pressure rating marked on valve body.

B. Welding Materials and Procedures: Conform to ASME Code and applicable state labor regulations.

C. Welders Certification: In accordance with ANSI/ASME Sec 9.

1.05 SUBMITTALS

A. Submit product data in accordance with Section 15011P.

B. Include data on pipe materials, pipefittings, valves, and accessories.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

C. Deliver and store valves in shipping containers with labeling in place.

PART 2 PRODUCTS

2.01 SANITARY& KITCHEN/BAR WATER SEWER PIPING, BURIED BEYOND 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74, extra heavy weight Fittings: Cast iron. Joints: ASTM C564, neoprene gasketing system or lead and oakum, or PVC DWV ASTM D2665 or ASTM D3311 solvent cement joints or mechanical joints.

2.02 SANITARY & KITCHEN WATER SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74 extra heavy weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum or PVC DWV ASTM D2665 or ASTM D3311 solvent cement joints or mechanical joints.

2.03 SANITARY & KITCHEN WATER SEWER PIPING, ABOVE GRADE

A. Cast Iron Pipe: ASTM A74, service weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum for pumped discharged lines.

B. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies for gravity drained lines.

2.04 WATER PIPING, BURIED BEYOND 5 FEET OF BUILDING

A. Copper tubing: ASTM B88, Type K, annealed. Fittings: ANSI/ASME B16.29, wrought

copper. Joints: ANSI/ASTM B52, solder, Grade 95TA, flared, mechanical joint, compression, ductile iron pipe cement lined AWWA C151or AWWA C115 with malleable iron or ductile iron fittings with mechanical joint ends, or PVC ASTM D2241 ASTM D2672 or ASTM 2467 with mechanical joints made with elastomeric seals conforming to ASTM D3139 mechanical joints terminate 5'-0" inside the point of entry and change to ductile iron pipe, or as approved by local water authority.

2.05 WATER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Copper Tubing: ASTM B88, Type K, annealed. Fittings; ANSI/ASME B16.29, wrought copper. Joints: ANSI/ASTM B32, solder, Grade 95TA., or PVC ASTM D2241 ASTM D2672 or ASTM 2467 with mechanical joints made with elastomeric seals conforming to ASTM D3139 mechanical joints terminate 5'-0" inside the point of entry and change to ductile iron pipe, or as approved by local water authority.
or as approved by local water authority.

2.06 WATER PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L, hard drawn. Fittings: ANSI/ASME B16.23, cast brass, or ANSI/ASME B16.29, wrought copper. Joints: ANSI/ASTM B32, solder, Grade 95TA.

2.07 VENT PIPING

A. Cast Iron Pipe: ASTM A74, service weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene Gaskets

B. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.

2.10 LP GAS PIPING, BURIED BEYOND 5 FEET OF BUILDING

A. Steel Pipe: ASTM A53 or A120, Schedule 40 black. Fittings: ASTM A234, forged steel welding type, with ANSI/AWWA C105 polyethylene jacket or double layer, half-lapped 10 mil. Polyethylene tape. Joints: ANSI/AWS D1.1, welded or PVC ASTM P2513

2.11 LP GAS PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Shall be as approved by local utility. Where local utility does not have standard piping shall be as follows: Steel Pipe: ASTM A53 or A120, Schedule 40 black. Fittings: ASTM A234, forged steel welding type, with ANSI/AWWA C105 polyethylene jacket or double layer, half-lapped 10 mil. Polyethylene tape. Joints: ANSI/AWS D1.1,

welded, or PVC ASTM P2513

2.12 LP GAS PIPING, ABOVE GRADE

A. Steel Pipe: ASTM A53 or A120, Schedule 40 black. Fittings: ANSI/ASME B16.3, malleable iron, or ASTM A234, forged steel welding type. Joints: Screwed for pipe four inches and under; ANSI/AWS D1.1, welded, for pipe over four inches.

2.15 ROOF DRAINAGE PIPING BURIED BEYOND 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74 extra heavy weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum, , or PVC DWV ASTM D2665 or ASTM D3311 solvent cement joints.

2.16 STORM WATER PIPING, BURIED WITH 5 FEET OF BUILDING

A. Cast Iron Pipe: ASTM A74 extra heavy weight. Fittings: Cast iron. Joints: Hub-and-spigot, CISPI HSN compression type with ASTM C564 neoprene gaskets or lead and oakum, , or PVC DWV ASTM D2665 or ASTM D3311 solvent cement joints.

2.17 STORM WATER PIPING, ABOVE GRADE

A. Cast Iron Pipe: CISPI 301, hubless, service weight. Fittings: Cast iron. Joints: Neoprene gaskets and stainless steel clamp-and-shield assemblies.

2.18 COMPRESSED AIR PIPING, ABOVE GRADE

A. Copper Tubing: ASTM B88, Type L, hard drawn. Fittings: ANSI/ASME B16.23, cast brass, or ANSI/ASME B16.29, wrought copper. Joints: ANSI/ASTM B32, solder, Grade 95TA.

2.20 GRAY SANITARY SEWER PIPING, BURIED WITHIN 5 FEET OF BUILDING

A. Double walled PVC DWV ASTM D2665 or ASTM 3311 solvent cement joints or mechanical joints.

2.21 FLANGES, UNIONS, AND COUPLINGS

A. Pipe Size 4 Inches and under: 150 psig malleable iron unions for threaded ferrous piping; bronze.

B. Pipe Size Over 4 Inches: 150 psig forged steel slip-on flanges for ferrous piping; bronze flanges for copper piping; neoprene gaskets for gas service; 1/16 inch thick preformed neoprene.

C. Grooved and Shouldered Pipe End Couplings: Malleable iron housing clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; "C" shape composition sealing gasket; steel bolts, nuts, and washers; galvanized couplings for galvanized pipe.

D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, and water impervious isolation barrier.

2.22 ACCEPTABLE MANUFACTURERS - GATE VALVES

A. Nibco Model T-113.

B. American Fig. 16F.

C. Watts Model GV, GVS.

2.23 GATE VALVES

A. Up to 2 Inches: Bronze body, rising stem and handwheel, inside screw, single or double wedge or disc, solder or threaded ends.

B. Over 2 Inches: Iron body, bronze trim, rising stem and handwheel, OS&Y, single or double wedge, flanged ends.

2.24 ACCEPTABLE MANUFACTURERS - GLOBE VALVES

A. Watts Model GLV.

B. American Fig. 13.

C. Nibco Model T-211.

2.25 GLOBE VALVES

A. Up to 2 Inches: Bronze body, rising stem and handwheel, inside screw, renewable composition disc, solder or screwed ends, with backseating capacity.

B. Over 2 Inches: Iron body, bronze trim, rising stem and handwheel, OS&Y, plug-type disc, flanged ends.

2.26 ACCEPTABLE MANUFACTURERS - BALL VALVES

A. Appolo-Conbraco Model 70-100.

B. Nibco Model 585.

C. Watts Model G-6400.

2.27 BALL VALVES

A. Up to 2 Inches: Bronze body, chromium plated ball, Teflon seats and stuffing box ring, lever handle, solder or threaded.

B. Over 2 Inches: Cast steel body, chrome plated steel ball, Teflon seat and stuffing box seals, lever handle flanged.

2.28 ACCEPTABLE MANUFACTURERS - GAS COCKS

A. Watts.

B. American Fig. 85C-BK.

C. Jenkins.

2.29 GAS COCKS

A. Up to 2 Inches: Bronze body, bronze tapered plug. non-lubricated, teflon packing, threaded ends.

B. Over 2 Inches: Cast iron body and plug, non- lubricated, teflon packing, flanged ends.

2.30 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES

A. Jenkins.

B. Grinnell.

C. Pratt.

2.31 BUTTERFLY VALVES

A. Iron body, bronze disc, resilient replaceable seat for service to 180 degrees F, water or lug ends, handle infinite position lever handle with memory stop.

2.32 ACCEPTABLE MANUFACTURERS - SWING CHECK VALVES

A. Jenkins.

B. Watts Model CVY.

C. Nibco Model T-413.

2.33 SWING CHECK VALVES

A. Up to 2 Inches: Bronze 22 degree swing disc, solder or screwed ends.

B. Over 2 Inches: Iron body, bronze trim, 22 degree swing disc, renewable disc and seat, flanged ends.

2.34 ACCEPTABLE MANUFACTURERS - SPRING LOADED CHECK VALVES

A. Jenkins.

B. Watts Model CV.

C. Nibco Model T-480.

2.35 SPRING LOADED CHECK VALVES

A. Iron body, bronze trim, spring loaded, renewable composition disc, screwed, wafer, or flanged ends.

2.36 ACCEPTABLE MANUFACTURERS - WATER PRESSURE REDUCING VALVES

A. Watts.

B. Taco.

C. B&G Model B7 or 7.

2.37 WATER PRESSURE REDUCING VALVES

A. Up to 2 Inches: Bronze body, stainless steel and thermoplastic internal parts, fabric-reinforced diaphragm, and strainer, threaded double union ends.

B. Over 2 Inches: Cast iron body, bronze fitted, elastomer diaphragm and seat disc, flanged.

2.38 ACCEPTABLE MANUFACTURERS - RELIEF VALVES

A. Watts Model No. 174A.

B. B&G 790 or 1170.

C. Taco.

2.39 RELIEF VALVES

A. Bronze body, Teflon seat, steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labeled.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.

B. Remove scale and dirt, on inside and outside, before assembly.

C. Prepare piping connections to equipment with flanges or unions.

3.02 INSTALLATION

A. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

B. Route piping in orderly manner and maintain gradient.

C. Install piping to conserve building space. All piping to be concealed and not interfere with use of space concealed behind walls and ceilings.

D. Group piping whenever practical at common elevations.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance for installation of insulation and access to valves and fittings.

G. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors and provide access door to General Contractor.

H. Slope water piping and arrange to drain at low points.

I. Establish elevations of buried piping outside the building to ensure not less than 3 ft of cover.

J. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.

K. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting.

L. Establish invert elevations, slopes for drainage to 1/8 inch per foot minimum. Maintain gradients.

M. Excavate in accordance with Sections 02222.

N. Backfill in accordance with Sections 02223.

O. Install bell and spigot pipe with bell end upstream.

P. Install valves with stems upright or horizontal, not inverted.

Q. Provide one plug cock wrench for every ten plug cocks sized 2 inches and smaller, minimum of one. Provide each plug cock sized 2-1/2 inches and larger with a wrench with setscrew.

3.03 APPLICATION

A. Use grooved mechanical couplings and fasteners only in accessible locations.

B. Install unions downstream of valves and at equipment or apparatus connections.

C. Install brass male adapters each side of valves in copper piped system. Sweat solder adapters to pipe.

D. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

E. Install globe valves for throttling, bypass, or manual flow control services.

F. Provide spring loaded check valves on discharge of water pumps. Pipe all relief valves to nearest drain.

3.04 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

A. Prior to starting work, verify system is complete, flushed and clean.

B. Ensure PH of water to be treated is between 7.4 and 7.6 by adding chlorine.

C. Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 parts per million available chlorine.

D. Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.

E. Maintain disinfectant in system for 24 hours.

F. If final disinfectant residual tests less than 25 mg./L, repeat treatment.

G. Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg./L.

H. Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C601.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Roof and floor drains.

D. Cleanouts.

E. Backflow Preventors.

F. Water hammer arrestors.

G. Hose Bibbs

H. Wall Hydrant

I. Hot Water Mixing Valves

J. Floor Sinks

K. Funnel Drains

L. Pressure & Temperature Relief Valves

M. Ceiling and Wall Mounted Compressed Air Reels (Supplied by Owner)

N. Compressed Air Quick Disconnect Connection (See contract drawings)

1.02 RELATED WORK

A. Section 15140P - Supports and Anchors.

B. Section 15410P - Plumbing Piping.

C. Section 15440P - Plumbing Fixtures.

1.03 REFERENCES

A. ANSI/ASSE 1012 - Backflow Preventors with Immediate Atmospheric Vent.

B. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.

C. ANSI/ASSE 1013 - Backflow Preventors, Reduced Pressure Principle.

D. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.

E. ANSI A112.21.1 - Floor Drains.

F. ANSI A112.21.2 - Roof Drains.

G. ANSI A112.26.1 - Water Hammer Arresters.

H. ASTM C478 - Precast Reinforced Concrete Manhole Sections.

I. PDI WH-201 Water Hammer Arresters.

1.04 QUALITY ASSURANCE

A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

1.05 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011P.

