

<u>Addendum</u>

Mahopac Central School District Mahopac, New York

Reconstruction at Mahopac High School Mahopac Middle School Mahopac Falls Schools Bus Garage New Pump House

Tt Project No. 121111-19002

Cornell Business + Technology Park 10 Brown Road Ithaca, New York 14850 Tel. (607) 277-7100 Fax (607) 277-1410

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SED NO. 48-01-01-06-0-004-020 48-01-01-06-0-006-013 48-01-01-06-0-003-008 48-01-01-06-5-010-009

48-01-01-06-7-026-001

BID Addendum No. 1 to Drawings and Project Manual

February 12, 2021

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To: BIDDERS

This ADDENDUM forms a part of the BIDDING AND CONTRACT DOCUMENTS and modifies the following documents: Original DRAWINGS dated August 21, 2020. PROJECT MANUAL dated August 21, 2020.

Acknowledge receipt of the ADDENDUM in the space provided on the FORM OF PROPOSAL

This ADDENDUM consists of (5) pages and the following:

ATTACHMENTS

PRE-BID REQUEST FOR INFORMATION QUESTIONS/ANSWERS PRE-BID MEETING AGENDA PRE-BID MEETING SIGN-IN SHEET

NEW PROJECT MANUAL SECTIONS

ATTACHMENT TO SECTION 01 12 00-MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021 ATTACHMENT TO SECTION 01 12 00-MILESTONE CONSTRUCTION SCHEDULE - PHASE1 SUMMER 2022 SECTION 08 71 00 – DOOR HARDWARE SECTION 09 84 36 - SOUND-ABSORBING CEILING UNITS

REISSUED PROJECT MANUAL SECTIONS

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS SECTION 09 51 33 - ACOUSTICAL METAL PANEL CEILINGS SECTION 28 31 11 - DIGITAL, ADDRESSABLE FIRE-ALARM AND VOICE NOTIFICATION SYSTEM

NEW DRAWINGS (8-1/2 x 11)

AA01B Ceiling Detail – Floating Panel

NEW DRAWINGS (11 x 17)

AM01B Air Handling Unit (AHU)/Fan (F) Schedule

REISSUED DRAWINGS (30 x 42)

- G100 Symbols & Abbreviations
- AA600 Door Schedule, Door Types and Window Types
- AE003 Electrical Site Plan
- AE161 Partial Basement Power & Communication Plans
- AE200 Basement Speaker, Clock and Fire Alarm Plan
- AE600 Schedules
- AE700 Single Line Diagram

PROJECT MANUAL MODIFICATIONS

ITEM 1-C-1: Refer to SECTION 00 01 10 – TABLE OF CONTENTS

1. Division 8, <u>ADD</u> the following:

"08 71 00 Door Hardware"

- 2. Division 9, <u>ADD</u> the following:
 - "09 84 36 Sound Absorbing Ceiling Units"
- 3. Division 09 51 33 Acoustical Metal Pan and Panel Ceilings, <u>AMEND</u> to read as follows:
 - "09 51 33 Acoustical Metal Panel Ceilings"
- ITEM 1-C-2: Refer to SECTION 01 12 00 SUMMARY OF PROJECT
- 1. <u>ADD</u> attached two Milestone Schedules to the end of the section.

ITEM 1-C-3: Refer to AIA DOCUMENT A232-2009 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

1. Paragraph 11.1.2.4 <u>AMEND</u> to read as follows:

"\$11.1.2.4 Umbrella or Excess Liability coverage: \$5,000,000 each Occurrence and Aggregate for general construction and no work at elevation (1 story – 10 feet) or project values less than or equal to \$1,000,000. \$10,000,000 each occurrence and Aggregate for high risk construction, work at elevation (>1 story or 10 feet) or project values greater than \$1,000,000." 2. Paragraph 11.1.2.5 <u>AMEND</u> to read as follows:

"§ 11.1.2.5 Owners Contractors Protective Insurance Owners: For projects less than or equal to \$1,000,000 and work on 1 story (10 feet) only; \$1,000,000 per occurrence, \$2,000,000 aggregate with the Owner as the Named Insured. For projects greater than \$1,000,000 and work over 1 story (10 feet); \$2,000,000 per occurrence, \$4,000,000 aggregate with the Owner as the Named Insured."

PROJECT MANUAL MODIFICATIONS - ARCHITECTURAL

- ITEM 1-C-4: Refer to SECTION 09 51 13 ACOUSTICAL PANEL CEILINGS
- 1. <u>DELETE</u> section in its entirety and, <u>ADD</u> new section attached to this addendum.

ITEM 1-C-5: Refer to SECTION 09 51 33 - ACOUSTICAL METAL PANEL CEILINGS

- 1. <u>DELETE</u> section in its entirety and, <u>ADD</u> new section attached to this addendum.
- ITEM 1-C-6: Refer to SECTION 09 84 33 SOUND-ABSORBING WALL UNITS
- 1. Paragraph 2.1, C., <u>AMEND</u> to read as follows:
 - "C. Sound-Absorbing Wall Panel AWP1: ..."
- 2. Paragraph 2.1, D., <u>DELETE</u> in its entirety.

ITEM 1-C-7: Refer to SECTION 12 32 13 - MANUFACTURED WOOD-VENEER-FACED CASEWORK

- 1. Paragraph 2.5, D., 1., <u>AMEND</u> the following:
 - "1. Semi-Flush Radius Lipped Maple: . . ."
- 2. Paragraph 2.7,C, <u>AMEND</u> the following:
 - "C. Pulls: Stainless-steel wire pulls, fastened from back with two screws. Provide two pulls for drawers more than 24 inches wide."

PROJECT MANUAL MODIFICATIONS - ELECTRIC

- <u>ITEM 1-C-8</u>: SECTION 28 31 11 DIGITAL, ADDRESSABLE FIRE-ALARM AND VOICE NOTIFICATION SYSTEM
- 1. <u>DELETE</u> section in its entirety and, <u>ADD</u> new section attached to this addendum.

DRAWING MODIFICATIONS

- ITEM 1-C-9: Refer to DRAWING G100
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.

DRAWING MODIFICATIONS - ARCHITECTURAL

ITEM 1-C-10: Refer to DRAWING AA103

1. Band 143 behind the percussion instrument storage, <u>ADD</u> Wall Type P21 tag.

ITEM 1-C-11: Refer to DRAWING AA160

- Ceiling Types Legend, Ceiling Type A3, <u>AMEND</u> to read as follows:
 "METAL SLAT CEILING"
- Ceiling Types Legend, Ceiling Type A5, <u>AMEND</u> to read as follows:
 "SOUND-ABSORBING CEILING UNITS MUSIC SUITE"
- 3. Detail 4, <u>AMEND</u> the note to read as follows:

"REMOVE AND REPLACE/MODIFY GYPSUM BOARD CEILING AS REQUIRED FOR NEW WALL INSTALLATION."

- 4. Detail 5, <u>DELETE</u> the Keyed Detail 17/AA750 from the top of Band 143
- 5. Detail 5 where Ceiling Type A1 joins into the ceiling in Corridor 1-C2, <u>ADD</u> Detail 4/A750 keyed into this location.

ITEM 1-C-12: Refer to DRAWING AA161

- Ceiling Types Legend, Ceiling Type A3, <u>AMEND</u> to read as follows:
 "METAL SLAT CEILING"
- Ceiling Types Legend, Ceiling Type A5, <u>AMEND</u> to read as follows:
 "SOUND-ABSORBING CEILING UNITS MUSIC SUITE"
- ITEM 1-C-13: Refer to DRAWING AA600
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.

DRAWING MODIFICATIONS - MECHANICAL

- ITEM 1-C-14: Refer to DRAWING AM600
- 1. <u>DELETE</u> Air Handling Unit (AHU) Schedule in its entirety and, <u>ADD</u> Air Handling Unit (AHU) Schedule per Drawing AM01B attached to this addendum.
- 2. <u>DELETE</u> Fan (F) Schedule in its entirety and, <u>ADD</u> Fan (F) Schedule per Drawing AM10B attached to this addendum.

DRAWING MODIFICATIONS - ELECTRIC

- ITEM 1-C-15: Refer to DRAWING AE003
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.
- ITEM 1-C-16: Refer to DRAWING AE161
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.
- ITEM 1-C-17: Refer to DRAWING AE200
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.
- ITEM 1-C-18: Refer to DRAWING AE600
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.
- ITEM 1-C-19: Refer to DRAWING AE700
- 1. <u>DELETE</u> drawing in its entirety and, <u>ADD</u> new drawing attached to this addendum.

END OF ADDENDUM



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/5/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Raymond Collins Bidder Company Name: Hudson Valley ECM, Inc. Bidder Phone: 845-795-1135 Bidder Email Address: ray@hudsonvalleyecm.com
Question Pertains to: Mechanical Controllers and disconnects
Drawing Number: AM 600 Plan Area: Room Number: Drawing Detail Number: Schedules Specification Section:
Question: (Please be specific) The schedule for the AHU's have a note No. 1 "provide Manufacturers Combination Starters", yet none of the AHU's listed have this note No. 1. Is this an over-sight? The schedule for the Exhaust fans (all but 3) to be getting both a combination starter and a VFD for each. Is this Correct

Review by Architect/Engineers: Responded By: D. Martin Date: 2/11/21

Refer to Air Handling Unit (AHU)/ Fan (F) Schedule on drawing AM01B included in Addendum #1



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Raymond Collins Bidder Company Name: Hudson Valley ECM, Inc. Bidder Phone: 845-795-1135 Bidder Email Address: ray@hudsonvalleyecm.com
Question Pertains to: Basement Cafe/ Kitchen Devices
Drawing Number: AE 161 Plan Area: Room Number: 247 Drawing Detail Number: Specification Section:
Question: (Please be specific) The Door Holders shown, are shown as floor mounted devices. The way the doors are positioned, should these b shown as mounted on the wall in the pockets? What is the square with the black dot in the floor to represent?

Review by Architect/Engineers:	Responded By:	Date:

Refer to symbols and abbreviations, equipment connection.



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Bidder Contact Person: Raymond Collins Bidder Company Name: Hudson Valley ECM, Inc. Bidder Phone: 845-795-1135
Bidder Email Address: ray@hudsonvalleyecm.com
Question Pertains to: Basement Cafe/ Kitchen Devices
Drawing Number: AE 161 Plan Area:
Room Number: 247 Drawing Detail Number: Specification Section:
Question: (Please be specific) The Door Holders shown, are shown as floor mounted devices. The way the doors are positioned, should these be shown as mounted on the wall in the pockets? What is the square with the black dot in the floor to represent?
NO ANSWUR TO DODE HOLDUR QUESTION
Review by Architect/Engineers: Responded By: CREGA Date: 2/9/21 Refer to symbols and abbreviations, equipment connection. Date: 2/9/21
OK, WHAT EQUIPMENT? POWER REQUIRED? FROM WHAT PANEL? Refer to forthcoming Bid Addendum No. 1



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Date: 2/8/2021

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Bidder Contact Person: Raymond Collins Bidder Company Name: Hudson Valley ECM, Inc. Bidder Phone: 845-795-1135 Bidder Email Address: ray@hudsonvalleyecm.com
Question Pertains to: Area D
Drawing Number: AE 164 Plan Area: Room Number: 247 Drawing Detail Number: Specification Section:
Question: (Please be specific) What are the (4) square with the black dot in the floor to represent?
Review by Architect/Engineers: Responded By: CREGA Date: 2/9/21
Refer to symbols and abbreviations, equipment connection. OK, WHAT EQUIPMENT? POWER REQUIRED ? FROM WHAT PANER ?