B. Include component sizes, rough-in requirements, service sizes, and finishes.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - ROOF DRAINS

A. J.R. Smith
B. Wade.
C. Zurn.

2.02 ROOF DRAINS

A. Roof Drains (RD-1): ANSI A112.21.2; lacquered cast iron body with sump, removable cast iron dome strainer, membrane flange and membrane clamp with integral gravel stop, with adjustable underdeck clamp roof sump receiver waterproofing flange adjustable extension sleeve for insulation; manufactured by J.R. Smith

2.03 ACCEPTABLE MANUFACTURERS - FLOOR DRAINS

A. J.R. Smith.

B. Wade.

C. Zurn.

2.04 FLOOR DRAINS

A. FD-1: ANSI A112.21.1; 6”ϕ grate, deep seal trap, lacquered cast iron two piece body with double drainage flange, weep holes, removable perforated sediment bucket, reversible clamping collar, caulked outlet, and round, adjustable nickel-bronze strainer; manufactured by J.R. Smith

B. FD-2: nickel bronze rim and cast iron body, 10-1/2” square vandal secured ribbed grate, with ½” square holes, deep seal trap, no-hub outlet, removable perforated sediment bucket manufactured by J.R. Smith

C. FD-3: Duco cast iron body heavy duty flashing collar 8-3/4" diameter heavy duty tractor grate caulked outlet vandal proof deep seal trap with dome bottom strainer Jay R. Smith

2.05 ACCEPTABLE MANUFACTURERS - FLOOR SINKS

A. J.R. Smith.

B. Wade.

C. Zurn.

2.06 FLOOR SINKS

A. Refer to drawings for type.

2.07 ACCEPTABLE MANUFACTURERS – FUNNEL DRAINS

A. J.R. Smith.

B. Wade.

C. Zurn.

2.08 FUNNEL DRAINS

A. FN-1 7”ϕ indirect waste funnel drain, Duco cast iron body with acid resistant coated interior, aluminum dome bottom strainer, caulked outlet manufactured by J.R. Smith

2.09 ACCEPTABLE MANUFACTURERS - CLEANOUTS

A. J.R. Smith.

B. Wade.

C. Zurn.

2.10 CLEANOUTS

A. Interior Finished Floor Areas (CO-1): 4-3/4” diameter round deck plug, nickel-bronze d with polished scoriated cover, water tight and requires a spanner wrench for removal, cover to accept floor finish in finished floor areas; manufactured by J.R.Smith

A. Interior Finished Wall Areas (CO-2): Line type with Duco ferrule with cast bronze taper threaded plug. Chrome plated bronze round frame and secured cover. manufactured by J.R. Smith

C. Exterior Surfaced Areas (CO-3): 8-3/4” Duco cast iron, double flanged housing with heavy duty secured scoriated cast iron cover with lifting device. Used in non-surfaced, concrete or asphalt areas. manufactured by J.R. Smith

D. Interior finished floor area (CO-4): used for terrazzo or similar poured floors recess in cover is filled with the floor material. Duco cast iron 5-3/4 diameter cover. Adjustable secured nickel bronze top with ½” terrazzo recess. manufactured by J.R Smith.

2.11 ACCEPTABLE MANUFACTURERS - BACKFLOW PREVENTORS

A. Watts

B. Febco

C. Wilkins

2.12 BACKFLOW PREVENTORS

A. Double Check Valve Assemblies: ANSI/ASSE 1012; Bronze body with corrosion resistant internal parts and stainless steel springs; two independently operating check valves with intermediate atmospheric vent; two quarter turn full port resilient seated bronze ball valves & top mounted test cocks..
B. Check valve to be provided at water service line in water room including separate 1" device for lawn irrigation line.

2.13 ACCEPTABLE MANUFACTURERS - WATER HAMMER ARRESTORS

A. Watts No. 15 Series.

B. J.R. Smith Hydrotrol Series 5000.

2.14 WATER HAMMER ARRESTORS

A. ANSI A112.26.1; sized in accordance with PDI WH-201, precharged suitable for operation in temperature range -100 to 300 degrees F and maximum 250 psig working pressure; series No. 5000 manufactured by Jay R Smith

2.15 ACCEPTABLE MANUFACTURERS - HOSE BIBBS (Indoors Only)

A. Watts

B. J.R. Smith

C. Wade.

2.16 HOSE BIBBS

A. Bronze or brass, replaceable hexagonal disc, hose thread spout, chrome plated where exposed to interior and to exterior, with vacuum breaker in conformance with ANSI/ASSE 1011.

2.17 B ANSI/ASSE 1019; non-freeze, self-draining type with chrome plated wall plate lockable recessed box hose thread spout, removable key, and vacuum breaker; Model SC-6 & 8B

2.18 ACCEPTABLE MANUFACTURERS – WALL HYDRANTS (Outdoors Only)

A. J.R. Smith

B. Watts

C. Zurn

A. Key operated frost proof, bronze nickel plated quarter turn non-freeze hydrant with hose Connection, integral vacuum breaker, “T” handle key, and Stainless steel box with full 180° cover opening. 7 inch 16 Ga. Frame and cover enclosure with continuous stainless steel hinge. Manufactured by J.R. Smith model no. 5509 QT

2.19 2.17ACCEPTABLE MANUFACTURERS PRESSURE & TEMPERATURE RELIEF VALVES

A. Watts

B. Bell & Gossett

C. Taco

2.20 PRESSURE & TEMPERATURE RELIEF VALVE

A. The contractor shall furnish a pressure and temperature relief valve as shown on the Contract drawings. The relief valve shall be of bronze body construction with a seat to disc that will not freeze. The relief valve shall be mounted on the hot water heater to protect the coil and tank from excessive pressure and temperature. The valve shall be certified as meeting the requirement of ASME. Low Pressure Boiler Code and ANSI Z21.22. The BTU discharge capacity shall be greater than the input rating of the hot water heater. Manufactured by Watts Model No Series 10L-2

2.21 ACCEPTABLE MANUFACTURERS DOMESTIC HOT WATER MIXING VALVE

A. Conbraco

B. Holby

C. Bell & Gossett

2.22 DOMESTIC HOT WATER MIXING VALVE

A. TCV-1 The contractor shall furnish and install a domestic water hot water mixing valve as shown on the contract drawings. Corrosion resistant with a replaceable thermostatic shuttle, pre-loaded spring assembly, which acts as an over-travel mechanism. Valve body cast bronze brass retainer and adjusting screw, shuttle shall be Noryl, thermal element shall be bronze/stainless steel, “o” rings BUNA N and stainless steel return and over-travel spring. Max. Working pressure rated @ 150 psi, operating temperature range 33° f. - 180° f. Manufactured by Conbraco model no. 34C series

2.23 ACCEPTABLE MANUFACTURERS CEILING MOUNTED COMPRESSED AIR REELS

A. Hannay

B. Reelcraft

PART 3 EXECUTIONS

3.01 PREPARATION

A. Coordinate cutting or forming of roof and floor construction to receive drains to required invert elevations.

3.02 INSTALLATION AND APPLICATION

A. Install specialties in accordance with manufacturer's instructions to permit intended performance.

B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Encase exterior cleanouts in concrete flush with grade.

D. Install water hammer arrestors complete with accessible isolation valve. Contractor shall install water hammer arrestors whether shown on contract drawing or not as needed without additional cost to owner.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Water closets.

C. Urinals.

D. Lavatories.

E. Sinks.

F. Mop sinks.

G. Multiple Wash Sink

H. Emergency Eyewash

I. Drinking Fountain

J. Service Sink

1.02 RELATED WORK

A. Section 06410 - Custom Casework: Preparation of counters for sinks.

B. Section 07900 - Joint Sealers: Seal fixtures to walls and floors.

C. Section 10800 - Toilet and Bath Accessories: Lavatory tops.

D. Section 15140P - Anchors and Supports.

E. Section 15410P - Plumbing Piping.

F. Section 15430P - Plumbing Specialties.

G. Section 15450P - Plumbing Equipment.

1.03 REFERENCES

A. ANSI A112.6.1 - Supports for Off-the-Floor Plumbing Fixtures for Public Use.

B. ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.

C. ANSI A112.19.2 - Vitreous China Plumbing Fixtures.

D. ANSI A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).

E. ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.

F. ANSI A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.

G. ANSI Z358.1 - Emergency Eye Wash and Shower equipment

1.04 QUALITY ASSURANCE

A. Fixtures: By same manufacturer for each product specified throughout.

B. Trim: By same manufacturer for each product specified throughout.

1.05 SUBMITTALS

A. Submit product data in accordance with Section 15011P.

B. Include fixtures, sizes, rough-in dimensions, utility sizes, trim, and finish.

1.06 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data.

B. Include fixture trim exploded view and replacement parts lists.

1.07 WARRANTY

A. Provide five-year manufacturer's warranty.

B. Warranty: Include coverage of electric water cooler compressor.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - FIXTURES

A. See schedules on contract drawings.

PART 3 EXECUTIONS

3.01 INSPECTION

A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

B. Verify adjacent construction is ready to receive rough-in work of this Section.

3.02 INSTALLATION

A. Install each fixture with trap, easily removable for servicing and cleaning.

B. Provide chrome plated rigid or flexible supplies to fixtures with screwdriver stops reducers, and escutcheons.

C. Install components level and plumb.

D. Install and secure fixtures in place with wall carriers and bolts.

E. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07900, color to match fixture.

3.03 ADJUSTING AND CLEANING

A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

B. At completion clean plumbing fixtures and equipment.

C. Solidly attach water closets to floor with lag screws. Lead flashing is not intended hold fixture in place.

3.04 FIXTURE ROUGH-IN SCHEDULE

A. Rough-in fixture piping connections in accordance with following table of minimum sizes for particular fixtures.

	Hot Water	Cold Water	Waste	Vent
Lavatory	1/2 inch	1/2 inch	1-1/2 inch	1-1/4 inch
Mop Sink	1/2 inch	1/2 inch	3-inch	1-1/2 inch
Sink	1/2 inch	1/2 inch	1-1/2 inch	1-1/4 inch

Water Closet (Flush Valve)	--	1 inch	4 inch	2 inch
Urinal (Flush Valve)	--	3/4 inch	2 inch	1-1/2 inch
Service Sink	1/2" inch	1/2 inch	3 inch	2 inch
Water Cooler	---	1/2" inch	1-1/2 inch	1-1/2 inch
Shower	!/2"	!/2"	2"	!-1/2"
Eyewash		1/2"	1-1/2"	1-1/2"

All fixtures shall be roughed in as per above unless otherwise indicated on the contract drawings.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Water heaters.

B. Expansion tanks. (Water Heater)

C. Circulator Pumps

1.02 RELATED WORK

A. Section 15140 - Supports and Anchors.

1.03 REFERENCES

A. ANSI/ASME Section 8D - Pressure Vessels.

B. ANSI/NFPA 30 Flammable and Combustible Liquids Code.

C. ANSI/NFPA 31 - Installation of Oil Burning Equipment.

D. ANSI/NFPA 54 - National Fuel Gas Code.

E. ANSI/NFPA 70 - National Electrical Code.

1.04 QUALITY ASSURANCE

A. Provide pumps with manufacturer's name, model number, and rating/capacity identified.

B. Ensure products and installation of specified products are in conformance with recommendations and requirements of the following organizations:
   1. American Gas Association (AGA).
   2. National Sanitation Foundation (NSF).
   3. American Society of Mechanical Engineers (ASME).
   4. National Board of Boiler and Pressure Vessel Inspectors (NBBPVI).
   5. National Electrical Manufacturers' Association (NEMA).
   6. Underwriters Laboratories (UL).

C. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

1.05 REGULATORY REQUIREMENTS

A. Conform to AGA NSF ANSI/NFPA 70, UL 174 requirements for water heaters.

B. Conform to ANSI/ASME Section 8 D for tanks.

1.06 SUBMITTALS

A. Refer to project manual.

1.07 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data.
B. Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

C. Provide temporary inlet and outlet caps. Maintain caps in Place until installation.

1.09 WARRANTY

A. Provide five-year manufacturer's warranty.

B. Warranty: Include coverage of domestic water heaters in-line circulator unit.

PART 2 PRODUCTS

Refer to drawings for all equipment schedules.

PART 3 EXECUTIONS

3.01 WATER HEATER INSTALLATION

A. Install water heaters in accordance with manufacturer's instructions and to NSF, NFPA, And UL requirements.

B. Coordinate with plumbing piping and related fuel piping, gas venting, and electrical work to achieve operating system.

3.02 PUMP INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide air cock and drain connection on horizontal pump casings.

C. Provide line sized gate valve and strainer on suction and line sized soft seated check Valve and globe valve on discharge.

D. Decrease from line size, with long radius reducing elbows or reducers. Support piping Adjacent to pump such that no weight is carried on pump casings.

E. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.

F. Align, and verify alignment of base mounted pumps prior to start-up.

END OF SECTION

PROPOSED NEW FACILITY BID
203 SOUTH MAIN ST.
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO Box 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
(631) 727-5352

Fire Sprinkler Specifications

Issued for Bid
September 17, 2026

FIRE SPRINKLER

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PART 1 - GENERAL

THE PROJECT IS BEING AWARDED AS A SINGLE PRIME GENERAL CONSTRUCTION CONTRACT. ALL FIRE SPRINKLER WORK SHALL BE BID AS A SUBCONTRACT TO THE GENERAL CONTRACTOR.

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Sprinkler contractor shall supply and install a complete wet-pipe sprinkler system for the entire firehouse. The wet pipe sprinkler system shall be fed by a new plumber supplied 6" fire service main for the sprinkler system. The new wet pipe sprinkler system shall cover the entire first floor, mezzanine, and second floor in accordance with contract drawings. The sprinkler alarm valve shall be located on the first-floor water service room. The sprinkler contractor shall furnish and install an alarm check, valve, shutoff valves, zone valves, fire department connection, electric fire alarm, tamper switches, piping, sprinkler drains, flow switches, and sight glasses, sprinkler heads etc in accordance with contract drawings. In addition, contractors shall verify all sprinkler head locations and quantities prior to installation and perform and be responsible for all hydraulic calculations to verify piping sizes, if discrepancies should arise the contractor should notify the architect and rectify all required changes without additional cost to the owner. Sprinkler contractor shall prepare and obtain all permits and approvals as required. The permit fee shall be paid by the owner.

C. Contractors shall furnish all tools, machinery, equipment, scaffolding, appurtenances and appliances necessary for the satisfactory handling and execution of their work.

D. The work under these contracts shall include all labor, materials and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of the Code and all local authorities having jurisdiction.