Submit requests not less than 5 working days prior to the specified Bid Opening date and time. In the event that

this question requires clarification or modification of the Bidding Documents, such written information can only be provided by formal Addendum, distributed to all plan holders.



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Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Raymond Collins
Bidder Company Name: Hudson Valley ECM, Inc.
Bidder Phone: 845-795-1135
Bidder Email Address: ray@hudsonvalleyecm.com
bluder Eman Address: Tay@hddsonvaneyech.com
Question Pertains to: Electrical Site Plan
Drawing Number: The second AE 002
Plan Area:
Room Number: Pump House
Drawing Detail Number:
Specification Section:
Question: (Please be specific)
The drawing refers to Detail 1 & 2, on HE-161, Please provide this drawing, it is not in any series of drawings.

Review by Architect/Engineers: Responded By: <u>CREGA</u> Date: <u>219/21</u> THERE IS NOT DRAWING REFERENCE TO HE-161. PLEASE CALRIFY. IF you TURN TO AEOOZ, THE SOCOND DRAWING MARKAD ALOOZ, AT THE BOTTON SE THE DRAWING (2) CIRCLE DETAIL DESIGNATIONS HASS 1/AEIGI AND 2/ HE-161. WHERE IS THE DRAWING HE161?



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Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person:Raymond CollinsBidder Company Name:Hudson Valley ECBidder Phone:845-795-1135Bidder Email Address:ray@hudsonvalleye	M, Inc.	
Question Pertains to: Area D		
Drawing Number: AE 164 Plan Area: Room Number: ²⁴⁷ Drawing Detail Number: Specification Section:		
Question: (Please be specific)		
What are the (4) square with the black dot in the	ne floor to represent?	3
Review by Architect/Engineers:	Responded By: CREGA	Date:
Refer to symbols and abbreviations, equipment conn	ection.	



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Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person:Raymond CollinBidder Company Name:Hudson Valley EBidder Phone:845-795-1135Bidder Email Address:ray@hudsonvalleye	CM, Inc.
Question Pertains to: All areas A-E	
Drawing Number: AE 161, 163, 165, 200 Plan Area: Room Number: Drawing Detail Number: Specification Section:), 201, and 202
Question: (Please be specific) Where are th data racks, Public Address, and C The drawing for the clock/speaker and F/A, sh	nows a symbol for a computer outlet near most of the speakers in halls,
and classrooms, is this an additional data bes	ides what is needed for the IP speaker?
Review by Architect/Engineers:	Responded By: <u>CREGA</u> Date: <u>2/9/21</u>



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Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Raymond Collin Bidder Company Name: Hudson Valley F Bidder Phone: 845-795-1135 Bidder Email Address: ray@hudsonvalley	ECM, Inc. yecm.com	
Question Pertains to: Circuit SP2-6		
Drawing Number: AE 165 Plan Area: Room Number: Drawing Detail Number: Specification Section:		
Question: (Please be specific)		
In Chem. 239, what is the device that Circuit	SP2-6 feeding, Fume Hood?	,
<u>Review by Architect/Engineers:</u>	Responded By:	Date:
REFER TO DRAWINGS AE601 FOR CIRCUIT	DESIGNATION.	



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Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Perso Bidder Company Nar Bidder Phone: 845 Bidder Email Addres	ne: Hudson Valley EC -795-1135	M, Inc.	
Question Pertains to:	All areas A-E		
Drawing Number: Plan Area: Room Number: Drawing Detail Numb Specification Section:			
Question: (Please be s	specific)		
With all the new notifica Removal, Abandoned, B	tion/ signal devices shc lanked off? If removal, i	own, what is the intent for the existin is there a count or drawing of existir	ng devices? ' ng devices?
Review by Architect/l	Engineers:	Responded By: <u>CREGA</u>	Date: 2/9/21

REFER TO SPECIFICATION SECTION 28 31 11.



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Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Diader I nonet	
Question Pertains to	Electrical Site Plan
Drawing Number: Plan Area:	The second AE 002
Room Number: Drawing Detail Num Specification Section	
Question: (Please be The drawing refers to D	specific) Detail 1 & 2, on HE-161, Please provide this drawing, it is not in any series of drawings.

Review by Architect/Engineers:

Responded By: CREGA Date: 2/9/21

THERE IS NOT DRAWING REFERENCE TO HE-161. PLEASE CALRIFY.



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Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Raymond Collins Bidder Company Name: Hudson Valley ECM, In Bidder Phone: 845-795-1135 Bidder Email Address: ray@hudsonvalleyecm.c				
Question Pertains to: Electrical Panel Schedu	le			
Drawing Number: AE 700 Plan Area: Room Number: Drawing Detail Number: Specification Section:				
Question: (Please be specific)				
The Panel Schedule only shows SDP for the Baseme You don't show SDP-2 on the schedule, yet on AE 70 What is your intention for this? Are both SDP 1, and	00, you have a 3000 amp	SDP2 off tl	he side of a	, an 800 amp MDP2.
Panel BP on the schedule reads TBD, How do we pri	ice this, as a change orde	er after sign	ing contra	icts?
MDP 1 schedule has it 2000 amp rated, the one-line Main Circuit Breaker. Which is correct?	e on AE 700 shows this as	a 5000 am	p rated wi	th a 2500 amp
What is the feeder size, cable and conduit, from SD	P-1 to NC32F?			
Review by Architect/Engineers:	Responded By:	CREGA	_ Date: _	2/9/21
REFER TO BID ADDENDUM NO 1				



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/9/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: MIKE DEMARTINO Bidder Company Name: NICKERSON CORP. Bidder Phone: 631-666-0200 X235 Bidder Email Address: demartino@nickersoncorp.com	
Question Pertains to:	
Drawing Number:	
Plan Area:	
Plan Area: Room Number: Drawing Detail Number:	

- Note 2.7.C of spec indicates solid aluminum, stainless steel or chrome-plated brass wire pulls. Please clarify the finish of the wire pulls.

Review by Architect/Engineers:

Responded By: <u>Mhhunt</u> Date: <u>2-10-21</u>

Refer to upcoming addendum.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Bidder Company Name: Bidder Phone: 631-666-02 Bidder Empil Addresse	NICKERSON CORP. 200 X235
Bidder Email Address: C Question Pertains to:	Jemartino@nickersoncorp.com

Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section: GENERAL CONDITIONS

Question: (Please be specific)

- General conditions note an OCP Owners Contractors Protective Insurance Policy. Please advise if the OCP policy requirements can be waived for CONTRACT 6 - CASEWORK AND LAB EQUIPMENT CONTRACT.

Review by Architect/Engineers:

Responded By: CEG Date: 02/12/2021

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date:

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Joseph Piazza Bidder Company Name: Piazza Inc Bidder Phone: (914) 830-1344 Bidder Email Address: jd@piazzabrothers.com

<u>Question Pertains to;</u>

Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section: ⁰¹²⁰⁰⁻⁶, 4

Question: (Please be specific)

The current specifications call for the GC to furnish and install the temporary fencing and site signage. Considering the GC is only responsible for the site work inside the building wouldn't it be easier for the site contractor to carry these items?

Review by Architect/Engineers:

Responded By: LR/TPG **Date:** 02-12-2021

RESPONSE : See Section 3.4.G under Temporary Facilities



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

uni

Date:

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Joseph Pia Bidder Company Name: Piazza Inc Bidder Phone: (914) 830-1344 Bidder Email Address: jd@piazzabro	2	
Question Pertains to:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section:		
Question: (Please be specific)		4
Could you please direct me to t not currently in the spec's cou	the construction milestone schedu 11d you please provide it.	ule. Or if it is
		ule. Or if it is Date: <u>02-12-202</u>
not currently in the spec's cou	uld you please provide it. Responded By: <u>LR/TPG</u>	



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Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Question Pertains to: Drawing Number: N/A Plan Area: N/A Room Number: N/A Drawing Detail Number: N/A Specification Section: N/A Question: (Please be specific) Please provide finish schedule, none in the contract drawings	Bidder Contact Person: Bidder Company Name: Bidder Phone: Bidder Email Address:	Steven Mgrdichian Pierotti Corp. 914-233-9990 stevem@pierotticorp.com
Plan Area: N/A Room Number: N/A Drawing Detail Number: N/A Specification Section: Question: (Please be specific)		
	Plan Area: Room Number: Drawing Detail Number:	N/A N/A N/A

Review by Architect/Engineers: Responded By: ^{mhh} Date: ²⁻⁸⁻²¹

Please review all room finish boxes per room, on each drawings, for each room. Review room finish key on each drawings



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Bidder Contact Person: Bidder Company Name: Bidder Phone: Bidder Email Address:	Steven Mgrdichian Pierotti Corp. 914-233-9990 stevem@pierotticorp.com
Question Pertains to:	
Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section:	AA103/105/106 1 / 1&2 / 1 249/143A/1-C2/242A/244A/2-C1/243A/2C-3/2-C6/2-C5/2-C3 AA940 09 66 23
this is T1 areas noted on 2 . What will be the new	ct high school epoxy flooring - pleas confirm drawings. finish as part of this deduct? sh at patch areas to tie-in existing to new

Review by Architect/Engineers:

Responded By: mhh Date: 2-8-21

Refer to drawings AA102, enlarge plans, finish boxes and finish box notes and specs for exact location of all alternates T1 on drawing AA102 is base bid not an alternate.



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	Bidder Contact Person:	Steven Mgrdichian
	Bidder Company Name:	Pierotti Corp.
	Bidder Phone:	914-233-9990
	Bidder Email Address:	stevem@pierotticorp.com
	Question Pertains to:	* * * * * * * * * * * * * * * * * * * *
	Drawing Number:	HS130
	Plan Area:	1
	Room Number:	100
	Drawing Detail Number:	N/A
•	Specification Section:	N/A
•	Question: (Please be speci	ific)
		· · · · · · · · · · · · · · · · · · ·
•	Please advise if new con	crete slab a Pump House BLD is to receive
•	a finish	· · · · · · · · · · · · · · · · · · ·
•		
•		any painting required in the Pump House
•	BLD	
•		
	Review by Architect/Engi	neers: Responded By: <u>mhh</u> Date: <u>2-8-21</u>
	<u>Heriew by Hiemeeed Eng</u>	
	refer to drawing AA102	for room finish key for clarification.
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1	mm	



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Bidder Contact Person: Bidder Company Name: Bidder Phone: Bidder Email Address:	Steven Mgrdichian Pierotti Corp. 914-233-9990 stevem@pierotticorp.com
Question Pertains to:	
Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section:	AA102/105/106 1 & 2 111/113/115/242/243/244/235/238/239 N/A 09 30 16 / 09 65 19
Question: (Please be speci	<u>fic)</u>
	ey states QF is part of base bid and VCT is alternate for this work in the bid proposal

Review by Architect/Engineers:

Responded By: mhh Date: 2-8-21

Refer to spec section 01 23 00



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Bidder Company Name: Bidder Phone: Bidder Email Address:	Steven Mgrdichian Pierotti Corp. 914-233-9990 stevem@pierotticorp).com	
Question Pertains to:			
Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section:	AA600 N/A Various N/A N/A		
Question: (Please be spec General door notes, para treatments at sidelights. specification section	agraph M states to pro		
Review by Architect/Eng	neers:	Responded By: <u>mhh</u>	Date: 2-8-21
refer to upcoming adden	dum for clarification.		