E. All work shall be done in such locations and at such times as directed.

F. The contractors shall place and store his materials as directed.

G. The contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his machines, materials, employees, or work and shall pile in neat piles outside of building as directed. He shall cooperate with all other trades appurtenant to his work. At the completion of the work, he shall remove all his tools, scaffolding and surplus materials.

H. Contractors shall be responsible for initiating, maintaining and supervising all safety precautions in accordance with O.S.H.A. requirements.

I. In the event that part of the building will be occupied during construction, the interior of the building will be separated and the Contractor will schedule his work accordingly.

J. Contractor shall perform any demolition work which may be required to complete the complete sprinkler system.

K. All control wiring and all other items related to the installation of a complete sprinkler system shall be purchased and installed by sprinkler contractor, and coordinated with the electrical contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03300 - Concrete.

C. Section 07620 - Flashing of mechanical work.

D. Section 09900 - Finish painting.

E. Section 15010P - General Provisions Plumbing.

F. Section 15010H - General Provisions Mechanical.

G. Section 16010E - General Provisions Electrical.

1.03 DRAWINGS AND COORDINATION

A. It is not the intention of the drawings to show every item, piece of equipment and detail but rather to show systems to be installed. Provide systems with all appurtenant equipment to make a complete operating system.

B. Inspect the work area prior to commencing the job. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes, which affect the function or appearance of systems.

C. Dimensions, elevations and locations are shown approximately. Verify measurements in field and coordinate with other trades.

D. Architect reserves the right to order changes in layout of such items as piping and equipment if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

E. In some cases, drawings are based on products of one manufacturer, as listed in the specifications. Be responsible for modifications made necessary by substitution of products of other manufacturers.

F. Do not install part of a system until all critical components of the system and related systems have been approved. Coordinate parts of system.

G. Coordinate work with work specified in other sections. Relocate work if required for proper installation and functioning of other systems.

H. Install products in accordance with manufacturers' instructions. Notify Architect if contract
Documents conflict with manufacturers' instructions. Comply with Architect's interpretations.

I. Provide and install all brackets, supports, anchors and frames required for installation of work specified in this division.

J. Provide all cutting and patching, excavation and backfilling required for installation of work specified in this Division.

K. Provide and install all required motor starters as required.

1.04 PROJECT RECORD DRAWINGS

A. Submit shop drawings in accordance with Section 15011S.

B. Note that the General Conditions specify that project record drawings be prepared.

1.05 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down if necessary.

B. Install equipment with adequate clearances for maintenance and operation both of the equipment and of adjacent equipment.

1.06 PRELIMINARY OPERATION

A. Provide start-up lubrication in accordance with manufacturer's recommendations. Operate mechanical systems with required supervision for at least 2 full days prior to substantial completion. Make necessary adjustments and check proper operation.

1.07 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of mechanical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified.

Demonstrate the following:

1. Equipment installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.
2. Safety and temperature controls operating as specified.
3. Systems properly flushed, cleaned and free of contaminants.

4. Systems properly balanced.
5. Motors equipped with proper overload protection and not operating under overload. Obtain ammeter readings.
6. Instruments recording properly.

1.08 WARRANTY

A. Submit written warranty or warranties covering work specified in this division. Period: 2 yearS from the date of substantial completion of the building or of the equipment being warranted, which ever is a longer period of time. Owner is to receive full use of equipment for period of warranty.

1.09 MAINTENANCE AND OPERATING INSTRUCTIONS

A. Submit three (3) typed copies of maintenance and operating instructions for equipment having moving parts and parts, which may reasonably be anticipated to require replacement.
   1. List replacement parts and order procedure.
   2. Include lubrication instructions and schedule, with types of lubricant to be used.
   3. Include maintenance and service procedures.
B. Instruct Owner's personnel in use of equipment specified in this Division.
C. Submit three (3) typed copies of maintenance and operating manuals for equipment specified in this Division.

1.10 MECHANICAL SYSTEMS IDENTIFICATION

A. See Section 15190S - Mechanical Identification.

1.11 FIELD QUALITY CONTROL

A. Test piping systems hydrostatically at 150% of expected working pressure unless otherwise specified.
B. Reports shall list system tested, date, results, description of correction of faults, and witnesses.
C. Maintain tests 4 hours, unless otherwise specified.
D. Perform preliminary tests before witnessed tests.
E. Give Architect 48 hours notice of tests. Architect will observe tests.

1.12 CODES AND ORDINANCES

A. Conform to the requirements of codes and ordinances of authorities having jurisdiction, as specified in the General Conditions. In particular, conform to the requirements of the State of New York Building Code and local Fire Marshals Office.

B. Conform to the State of New York Building Code energy conservation requirements, including certification, labeling and maintenance instructions for equipment.

C. If Contract Documents conflict with codes and ordinances, notify Architect. If requirements of Contract Documents exceed requirements of codes and ordinances, comply with requirements of Contract Documents.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Pipe supports, and associated anchors.

C. Equipment bases and supports.

D. Sleeves and seals.

E. Flashing and sealing equipment and pipe stacks.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish hanger and support inserts and sleeves to Section 03300 for placement into formwork.

1.03 RELATED WORK

A. Section 03300: Concrete equipment bases.

B. Section 15310S - Fire Protection Piping.

C. Section 15330S – Wet-Pipe Sprinkler Systems

1.04 REFERENCES

A. NFPA 13 - Standard for the Installation of Sprinkler Systems.

1.05 QUALITY ASSURANCE

A. Supports for Sprinkler Piping: In conformance with NFPA 13.

1.06 SUBMITTALS

A. Submit shop drawings and manufacturer's literature in accordance with Section 15011S.

B. Indicate hanger and support framing and attachment methods.

PART 2 PRODUCTS

2.01 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 1/2 to 1-1/2 Inch: Carbon steel, adjustable swivel, split ring.

B. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

C. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

D. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp; adjustable steel yoke.

E. Vertical Support: Steel riser clamp.

F. Floor Support for Pipe Sizes to 4 Inches and All Cold Pipe Sizes: Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

G. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

H. Shield for Insulated Piping 2 Inches and Smaller: 18 gage galvanized steel shield over insulation in 180 degree segments, minimum 12 inches long at pipe support.

I. Shield for Insulated Piping 2-1/2 Inches and Larger: Pipe covering protective saddles.

2.02 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end, or continuous threaded.

2.03 INSERTS

A. Inserts: Malleable iron case & galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

2.04 FLASHING

A. Metal Flashing: 26 gage galvanized steel.

B. Lead Flashing: 5 lb/sq ft sheet lead for waterproofing; one lb/sq ft sheet lead for soundproofing.

C. Flexible Flashing: 47 mil thick sheet butyl; compatible with roofing.

D. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

2.05 SLEEVES

A. Sleeves for Pipes Through Non-fire Rated Floors: Form with 18 gage galvanized steel.

B. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Form with steel pipe or 18-gage steel. All pipe sleeves shall be 2 standard sizes larger than the pipe passing through.

C. Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fireproofing: Prefabricated fire rated sleeves including seals, UL listed.

D. Stuffing Insulation: Glass fiber type, non- combustible.

E. Caulk: Acrylic sealant.

2.06 FABRICATION

A. Size sleeves large enough to allow for movement due to expansion and contraction, two standard sizes larger than the pipe passing through. Provide for continuous insulation wrapping.

B. Design hangers without disengagement of supported pipe.

2.07 FINISH

A. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

PART 3 EXECUTION

3.01 INSERTS

A. Provide inserts to Section 3A for placement in concrete formwork.

B. Where inserts are omitted, drill through concrete slab from below and provide thru-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

3.02 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1/2 to 1-1/4 inch	12'-0"	3/8"
1-1/2 to 2 inch	12'-0"	3/8"
2-1/2 to 3 inch	12'-0"	1/2"
4 to 6 inch	120'-0"	5/8"

B. Install hangers to provide minimum 1/2-inch space between finished covering and adjacent work.

C. Place a hanger within 12 inches of each horizontal elbow.

D. Use hangers with 1-1/2 inch minimum vertical adjustment.

E. Support vertical piping at every floor.

F. Support riser piping independently of connected horizontal piping.

3.03 FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs.

B. Provide acoustical lead flashing around ducts and pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

3.04 SLEEVES

A. Set sleeves in position in formwork. Provide reinforcing around sleeves.

B. Extend sleeves through floors one above finished floor level. Caulk sleeves full depth and provide floor plate.

C. Where piping penetrates floor, ceiling, or wall, close off space between pipe and adjacent work with fire stopping insulation and caulk seal. Provide close fitting metal collar or escutcheon covers at both sides of penetration.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Identification of mechanical products installed under Division 15.

1.02 RELATED WORK

A. Section 09900 - Painting: Identification painting.

1.03 REFERENCES

A. ANSI/ASME A13.1 - Scheme for the Identification of Piping Systems.

1.04 SUBMITTALS

A. Submit product data in accordance with Section 15011S.

B. Submit list of wording, symbols, letter size, and color-coding for mechanical identification.

C. Submit typed valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.

D. Submit manufacturer's installation instructions in accordance with Section 15011S.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Seton.

B. Emed.

2.02 MATERIALS

A. Color: Unless specified otherwise, conform to ANSI/ASME A13.1.

B. Plastic Nameplates: Laminated three-layer plastic with engraved black letters on light contrasting background color. Seton Setonply Style 2060.

C. Metal Tags: Brass with stamped letters; tag size minimum 1-1/2 inch diameter with smooth edges. Seton Style 250.

D. Stencils: With clean cut symbols and letters of following size:

OUTSIDE DIAMETER OF INSULATION OR PIPE	LENGTH OF COLOR FIELD	SIZE OF LETTERS
3/4" - 1-1/4"	8"	1/2"
1-1/2" - 2"	8"	3/4"
2-1/2" - 6"	12"	1-1/4"
8" - 10"	24"	2-1/2"
Over 10"	32"	3-1/2"

E. Stencil Paint: In accordance with Section 09900, semi-gloss enamel. Seton “Coverall” Pipe Paint Style CPP.

F. Plastic Pipe Markers: Factory fabricated, flexible, semi- rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and fluid being conveyed. Seton Set Mark.

PART 3 EXECUTION

3.01 PREPARATION

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Prepare surfaces in accordance with Section 09900 for stencil painting.

3.02 INSTALLATION

A. Plastic Nameplates: Install with corrosive-resistant mechanical fasteners, or adhesive.

B. Metal Tags: Install with corrosive-resistant chain.

C. Stencil Painting: Apply in accordance with Section 09900.

D. Plastic Pipe Markers: Install in accordance with manufacturer's instructions.

E. Plastic Tape Pipe Markers: Install complete around pipe in accordance with manufacturer's instructions.

F. Controls: Identify control panels and major control components outside panels with plastic nameplates.

G. Valves: Identify valves in main and branch piping with tags.

H. Piping: Identify piping, concealed or exposed, with plastic pipe markers. Tags may be used on small diameter piping (under 1 1/2 inches). Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and "T", at each side of penetration of structure or enclosure, and at each obstruction.

3.03 VALVE CHART AND SCHEDULE

A. Provide typed valve chart and schedule in aluminum frame with clear plastic shield. Install at location as directed. Seton Valve Chart Frame #A11P.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Pipe, fittings, valves, and connections for fire protection systems.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish pipe sleeves to Section 03300 - for placement.

1.03 RELATED WORK

A. Section 15140S - Supports and Anchors.

B. Section 15190S - Mechanical identification.

C. Section 15330S - Wet-Pipe Sprinkler Systems.

D. Section 15410P- Plumbing Piping (Fire Service Piping)

1.04 REFERENCES

A. ANSI/ASME B16.1 - Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.

B. ANSI/ASME B16.3 - Malleable Iron Threaded Fittings, Class 150 and 300.

C. ANSI/ASME B16.4 - Cast Iron Threaded Fittings, Class 125 and 250.

D. ANSI/ASME B16.5 - Pipe Flanges and Flanged Fittings.

E. ANSI/ASME B16.9 - Factory-made Wrought Steel Butt Welding Fittings.

F. ANSI/ASME B16.11 - Forged Steel Fittings, Socket-welding and Threaded.

G. ANSI/ASME B16.25 – Butt Welding Ends.

H. ANSI/ASME B36.10 - Welded and Seamless Wrought Steel Pipe.

I. ANSI/ASME Section 9 - Welding and Brazing Qualifications.

J. ANSI/ASTM A135 - Electric-Resistance-Welded Steel Pipe.

K. ANSI/ASTM A47 - Malleable Iron Castings.

L. ANSI/ASTM B32 - Solder Metal.

M. ANSI/AWS A5.8 - Brazing Filler Metal.

N. ASTM A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-coated Welded and Seamless.

O. AWS D10.9 - Specifications for Qualification of Welding Procedures and Welders for Piping and Tubing.

P. NFPA 13 - Installation of Sprinkler Systems.

1.05 QUALITY ASSURANCE

A. Conform to NFPA 13 for sprinkler systems.

B. Welding Materials and Procedures: Conform to ASME Code.

C. Employ certified welders in accordance with ANSI/ASME Section 9.

D. Valves: Display UL label or marking. Provide manufacturer's name and pressure rating marked on valve body.

1.06 SUBMITTALS

A. Submit product data and shop drawings in accordance with Section 15011S.

B. Indicate pipe materials used, jointing methods, supports, floor and wall penetration seals.

C. Indicate valve data and ratings piping layout and head locations.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store valves in shipping containers, with labeling in place.

B. Provide temporary protective coating on cast iron and steel valves.

C. Provide temporary end caps and closures. Maintain in place until installation.

PART 2 PRODUCTS

2.01 PIPE AND TUBE

A. Seamless Steel Pipe: Schedule 40; ASTM A53; ASTM A120; ANSI/ASTM A135;

ANSI/ASME B36.10; black or Hot Dipped Galvanized

2.02 PIPE FITTINGS

A. Steel Fittings: ANSI/ASME B16.9, wrought steel, 2-1/2 inches and larger Butt Welded; 2 inches and smaller threaded malleable iron 150 PSI - 300 PSI class ANSI/ASME B 16.3.

B. Grooved or Shouldered end Fittings: Ductile iron ASTM A-395 & ASTM A-536 pipe shall be directly compatible with fittings; grooved fittings and gaskets.

2.03 UNIONS, FLANGES, AND COUPLINGS

A. Unions: 150 PSI malleable iron for threaded ferrous piping.

B. Flanges: 150 PSI forged steel slip-on flanges for ferrous piping.

C. Mechanical Grooved Couplings: Malleable iron housing clamps to engage and lock, designed to permit some angular deflection, contraction, and expansion; "C" shaped composition sealing gasket, steel bolts, nuts, and washers; galvanized couplings for galvanized pipe.

2.04 ACCEPTABLE MANUFACTURERS - GATE VALVES

A. Fairbanks.

B. Jenkins.

C. Crane.

2.05 GATE VALVES

A. Iron body, bronze trim, rising stem, OS&Y, solid wedge.

2.06 ACCEPTABLE MANUFACTURERS - GLOBE VALVES

A. Fairbanks.

B. Nibco/Scott.

C. Crane.

2.07 GLOBE OR ANGLE VALVES

A. Iron body, bronze trim, rising stem, OS&Y, renewable composition disc.

2.08 ACCEPTABLE MANUFACTURERS - CHECK VALVES

A. Reliable Automatic Sprinkler, Model C or D.

B. Nibco/Scott.

C. Central Sprinkler Co.

2.09 CHECK VALVES

A. Iron body, bronze trim, swing disc, renewable disc and seat.

2.10 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES

A. Jenkins.

B. Crane.

C. Stockholm

2.11 BUTTERFLY VALVES

A. Iron body, bronze disc and stem extended for insulated work, resilient replaceable liner seat.

2.12 ACCEPTABLE MANUFACTURERS - DRAIN VALVES

A. Nibco/Scott.

B. Fairbanks.

C. Crane.

2.13 DRAIN VALVES

A. Brass ball valve with cap and chain, 3/4 inch hose thread.

2.14 VALVE OPERATORS

A. Provide handwheels for gate, globe or angle, and drain valves.

B. For butterfly valves provide gear operators for sizes 8 inches and larger. For smaller sizes provide level lock handle with toothed plate.

C. For valves located more than 7 feet from floor in equipment room areas, provide endless chain operated sheaves. Extend chains to 5 feet above floor and secure clear of walkways.

2.15 VALVE CONNECTIONS

A. Provide valve connections to match pipe joints. Use valves of pipe size.
B. Provide butterfly valve with tapped lug body when used for isolating service.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Ream pipe and tube ends to full inside diameter.

B. Remove burrs and bevel plain end ferrous pipe.

C. Remove scale and foreign material, inside and outside, before assembly.

3.02 INSTALLATION - PIPE

A. Screw joint steel piping up to and including 1-1/2 inch diameter. Screw inch diameter piping. Weld piping 2-1/2 inch diameter and larger, including branch connections.

B. Mechanical grooved joints may be used instead of threaded or welded joints.

C. Die cut screw joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.

D. Coat threaded ends with pipe lubricant compound.

E. In steel piping, main sized saddle branch connections or direct connection of branch lines to mains is permitted if main is one pipe size larger than the branch for up to 6 inch mains and if main is two pipe sizes larger than branch for 8 inch and larger mains. Do not project branch pipes inside the main pipe.

F. Install piping in accordance with latest edition, NFPA 13 for sprinkler systems.

G. Do not penetrate building structural members unless indicated. Run all piping concealed.

H. Provide sleeves when penetrating footings floors, and walls.

I. Seal pipe and sleeve penetration to achieve fire resistance equivalent to fire separation required.

3.03 INSTALLATION - VALVES

A. Install valves with stems upright or horizontal, not inverted.

B. Provide gate valves for shut-off or isolating service.

C. Where approved, butterfly valves may be used instead of gate valves.

D. Provide drain valves at main shut-off valves, low points of piping and apparatus.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General Conditions apply to work of this Section.

B. Design and install a complete wet-pipe sprinkler system with all necessary approvals and permits.

C. Fire department and connection to main at a location in accordance with contract drawings.

D. Sprinkler Contractor shall be responsible for all connection in conjunction with the installation of a complete wet-pipe sprinkler system. In addition, the Sprinkler Contractor shall coordinate all wiring with the Electrical Contractor.

1.02 WORK INSTALLED BUT FURNISHED UNDER OTHER SECTIONS

A. Section 15310S - Fire Protection Piping: Piping and valves.

1.03 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

A. Furnish sleeves to Section 03300 - for placement.

1.04 RELATED WORK

A. Section 15410P- Plumbing Piping (Fire Service Piping)

B. Section 15140S - Supports and Anchors.

C. Section 15190S - Mechanical identification.

D. Section 15310S – Fire Protection Piping

1.05 REFERENCES

A. ANSI/NEMA MG 1 - Motors and Generators.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volt Maximum).

C. NFPA 13 - Installation of Sprinkler Systems.

1.06 SYSTEM DESCRIPTION

A. System to provide coverage for entire building.

B. Interface system with building fire and smoke alarm system. Controls supplied by sprinkler contractor. control wiring, conduit and wire and connection to fire/smoke system by fire alarm contractor in accordance with Section 16721E. Comply with requirements of electrical specifications.

C. Provide system to NFPA 13 ordinary hazard group 1-occupancy requirements.

D. Provide fire department connection and sprinkler piping interface with plumbing contractor termination points.

1.07 QUALITY ASSURANCE

A. Design and installation to conform to NFPA 13.

B. Equipment and Components: Bear UL label or marking.

C. Specialist Firm: Company specializing in sprinkler systems with five years experience.

1.08 REGULATORY REQUIREMENTS

A. Hydraulic Calculations by contractor, Product Data, Shop Drawings, and Low Water Pressure Cut-in Controller: Bear stamp of approval of authority having jurisdiction.

1.09 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 15011S.

B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.

C. Submit shop drawings, product data, hydraulic calculations to authority having jurisdiction for approval. Submit proof of approval to Architect/Engineer.

1.10 PROJECT RECORD DOCUMENTS

A. Submit documents.

1.11 OPERATION AND MAINTENANCE DATA

A. Submit manufacturer's operation and maintenance data.

B. Include written maintenance data on components of system, servicing requirements, and Record Drawings.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Provide temporary inlet and outlet caps.

B. Maintain caps in place until installation.

1.13 EXTRA STOCK

A. Provide extra sprinkler heads under provisions of NFPA 13.

B. Provide suitable wrenches for each head type.

C. Provide metal storage cabinet in location to be designated & approved by Architect/Engineer.

PART 2 PRODUCTS

2.01 PIPING MATERIALS

A. Buried Fire Service Piping: Per NFPA requirements. (See Plumbing Section 15410P)

B. Above Ground Inside Building Piping: Steel, Schedule 40, black. Per N.F.P.A. 13 requirements. (See Section 15310S)

2.02 PIPING SPECIALTIES

A. Automatic Sprinkler Valve: Flow detector with alarm circuits, pressure switch, pressure retard chamber. (See equipment schedule contract drawings.)

B. Alarm Gong: Electric type. (See equipment schedule contract drawings.)

C. Fire Department Connection: Flush mounted wall type; brass; finish; thread size to suit fire department hardware; two way threaded dust cap and chain of same material and finish, 3/4 inch automatic drip marked "Sprinkler - Fire Department Connection". (See equipment schedule contract drawings)

D. Sight Glasses (See equipment schedule contract drawings)

E. Flow Switches (See equipment schedule contract drawings)

F. Tamper Switches (See equipment schedule contract drawings)

2.03 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS

A. Reliable Automatic Sprinkler.

B. Automatic Sprinkler.

C. Viking Automatic Sprinkler Co.

2.04 SPRINKLER HEADS

A. Suspended Ceiling Type: Concealed pendant type with paintable finish, with matching escutcheon, color by architect. See contract drawings for model number.

B. Exposed Area Type: Standard upright pendant type with brass finish. See contract drawings for model number

C. Recessed Sidewall Type: Satin Chrome plated finish with matching escutcheon color by architect. See contract drawings for model number.

D. Exposed Sidewall Type: Standard type brass finish See contract drawings for model.

E. Standard Recessed Pendant Type: Brass finish, with matching escutcheon color by Architect. See contract drawings for model number

F. Standard Pendant Type: Standard type brass finish, used on top of elevator shaft, with matching escutcheon color by Architect. See contract drawings for model number.

G.. Fusible Link: Temperature rated for specific area hazard.

H.. Guards: Finish to match sprinkler head.

PART 3 EXECUTIONS

3.01 PREPARATION

A. Coordinate work of this Section with other affected work.

3.02 INSTALLATION

A. Locate fire department connection with sufficient clearance from walls, obstructions, or adjacent Siamese connections to allow full swing of fire department wrench handle.

C. Locate outside fire electric alarm on building wall.

D. Place pipe runs to minimize obstruction to other work.

E. Place piping in heated concealed spaces above finished ceilings.

F. Center heads in two directions in ceiling tile and provide piping offsets as required.

G. Apply strippable tape or paper cover to ensure concealed sprinkler head cover plates does not receive field paint finish.

H Contractor shall verify all sprinkler piping locations, sprinkler head type, sprinkler head Quantity, sprinkler head locations, clearances from walls, hung ceilings, electrical, Hvac & plumbing, and all structural members. The sprinkler contractor at the award of the contract and prior to start of construction shall allow for all contingencies and review with the architect all existing site conditions and make all corrections to avoid future problems. If a discrepancy or problem should arise the contractor shall notify the Architect of an upcoming revision, upon architects approval proceed with the required changes, without any interruption of construction, and at no additional costs to the owner.

I Install fire hydrant in accordance with contract drawings.

3.03 CLEANING

A. Flush entire piping system of foreign matter.

3.04 SYSTEM TESTS

A. Hydrostatically test entire system.

B. Test shall be witnessed by authority having jurisdiction.

END OF SECTION

PROPOSED NEW FACILITY BID
203 SOUTH MAIN ST.
ELLENVILLE, NY 12428

PREPARED FOR:

ELLENVILLE FIRE DISTRICT
PO Box 268
ELLENVILLE, NY 12428

ARCHITECT:

SENDLEWSKI ARCHITECTS PC
215 ROANOKE AVENUE
RIVERHEAD, NEW YORK 11901
(631) 727-5352

Electrical Specifications

Issued for Bid
September 17, 2026

ELECTRICAL

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PART 1 GENERAL

THE PROJECT IS BEING AWARDED AS A SINGLE PRIME GENERAL CONSTRUCTION CONTRACT. ALL ELECTRICAL WORK SHALL BE BID AS A SUBCONTRACT TO THE GENERAL CONTRACTOR.

1.01 WORK INCLUDED

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions (refer to Project Manual) apply to work of this Section.

B. Supply and install all conduit, wire, outlets, junction boxes, fixtures, lamps etc. to make a complete and safe system. Supply and install new electric reels, all lights and receptacles. Provide and install all power wiring including but not limited to motor operated doors, circulating water pumps, motorized dampers, split systems and rooftop HVAC units, unit heaters, etc. and any items installed by other trades that require line voltage.

C. Provide new service entrance equipment, primary to designated pole, all as required by UTILITY CO. to provide a complete system including electrical service, phone service and cable services.

D. All conduit, wire and boxes shall be concealed behind finished walls and ceilings except in the mechanical room and electrical room including concealed in masonry walls (coordinate with GC mason contractor. All wire, switchgear, panelboards and disconnects shall be copper.

E. Provide all power wiring (complete) and control wiring conduits (shown on electrical plans) installed for all Sprinkler, HVAC and Plumbing equipment. Coordinate with the responsible contractors. Coordinate and turn over to Mechanical (HVAC) and Plumbing contractor all components and accessories for their installation.

F. Provide new emergency generator and installation including Automatic Transfer Switch, rigging and all other items to provide a complete system. Provide a minimum of two (2) load tests upon completion. One test to be for adjustments and rectifying any conditions requiring correction. Second test to be after corrections are made as required for full load to pass for certification.

G. Provide and install all conduits and wire for telephone, computer, surveillance, access and cable TV systems. Refer to IT drawings for complete scope of work.

H. All work shall conform to NEC 511 or as otherwise directed and approved by the Board of Fire Underwriters.

I. Provide and install reinforced concrete pad for generator. Provide templates, anchor bolts, and accessories for mounting and anchoring equipment. Contractors shall furnish all tools, machinery, equipment, appurtenances and appliances necessary for the satisfactory handling and execution of their work.

K. The work under these contracts shall include all labor, materials and incidentals necessary to execute a complete workmanlike job in accordance with the requirements of the Code and all local authorities having jurisdiction.

L. All work shall be done in such locations and at such times as directed.

M. The contractors shall place and store his materials as directed.

N. The contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his machines, materials, employees, or work and shall

pile in neat piles outside of building as directed. He shall cooperate with all other trades appurtenant to his work. At the completion of the work, he shall remove all his tools, scaffolding and surplus materials.

O. Contractors shall be responsible for initiating, maintaining and supervising all safety precautions in accordance with O.S.H.A. requirements.

P. In the event that part of the building will be occupied during construction, the interior of the building will be separated and the Contractor will schedule his work accordingly.