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/8/2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Bidder Company Name: Bidder Phone: Bidder Email Address:	Steven Mgrdichian Pierotti Corp. 914-233-9990 stevem@pierotticorp.com	
Question Pertains to: Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section:	AA103 / AA601 / AA700 3,4,7,5 / 12 / 6 Various N/A N/A	\sim
Question: (Please be spec Please advise who is res	<u>cific)</u> sponsible for all solid surface sills	
Review by Architect/Engineer to spec section 12		



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date:

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Bidder Company Name Bidder Phone: 732-306 Bidder Email Address:	Renu 5-0459	ıy.com		
Question Pertains to:			 	
Drawing Number: AA160 Plan Area: Band Ceiling Room Number: Drawing Detail Number Specification Section:	9	2.4		

Question: (Please be specific)

PLEASE PROVIDE CLARIFICATIONS ON THE SPECS/MANUFACTURER FOR THE STEEL PANEL CEILINGS A2 & A5

Review by Architect/Engineers:

Responded By: _____ Date: _____ Timothy Stevens 2/9/21

This will be clarified in Bid Addendum #1



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date:

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Email Address: jneal@	<pre>@rmny.com</pre>	
Question Pertains to:		
Drawing Number: AA160 Plan Area: Detail 4 Room Number: Main Entrance Drawing Detail Number: Specification Section:		
<u>Question: (Please be specific)</u>	 Where is this being utilized in the rooms? 3. 5/AA160, at the new A1 ceiling type that hits transition between the (2) ceilings? 4. Sheet 1/AA103- Band #143, behind the percu 5. 2/AA103 at Lay Down Room #105- figure block walls? Same for room #106 on that detail 	m it calls out for detail 17/AA750 which is axiom trim into the Corridor 1-C2 What is happening at this ssion cabinetry- does it get partition type P21? king on the north wall for the cabinetry- in existing the west wall—you want us to figure blocking in the ly we would install.
Review by Architect/Engineers	: Responded By:	Date:
 vill be addressed in Bid Addendum #1 vill be clarified in Bid Addendum #1 will be clarified in Bid Addendum #1 vill be clarified in Bid Addendum #1 refer to spec 123213 for fastening requirements refer to spec 123213 for fastening requirements, d detail which in itself requires blocking refer to spec 098433 and Bid Addendum #1 forthc 8 + 9 - please identify which areas you need this for a Existing owner drawings identify this information which but field verification by contractors will still be required 	• etail 6/AA106 refers to a base outlet oming ind the purpose for this information. we will use to answer this question	Stevens 2/9/21

Submit requests not less than 5 working days prior to the specified Bid Opening date and time. In the event that this question requires clarification or modification of the Bidding Documents, such written information can only be provided by formal Addendum, distributed to all plan holders.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc. Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com
Question Pertains to:
Drawing Number: AE001 Plan Area: Room Number: Drawing Detail Number: Specification Section:
Question: (Please be specific)
Note 1 on AE001 calls to reroute existing underground electric. What size conduit and wire is being rerouted?

Review by Architect/Engineers:

Responded By: CREGA Date: 2/11/20

INFORMATION must be verified on site.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc. Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com	
Question Pertains to:	-
Drawing Number: AE002 Plan Area: Room Number: Drawing Detail Number: Specification Section:	
Question: (Please be specific)	
Drawing calls for the EC to provide and install the scoreboard. Does this include excavating and pouring the footings as well?	

Review by Architect/Engineers:

Responded By: CREGA Date: 2/11/21

PLEASE REFER TO FRONT END SPECIFICATION FOR SCOPING.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Elect Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass		
Question Pertains to:		
Drawing Number: AE002 Plan Area: Room Number: Drawing Detail Number: Specification Section:		
Question: (Please be specific)		
There are 2 AE002 drawings. On the swater tank. Please advise what size co on the drawing, is it required.		
Review by Architect/Engineers: Refer to forthcoming Bid Addendum #1.	Responded By: <u>CRega</u>	Date:02/21/2021



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person:Jim Sass IIIBidder Company Name:J&J Sass Electric Inc.
Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com
Question Pertains to:
Drawing Number: AE202
Plan Area: Room Number:
Drawing Detail Number:
Specification Section:
Ausstian: (Plassa ha spacific)

Question: (Please be specific)

What is the 'CM' symbol shown in a lot of the 2nd floor classrooms on drawing AE202?

Review by Architect/Engineers:

Responded By: CRega Date: 02/12/2021

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc.
Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com
Question Pertains to:
Drawing Number: AE165 Plan Area: Room Number: Drawing Detail Number: Specification Section:
Question: (Please be specific) What is the 'AP' symbol shown in the classrooms on AE165?

Review by Architect/Engineers:

Responded By: CRega Date: 02/12/2021

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person:Jim Sass IIIBidder Company Name:J&J Sass Electric Inc.

Bidder Phone: 845-331-8666 **Bidder Email Address:** jimsass3@jjsass.com

Question Pertains to:

Drawing Number: AE601, AE700, AE052 Plan Area: Room Number: Drawing Detail Number: Specification Section:

Question: (Please be specific)

AE601 shows a new panel schedule for panel SP2. Drawing AE700 shows a new panel 2B1 but 2B1 is a replacement of existing panel. Is AE700 supposed to show panel SP2 instead of 2B1? SP2 is not shown on AE502 either, please advise location.

Review by Architect/Engineers:

Responded By: CRega Date: 02/11/21

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Question: (Please be specific)

Please provide the conduit and wire feeder size for new panel NC32F on drawing AE700.

Review by Architect/Engineers:

Responded By: CRega Date: 02/11/21

Refer to forthcoming Bid Addendum #1.



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Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc.
Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com
Question Pertains to:
Drawing Number:
Plan Area:
Room Number:
Drawing Detail Number:
Specification Section:

Question: (Please be specific)

Please provide the speaker and clock/speaker specification sections along with wiring diagrams for the system.

<u>Review by Architect/Engineers:</u>

Responded By: CRega Date: 02/11/21

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc.
Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com
Question Pertains to:
Drawing Number: AE 200 Plan Area: Room Number:
Drawing Detail Number: Specification Section:

Question: (Please be specific)

Please clarify the intent of the fire alarm control panels shown on drawing AE200. The drawings appear to show 3 panels and we are removing 1 and replacing it to accommodate the new speaker/ strobe devices. Upon a site visit, it appears that there are only 2 panels, both Notifier. Are we just adding a 3rd Notifier panel for these new devices and everything else stays as is?

Review by Architect/Engineers:

Responded By: CRega Date: 02/11/21

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person:Jim Sass IIIBidder Company Name:J&J Sass Electric Inc.	
Bidder Phone: 845-331-8666 Bidder Email Address: jimsass3@jjsass.com	
Question Pertains to:	
Drawing Number: AE050 Plan Area: Room Number:	
Drawing Detail Number: Specification Section:	
Question: (Please be specific)	•
Drawing AE050 calls to remove and replace the existing MDP. Will the building need to	

Drawing AE050 calls to remove and replace the existing MDP. Will the building need to remain up and running during this switchover and will a generator be needed or will the school allow a window of time where affected areas of the building will be without power?

Review by Architect/Engineers:

Responded By: CREGA Date: 2/12/21

and/or power interruption must be done with the Construction

C. Coordination of any utility and/or power interruption must be done with the Construction Manager. Shutdowns must occur during off-hours and on days when the building is not occupied by the owner. Refer to specification 01 12 00.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/11/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Jim Sass III Bidder Company Name: J&J Sass Electric Inc. Bidder Email Address: Jimsass3@jjsass.com Question Pertains to: Drawing Number: AE600, AE051 Plan Area: Room Number: Drawing Detail Number: Specification Section:

-

Question: (Please be specific)

Drawing AE600 shows MDP-2 on the panel replacement schedule. Drawing AE051 does not have a note next to this panel to remove and replace. Please advise if MDP-2 is being replaced.

Review by Architect/Engineers:

Responded By: CRega Date: 02/11/21

Refer to forthcoming Bid Addendum #1.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: 2/3/21

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Andrew Ross	
Bidder Company Name: Tristate Contract Sales LLC	
Bidder Phone: 845-782-2614	
Bidder Email Address: andrew@tristatecontractsales.com	
Question Pertains to: Contract 6 CE / Casework	
Drawing Number:	
Plan Area:	
Room Number:	
Drawing Detail Number:	
Specification Section: 123213,115363,123217,125651	
Question: (Please be specific)	
In specification scope of work for Contract 6CE casework 011200-15 Par 1.12	Page 245 of the PDF Volume 1
Please clarify if casework contractor is responsible for	
3 -Demo and other items listed that are not typical to casework contracts.	

4- Temporary facilities

Is the casework contractor responsible for their own dumpster on site.

Review by Architect/Engineers:

Responded By: <u>LR / TPG</u> Date: <u>02-12-2021</u>

3- Demolition of existing casework is by the General Work Contractor. Mechanical, Electrical, and Plumbing Contractors are responsible for disconnects required to allow for demolition to occur

4-Casework Contractor is to provide their own dumpster as needed for their work.



SUBMIT FORM BY EMAIL TO INE.Mahopac@tetratech.com

Project No.: 121111-19002

Date: February 9, 2021

Project Name: Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage, and New Pump House

Bidder Contact Person: Tatjana Cline
Bidder Company Name: United Safety LLC
Bidder Phone: (973) 276-0099
Bidder Email Address: info@unitedsafetynj.com

Question Pertains to:

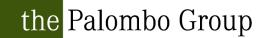
Drawing Number: Plan Area: Room Number: Drawing Detail Number: Specification Section: General Conditions, 11.1.2.4 Umbrella or Excess Liability Coverage

Question: (Please be specific)

General Conditions specifies the Umbrella Insurance Coverage of \$10,000,000 each occurrence and in the aggregate. With regards to the Hazardous Material Contract, can this be altered to a \$5,000,000 umbrella policy? Typically, any contracts less than \$1,000,000 only require a \$5,000,000 umbrella policy. The General Liability will also carry no exclusion relating to injury (Labor Law 240/241).

Review by Architect/Engineers:	Responded By: <u>CEG</u>	Date: <u>02/12/2021</u>

Refer to forthcoming Bid Addendum #1.





PRE-BID MEETING AGENDA

Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage and New Pump House Wednesday, February 10, 2021 – 3:30 PM – Mahopac High School

- 1. SIGN IN SHEET
- 2. INTRODUCTIONS THE PALOMBO GROUP

MAHOPAC CENTRAL SCHOOL DISTRICT - OWNERS TETRA TECH – ARCHITECTS THE PALOMBO GROUP – CONSTRUCTION MANAGERS INDEPENDENT TESTING – TECTONIC HAZARDOUS MATERIALS MONITORING - QUEST (Quality Environmental Solutions & Technologies)

3. DATE / TIME / LOCATION OF WHERE BIDS ARE DUE

Sealed Bids will be received by the Owner until Thursday, February 25, 2021 until 3:00PM EST, at which time and place Bids received will be publicly opened and read aloud.

Bid Opening Location: *Mahopac CSD District Offices* located at 179 East Lake Boulevard; Mahopac, New York 10541. *Due to current COVID Restrictions, a link will be provided via Addendum for a* <u>Virtual Public Bid Opening.</u>

All proposals shall be sealed and in an opaque envelope distinct on the outside as follows:

BOARD OF EDUCATION MAHOPAC CSD Reconstruction to Mahopac High School, Mahopac Middle School, Mahopac Falls School, Bus Garage and New Pump House – BID OPENING Date: February 25, 2021 Contract Number Name of Bidder Marked "SEALED BID"

If mailing your bid, please make sure you leave plenty of time for it to arrive at district office. Make sure the envelope is marked <u>"Sealed Bid</u>", <u>"Reconstruction to Mahopac High School, Mahopac Middle</u> School, Mahopac Falls School, Bus Garage and New Pump House.

- 4. BID DOCUMENT AVAILIBILITY
 - Complete digital sets of Bidding Documents, drawings and specifications, may be obtained online as a download at www.tetratechaeplanroom.com 'public projects' for a non-refundable fee of \$49.00 (Forty Nine Dollars).