Q. Supply and install complete addressable fire alarm,CO2 SYSTEM & smoke detection system.(MINIMUM AS PER PLANS)

S. Temporary light and power (200A. 3P.,4W) to GC trailer on site including meter and pole (all cost of operating for duration of project to be paid by owner).

T. Extend temporary light and power to new facility under construction including temporary lighting throughout facility and receptacles for duration of project or until permanent service is activated (refer to project manual).

1.02 RELATED WORK

A. Section 1A - General material, equipment and workmanship standards.

B. Section 2B - Excavation and backfill.

C. Section 3A - Concrete .

D. Section 7C - Flashing of electrical work.

E. Section 9G - Finish painting.

1.03 DRAWINGS AND COORDINATION

A. It is not the intention of the drawings to show every item, piece of equipment and detail but rather to show systems to be included. Provide systems with all appurtenant equipment to make a complete operating system.

B. Inspect the work area prior to commencing the job. Install work as closely as possible to layouts shown on drawings. Modify work as necessary to meet job conditions and to clear other equipment. Consult Architect before making changes which affect the function, structural integrity or appearance of systems.

C. Dimensions, elevations and locations are shown approximately. Verify measurements in field.

D. Architect reserves the right to order changes in layout of such items as switches, fixtures and outlets if such changes do not substantially affect costs and if affected items have not been fabricated or installed.

E. In some cases, drawing are based on products of one manufacturer, as listed in the specifications. Contractor to be responsible for modifications made necessary by substitution of products of other manufacturers.

F. Do not install part of a system until all critical components of the system and related

systems have been approved. Coordinate parts of system.

G. Coordinate work with the work specified in other sections. Relocate work prior to installation if required for proper installation and functioning of other systems.

H. Install products in accordance with manufacturers' instructions. Notify Architect if contract documents conflict with manufacturers' instructions. Comply with Architect's interpretations.

I. Provide brackets, supports, anchors and frames required for installation of work specified in this division.

J. Provide all cutting and patching, excavation and backfilling required for installation of work specified in this Section.

K. Provide temporary lighting and power for duration of construction schedule or until permanent service is provided.

1.04 PROJECT RECORD DRAWINGS

A. Submit shop drawings in accordance with Section 16011E.

B. Note that the General Conditions specify that project record drawings be prepared.

1.05 EQUIPMENT CLEARANCES

A. Deliver equipment knocked down if necessary.

B. Install equipment with adequate clearances for maintenance and operation both of the equipment and of adjacent equipment.

1.06 PRELIMINARY OPERATION

A. Operate electrical systems with required supervision for at least 2 full days prior to substantial completion.
Make necessary adjustments and check proper operation.

1.07 TESTS PRIOR TO SUBSTANTIAL COMPLETION

A. Tests shall be attended by representatives of electrical subcontractors, equipped with instruments required to demonstrate proper functioning of systems, as specified.
Demonstrate the following:
1. Equipment is installed and operating in accordance with manufacturer's specifications and instructions and with these specifications.
2. Safety controls are operating as specified.
3. Motors are equipped with starters and proper overload protection and not operating under overload. Obtain ammeter readings.
4. Instruments are recording properly.

5. Submit reports in triplicate listing system tested, date, results and description of fault corrected, if any.

1.08 WARRANTY

A. Submit written warranty or warranties covering work specified in Division 16. Period: 2 years from the date of substantial completion of the building or of the equipment being accepted and warranted, whichever is later. Owner is to receive full use of equipment for period of warranty.

1.09 MAINTENANCE AND OPERATING INSTRUCTIONS AND PRODUCTS

A. Submit maintenance and operating instructions for equipment requiring maintenance and operation.

1. List replacement parts and order procedure.
2. Include lubrication instructions and schedule, with types of lubricant to be used.
3. Furnish 1 complete replacement set of fuses.

B. Instruct Owner's personnel in use of equipment specified in this Division.

C. Submit maintenance and operating manuals for equipment specified in this Division.

1.10 ELECTRICAL SYSTEMS IDENTIFICATION

A. See Section 16195E - Electrical Identification.

1.11 CODES AND ORDINANCES

A. Conform to the requirements of all codes and ordinances of authorities having jurisdiction, as specified in the General Conditions. In particular, conform to the State of New York Building Code, which incorporates the National Electrical Code by reference and NFPA.

B. Conform to the State of New York Building Code energy conservation requirements, including certification, labelling and maintenance instructions for equipment.

1.12 REMOVAL AND DISPOSAL OF WASTE MATERIALS

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A. Remove and dispose of all debris and waste materials from the site in a safe and legal manner.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Rigid metal conduit and fittings.

C. Electrical metallic tubing and fittings.

1.02 RELATED WORK

A. Section 3A - Cutting and Patching.

B. Section 2B - Trenching: Excavation and backfill for conduit and utilities on site.

1.03 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc-Coated.

B. ANSI C80.5 - Rigid Aluminum Conduit.

C. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

D. FS WW-C-563 - Electrical Metallic Tubing.

PART 2 PRODUCTS

2.01 RIGID METAL CONDUIT AND FITTINGS

A. Rigid Steel Conduit: ANSI C80.1.

B. Rigid Aluminum Conduit: ANSI C80.5.

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.

2.02 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

A. EMT: ANSI C80.3 galvanized tubing.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel set screw type.

PART 3 EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. Size conduit for conductor type installed or for Type THW conductors, whichever is larger; 3/4 inch minimum size.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route all conduit concealed and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

D. Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

E. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

F. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

3.02 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipe cutter; de-burr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

D. Install no more than the equivalent of three 90- degree bends between boxes.

E. Use conduit bodies to make sharp changes in direction, as around beams.

F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size.

G. Avoid moisture traps where possible; where unavoidable,
provide junction box with drain fitting at conduit low point.

H. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

I. Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.

J. Install expansion joints where conduit crosses building expansion joints.

K. Where conduit penetrates fire-rated walls and floors, provide pipe sleeve two sizes larger than conduit; pack void around conduit with oakum and fill ends of sleeve with fire- resistive compound. Provide die-electric protection where required.

L. Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof with pitch pocket. Coordinate with mason as walls are being installed.

3.03 CONDUIT INSTALLATION SCHEDULE

A. Underground Installations More than Five Feet From Foundation Wall: PVC

B. Installations In or Under Concrete Slab, or Underground
Within Five Feet of Foundation Wall: Rigid steel conduit.

C. Exposed Outdoor Locations: Rigid steel conduit.

D. Wet Interior Locations: Rigid steel conduit.

E. Concealed Dry Interior Locations: M/C CABLE

F. Exposed Dry Interior Locations: Above 8ft.Rigid aluminum conduit. Below 8 ft. AFF - Rigid Steel Conduit.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Wall and ceiling outlet boxes.

C. Pull and junction boxes.

1.02 REFERENCES

A. ANSI/NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports.

B. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

PART 2 PRODUCTS

2.01 OUTLET BOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1; galvanized steel, with 1/2 inch male fixture studs where required.

2.02 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: ANSI/NEMA OS 1; galvanized steel.

B. Sheet Metal Boxes Larger Than 12 Inches in Any Dimension: Hinged enclosure.

C. Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250; Type 4 and Type 6, flat-flanged, recessed-mounted junction box, UL listed as raintight. Cast aluminum box and cover with ground flange, neoprene gasket, and stainless steel cover screws.

D. Cast Metal Boxes for Underground Installations: NEMA 250; Type 4, inside flange recessed cover box for flush
mounting, Ul listed as raintight. Galvanized cast iron box and plain cover with neoprene gasket and stainless steel cover screws.

E. Fiberglass Handholes for Underground Installations: Die- molded with pre-cut 6 x 6 inch cable entrance at center bottom of each side; fiberglass weatherproof cover with non-skid finish.

PART 3 EXECUTION

3.01 COORDINATION OF BOX LOCATIONS

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in all areas prior to rough-in.

C. Locate and install boxes to allow access. Where installation is inaccessible, coordinate locations and sizes of required access doors.

D. Locate and install to maintain headroom and to present a neat appearance.

3.02 OUTLET BOX INSTALLATION

A. Do not install boxes back-to-back in walls. Provide minimum 6 inch separation, except provide minimum 24 inch separation in acoustic-rated walls.
B. Locate boxes in masonry walls to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat openings for boxes.

C. Provide knockout closures for unused openings.
D. Support boxes independently of conduit except for cast boxes that is connected to two rigid metal conduits, both
supported within 12 inches of box.
E. Use multiple-gang boxes where more than one device are mounted together; do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
F. Install boxes in walls without damaging wall insulation.
G. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
H. Position outlets to locate luminaires as shown on reflected ceiling plans.
I. In inaccessible ceiling areas, position outlets and junction boxes within 6 inches of recessed luminaire, to be accessible through luminaire ceiling opening.
J. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.
K. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
L. Provide cast outlet boxes in exterior locations exposed to the weather and wet locations.
M. All outlet boxes are to be installed above fin tube radiation. Coordinate heights and locations with mechanical contractor.

3.03 PULL AND JUNCTION BOX INSTALLATION

A. Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.

B. Support pull and junction boxes independent of conduit.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Wall switches.

C. Receptacles.

D. Device plates and box covers.

1.02 REFERENCES

A. FS W-C-596 - Electrical Power Connector, Plug, Receptacle, and Cable Outlet.

B. FS W-S-896 - Switch, Toggle.

C. NEMA WD 1 - General-Purpose Wiring Devices.

D. NEMA WD 2 - Semiconductor Dimmers for Incandescent Lamps.

E. NEMA WD 5 - Specific-Purpose Wiring Devices.

1.03 SUBMITTALS

A. Submit product data in accordance with Section 16011E.

B. Provide product data showing configurations, finishes, dimensions, and manufacturer's instructions.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - WALL SWITCHES.

A. Leviton.

B. Hubbell.

2.02 WALL SWITCHES

A. Wall Switches for Lighting Circuits and Motor Loads Under 1/2 HP: FS W-S-896; AC general use snap switch with toggle handle, rated 20 amperes and 120-277 volts AC. Handle: Ivory plastic. Hubbell Model #1221.

2.03 ACCEPTABLE MANUFACTURERS - RECEPTACLES

A. Leviton.

B. Hubbell.

2.04 RECEPTACLES

A. Convenience and Straight-blade Receptacles: NEMA WD 1. Hubbell #5262.

B. Locking-Blade Receptacles: NEMA WD 5. Hubbell Mode #4700.

C. Convenience Receptacle Configuration: NEMA WD 1; Type 5-20 R, ivory plastic face. Hubbell Model #5262I.

D. Specific-use Receptacle Configuration: NEMA WD 1 or WD 5; type as indicated on Drawings.

E. GFCI Receptacles: Duplex convenience receptacle with integral ground fault current interrupter. Hubbell Model #GF5262.

2.05 ACCEPTABLE MANUFACTURERS - WALL PLATES

A. Leviton.

B. Hubbell.

2.06 WALL PLATES

A. Decorative Cover Plate: Brushed Stainless steel. Hubbell Model #S-1.

B. Weatherproof Cover Plate: Gasketed cast metal with hinged gasketed device covers. Hubbell Model #5206.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install wall switches as shown, to coordinate with architectural drawings, OFF position down.
B. Install convenience receptacles as shown to coordinate with architectural drawings, grounding pole on bottom.
C. Install specific-use receptacles at heights shown on Contract Drawings.
D. Corridor Convenience Receptacles: Hospital Grade. Hubbell #8300.
E. Install decorative plates on switch, receptacle, and blank outlets in finished areas, using jumbo size plates for outlets installed in masonry walls.
F. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas,

above accessible ceilings, and on surface-mounted outlets.

G. Install devices and wall plates flush and level

H. Install receptacles above fin tube radiation. Coordinate heights and locations with mechanical contractor.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of contract, including General and Supplementary Conditions apply to work of this Section.

B. Arrangement with Utility Company for permanent electric service including payment of Utility Company charges for service.

C. Underground service from utility pole to pad mounted transformer and to facility service equipment.

1.02 RELATED WORK

A. Section 3A - Concrete work

1.03 SYSTEM DESCRIPTION

A. System Voltage: 120/208 volts, three phase, four- wire, 60 Hertz.

1.04 QUALITY ASSURANCE

A. Utility Company:

B. Install service entrance in accordance with Utility Company's rules and regulations.

1.05 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 16011E.

B. Submit Utility Company prepared drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Make arrangements with Utility Company to obtain permanent electric service to the Project.

B. Underground: Supply and install primary cable in conduit from service pole to new site transformer and from transformer to new facility service equipment. Contractor shall leave sufficient slack cable for Utility Company to connect service lateral conductors
at top of pole.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Disconnect switches.

C. Fuses.

D. Enclosures.

E. Shunt trip breaker for elevator.

1.02 REFERENCES

A. ANSI/UL 198C - High-Intensity Capacity Fuses; Current Limiting Types.

B. ANSI/UL 198E - Class R Fuses.

C. FS W-F-870 - Fuseholders (For Plug and Enclosed Cartridge Fuses).

D. FS W-S-865 - Switch, Box, (Enclosed), Surface-Mounted.

E. NEMA KS 1 - Enclosed Switches.

1.03 SUBMITTALS

A. Submit product data in accordance with Section 16011E.

B. Include outline drawings with dimensions, and equipment ratings for voltage, capacity, horsepower, and short circuit.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS - DISCONNECT SWITCHES

A. Square-D.

B. General Electric.

2.02 DISCONNECT SWITCHES

A. Fusible Switch Assemblies: NEMA KS 1; FS W-S-865; quick-make, quick-break, load interrupter enclosed knife

switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Square-D H series.

B. Nonfusible Switch Assemblies: NEMA KS 1; Type HD; quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Square-D H series.

C. Enclosures: NEMA KS 1; as indicated on Drawings.

2.03 ACCEPTABLE MANUFACTURERS - FUSES

A. See Contract Drawings

2.04 FUSES

A. Fuses 600 Amperes and Less: As indicated on Drawings; current limiting, one-time fuse, 600 volt.

B. Interrupting Rating: 200,000 rms amperes.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install disconnect switches where indicated on Drawings.

B. Install fuses in fusible disconnect switches.

3.02 DISCONNECT SWITCHS

A. See Contract Drawings.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Power system grounding.

C. Electrical equipment and raceway grounding and bonding.

1.02 SYSTEM DESCRIPTION

A. Ground the electrical service system neutral at service entrance equipment to metallic water service and to supplementary grounding electrodes.

B. Ground each separately-derived system neutral to nearest effectively grounded metallic water pipe.

C. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

1.03 SUBMITTALS

A. Submit shop drawings in accordance with Section 16011E.

B. Indicate location of system grounding electrode connections, and routing of grounding electrode conductor.

PART 2 PRODUCTS

2.01 MATERIALS

A. Ground Rods: Copper-encased steel, 3/4 inch diameter, minimum length 10 feet.

PART 3 EXECUTION

3.01 INSTALLATION

A. Provide a separate, insulated equipment grounding conductor in feeder and branch circuits. Terminate each
end on a grounding lug, bus, or bushing.

B. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter.

C. Supplementary Grounding Electrode: Use driven ground rod on exterior of building.

D. Use minimum 6 AWG copper conductor for communications service grounding conductor. Leave 10 feet slack conductor at terminal board.

E. Isolated Grounding Systems: Use insulated equipment grounding conductor and connect only to service grounding electrode.

F. Provide grounding and bonding at Utility Company's metering equipment in accordance with Section 16420E.

3.02 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Measure ground resistance from system neutral connection at service entrance to convenient ground reference point using suitable ground testing equipment. Resistance shall not exceed 10 ohms.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Service and distribution panelboards.

C. Lighting and appliance branch circuit panelboards.

D. Load centers.

1.02 RELATED WORK

A. Section 16480 - Motor Control: Motor Starter panelboards.

1.03 REFERENCES

A. FS W-C-375 - Circuit Breakers, Molded Case, Branch Circuit and Service.

B. FS W-F-870 - Fuseholders (For Plug and Enclosed Fuses).

C. FS W-P-115 - Power Distribution Panel.

D. FS W-S-865 - Enclosed Knife Switch

E. NEMA AB 1 - Molded Case Circuit Breakers.

F. NEMA KS 1 - Enclosed Switches.

G. NEMA PB 1 - Panelboards.

H. NEMA PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

I. NEMA PB 1.2 - Application Guide for Ground-fault Protective Devices for Equipment.

1.04 SUBMITTALS

A. Submit shop drawings and installation instructions for equipment and component devices in accordance with Section 16011E.

B. Include outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.

1.05 SPARE PARTS

A. Keys: Furnish two each to Owner.

B. Fuses: Furnish to Owner one spare fuses of each type and rating installed.

C. Fuse Pullers: Furnish one fuse puller to Owner.

D. Circuit Breakers: Provide spares as indicated on Contract Drawings.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURES - PANELBOARDS

A. Square-D.

B. General Electric.

2.02 PANELBOARDS

A. All buswork in panelboards to be copper.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1.

B. Height: 6 ft.

C. Provide filler plates for unused spaces in panelboards.

D. Provide typed circuit directory for each branch circuit panelboard. Revise directory to reflect circuiting changes required to balance phase loads.

3.02 FIELD QUALITY CONTROL

A. Measure steady state load currents at each panelboard feeder. Should the difference at any panelboard between phases exceed 20 percent, rearrange circuits in the panelboard to balance the phase loads within 20 percent. Take care to maintain proper phasing for multi-wire branch circuits.

B. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

3.03 PANELBOARD SCHEDULE

A. See contract drawings.

END OF SECTION

PART 1 GENERAL

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Automatic transfer switch.

1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

A. Section 16425E - Switchboards: Installation of transfer switch.

1.03 RELATED WORK

A. Section 16622E - Package Engine-Generator System: Testing requirements.

1.04 REFERENCES

A. NEMA ICS 1 - General Standards for Industrial Control and Systems.

B. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers, and Assemblies.

C. NEMA ICS 6 - Enclosures for Industrial Controls and Systems.

1.05 QUALITY ASSURANCE

A. Manufacturer: Company specializing in automatic transfer equipment with three years experience.

1.06 SUBMITTALS

A. Submit product data in accordance with Section 16011E.

B. Submit product data for transfer switches showing overall dimensions, electrical connections, electrical ratings, and environmental requirements.

C. Submit manufacturer's installation instructions.

1.07 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data.

B. Include instructions for operating equipment.

C. Include instructions for operating equipment under emergency conditions.

D. Identify operating limits which may result in hazardous or unsafe conditions.

E. Document ratings of equipment and each major component.

F. Include routine preventive maintenance and lubrication schedule.

G. List special tools, maintenance materials, and replacement parts.

1.08 REGULATORY REQUIREMENTS

A. Conform to applicable code for standby electrical systems.

2.02 AUTOMATIC TRANSFER

A. Description: NEMA ICS 2; automatic transfer switch.

B. The automatic transfer switch shall consist of a power transfer module and a control module, interconnected to provide complete automatic operation. The automatic transfer switch shall be mechanically held and electrically operated by a single-solenoid mechanism energized from the source to which the load is to be transferred. The switch shall be rated for continuous duty and be inherently double throw. The switch shall be mechanically interlocked to ensure only on of two possible positions - normal or emergency. The automatic transfer switch shall be suitable for use with emergency sources.

2.03 AUTO TRANSFER SWITCH

A. Configuration: Electrically-operated, mechanically-held transfer switch.

B. Sequence of Operation: Switch position is selected by control switch mounted in switch cover.

C. All main contacts shall be of silver composition. They shall be protected by arcing contacts in sizes 400-Amperes and over. They shall be of the blow-on configuration and of segmented construction in ratings 600-Amperes and over. The operating transfer time in either direction shall not exceed one-sixth (1/6) of a second.

D. All contacts, coils, springs, and control elements shall be conveniently removable from the front of the transfer switch without major disassembly or disconnection of power conductors.

E. The control module shall be supplied with a protective cover and be mounted separately from the transfer switch for ease of maintenance. Sensing and control

logic shall be solid-state and mounted on plug-in printed circuit boards. Printed circuit boards shall be keyed to prevent incorrect installation, interfacing relays shall be industrial-control-grade, plug-in type with dust covers and locking clips.

F. Automatic transfer switches utilizing components of molded case circuit breakers, linear actuators, contactors or parts thereof which have not been intended for continuous duty or repetitive load transfer switching are not acceptable.

G. The automatic transfer switch shall conform to the requirements of NEMA Standard ICS2-447 and Underwriters' Laboratories UL-10008 and shall be UL listed.

H. For single-phase switches, the normal source voltage across live lines shall be monitored, and for three phase switches all phases of the normal shall be monitored line-to-line. Closes differential voltage shall be adjustable from 70% to 98% of the pickup value. The transfer to emergency will be initiated upon reduction of normal source to 85% of nominal voltage and retransfer to normal shall occur when normal source restores to 95% of nominal.

I. Harnessing between transfer switch and control panel shall have built-in disconnect for routine maintenance. All moveable parts of the operating mechanism shall remain in positive mechanical contact with the main contacts during the transfer operation without the use of separate mechanical interlocks.

Automatic operation of the switch shall not require power from any source other than the line-to-line voltage of the source to which the switch is transferring.

2.04 RATINGS

A. Ratings: NEMA ICS 2; as follows:
   1. Voltage: 120/208 volts, three phase, four wire, 60 Hz.
   2. Switched Poles: 4 with overlapping neutral transition..
   3. Load Inrush Rating: Combination load.
   4. Continuous Rating: 1000 amperes.

2.05 AUTOMATIC SEQUENCE OF OPERATION

A. Initiate Time Delay to Start Alternate Source Engine Generator: Upon initiation by normal source monitor.

B. Time Delay to Start Alternate Source Engine Generator: 0.6 to 6 seconds, adjustable.

C. Initiate Transfer Load to Alternate Source: Upon initiation by normal source monitor and permission by alternate source monitor.

D. Time Delay Before Transfer to Alternate Power Source: 0 to 60 seconds, adjustable.

E. Initiate Retransfer Load to Normal Source: Upon permission by normal source monitor.

F. Time Delay Before Re-Transfer to Normal Power: 1 to 30 minutes, adjustable; bypass time delay in event of alternate source failure.

G. Time Delay Before Engine Shut Down: Five minutes, adjustable, of unloaded operation.

H. Engine Exerciser: Start engine every 7 days; run for 30 minutes before shutting down. Bypass exerciser control if normal source fails during exercising period. Transfer load to alternate source during engine exercise period. Provide Load/No Load selector switch.

2.06 ENCLOSURE

A. Enclosure: ICS 6; Type 1.

2.07 ACCESSORIES

A. Indicating Lights: Mount in cover of enclosure to indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE, SWITCH POSITION, EMERGENCY SWITCH POSITION.
B. Test Switch: Mount in cover of enclosure to simulate failure of normal source.
C. Push Button Return to Normal Switch: Mount in cover of enclosure to initiate Manual transfer from alternate to normal source.
D. Transfer Switch Main Shaft Auxiliary Contacts: 1 normally open; 1 normally closed.
E. Normal Source Monitor: Monitor each line of normal source voltage and frequency; Initiate transfer when voltage drops below 85 percent or frequency varies more than 3 percent from rated nominal value.
F. Alternate Source Monitor: Monitor alternate source voltage and frequency; inhibit transfer when voltage is below 85 percent or frequency varies more than 3 percent from rated nominal voltage.
G. In spour-phase relay. Monitors the normal and emergency sources and will not permit transfer until the phase voltages have been plus or minus 10% for approximately 60 \ milliseconds. If the source supplying the load fails or drops below an adjustable 10% to 30%, this relay will override itself and permit immediate transfer. This accessory operate in both directions. (Required for use with meter lods of 15 HP or larger). Programmed transition will not be acceptable.

PART 3 EXECUTION

3.01 EXAMINATION
A. Verify that surfaces are ready to receive work.
B. Verify field measurements are as instructed by manufacturer.

C. Verify that required utilities are available, in proper location, and ready for use.
D. Beginning of installation means acceptance of existing conditions.

3.02 INSTALLATION
A. Install in accordance with manufacturer's instructions.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Interior luminaires and accessories.

C. Exterior luminaires and accessories.

D. Lamps.

E. Ballasts.

1.02 RELATED WORK

A. Section 9G - Painting.

1.04 SUBMITTALS

A. Submit product data in accordance with Section 16011E.

B. Include outline drawings, lamp and ballast data, support points, weights, and accessory information for each luminaire type.

C. Submit manufacturer's installation instructions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

PART 2 PRODUCTS

2.01 INTERIOR LUMINAIRES AND ACCESSORIES

A. See contract drawings. Contractor must coordinate and select proper trim on lighting fixtures for Ceiling being installed.

B. Recessed LED Luminaries: Provide trim type and accessories required for installation in ceiling system installed.

2.02 EXTERIOR LUMINAIRES AND ACCESSORIES

A. See contract drawings.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install lamps in luminaires and lampholders.

B. Support all luminaires directly from building structure not from ceiling.

C. Install recessed luminaires to permit removal from below. Use plaster frames or Install grid clips.

D. Embedded Luminaire Poles: Depth as indicated below finished grade. Install plumb.

3.02 RELAMPING

A. Relamp luminaires which have failed lamps at completion of Work.

3.03 ADJUSTING AND CLEANING

A. Align luminaires and clean lenses and diffusers at completion of Work. Clean paint splatters, dirt, and debris from installed luminaires.

B. Touch up luminaire finish at completion of work.

3.04 LUMINAIRE SCHEDULE

A. See contract drawings.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Packaged engine generator system with integral double wall 500 gallon diesel fuel tank.

C. Exhaust silencer and fittings.

D. Fuel fittings.

E. Battery and charger.

F. weatherproof exterior enclosure with critical muffler inside enclosure.

G. enclosure shall be rated at 75dba@7meters for duplication of annunciator panel for generator status and trouble.

H. Remote annunciator panel

1.04 REFERENCES

A. ANSI/NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA MG 1 - Motors and Generators.

C. ANSI/NFPA 70 - National Electrical Code.

D. ANSI/NFPA 99 - Health Care Facilities.

E. ANSI/NEMA AB 1 - Molded Case Circuit Breakers.

1.06 SUBMITTALS

A. Submit shop drawings and product data in accordance with Section 16011E.

B. Submit shop drawings showing plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, and electrical diagrams including schematic and interconnection diagrams.

C. Submit product data showing dimensions, weights, ratings, interconnection points,

internal wiring diagrams, etc. for engine, generator, control panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, radiator, and remote annunciator.

D. Submit manufacturer's installation instructions.

1.07 PROJECT RECORD DOCUMENTS

A. Submit record documents.

B. Accurately record location of engine generator and mechanical and electrical connections.

1.08 OPERATION AND MAINTENANCE DATA

A. Submit operation and maintenance data.

B. Include instructions for normal operation, routine maintenance requirements, service manuals for engine, oil sampling and analysis for engine wear, and emergency maintenance procedures.