• Please note Rev (www.tetratechaeplanroom.com) is the designated location and means for distributing and obtaining all bid package information. All bidders are urged to register to ensure receipt of all necessary information, including bid addenda.

5. SCHEDULE / PHASING OVERVIEW - THE PALOMBO GROUP MILESTONE SCHEDULE TO BE DISTRIBUTED VIA ADDENDUM

- Access to Site
- Coordination with Occupants
- Work Restrictions
- COVID Guidelines & Protocol
- 6. PROJECT OVERVIEW TETRA TECH, CHRISTOPHER GLAUBITZ
- 7. TRADE ESTIMATES THE PALOMBO GROUP
 Contract 1: GENERAL CONSTRUCTION
 Contract 2: PLUMBING CONSTRUCTION
 Contract 3: MECHANICAL CONSTRUCTION
 Contract 4: ELECTRICAL CONSTRUCTION
 Contract 5: HAZARDOUS MATERIAL
 Contract 6: CASEWORK / LAB EQUIPMENT
 Contract 7: SITEWORK CONSTRUCTION
 \$ 5,250,000
- 8. MISCELLANEOUS REQUIRMENTS THE PALOMBO GROUP
 - PREVAILING RATE PROJECT
 - PERFORMANCE AND PAYMENT BONDS ARE REQUIRED
 - BID BOND OR CERTIFIED CHECK REQUIRED WITH BID AT 5%
 - MAKE SURE ALL ATTACHMENT FORMS ARE FILLED OUT WITH THE BID REVIEW ATTACHMENTS
 - ALL ADDENDUM MUST BE ACKNOWLEDGED ON THE BID FORM
 - ALTERNATES & ALLOWANCES
 - RFI PROCEDURES
- 9. GENERAL DISCUSSION Q&A

10. SITE VISIT

PRE BID WALK THRU SIGN IN SHEET Reconstruction at Mahopac Central School District – PHASE I		
Start Date: February 10, 2021	Start Time: 3:30PM	
Location: MAHOPAC HIGH SCHOOL	Room: Conference Room / HS	
421 Baldwin Place Rd., Mahopac, NY 10541		





NAME	COMPANY	PHONE	EMAIL
Tyler Doyle	Richards Corporation	860-921-1654	+ doyk@ fichodscorp.com dczapor@ fichoráscorp.com
Joseph prozza	Piazza Inc	914-830-1344	id@ Piazza brothers.com
ORDAN ELY	ARGENIO BROS.	845-561-5102	LORDAN @ PREMIORCSHV, COM
Tom MAWE	HVS ELECTRIC	845 429-3300	ANGIE @ HUSLICNYC, COM
Mike Cunninghour	Nickerson Corp	631-539-3= 1341	munningliquée vickerson corp
John Stanforth	Spearhead	805-816-7496	John@Spearhad Cf. Com
Brendan Ford	Lunduscap	9114-321-5-199	office @ nickyaliggs.cm
Frich Hoefner	ELG Indestries	914 654-1040	Tsilvalelginustries, cum

Pre Bid Walk thru Sign in Sheet

NAME	COMPANY	PHONE	EMAIL
Frank Toto	OCS Indestries	845 - 479-2480	Ftoto e ocs in dustrics. Com
Angelo Jugliese	E SPARTTECH	914-232-1640	
Daniel Strong	Strong Grounding	856-279-3072	strong grounding Q gmail.com
D.VERIGIK7	UNITED SAFETY LIC	20	BODUE UNITODIATOTYNZ CA
S Vieip	And ape Unlimited	9142325623	MZLUIZ Ogmila
pARCIN anorthese	NIRAM JAC	973-299-4455	CTKIMONIRAM.Da
]	L]	<u> </u>

PRE BID WALK THRU SIGN IN SHEET Reconstruction at Mahopac Central School District – PHASE I		
Start Date: February 10, 2021	Start Time: 3:30PM	
Location: MAHOPAC HIGH SCHOOL	Room: Conference Room / HS	
421 Baldwin Place Rd., Mahopac, NY 10541		





NAME	COMPANY	PHONE	EMAIL
Geoff Ardolino	Brennan Construction	914 299 7627	gardoline brennen construction.com
Steve Kuprat	RAIN FOR Rent	908 670 5967	S Kuprate RAin For Rent. com
Bruce Powell	Rain For Rent	908 692 0758	BPOWELL & RainFor Rent.com
MATT DEROSA	DeRosa Storts Const.	914 - 341 - 1506	John CDEROSA Sports. com
John Masse	Midlantic Environmental	315-798-8026	JMassa 190gmAIL.com

PRE BID WALK THRU SIGN IN SHEET Reconstruction at Mahopac Central School District – PHASE I		
Start Date: February 10, 2021	Start Time: 3:30PM	
Location: MAHOPAC HIGH SCHOOL	Room: Conference Room / HS	
421 Baldwin Place Rd., Mahopac, NY 10541		





NAME	COMPANY	PHONE	EMAIL
SCEVE MGROITCHIAN	PIEROTTI CORP.	914-233-9990	STEVENEDREROTTICOLPCOM
FRANK GRANCE	DARUND KSSOC.	845 223-5115	f.grange @ casi-ny.can
JIM Sass I.	Sass Flector	845-849-4937	JIM 59553/8 JJ55955. CON
Touy Ramirez	Paladino Concrete Creetes	914 699 0907	Tony & Peccorpny.com
Soft D Romerez	Nickerson Corp	631-539-1341	manning lam Duickerson com
JOSED RAMINER	Palasino concrete	9146990907	-bse @ PCCCOEPNY, Com
AUGUSTINE YWAGBOE	PLANES EMULLOWMENT	646-456-8730	4pLAINS2006 JAHOO.
Marvin Eribo	Plains Environnon	646222 12#8	PAINT YOUR WORLOCHLC
Pre Bid Walk thru Sign in Sheet			

	VALK THRU N SHEET ral School District – PHASE I
Start Date: February 10, 2021	Start Time: 3:30PM
Location: MAHOPAC HIGH SCHOOL	Room: Conference Room / HS
421 Baldwin Place Rd., Mahopac, NY 10541	





NAME	COMPANY	PHONE	EMAIL
CHRIS COLANDRER	NortHBrook Cartracting	914-879-6099	NorthBrookChille Jahoo. Com
Rick RECINE	North Brook	845 661 3894	RICKREnorthBrookcontracting a
DARKO NOULOVIE	Neoplanta rest.	578-406-5345	LNOUKOVIC prycap, Fr. cou
ADEE DUBRAY	WD Excavana	914-271-5726	WDEXCAVATION & bmail.com
ADAM HORTON	TURCO GOIF THE	201-373-2385	A'HORTON @ GPASEKEEPSRINE
DJ SADOWSKI	MEYEL CONTRACTING	645) 635-1416	ESTIMATING C MEYERCONTRACTING, COM
Thomas Gleason	Mexic Contracting	ut ta	Estimating meyer contraction ca

Pre Bid Walk thru Sign in Sheet

the Palombo Gr	roup			MAHO	PAC PHA	SE	1 REN	IOVAT	IONS												
	tivity ID	Description)rigina uratio		Early Finish	2020 DEC		FEB	MAR	APR	MAY	JUN	2021 \	JUL	AU	G	SEP	OCT	NC	v	DEC
PRE	ECC	DNSTRUCTION - PRIMARY SUBM	ITT/	ALS																	
DIS	TRI	СТ																			
BI		ONTRACT AWARD		r	1																
00	20	BIDDING PERIOD	19d	29JAN21	25FEB21			BIDDING	1 1 1 1												
00	30	OPEN BIDS	0		25FEB21					DS											
00	40	QUALIFY CONTRACTORS	5d	25FEB21	04MAR21					CONTR	RACTO	RS									
00)50	AWARD CONTRACTORS BOE Est. Recommendation	0		04MAR21				AWARE	CONT	RACTO	RS BO	E Est	. Rec	omme	endati	on				
00	60	NOTICE TO PROCEED TO CONTRACTORS	1d	04MAR21	05MAR21	1			NOTICE	E TO PR	ROCEEL	о то с	ΟΝΤΙ	RACT	ORS						
00	70	CONTRACTOR KICKOFF MEETING	0	12MAR21						FRACTO	OR KICH	KOFF N	/EET	ING							
00	080	CONTRACTS BEING WRITTEN	0	12MAR21					CON	FRACTS	BEING	S WRIT	TEN								
SUE	3MI1	TALS - ALL SCHOOLS			1			П	3												
		ORK & AMENITIES																			
10	000	SITE WORK STORM WATER SYSTEMS	20d	12MAR21	09APR21					WORK	STORM	1 WATE	ER SI	STEN	/IS						
10	05	SITEWORK UTILITIES	20d	12MAR21	09APR21			[SITE	NORKI	JTILITIE	ES									
10)10	SITEWORK GRADING PLAN	20d	12MAR21	09APR21				SITE	NORK	GRADIN	IG PLA	N								
10	15	SITEWORK MATERIALS	20d	12MAR21	09APR21				SITE	NORK	MATERI	IALS									
GE	NER/	AL WORK - Double Shifts During the Summer																			
10	20	Finishes - Carpet, VCT, ACT, Paint, CT, etc	30d	12MAR21	23APR21				Finish	ies - Ca	arpet, V	CT, AC	T, Pa	int, C ⁻	Γ, etc.						
10	25	Int. Doors and Hardware	20d	12MAR21	09APR21				Int. D	oors and	d Hardw	/are									
10	30	Specialties	30d	12MAR21	23APR21				Speci	alties											
10	35	PreManufactured Building shop drawings	40d	12MAR21	07MAY21				PreM	anufacti	ured Bui	ilding sl	hop d	rawin	gs						
10	40	Security / Store Front Submittals / Approvals	35d	12MAR21	30APR21				Secu	rity / Sto	re Fron	t Submi	ittals	/ Appr	ovals						
10	45	Food Service equipment	15d	12MAR21	02APR21				Food	Service	equipm	nent									
10)55	Store Front Manufacturing / Delivery	40d	30APR21	25JUN21						Store F	ront Ma	anufa	cturin	g / De	livery					
10	50	Premanufactured building manufacturing / deliver	70d	07MAY21	13AUG21						Prem	anufact	<pre>tured</pre>	buildi	ng ma	anufad	cturing	/ delive	r		
HA	ZMA	T WORK - Double Shifts During the Summer																			
		HAZARDOUS MATERIALS SUBMITTALS	10d	12MAR21	26MAR21					RDOUS	S MATE	RIALS	SUB	МІТТА	LS						
10	65	ABATEMENT NOTIFICATION PERIOD	10d	14JUN21	25JUN21							A	BATE	MEN	т NOT	TIFIC	ATION	PERIC	D		
HV	AC V	VORK - Double Shifts During the Summer			l							{}									
		Louvers & Associated Colors	16d	12MAR21	05APR21				Louve	ers & As	sociated	d Colors	s								
		1	1	1	1																



MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
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Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1
Page number	1A
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MAHOPAC PHASE 1 RENOVATIONS

the Palombo Group

Activity ID	Description)rigina uratio	Early Start	Early Finish	2020 DEC	JAN	FEE	3	MAR	2 A	2021 PR MAY JUN	JUL AU	JG S	EP 0	CT NO	V DEC
1075	UV's, RTU's, Condensing Units, and AHU's	25d	12MAR21	16APR21					UV	"s, RT	U's, Condensing Units, a	ind AHU's				
1080	Ductwork Shop Drawings	25d	12MAR21	16APR21					Duc	ctwork	Shop Drawings					
1085	Hot water supply and Return Shops Drawings	25d	12MAR21	16APR21					Hot	t water	r supply and Return Sho	ps Drawing	s			
1090	PUMPHOUSE ASSOCIATED SUBMITTALS	25d	12MAR21	16APR21					PU	IMPHC	USE ASSOCIATED SU	BMITTALS				
PLUMB	ING WORK - Double Shifts During the Summer	-														
1095	Plumbing Piping & Fixtures	25d	12MAR21	16APR21					Plu	Imbing	Piping & Fixtures					
1100	PUMPHOUSE WATER SERVICE ASSOCIATED	25d	12MAR21	16APR21					PU	IMPHC		ASSOCI	ATED S	UBMITTA	LS	
ELECTR	RICAL WORK - Double Shift During the Summer															
1105	Fire Alarm / PA / Intercom / Clocks	20d	12MAR21	09APR21					\blacktriangleright	\diamond	m / PA / Intercom / Clock	S				
1110	Lighting Fixtures	20d	12MAR21	09APR21					Ligi	hting F	Fixtures					
1115	Electrical Panels	20d	12MAR21	09APR21					Ele		Panels					
1120	PUMPHOUSE ASSOCIATED SUBMITTALS	25d	12MAR21	16APR21						IMPHC	DUSE ASSOCIATED SU	BMITTALS				
1125	Score Board	20d	12MAR21	09APR21						ore Bo						
CASEW	ORK															
1130	Manufactured Casework submittal / approval	35d	12MAR21	30APR21				L	Ma	nufact	tured Casework submitta	l / approva				
1135	Casework manufactured / delivered - Phase 1	60d 3	30APR21	23JUL21							Casework manufact	tured / deliv	/ered - I	Phase 1		
1140	Casework manufactured a/ delivered - Phase 2	60d 2	25JUN21	17SEP21							Cas	ework mar	ufacture	ed a/ deli	/ered - Ph	ase 2
CONS [.]	T. WORK PERIOD - 6/26/2021 t	o 9/3	/202	1												
MAHOP	PAC HIGH SCHOOL															
SITEW	ORK & AMENITIES															
2000	MOBILIZE	5d	03MAY21	07MAY21							MOBILIZE					
2010	Demolition / Site Containment	10d	10MAY21	21MAY21							Demolition / Site	Containme	nt			
2020	Site Erosion Control	80d	17MAY21	03SEP21							Site Erosion Co	ontrol				
2030	Storm Water - Retention Pond	25d	17MAY21	18JUN21							Storm Water - I	Retention I	Pond			
2040	Site Clearing / Grading / Storm / Stone Base	45d	07JUN21	06AUG21		1 1 1 1 1 1 1 1 1 1 1 1					Site Clea	ring / Grad	ing / Sto	orm / Stor	ne Base	
2050	Run New Water Service Lines	30d	19JUL21	27AUG21								Run Ne	w Water	Service	Lines	
2060	Well work	30d	19JUL21	27AUG21								Well wo	rk			
2070	Support utility Installs for Field and Pumphouse	20d	19JUL21	13AUG21		1 1 1 1 1 1 1 1 1 1 1 1						Support	utility Ir	stalls for	Field and	Pumpho
2080	Pump House Retaining wall / Pad Establishment	20d	19JUL21	13AUG21								Pump H	ouse R	etaining v	/all / Pad	Establish
2090	Field Installation including events	25d	02AUG21	03SEP21		1 1 1 1 1 1 1 1 1 1 1 1						Field	d Install	ation inclu	iding eve	nts
Early start point Early start point Early bar Progress bar Critical bar Summary bar Summary point Summary point Start milestone poi Finish milestone poi		CTION	SCHEDU	JLE - PH	ASE	1 SU	IMM	EF	/ F.	ALL	2021	R D N P	ompany r un date ata date umber/Ve roject nar age numb	10F 01. rsion Re ne Ma per 2A	E PALOMBO EB21 AN21 7.0 hopac Phas ra Systems,	e 1

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description)rigina uratio	-	Early Finish	2020 DEC	JAN	FEB	MAR	APR	MAY	2 JUN	021	AUG	SEP	ОСТ	NOV	DEC
	Final fencing and Asphalt Sidewalks		06SEP21											Fina	fencing	and Aspl	nalt Sid
2110	Final pads and final concrete work	10d	06SEP21	17SEP21											pads an	d final co	oncrete
2120	Athletic Field / Site Substantially Complete	0		17SEP21											thletic Fi	eld / Site	Substa
ENER/	AL WORK - PUMP HOUSE																
3 <mark>000</mark>	EXCAVATION / FOUNDATONS & SLAB	15d	16AUG21	03SEP21									EX		ION / FC	UNDAT)NS &
3010	METAL BUILDING ASSEMBLY / INTERIOR	15d	06SEP21	24SEP21									1_		AL BUIL	DING AS	SEME
3020	INTERIOR HOUSE KEEPING PADS	10d	20SEP21	010CT21												R HOUS	E KEE
3030	BUILDING INSULATION	3d	27SEP21	29SEP21											BUILDI	NG INSL	LATIC
3040	BLOCKING / DRYWALL	10d	30SEP21	130CT21										Ę		KING / D	RYWA
3050	WALL FINISHES	10d	110CT21	22OCT21											WA	LL FINIS	HES
3060	CEILINGS	7d	140CT21	220CT21				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			1 1 11 1 1 1 1 1 11 1 1 1 1 1 11 1 1 1			1 1 1 1 1 1 1 1 1 1 1 1		ILINGS	
3070	OVERHEAD DOORS / DOORS	5d	140CT21	20OCT21											0\	/ERHEAI) DO
3080	WATER SUPPLY EQUIPMENT INSTALLATION	15d	200CT21	09NOV21													UPPI
3090	FLOOR FINISH	3d	01NOV21	03NOV21												FLOO	R FIN
3100	SPECIALTIES	3d	03NOV21	05NOV21													IALTI
3110	PUNCH LISTS	10d	04NOV21	17NOV21													CH LIS
3120	DEPARTMENT OF HEALTH APPROVALS	15d	04NOV21	24NOV21				1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	DEPA	RTM
3130	PUMP HOUSE SUBSTANTIALLY COMPLETE	0		24NOV21													PUMF
	AL WORK - Double Shifts During the Summer			1													
	Vestibule Demo / New Security Vestibule Work	_		13AUG21	- 1 1							` ,	e Demo /				
	Serving line demo / new install /coordinate work	_		20AUG21									line dem				
	Casework / wall demo / coordinate with abatement	_	30JUN21					1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					ork / wall				
	Penetrations and slab trenching for utility Work	_		07JUL21								🗙	ations and				
5040	New Walls / Partitions in science and STEM rms	_		20JUL21									Walls / Pa	1 - 1 - 1 - 1 + - +			
	2nd flr Corridor and Science rms Structural work			20JUL21							-						
	Music Rooms and Library area demolition			11AUG21									lusic Roc		- 1 I I I I		
5070	Formwork and new concrete at Music Rooms	15d	12AUG21	01SEP21										\diamond			
	New Security Entrance Substantially Complete	0		13AUG21									New 🗲	v Secur	ity Entrar	nce Subs	antia
	Final finishes Second Floor Rooms and STEM	15d	25AUG21	14SEP21		$ \begin{array}{ccccccccccccccccccccccccccccccccc$				$\begin{array}{cccccccccccccccccccccccccccccccccccc$: : : F : : : F	<mark>> _ </mark>	ishes Se		
5100	Science Rms / STEM Rms Substantially Complete	0		14SEP21													
r start point finish point bar ress bar cal bar mary bar ress point cal point mary point milestone poin h milestone poin		TION	SCHEDU	JLE - PH	ASE	1 SL	IMMEI	R / FA	LL 20	21			Run o Data Numi Proje	date ber/Versie ect name number	10FEE 01JAN on Rev.0	l21 bac Phase	1

MAHOPAC PHASE 1 RENOVATIONS

Activ	ity)rigina	Early	Early	2020								2021							_		
ID	Description	uratio		Finish	DEC		FEB	MAR	API	R		JUN	JL		AUG		SEP	0	ОСТ	NO		DEC
HAZ	IAT WORK - Double Shifts During the Summer																					
400	Asbestos work rms 111 through 115	5d	28JUN21	02JUL21									Asbe 🂫	stos w	vork r	ms 1	11 tł	nroug	h 1 1	15		
401	Prep/ Demo/Abate areas 235,239,243,238, C1,C2,C3	7d	28JUN21	06JUL21									Prep/	Dem	o/Aba	ate ar	eas	235,2	239,	243,23	38, C1,	,C2,C
402	Roofing Asbestos Abatement / coordinate with MC	10d	28JUN21	09JUL21									Roofi	ng As	besto	os Ab	aten	nent /	/ coc	ordinat	e with	мс
403	Abatement rms 211, 213, 227, 229	4d	05JUL21	08JUL21									Aba	ateme	ntrm	ıs 21′	1, 21	3, 22	27, 2	29		
404	Abatement rms 127, 129, 137, 139	4d	05JUL21	08JUL21									–Aba ►∕∑	ateme	nt rm	ıs 127	7, 12	9, 13	87, 1	39		
405	Prep/Demo/Abate areas 142, 143, 143A, 1-C2, 1-C3	7d	05JUL21	13JUL21									Pre		no/Al	bate a	area	s 142	2, 14	3, 143	A, 1-C	2, 1-0
406	Insulation Abatement at Bus Garage	5d	05JUL21	09JUL21		1 1 1 1 1 1 1 1 1 1 1 1								ulatior	ו Aba	ateme	ent af	Bus	Gai	age		
407	Abatement rms 210, 212, 226, 228	4d	09JUL21	14JUL21		1 1 1 1 1 1 1 1 1 1 1 1							At	atem	ent rr	ms 2′	10, 2	12, 2	26,	228		
408	Abatement rms 110, 112, 126, 128, 136	5d	09JUL21	15JUL21		1 1 1 1 1 1 1 1 1 1 1 1							At	atem	ent rr	ms 1′	10, 1	12, 1	26,	128, 1	36	
409	Abatement areas 223, 2-C4, 2-C5, 2C6	5d	15JUL21	21JUL21		1 1 1 1 1 1 1 1 1 1 1 1								Abate	ment	area	s 22	3, 2-0	C4, 2	2-C5, 2	2C6	
410	Abate rms 106, 19A, Kitchen Storage	4d	16JUL21	21JUL21										Abate	rms	106,	19A,	Kitcl	hen	Stora	je	
HVA	WORK - Double Shifts During the Summer																					
603	RTU's and Condensing Unit Replacements on Roof	40d	28JUN21	20AUG21								4	RTU'	s and	Conc	densi	ng U	nit R	epla	cemei	nts on I	Roof
604	Bus Garage Vehicle Exhaust and Unit Heaters	15d	12JUL21	30JUL21									B	us Ga	arage	Vehi	icle E	Exhau	ust a	and Un	it Heat	ters
605	All required ductwork and equipment removals	10d	16JUL21	29JUL21										All rec	quirec	d duc	tworl	(and	l equ	uipmer	nt remo	ovals
606	UV/ Ductwork Installation on Gound & First Floor	15d	21JUL21	10AUG21										UV/	Duct	work	Insta	Ilatio	on or	n Gour	nd & Fi	rst Flo
607	UV/Ductwork Installation Rooms on Second Floor	15d	11AUG21	31AUG21												/Duct	work	Insta	allati	on Ro	oms oi	n Sec
608	Balancing for all rooms being brought on line	5d	30AUG21	03SEP21											Ģ	Bal	anci	ng fo	r all	rooms	being	brouç
609	HVAC Work / Science / STEM Rm Substant. Complete	0		03SEP21												⊢ ⊢ ∎	VAC	Worl	k/S	cience	e / STE	M Rn
610	HVAC Installation work at the Pump House	10d	03NOV21	16NOV21																HVA	C Insta	allatio
PLUN	BING WORK - Double Shifts During the Summer			1																		
600	All required disconnects for demo to occur	5d	30JUN21	06JUL21									All re	quire	d diso	conne	ects	for de	emo	to occ	ur	
601	In slab plumbing rough in work	10d	05JUL21	16JUL21									In s	lab pl	umbi	ng ro	ugh	in wo	ork			
601	Plumbing roughin work Science and STEM	10d	07JUL21	20JUL21									Plu	imbinę	g rou	ghin	work	Scie	ence	and S	TEM	
602	Plumbng Finish Work Science and STEM	10d	28JUL21	10AUG21										Ρlι	umbn	ıg Fin	ish V	Vork	Scie	ence a	nd STI	EM
602	Plumbing Installation work at Pump House	15d	20OCT21	09NOV21															PI	umbin	g Insta	llatior
ELEC	TRICAL WORK - Double Shift During the Summer																					
611	Install new Clocks / PA / FA	83d	30APR21	25AUG21						Ins	tall nev	w Clocl	ks/P	A/F/	4	>						
612	New Sub-Panels and Sub-Panel Upgrades	25d	25JUN21	29JUL21								1	New S	ub-Pa	anels	and	Sub-	Pane	el U	ograde	es	