C. Provide three sets of operation and maintenance manual.

1.09 QUALIFICATIONS

A. Manufacturer: Company specializing in packaged engine generator system with minimum three years documented experience.

B. Supplier: Authorized distributor of engine generator manufacturer with service facilities within 50 miles of project site.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site.

B. Store and protect products.

C. Accept packaged engine generator set and accessories on site in crates and verify damage.

D. Protect equipment from dirt and moisture by securely wrapping in heavy plastic.

1.11 WARRANTY

A. Provide one year warranty. From date of initial start-up. Warranty shall cover complete package. Individual component warranties will not be acceptable.

1.12 MAINTENANCE SERVICE

A. Furnish service and maintenance of packaged engine generator system for one year from Date of Substantial Completion. Which shall consist of changing the oil, oil filters, fuel filter, and air filter.

1.13 EXTRA MATERIALS

A. Provide two sets of each oil, and air filter element required for the engine generator system.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A Generac or equal. Refer to contract drawings for specifications.

2.02 ENGINE

A. Type: RADIATOR COOLED inline or V-type, four stroke cycle, two stroke cycle, electric ignition internal combustion engine, cubic inch displacement, HP, cylinder.

B. Rating: Sufficient to operate at 100 percent load for duration of a power failure at specified elevation and ambient limits.

C. Fuel System: Diesel

D. Engine Speed: 1800 rpm.

E. Governor: Isochronous type to maintain engine speed within plus or minus 0.25 percent, steady state and no load to full load, with recovery to steady state within 2 seconds following sudden load changes. Equip governor with means for manual operation and adjustment by service technician.

F. Safety Devices: Engine shutdown on high water temperature, low water level, low oil pressure, overspeed, and engine overcrank. Limits as selected by manufacturer.

G. Engine Starting: DC starting system with positive engagement, number and voltage of starter motors in accordance with manufacturer's instructions. Include remote starting control circuit, with MANUAL-OFF-REMOTE selector switch on engine- generator control panel.

H. Engine Jacket Heater: Thermal circulation type water heater with integral thermostatic control, sized to maintain engine jacket water at 90 degrees F and suitable for operation on 120 volts AC.

I. Radiator: WATER COOLED.

J. Engine Accessories: Lube oil filter, Low water level shut-off, intake air filter, lube oil cooler, belt-driven water pump, gas solenoid fuel valve, fuel filter, critical silencer, flexible couplings for fuel line and exhaust line, wall thimble and rain cap. Include

water temperature gage, and lube oil pressure gage on engine-generator control panel.

K. Mounting: Provide unit with suitable vibration isolators and mount on structural steel base. Provide spring type vibration isolators between the generator and pad or base.

2.03 GENERATOR

A. Generator: ANSI/NEMA MG 1; three phase, four pole, reconnectible brushless synchronous generator with brushless exciter.

B. Rating: Refer to drawings.

C. Insulation: ANSI/NEMA MG 1, Class F.

D. Temperature Rise: 105 degrees C continuous.

E. Enclosure: ANSI/NEMA MG 1.

F. Voltage Regulation: Include generator-mounted volts per Hertz exciter-regulator to match engine and generator characteristics, with voltage regulation +/- one percent from no load to full load. Include manual controls to adjust voltage drop +/- 5 percent voltage level, and voltage gain.

2.04 ACCESSORIES

A. Exhaust Silencer: Critical type silencer, with muffler companion flanges and flexible stainless steel exhaust fitting, rain cap suitable for horizontal orientation, sized in accordance with engine manufacturer's instructions.

B. Batteries: Heavy duty, diesel starting type lead-acid storage batteries, 72 ampere-hours minimum capacity. Match battery voltage to starting system. Include necessary cables and clamps.

C. Battery Tray: Metal battery tray.

D. Battery Charger: Current limiting type designed to float at 2.17 volts per cell and equalize at 2.33 volts per cell. Include overload protection, full wave rectifier, DC voltmeter and ammeter, and 120 volts AC fused input. Provide wall-mounted enclosure to meet ANSI/NEMA 250, Type 1 requirements.

E. Line Circuit Breaker: NEMA AB 1 molded case circuit breaker on generator output with integral thermal and instantaneous magnetic trip in each pole; number and rating as indicated. Mount unit in enclosure to meet ANSI/NEMA 250, Type 1 requirements.

F. Engine-Generator Control Panel: Suitable for indoor use NEMA 1, ANSI/NEMA 250, Type 1 generator mounted control panel enclosure with engine and generator controls and indicators. Include provision for the following equipment and features:
1. Frequency Meter: 45-65 Hz range, 3-1/2 inch dial.

2. AC Output Voltmeter: 3-1/2 inch dial, 2 percent accuracy, with phase selector switch.
3. AC Output Ammeter: 3-1/2 inch dial, 2 percent accuracy, with phase selector switch.
4. Output voltage adjustment.
5. Push-to-test indicator lamps, one each for low oil pressure, high water temperature, low water level, overspeed, and overcrank.
6. Engine start/stop selector switch.
7. Engine running time meter.
8. Oil pressure gauge.
9. Water temperature gage.
10. Auxiliary Relay: Operates when engine runs.
11. Remote Alarm Contacts: Pre-wire SPCT contacts to terminal strip for remote alarm functions required by ANSI/NFPA 99.
12. Low water level alarm.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work and field dimensions are as shown on Drawings.

B. Verify that required utilities are available in proper location and ready for use.

C. Beginning of installation means installer accepts existing conditions.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.
B. Transfer switch shall be installed a minimum of 18" AFF to conform with NEC Section 511.

3.03 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed.

B. Provide full load test utilizing portable test bank, if required, for four hours minimum. Simulate power failure including operation of transfer switch, automatic starting cycle, and automatic shutdown, and return to normal.

C. During test, record the following at 20 minute intervals:
1. Kilowatts.
2. Amperes.
3. Voltage.
4. Coolant temperature.
5. Room temperature.
6. Frequency.

7. Oil pressure.

D. Test alarm and shutdown circuits by simulating conditions.

3.04 MANUFACTURER'S FIELD SERVICES

A. Prepare, start, test, and adjust systems. Allow for two (2) separate tests.

1.05 ADJUSTING

A. Adjust work.
B. Adjust generator output voltage and engine speed.

3.06 CLEANING

A. Clean work.
B. Clean engine and generator surfaces. Replace oil and fuel filters.

3.07 DEMONSTRATION

A. Provide systems demonstration.
B. Describe loads connected to emergency system and restrictions for future load additions.
C. Simulate power outage by interrupting normal source, and demonstrate that system operates to provide emergency power.

3.08 QUALITY ASSURANCE

A. To aaure that the equipment has been designed and built to the highest reliability and quality standards, the manufacturer and local representative shall be responsible for two separate tests: design prototype tests, and final production tests.
1. Design Prototype Tests: Components of the emergency system such as the engine/generator set, transfer switch, and accessories shall not be subjected to prototype tests since the tests are potentially damaging. Rather, a similar design prototupes and reproduction models, which will not be sold, shall have been used for the following tests.
a. Maximum power (kw)
b. Maximum motor starting (kVA) at 30% instantaneous voltage dip.
c. Alternator temperature rise by embedded thermocouple and by resistance method per NEMA MG1-22.40 & 16.40.
d. Governor speed regulation under steady-state and transient conditions.
e. Voltage regulation and generator transient response
f. Fuel consumption at 1/4, 1/2, 3/4, and full load.
g. Harmonic analysis, voltage waveform deviation, and telephone influence factor.
h. Three-phase short circuit tests.
i. Alternator cooling air flow.
j. Torsional analysis testing to verify that the generator set is free of harmful torsional stresses.
k. Endurance testing.
2. Final Production Tests: Each generator set shall be tested two (2) times under varying loads with guards and exhaust system in place. Test shall include:
a. Single-step load pickup.

b. Transient and steady-state governing.
c. Safety shutdown device testing.
d. Voltage regulation.
e. Rated Power.
f. Maximum Power.
g. Upon request, arrangements to either witness this test will be made or a certified test record will be sent prior to shipment.

END OF SECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Engine control panel.

C. Generator control panel.

D. Engine alarm panel.

E. Annunciator panel in radio room

1.02 RELATED WORK

A. Section 16495E - Transfer Switch.

B. Section 16622E - Package Engine Generator Set.

1.04 REGULATORY REQUIREMENTS

A. Provide audio and visual alarms in accordance with National Electrical Code and applicable electrical inspection authority.

1.05 SUBMITTALS

A. Submit shop drawings in accordance with Section 16011E.

B. Submit manufacturer's installation instructions.

C. Submit manufacturer's descriptive literature, operating instructions, and maintenance and repair data.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. GENERAC or equal.

2.02 ENGINE CONTROL PANEL

A. Mount in steel enclosure in control panel, complete with oil pressure gage, water temperature gage, low oil
pressure shutdown contacts, high water temperature alarm contacts, high water temperature shutdown contacts, overspeed shutdown contacts, low water level and cranking limiter relay.

2.03 ENGINE ALARM PANEL

A. Incorporate in generator control panel complete with generator OFF-START-AUTO selector switch, cranking limiter, trouble horn and double pole, double throw silencing switch with red indicating light and illuminated annunciators with engraved nameplates reading:
   1. Low oil pressure alarm
   2. High water temperature alarm
   3. Low oil pressure shut down
   4. High water temperature shut down
   5. Overspeed shut down
   6. Over cranking shut down
   7. Low water level.
   8. Switch "OFF" (Flashing Red).
   9. Emergency stop
   10. Low fuel
   11. System ready (Green).
   12. Low water temperature.
   13. Pre-Alarm high water temperature (Yellow).
   14. Pre-Alarm low oil pressure (Yellow).

2.04 ANNUNCIATORS

A. Locking type with manual reset button for DC operation from battery bank incorporating contacts for remote indication.

B. Provide contacts so that when shutdown occurs from one set of shutdown contacts, subsequent operation of shutdown contacts are locked off from operating annunciators.

C. Operation of silencing switch to silence trouble alarm but pilot to remain illuminated.

D. On return to normal and resetting of annunciators, trouble horn to sound again until switch is returned to normal position.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install alarms and instrumentation in accordance with manufacturer's instructions.

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES
1.02

A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to work of this Section.

B. Fire alarm and smoke detection systems. Shall be addressable type.

1.02 RELATED SECTIONS

A. Section 8G - Door Hardware: Door closers.

B. Section 15010S - Sprinkler system.

C. Section 15010H - Duct mounted smoke detectors.

D. Section 15910H - Fire dampers.

E. Section 16120 - Wire and Cable.

1.03 REFERENCES

A. NFPA 72A - Installation, Maintenance, and Use of Local Protective Signaling System for Guard's Tour, Fire Alarm, and Supervisory Service.

B. NFPA 72B - Installation, Maintenance, and Use of Auxiliary Protective Signaling System for Fire Alarm Service.

C. NFPA 72C - Installation, Maintenance, and Use of Remote Station Protective Signaling System.

D. NFPA 72E - Automatic Fire Detectors.

E. NFPA 72G - Notification Appliances for Protective Signaling Systems.

F. NFPA 72H - Guide for Test Procedures for Protective Signaling Systems.

G. NFPA 101 - Life Safety Code.

1.04 REGULATORY REQUIREMENTS

A. System: UL and FM listed.
B. Conform to requirements of NFPA 101.
C. Each and all items of the Fire Alarm System shall be listed as a product of a SINGLE Fire Alarm System manufacturer under the appropriate category by the Underwriters

Laboratories, Inc. (UL) and shall bear the UL label. All control equipment shall be listed under UL category UOJZ as a single control unit. Partial listing shall NOT be acceptable.

1.05 SYSTEM DESCRIPTION

A. Fire Alarm System: NFPA 72A; NFPA 72B; NFPA 72C; automatic manual fire alarm system.

B. System Supervision: Provide electrically-supervised system, with supervised alarm initiating and alarm signaling circuits. Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode. Occurrence of single ground or open condition on alarm initiating circuit does not disable that circuit from transmitting in ALARM.

C. Alarm Sequence of Operation: Actuation of manual fire alarm station or automatic initiating device causes system to enter ALARM, which includes the following operations:
1. Sound and display local fire alarm signaling devices with non-coded signal.
2. Transmit non-coded signal to remote station equipment.
3. Indicate location of alarm zone on fire alarm control panel.
4. Transmit signals to building elevator control panel to initiate return to main floor or alternate floor.
5. Transmit signal to building mechanical systems to initiate shutdown of fans and damper operation.
6. Transmit signal to release door hold-open devices by zone.

D. Alarm Reset: Key-accessible RESET function resets alarm system out of ALARM if alarm initiating circuits have cleared.

E. Trouble Sequence of Operation: System trouble, including grounding or open circuit of supervised circuits, or power or system failure causes system to enter TROUBLE mode, including the following operations:
1. Visual and audible trouble alarm by zone at control panel.
2. Visual and audible trouble alarm at annunciator panel.
3. Manual ACKNOWLEDGE function at control panel silences audible trouble alarm; visual alarm is displayed until initiating trouble is cleared.
4. Transmit trouble signal to remote station.

F. Lamp Test: Manual LAMP TEST function causes alarm indication at each zone at fire alarm control panel.

G. Drill Sequence of Operation: Manual DRILL function causes ALARM mode operation to:
1. Sound and display local fire alarm signaling devices.

2. Indicate location of alarm zone on fire alarm control panel.

H. Zoning: As per Contract Drawings.

1.06 QUALIFICATIONS

A. Manufacturer: Company specializing in smoke detection and fire alarm systems with five years experience.

B. Installer: Company specializing in smoke detection and fire alarm systems with five years experience.

1.07 SUBMITTALS

A. Submit shop drawings and product data under provisions of Section 16111E.

B. Provide wiring diagrams, data sheets, and equipment ratings, layout, dimensions, and finishes.

C. Submit manufacturer's installation instructions under provisions of Section 16111E.

D. Submit manufacturer's certificate that system meets or exceeds specified requirements.

1.08 PROJECT RECORD DRAWINGS

A. Submit as-built documents.

B. Include location of end-of-line devices.

1.09 OPERATION AND MAINTENANCE DATA

A. Submit data under provisions of Section 16111E.

B. Include operating instructions, and maintenance and repair procedures.

C. Include manufacturer representative's letter stating that system is operational.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site under provisions of Section GC and SGC.

B. Store and protect products under provisions of Section GC and SGC.

1.11 EXTRA MATERIALS

A. Provide spare parts.

B. Provide ten manual station break-glass rods.

C. Provide two keys of each type.

D. Provide five smoke detectors.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. SEE DRAWINGS

B. Substitutions: Under provisions of Section 16111E.

2.02 FIRE ALARM AND SMOKE DETECTION CONTROL PANEL

A. Where shown on the plans, provide and install a Edwards Fire alarm Control Panel. Construction shall be modular with solid state, microprocessor based electronics. All visual indicators shall be high contrast, LED type.

B. The Control Panel shall contain but not be limited to the following features: (minimum).
1. 8 - Initiating Device Circuits
2. 2 - Alarm Indicating Appliance Circuits
3. 8 - Supervised Annunciator Circuits
4. 1 - Local Energy, Shunt Master Box or Reverse Polarity Remote Station Connection (selectable).
5. 2 - Form C Alarm Contacts (2.0 amps ea)
6. 1 - Form C Trouble Contact (2.0 amps ea)
7. 1 - Earth Ground Supervision Circuit
8. 1 - Automatic Battery Charger
9. 1 - Power Supply Rated at 5 amps
10. 1 - Standby Batteries (1 set)
11. 1 - Resident non-volatile programmable operating System memory for all operating requirements (1 lot)
12. 1 - Supervised Manual Evacuation Switch.

C. The alarm initiating circuits shall be capable of interfacing Smoke Detectors, Heat Detectors and Manual Stations on the same 2 wire loop, with a maximum of (30) Smoke Detectors per circuit.

D. Switches shall be provided for Reset, 1 amp Test, and Signal Silence functions.

E. Signal circuits shall operate 24 VDC polarized audible alarm devices and shall provide either Class A or Class B operations with a 2 amp outdoor maximum per circuit.

F. Expansion modules shall be system interconnected by a 10 or 40 pin plug and harness assembly and shall be operable and supervised by the main control panel.

G. Through the use of a program mode dip-switch the fire alarm control panel shall allow for loading or editing special instructions and operating sequences as required. No special tools, modems, or off-board programmer shall be required to program the system so as to accommodate and facilitate expansion, building parameter changes or changes as required by local codes. All instructions shall be stored in a non-volatile programmable memory within the Fire Alarm Control Panel. Loss of primary and secondary power shall not erase the instructions stored in memory.

H. Battery Backup. The batteries shall be led calcium, maintenance free and shall provide sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal supervisory mode for a period of 24 hours with five minutes of alarm operation at the end of this period. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic.

2.03 PERIPHERAL DEVICES

A. Manual Stations shall be Edwards double action and shall be constructed of high impact, red lexan with raised white lettering and a smooth high gloss finish. The break glass rod station shall have a hinged front with key lock.

Stations which utilize screwdrivers, allen wrenches or other commonly available tools shall not be accepted. Stations shall be keyed alike with the Fire Alarm Control Panel. When the station is operated, the handle shall lock in a protruding manner to facilitate quick visual identification of the activated station.

B. Smoke Detectors shall be Photoelectric with type base. Detector design must provide for 360^{o} smoke entry. Detectors shall be listed to UL standard 268 and shall be documented compatible with the control equipment to which it is connected. Detectors shall be listed for this purpose by Underwriters Laboratories, Inc. The Detectors shall obtain their operating power from the Fire Alarm Panel supervised detection loop. The operating voltage shall be 24 VDC (nominal). Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal to be generated at the Control Panel.

Each Detector shall have a flashing status indicating LED for visual supervision. When the detector is actuated, the flashing LED will latch on steady and at full brilliance. The detector may be reset by actuating the Control Panel reset switch.

C. Automatic Heat Detector shall be rate of rise and fixed temperature type. When the

fixed temperature portion is activated, the units shall be non-restorable and give visual evidence of such operation. Heat Detectors shall be Simplex type 2098 135°.

D. Bells shall be vibrating. The bells shall be polarized and shall be operated by 24 BDC. Each bell assembly shall include separate wire leads for in/out wiring for each device conductors to signal circuit conductors shall NOT be accepted. Bells shall have a minimum sound pressure level output of 85dB at 10 feet. Bells shall be 10 inches diameter, finished in baked on red enamel paint and be UL listed for fire alarm use. Bells shall be suitable for
surface or semi-flush mounting and be suitable for use within combination audi/visual units.

E. .Audio/Visual units shall provide a common enclosure for the fire alarm audible and visuaL alarm devices.
The housing shall be designed to accommodate either horns, bells, chimes or speakers. The unit shall be completed with tamper resistant, Pyramidal shaped lexan lens with "Fire" lettering visible from a 180 field of view. The front panel or bezel which is constructed of UL listed Noryl, may be inverted so that the lens is below the audible device. Integral Xenon strobe shall provide 8000 peak candle power and be adjustable from 1 to 3 flashes power second. Xenon strobe shall provide 4-wire connection to insure properly supervised in/out system connection. Unit shall be complete with all mounted hardware including backbox. Audio/Visual unit shall be UL listed for its intended purpose.

F. Magnetic Door Holders shall be Simplex type 2088 and shall have an approximate holding force of 35 pounds. The door portion shall have a stainless steel pivotal mounted armature with shock absorbing nylon bearing. Unit shall be capable of being either surface, flush, semi-flush or floor mounted as required. Doorholders shall be UL listed for their intended purpose.

G. Duct Smoke Detectors shall be Simplex type 2098-9648 and shall be of the solid state photoelectric type and shall operate on the light scattering photodiode principle. The detectors shall be designed to ignore invisible airborn particles or smoke densities that are below the factory set alarm point. No radioactive materials shall be used. Detector construction shall be of the split type, that is, mounting base with twist-lock detecting head. Contacts between the base and head shall be of the bifurcated type using spring-type, self-wiping contacts. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the Control Panel. Detector design shall provide full solid state construction and compatibility with other normally open fire alarm detection loop devices, (heat detectors, pull stations, etc.) Duct housing couplings shall be slotted to insure proper alignment of the sampling and exhaust tubes. Detector shall have an alarm LED visible through a transparent front cover. Detectors shall obtain their operating power from the supervised current in the fire alarm loop. Installation must comply with NFPA-90A.

2.04 FIRE ALARM WIRE AND CABLE

A. Fire Alarm Power Branch Circuits: Building wire as specified in Section 16120E.

B. Initiating and Signal Circuits: Non-power limited fire-protection signaling cable, copper conductor, 150 volt insulation rated 60 degree C.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install system in accordance with manufacturer's instructions.

B. Install manual station with operating handle 54 above floor. Install audible and visual signal devices 90 inches above floor.

C. Use 14 AWG minimum size conductors for fire alarm detection and signal circuit conductors. Install wiring in conduit.

D. Mount end-of-line device in box with last device or separate box adjacent to last device in circuit.

E. Mount outlet box for electric door holder to withstand 80 pounds pulling force.

F. Make conduit and wiring connections to door release devices, sprinkler flow switches, sprinkler valve tamper switches, fire suppression system control panels, duct smoke detectors, and elevator.

G. Automatic Detector Installation: NFPA 72E.

3.02 FIELD QUALITY CONTROL

A. Provide field inspection and testing.
B. Test in accordance with NFPA 72H and local fire department requirements.

3.03 MANUFACTURER'S FIELD SERVICES

A. Provide manufacturer's field services.

B. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.

3.04 FIRE ALARM WIRE AND CABLE COLOR CODE

A. Provide fire alarm unit conductors with color coded insulation, or use color coded tape at each conductor termination and in each junction box as follows:
   1. Power Branch Circuit Conductors: Black.
   2. Initiating Device Circuit: Red.

3. Detector Power Supply: Violet.
4. Signal Device Circuit: Blue (positive), white (negative).
5. Door Release: Gray, gray.
6. Municipal Trip Circuit: Orange, orange.
7. Municipal Fire Alarm Loop: Black, white.

3.05 ZONE SCHEDULE

A. See riser diagram on contract drawings

3.06 TEST

A. A factory trained technician shall supervise the final connections and shall test and adjust all equipment upon completion. Each detector, station and signal shall be tested by the manufacturer's representative, in the presence of a representative of the owner and a Test Report shall be made out, in triplicate, and signed by the owners representative, indicating that he witnessed the actual individual test of the system.

3.07 WARRANTY

A. The contractor shall guarantee all wiring to be free from inherent mechanical and electrical defects for two (2) years. Manufacturer shall make available to the owner a local Service Department, which shall stock standard parts on the premises. Maintenance is to be provided during normal working hours, at no cost to the owner, for a period of twelve (12) months from the date of completion of the installation, unless damage is caused by misuse, abuse or accident.

END OF SECTION

PART l GENERAL

1.1 SUMMARY

A. Furnish all labor, components and items of service required for the completion of a functional and unobtrusive lightning protection system.

B. If any departures from the contract drawings are deemed necessary by the contractor, submit details of such departures and reasons as soon as possible to the architect for approval. No such departures shall be made without the prior written approval of the architect.

1.2 QUALITY ASSURANCE

A. A national testing laboratory (Underwriters Laboratories or Applied Research Laboratories) shall list the components and provide certification of the lightning protection system installation (inspect and certify) for compliance with applicable standards.

B. The system shall be the standard product of a manufacturer regularly engaged in the production of lightning protection systems and shall be the manufacturer's latest approved design.

C. All components specified for this work shall be manufactured by Heary Bros. Lightning Protection Co., Inc., Springville, New York, or approved equal. The equipment manufacturer shall be an approved manufacturer. For approval of a manufacturer other than specified, proposed component data and installation drawings must be submitted for review not less than 10 days prior to bid.

1.3 SUBMITTALS

A. Submit complete shop drawings, showing the type, size, cable routings, ground rods and locations of all equipment, to the architect for approval, prior to start of work.

B. Submit samples and pertinent catalog data to the architect for approval upon request.

PART 2 PRODUCTS

2.1 STANDARD

A. All equipment shall be new, the product of a single manufacturer as outlined above, and of a design and construction to suit the application where it is used in accordance with accepted industry standards.

2.2 EQUIPMENT

A. All components shall be aluminum and of the size, weight and construction to suit the application where used in accordance with requirements for Class I structures.

B. Roof conductors shall be aluminum, 24 strands 14-gauge, 98,600 circular mils, net weight 110 lbs. / 1000 ft.

C. Down conductors shall be copper, 29 strands 17-gauge, 65,600 circular mils, net weight 190 lbs./1000ft.

D. Air terminals shall be solid round aluminum bar 1/2” x 12” minimum, and shall project 10" minimum above the object to be protected.

E. Air terminal bases shall be aluminum with bolt pressure cable connectors and shall be securely mounted with stainless steel screws or bolts.

   1. Offset type bases shall be used at parapets and secured with stainless steel screws or anchors.
   2. Adhesive type bases shall be secured with an adhesive compound which is compatible with the roofing system. The roofing manufacturer shall approve the adhesive compound.

F. Ground rods shall be 5/8" x 10'-0" minimum. They shall be connected to the system with a two-bolt copper clamp having a minimum length of 1-1/2" and employing stainless steel cap screws.

G. Cable fasteners shall be substantial in construction, galvanically compatible with the conductor and mounting surface.

H. Bonding devices, cable splicers and connectors shall be of aluminum with bolt pressure cable connectors.

I. Equipment on stacks and chimneys shall be protected from corrosion and sized in accordance with requirements.

J. Bolts, nuts and screws shall be stainless steel.

PART 3 EXECUTION

3.1 INSTALLATION

A. The installation shall be accomplished by an experienced installer. The installer shall work under the direct supervision of a manufacturer as listed above or a qualified distributor of such manufacturer's products.

B. All equipment shall be installed in a neat workmanlike manner in the most inconspicuous manner possible.

C. Provide complete cable network on the roof including; air terminals, splices, bonding connectors and cable downleads to ground rods. Down conductors shall run in 1" PVC conduit concealed within the building construction to ground.

D. The electrical contractor shall furnish and install all necessary PVC conduit and junction boxes.

E. A bimetal transition fitting shall be used where aluminum roof conductor and copper down conductor are spliced together.

3.2 COORDINATION

A. Work with other trades to insure a correct, neat and unobtrusive installation.

B. Assure a sound bond to the main water service and to assure interconnection with other building ground systems, including both telephone and electrical.

C. Install proper arresters on the power and telephone service by either the utility or the electrical contractor as applicable.

3.3 COMPLETION

A. Provide an as-built drawing to the architect, for the owner, upon completion of the installation.

B. Provide certification (UL, ARL or approved equal).

PART 4 ACCEPTABLE MANUFACTURERS AND SUPPLIERS

A. Heary Bros. Lightning Protection Co., Inc. T. 800-421-6141 F. 716-941-3828

B. Approved equal

PART 5 INSPECTION AND LISTING LABORATORY

A. Applied Research Laboratories, Inc.

B. Underwriters Laboratories

END OF SECTION