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MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

THE PALOMBO GROUP INC.
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MAHOPAC PHASE 1 RENOVATIONS

	Activity)rigina	Early	Early	2020							2021							
	ID	Description	uratio	-	Finish	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	i	SEP	00	СТ	NOV	DEC
	6130	Bus Garage Mechanical Equipment Connections		12JUL21	30JUL21								Bu	s Garage	e Me	chanic	al Eq	uipme	nt Cor	nnections
	6140	Electric finish work associated with Casework	10d	21JUL21	03AUG21									♦ Electric fil	nish	work	assoc	ciated	with C	asework
	6150	Site Electric, Pump House and Scoreboard install	25d	28JUL21	31AUG21									Site Ele	ectric	, Pum	ıp Ho	use ar	id Sco	oreboard i
	6160	Electrical Work associated with Security Entranc	15d	09AUG21	27AUG21									Elec		l Wor	k ass	ociate	d with	Security I
	6170	Mechanical equipment Power Connections	15d	11AUG21	31AUG21									Med	char	ical e	quipm	nent P	ower C	Connectio
	6180	Electrical installation work at the Pump House	15d	20OCT21	09NOV21													Elect	rical in	stallation
	CASEW	ORK - Double shifts AS NEEDED																		
	7000	Casework/Counters Installation Science and STEM	15d	21JUL21	10AUG21									Casework	k/Co	unters	; Insta	allation	Scier	nce and S
V	/ORK	PERIOD - 9/3/2021 to 10/29/2	2021	2nd S	HIFT															
Ν	ЛАНОР	AC HIGH SCHOOL																		
	GENER	AL WORK - Double Shifts During the Summer																		
	5130	Final finishes First Floor Library and Music Rms	24d	29SEP21	01NOV21												Final	finishe	es Firs	st Floor Li
	HVAC V	VORK - Double Shifts During the Summer															1			
	6190	RTU/Ductwork Installation Library RM 223	10d	01SEP21	14SEP21									4	R	TU/Du	ictwo	rk Inst	allatio	n Library
	6200	FCU/Ductwork Installation Music RMS 142, 143	10d	15SEP21	28SEP21										ļ		J/Duc	ctwork	Install	lation Mus
	ELECT	ICAL WORK - Double Shift During the Summer																		
	6210	Install new Lights / PA / FA - Library / Music	25d	15SEP21	19OCT21											Inst	all ne	w Ligh	its / P/	A / FA - Li
	CASEW	ORK - Double shifts AS NEEDED																		
	7010	Casework Installation Library and Music Rooms	14d	130CT21	01NOV21														ork Ins	stallation I
	MOVE (DUT																		
	9000	Library / Music Rooms Substantial Completion	0		01NOV21													Li ► 🖻	brary /	/ Music R



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MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
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MAHOPAC PHASE 1	RENOVATIONS
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A			Easter	F aults										2022									
Activ ID	The scription)rigina uratio		Early Finish		JUN			UL				AUG	; ;				EP		1		ост	
			Start	FINISH	13	20	27 04	11	18	25	01	08	15	22	29	05	12	19	26	03	10	17	24
	RK PERIOD - 6/27/2022 to 9/30/2	22																					
	OPAC MIDDLE SCHOOL															Ì							
	WORK & AMENITIES																						
910	0 MOBILIZE / Site Containment / Tracking Pads	5d	27JUN22	05JUL22			MOBILI	ZE / S	ite Co	ontair	nment	/ Trac	cking	Pads									
911	0 Site Erosion Control	62d	29JUN22	26SEP22			Site E	rosion	Contr	rol		1											
915	0 Site Demo / Clearing / Grading	10d	05JUL22	19JUL22			Si	ite Der	mo / C	Cleari	ing / C	Gradin	g										
945	0 Storm Water - New Subsurface Detention System	10d	12JUL22	26JUL22	1			► Sto	orm V	Vater	- Nev	w Sub	surfa	ice De	etentio	on Sys	stem						
955	0 Storm Water Containment - Fields (alternate)	15d	26JUL22	16AUG22	1			[St	orm V	Vater	Cont	ainme	ent - I	Fields	(alte	ernate)					
970	0 Sidewalks / Asphalt Installation	25d	26JUL22	30AUG22						Si	dewa	lks / A	spha	alt Inst	allati	on							
980	0 Sports Field Storm / Subbase Installation (alt)	25d	12AUG22	16SEP22									Spor	ts Fiel	ld Sto	orm / S	Subb	ase In	stalla	tion (a	alt)		
960	0 Final striping and landscaping	5d	30AUG22	06SEP22	1								Τ			inal st	triping	g and	lands	capin	g		
965	0 Electrical Underground / Site Lighting	5d	30AUG22	06SEP22												lectric	al Ur	ndergr	ound	/ Site	Light	ng	
990	0 Finalize fencing and Asphalt Sidewalks	7d	30AUG22	08SEP22											Fi	inalize	e feno	cing a	nd As	phalt	Sidev	/alks	
995	0 Finalize ADA Circulation to Parking areas	5d	30AUG22	06SEP22						- 4					Fi	inalize	e AD	A Circ	ulatior	ו to P	arkin	g area	IS
960	5 Site Circulation and Parking Substant. Complete	0		06SEP22												► Si	ite Ci	irculati	on an	d Par	king \$	Subst	ant. Co
980	5 Synthetic Carpet Installation	10d	16SEP22	30SEP22														Synt	hetic (Carpe	t Inst	allatio	n
981	0 Sports Field Substantially Complete	0		30SEP22	1															Spor	ts Fie	d Sub	ostantia
PLU	MBING WORK - Double Shifts During the Summer																						
511	0 Existing Water Pump Room Demo Work	10d	27JUN22	11JUL22			Existing	Wate	r Pum	ip Ro	om D	emo \	Work										
511	5 New Booster Pumps	7d	12JUL22	20JUL22				Ne	ew Bo	oster	Pum	ps											
FALL	S ELEMENTARY SCHOOL						-			-													
PLUI	MBING WORK - Double Shifts During the Summer																						
512	0 Existing Water Pump Room Demo Work	10d	05JUL22	18JUL22		_	E)	xisting		1	1			Work	٢								
512	5 New Booster Pumps	7d	19JUL22	27JUL22	1				Ne	w Bo	poster	Pump	ps										
HAZ	MAT WORK						1									I I I							
411	0 Abatement of Water Pump Room	5d	27JUN22	01JUL22]		Abatem	ent of	Water	r Pun	np Ro	om											



MILESTONE CONSTRUCTION SCHEDULE - PHASE1 SUMMER 2022

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SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Hollow Metal Doors and Frames".
 - 2. Division 08 Section "Flush Wood Doors".
 - 3. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC International Building Code.
 - 3. NFPA 70 National Electrical Code.
 - 4. NFPA 80 Fire Doors and Windows.
 - 5. NFPA 101 Life Safety Code.
 - 6. NFPA 105 Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: All hardware specified herein shall comply with the following industry standards:
 - 1. ANSI/BHMA Certified Product Standards A156 Series
 - 2. UL10C Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
 - 1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
 - a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.

- 2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 - 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 - 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 - 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.
- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Seven years for heavy duty cylindrical (bored) locks and latches.
 - 2. Five years for exit hardware.
 - 3. Twenty five years for manual overhead door closer bodies.
 - 4. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" heavy weight.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 - 4. Hinge Options: Comply with the following:

- a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
- 5. Manufacturers:
 - a. Bommer Industries (BO) LB Series.
 - b. Hager Companies (HA) CB Series.
 - c. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) TA Series.
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cutouts.
 - 1. Manufacturers:
 - a. Bommer Industries (BO).
 - b. Hager Companies (HA).
 - c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
- C. Pin and Barrel Continuous Hinges: ANSI/BHMA A156.26 Grade 1-600 certified pin and barrel continuous hinges with minimum 14 gauge Type 304 stainless steel hinge leaves, concealed teflon coated stainless pin, and twin self-lubricated nylon bearings at each knuckle separation. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 - 1. Manufacturers:
 - a. Markar Products; ASSA ABLOY Architectural Door Accessories (MR).
 - b. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

- A. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
 - 1. Provide one each of the following tools as part of the base bid contract:
 - a. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) Electrical Connecting Kit: QC-R001.

- b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) Connector Hand Tool: QC-R003.
- 2. Manufacturers:
 - a. Hager Companies (HA) Quick Connect.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) QC-C Series.

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
 - 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 - 2. Furnish dust proof strikes for bottom bolts.
 - 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 - 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
 - 5. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).
- B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, holdopen lever and inactive-leaf release trigger. Model as indicated in hardware sets.
 - 1. Manufacturers:
 - a. Ives (IV).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Trimco (TC).
- C. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
 - 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
 - 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
 - 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
 - 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

- 5. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Ives (IV).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.5 CYLINDERS AND KEYING

- A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
- B. Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as locksets and exit devices, unless otherwise indicated.
 - 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU).
 - b. Sargent Manufacturing (SA).
 - c. Schlage (SC).
- C. Cylinders: Original manufacturer cylinders complying with the following:
 - 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
 - 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
 - 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
 - 4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 - 5. Keyway: Match Facility Standard.
- D. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
 - 1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- E. Keying System: Each type of lock and cylinders to be factory keyed.
 - 1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 - 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 - 3. Existing System: Field verify and key locks to match Owner's existing system.
- F. Key Quantity: Provide the following minimum number of keys:
 - 1. Change Keys per Cylinder: Two (2)
 - 2. Master Keys (per Master Key Level/Group): Five (5).
 - 3. Construction Keys (where required): Ten (10).

- 4. Construction Control Keys (where required): Two (2).
- 5. Permanent Control Keys (where required): Two (2).
- G. Construction Keying: Provide construction master keyed cylinders.
- H. Construction Keying: Provide temporary keyed construction cores.
- I. Key Registration List (Bitting List):
 - 1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
 - 2. Provide transcript list in writing or electronic file as directed by the Owner.
- J. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
 - 1. Manufacturers:
 - a. Lund Equipment (LU).
 - b. MMF Industries (MM).
 - c. Telkee (TK).
- K. Key Control Software: Provide one network version of "Key Wizard" branded key management software package that includes one year of technical support and upgrades to software at no charge. Provide factory key system formatted for importing into "Key Wizard" software.

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
 - 1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at paired openings) throw brass or stainless steel latchbolt.
 - 2. Locks are to be non-handed and fully field reversible.
 - 3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.
 - 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) CL3300 Series.
 - b. Sargent Manufacturing (SA) 10 Line.
 - c. Schlage (SC) ND Series.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
 - 1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 - 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 - 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 - 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
 - 1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 - 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 - 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 - 4. Dustproof Strikes: BHMA A156.16.

2.8 ELECTRIC STRIKES

- A. Surface Mounted Rim Electric Strikes: Surface mounted rim exit device electric strikes conforming to ANSI/BHMA A156.31, Grade 1, and UL Listed for both Burglary Resistance and for use on fire rated door assemblies. Construction includes internally mounted solenoid with two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Strikes tested for a minimum of 500,000 operating cycles. Provide strikes with 12 or 24 VDC capability supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike. Strike requires no cutting to the jamb prior to installation.
 - 1. Manufacturers:
 - a. Adams Rite (AD) 74 Series.
 - b. Folger Adam (FO) 310-4 Series.
 - c. HES (HS) 9400/9500/9600/9700/9800 Series.
- B. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.9 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

- 1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
- 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
- 3. Except on fire rated doors, provide exit devices with key cylinder dogging device to hold the pushbar and latch in a retracted position. Provide LD (less dogging) option for non-fire rated doors with intruder function.
- 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
- 5. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
- 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
 - a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
- 7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
- 8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
- 9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
- 10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
- 11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
 - 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) ED4000 / ED5000 Series.
 - b. Sargent Manufacturing (SA) 80 Series.

- c. Von Duprin (VD) 35A/98 XP Series.
- C. Tube Steel Removable Mullions: ANSI/BHMA A156.3 removable steel mullions with malleable-iron top and bottom retainers and a primed paint finish.
 - 1. Provide keyed removable feature where specified in the Hardware Sets.
 - 2. Provide stabilizers and mounting brackets as required.
 - 3. Provide electrical quick connection wiring options as specified in the hardware sets.
 - 4. Manufacturers:
 - a. Corbin Russwin Hardware (RU) 700/900 Series.
 - b. Sargent Manufacturing (SA) 980S Series.
 - c. Von Duprin (VD) 9954 Series.

2.10 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
 - 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 - 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 - 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 - 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 - 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 - 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
 - 7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.
- B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and

fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

- 1. Manufacturers:
 - a. Corbin Russwin Hardware (RU) DC8000 Series.
 - b. Norton Door Controls (NO) 9500 Series.
 - c. Sargent Manufacturing (SA) 281 Series.

2.11 SURFACE MOUNTED CLOSER HOLDERS

- A. Electromagnetic Door Holders: Certified ANSI A156.15 electromagnetic door holder/releases with a minimum 20 to 40 pounds holding power and single coil construction able to accommodate.12VDC, 24VAC, 24VDC and 120VAC. Coils to be independently wound, employing an integral fuse and armatures to include a positive release button.
 - 1. Manufacturers:
 - a. Rixson (RF) 980/990 Series.
 - b. Sargent Manufacturing (SA) 1560 Series.

2.12 ARCHITECTURAL TRIM

- A. Door Protective Trim
 - 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
 - 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
 - 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
 - 4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
 - 5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
 - 6. Manufacturers:

- a. Hiawatha, Inc. (HI).
- b. Ives (IV).
- c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.13 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
 - 1. Manufacturers:
 - a. Hiawatha, Inc. (HI).
 - b. Ives (IV).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.
 - 1. Manufacturers:
 - a. Rixson Door Controls (RF).
 - b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
 - c. Sargent Manufacturing (SA).

2.14 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 - 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 - 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 - 1. National Guard Products (NG).
 - 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 - 3. Reese Enterprises, Inc. (RE).

2.15 ELECTRONIC ACCESSORIES

- A. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.
 - 1. Manufacturers:
 - a. Securitron (SU) AQL Series.

2.16 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.17 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."
- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Section "Closeout Procedures" for project punch and reporting requirements including compliance with approved submittals and verification door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.
 - 3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate selection for the material and application.
- B. Manufacturer's Abbreviations:
 - MK McKinney
 MR Markar
 PE Pemko
 RO Rockwood
 SA SARGENT
 AD Adams Rite
 HS HES
 RF Rixson
 SU Securitron
 OT Other

Hardware Sets

Set: 1.0

Description: Alum Vestibule Pair - Card Access; Remote Release

2 Continuous Hinge	CFM-HD1 Series		PE
1 Key Removable Mullion	L980S	PC	SA
1 Exit Device (rim, NL, CD)	16 72 8804 862	US32D	SA
1 Exit Device (rim, EO, CD)	16 72 8810 862	US32D	SA
4 Core (SFIC)	Provided by Owner	US26D	00
1 Electric Strike	9600-LBM	630	HS
1 SMART Pac Bridge Rectifier	2005M3		HS
2 Concealed Overhead Stop	1-X36	630	RF
2 Door Closer	281 O; P10 (per spec)	EN	SA
1 Threshold (coord w/ details)	271A FHSL14SS		PE
1 Mullion Gasket	5110BL		PE
1 Wire Harness (head to J-box)	QC-CxxxP		MK
1 Mullion Wire Harness	QC-Cxxx (coord molex connectors)		MK
1 Power Supply	AQL4-E1 Series		SU

1 Remote Release Switch	By Security Vendor	00
1 Card Reader	By Security Vendor	OT
1 Weather/Perimeter Seals	Supplied with door/frame assembly	00

Notes:

Operation: Door is normally closed and locked. Valid card at reader or signal from remote switch unlocks door for momentary access. Monitoring by door position switch. During a loss of power the door will default to secure. Free egress at all times. Lock status will not change when the fire detection/suppression systems are activated. Outside key override.

Set: 2.0

Description: Alum Vestibule Pair

2	Continuous Hinge	CFM-HD1 Series		PE
1	Key Removable Mullion	L980S	PC	SA
1	Exit Device (rim, NL, CD)	16 72 8804 862	US32D	SA
1	Exit Device (rim, EO, CD)	16 72 8810 862	US32D	SA
4	Core (SFIC)	Provided by Owner	US26D	00
2	Concealed Overhead Stop	1-X36	630	RF
2	Door Closer	281 O; P10 (per spec)	EN	SA
1	Threshold (coord w/ details)	271A FHSL14SS		PE
1	Mullion Gasket	5110BL		PE
1	Weather/Perimeter Seals	Supplied with door/frame assembly		00

Set: 3.0

Description: Exterior Pump House

1 Continuous Hinge	CFM-HD1 Series		PE
1 Storeroom Lock	72 10G04 LL	US26D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Threshold (coord w/ details)	273x292AFGPK FHSL14SS-2		PE
1 Head & Jamb Gasketing	2891APK		PE
1 Sweep	3452APK		PE

<u>Set: 4.0</u> Description: Classroom; Serving Pair

2 Continuous Hinge	CFM-HD1 Series		PE
1 Key Removable Mullion	L980S	PC	SA
2 Exit Device (rim, intruder)	(12 or LD) 49 72 8816 ETL	US32D	SA
3 Core (SFIC)	Provided by Owner	US26D	00
2 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
2 Door Closer	281 O; P10 (per spec)	EN	SA
2 Kick Plate	K1050 10" 4BE CSK	US32D	RO
2 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Mullion Gasket	5110BL		PE
1 Head & Jamb Seal (adhesive)	S88BL		PE

PE

1 Astragal (adhesive, edge mount) S771C

<u>Set: 5.0</u>

Description: Band; Choral; Library; Serving

T4A3786 (qty, size, nrp per spec)	US26D	МК
(12 or LD) 49 72 8816 ETL	US32D	SA
Provided by Owner	US26D	00
124-46TL RED QSPAR NC-C11	US26D	SA
281 O; P10 (per spec)	EN	SA
K1050 10" 4BE CSK	US32D	RO
401; 404; 441CU (or per spec)	US26D	RO
S88BL		PE
434ARL x ACP112BL		PE
	 (12 or LD) 49 72 8816 ETL Provided by Owner 124-46TL RED QSPAR NC-C11 281 O; P10 (per spec) K1050 10" 4BE CSK 401; 404; 441CU (or per spec) S88BL 	(12 or LD) 49 72 8816 ETLUS32DProvided by OwnerUS26D124-46TL RED QSPAR NC-C11US26D281 O; P10 (per spec)ENK1050 10" 4BE CSKUS32D401; 404; 441CU (or per spec)US26DS88BLUS26D

<u>Set: 6.0</u>

Description: Corridor Pair - Hold Open

2 Continuous Hinge	CFM-HD1 Series		PE
2 Exit Device (SVR,LBR,NL)	(12 or 16) 72 NB8706 ETL	US32D	SA
2 Core (SFIC)	Provided by Owner	US26D	00
2 Door Closer	281 O; P10 (per spec)	EN	SA
2 Kick Plate	K1050 10" 4BE CSK	US32D	RO
2 Electromagnetic Holder	998M (or to suit conditions)	689	RF
1 Head & Jamb Seal (adhesive)	S88BL		PE
1 Astragal (adhesive, edge mount)	S771C		PE

Notes: Doors are normally held open. When they are closed, they are locked, entry by key only. Free egress at all times.

Interface with building fire alarm/security system to release door(s) from hold open.

Set: 7.0

Description: Alum Stair/Lobby

1 Continuous Hinge	CFM-HD1 Series		PE
1 Exit Device (rim, intruder)	(12 or LD) 49 72 8816 ETL	US32D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
1 Concealed Overhead Stop	1-X36	630	RF
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Weather/Perimeter Seals	Supplied with door/frame assembly		00

Notes: Coordinate hardware with door assembly mfr.

<u>Set: 8.0</u>

Description: Alum Library

1 Continuous Hinge	CFM-HD1 Series	PE

MAHOPAC CSD HIGH SCHOOL RECONSTRUCTION MAHOPAC, NY

1 Exit Device (rim, intruder)	(12 or LD) 49 72 8816 ETL	US32D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Weather/Perimeter Seals	Supplied with door/frame assembly		00

Notes: Coordinate hardware with door assembly mfr.

Set: 9.0

Description: Alum Classrom; Lab; Security

 Continuous Hinge Dormitory Lock 	CFM-HD1 Series 72 10G54 LL x Red Button SPAR028	208	PE US26D
SA	72 TOOST EE A Red Bullon SI AROZO		0520D
1 Core (SFIC)	Provided by Owner	US26D	00
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Weather/Perimeter Seals	Supplied with door/frame assembly		00

Notes: Coordinate hardware with door assembly mfr. Review panic hardware requirements with code official (typ).

Set: 10.0

Description: Classrom

3 Hinge (heavy weight)	T4A3786 (qty, size, nrp per spec)	US26D	MK
1 Dormitory Lock	72 10G54 LL x Red Button SPAR02	898 US26D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Head & Jamb Seal (adhesive)	S88BL		PE

<u>Set: 11.0</u> Description: Serving Pair - In-swing; Hold Open

6 Hinge (heavy weight)	T4A3786 (qty, size, nrp per spec)	US26D	MK
1 Dust Proof Strike	570	US26D	RO
1 Flush Bolt Set (self-latching)	2845; 2945	US26D	RO
1 Dormitory Lock	72 10G54 LL x Red Button SPAR028	98 US26D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Coordinator	1700	Black	RO
2 Door Closer	281 O; P10 (per spec)	EN	SA
2 Kick Plate	K1050 10" 4BE CSK	US32D	RO
2 Electromagnetic Holder	998M (or to suit conditions)	689	RF
1 Head & Jamb Seal (adhesive)	S88BL		PE

1 Astragal	357SP	PE
1 Astragal (adhesive, edge mount)	S771C	PE

Notes: Interface with building fire alarm system to release door(s) from hold open.

Set: 12.0 Description: Office; Study

3 Hinge (heavy wei	ight) T4A3786 (qty, size, nrp per spec)	US26D	MK
1 Dormitory Lock	72 10G54 LL x Red Button SPAR	02898 US26D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
3 Silencer	608		RO
-		0820D	

<u>Set: 13.0</u>

Description: Study Pod

1 Hardware	Supplied with door assembly	00
1 Haraware	Supplied with door assembly	00

Set: 14.0

Description: Fan Room Pair

2 Continuous Hinge	FM300	630	MR
1 Dust Proof Strike	570	US26D	RO
2 Flush Bolt (manual)	555	US26D	RO
1 Storeroom Lock	72 10G04 LL	US26D	SA
2 Concealed Overhead Stop	1-X36	630	RF
1 Threshold (coord w/ details)	271A FHSL14SS		PE
1 Head & Jamb Seal (adjustable)	322CSN		PE
2 Auto Door Bottom (surface)	STC4131CPK		PE
1 Astragal (outswing doors)	355CS		PE

Notes: Coordinate hardware with STC door mfr.

Set: 15.0

Description: Storage; Pump Room

3 Hinge (heavy weight)	T4A3786 (qty, size, nrp per spec)	US26D	MK
1 Storeroom Lock	72 10G04 LL	US26D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
1 Head & Jamb Seal (adhesive)	S88BL		PE

Set: 16.0

Description: Sliding Display Doors

1 Mortise Deadlock (hook bolt) MS18508 5	628	AD
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MAHOPAC CSD HIGH SCHOOL RECONSTRUCTION MAHOPAC, NY

1 Core (SFIC)	Provided by Owner	US26D	00
1 Cylinder as required	72 42	US15	SA
1 Hardware	Supplied with door assembly		00

Notes: Coordinate hardware with door mfr.

Set: 17.0 Description: Locker Room

1 Continuous Hinge	CFM-HD1 Series		PE
1 Exit Device (rim, intruder)	(12 or LD) 49 72 8816 ETL	US32D	SA
1 Core (SFIC)	Provided by Owner	US26D	00
1 Thumb-Turn Cylinder (inside)	124-46TL RED QSPAR NC-C11	US26D	SA
1 Door Closer	281 O; P10 (per spec)	EN	SA
1 Kick Plate	K1050 10" 4BE CSK	US32D	RO
1 Door Stop	401; 404; 441CU (or per spec)	US26D	RO
3 Silencer	608		RO

END OF SECTION 087100

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.3 DEFINITIONS

- A. CAC: Ceiling Attenuation Class.
- B. LR: Light Reflectance.
- C. NRC: Noise Reduction Coefficient.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
- 1.5 SUBMITTALS, GENERAL
 - A. General: Submit all action submittals and informational submittals required by this Section concurrently.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Attachment devices.
 - 2. Wire hangers, braces and ties.
 - 3. Hanger rods.
 - 4. Flat hangers.
 - 5. Angle hangers.
 - 6. Hold-down clips.
 - 7. Roll-formed, sheet-metal edge moldings and trim.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the "As-Specified Verification Form" (attached to Division 01 Section "Submittal Procedures") for each item listed below; otherwise submit full Product Data for the following:

- 1. Acoustical panels for ceiling type A1.
- 2. Acoustical panels for ceiling type A4.
- 3. Metal suspension system for ceiling types A1, A4, and A5.
- C. Samples for Verification: If proposing products other than those specifically named in Part 2 of this Section, for each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of 6-inch-square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.

1.7 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Method of attaching hangers to building structure.
 - 4. Items penetrating finished ceiling and ceiling-mounted items including, but not limited to, the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Access panels.
 - g. Detectors.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.9 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed of each acoustical panel type.
 - 2. Suspension-System Components: Quantity of each exposed component equal to 2 percent of quantity installed of each metal suspension system type.
 - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.11 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Match each type of acoustical ceiling panel with a supporting suspension system of the same manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A according to ASTM E1264.
 - 2. Smoke-Developed Index: 50 or less.

2.3 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- B. Color: White.
- C. Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D3273, ASTM D3274, or ASTM G21 and evaluated according to ASTM D3274 or ASTM G21.

2.4 SPECIALTY ACOUSTICAL PANELS FOR WIDE-FACE SUSPENSION SYSTEMS

- A. Acoustical Panels for Ceiling Type A1:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
 - a. Armstrong World Industries, Inc.; Optima Lay-In 3150.
 - b. CertainTeed Ceilings; Symphony f 1322-IOF-1.
 - c. USG Corporation; Halcyon Acoustical Panels 97221.
 - 2. Type and Form: Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth. Binder shall not contain urea formaldehyde.
 - 3. Pattern: As indicated by manufacturer's designation.
 - 4. Modular Size: 24 by 24 inches.
 - 5. Thickness: 3/4-inch.
 - 6. Edge Detail: Square.
 - 7. NRC: Not less than 0.90.
 - 8. LR: Not less than 0.90.
- B. Acoustical Panels for Ceiling Type A4:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
 - a. Armstrong World Industries, Inc.; Optima Health Zone 3114PB.
 - b. CertainTeed Ceilings; Symphony f Rx 1342-RXS-1.
 - c. USG Corporation; Halcyon Healthcare Acoustical Panels98232.
 - 2. Type and Form: Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth. Binder shall not contain urea formaldehyde.
 - 3. Pattern: As indicated by manufacturer's designation.
 - 4. Modular Size: 24 by 24 inches.
 - 5. Thickness: 1 inch.
 - 6. Edge Detail: Square.
 - 7. NRC: Not less than 0.95.
 - 8. LR: Not less than 0.85.
- C. Acoustical Panels for Ceiling Type A5: Refer to Division 09 Section "Sound-Absorbing Ceiling Units" for sound-absorbing and sound-diffusing ceiling panels.

2.5 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.

2.6 WIDE-FACE METAL SUSPENSION SYSTEMS

- A. Wide-Face Suspension System for Ceiling Types A1, A4, and A5:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Prelude XL 15/16-inch Exposed Tee System.
 - b. CertainTeed Ceilings; 15/16-inch EZ Stab Classic System.
 - c. USG Corporation; Donn Brand DX Acoustical Suspension System.
 - 2. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
 - 3. Structural Classification: Heavy-duty system.
 - 4. End Condition of Cross Runners: Override (stepped) type.
 - 5. Face Design: Flat, flush.
 - 6. Cap Material: Cold-rolled steel.
 - 7. Cap Finish: Painted white.

2.7 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
 - 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.135-inch- diameter wire.
- C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- D. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

- E. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A653/A653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.
- F. Hold-Down Clips: Manufacturer's standard hold-down.

2.8 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 - 1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.
 - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.

2.9 ACOUSTICAL SEALANT

A. Acoustical Sealant: As specified in Division 07 Section " Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Lay out openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C636/C636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to structure by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 8. Do not attach hangers to steel deck tabs.
 - 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
 - 1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 - 2. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.
 - a. Hold-Down Clips: Space 24 inches o.c. on all cross runners.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and restored to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 51 33 - ACOUSTICAL METAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Acoustical metal panels and associated suspension system for interior ceilings.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 SUBMITTALS, GENERAL

A. General: Submit all action submittals and informational submittals required by this Section concurrently.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include procedure for cutting metal panels.
 - 1. Attachment devices.
 - 2. Wire hangers, braces and ties.
 - 3. Hanger rods.
 - 4. Flat hangers.
 - 5. Angle hangers.
 - 6. Hold-down clips.
 - 7. Exposed metal edge moldings and trim.
- B. As-Specified Data: If the product to be incorporated into Project is as specified by manufacturer name and product designation in Part 2 of this Specification Section, submit the "As-Specified Verification Form" (attached to Division 01 Section "Submittal Procedures") for each item listed below; otherwise submit full Product Data for the following:
 - 1. Steel panels for acoustical metal panel ceiling type A2
 - 2. Metal suspension system for ceiling type A2.
- C. Samples for Initial Selection: For units with factory-applied finishes.

- D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below:
 - 1. Metal Panels: Set of full-size Samples of each type, finish, color, pattern, and texture. Show pan edge profile.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.

1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Suspended ceiling components.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Items penetrating finished ceiling including, but not limited to, the following:
 - a. Lighting fixtures.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
 - f. Detectors.
 - 4. Perimeter moldings.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.8 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Metal Panels: Full-size units equal to 2 percent of quantity installed.
 - 2. Suspension-System Components: Quantity of each grid, exposed molding, and trim equal to 2 percent of quantity installed.
 - 3. Hold-Down Clips: Equal to 2 percent of quantity installed.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical metal panels, suspension-system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they are protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes. B. Handle acoustical metal panels, suspension-system components, and accessories carefully to avoid damaging units and finishes in any way.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Comply with ASTM E1264 for Class A materials.
 - 2. Smoke-Developed Index: 50 or less.

2.2 ACOUSTICAL METAL PANS AND PANELS, GENERAL

- A. Source Limitations: Obtain each type of acoustical metal ceiling panel and supporting suspension system from single source from single manufacturer.
- B. Acoustical Panel Standard: Provide manufacturer's standard pans of configuration indicated that comply with ASTM E1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances unless otherwise indicated.
 - 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface according to ASTM E795.
- C. Sheet Metal Characteristics: For metal components exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, roughness, stains, or discolorations.
 - 1. Steel Sheet: Commercial-quality, cold-rolled, carbon-steel sheet; stretcher leveled; with protective coating complying with ASTM C635/C635M.
 - a. Painted Finishes: Electrolytic zinc-coated steel complying with ASTM A879/A879M, 13Z coating, surface treatment as recommended by finish manufacturer for type of use and finish indicated.

2.3 STEEL PANELS FOR ACOUSTICAL METAL PANEL CEILING A2

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to:
 - 1. Armstrong World Industries, Inc.; Metalworks Mesh Square Lay-in.
 - 2. CertainTeed Ceilings, Hunter Douglas; Metalinx.
- B. Pattern: Welded wire or expanded metal pattern as selected by Architect from manufacturer's full range.

- C. Panel Fabrication: Manufacturer's standard units of size indicated, formed from metal indicated and finished to comply with requirements indicated.
 - 1. Lay-in Panels: Formed to set in exposed suspension grid.
- D. Panel Size: 24 by 24 inches.
- E. Panel Face Finish: Painted in color selected from manufacturer's full range.

2.4 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C635/C635M requirements.
- B. Suspension Systems: Provide systems complete with carriers, runners, splice sections, connector clips, alignment clips, leveling clips, hangers, molding, trim, retention clips, load-resisting struts, and other suspension components required to support ceiling units and other ceiling-supported construction.

2.5 WIDE-FACE METAL SUSPENSION SYSTEMS

- A. Wide-Face Suspension System for Ceiling Type A2:
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Prelude XL 15/16-inch Exposed Tee System.
 - b. CertainTeed Ceilings; 15/16-inch EZ Stab Classic System.
 - 2. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
 - 3. Structural Classification: Heavy-duty system.
 - 4. End Condition of Cross Runners: Override (stepped) type.
 - 5. Face Design: Flat, flush.
 - 6. Cap Material: Cold-rolled steel.
 - 7. Cap Finish: As selected by Architect from manufacturer's full range.

2.6 ACCESSORIES

A. Attachment Devices: Size for 5 times the design load indicated in ASTM C635/C635M, Table 1, Direct Hung, unless otherwise indicated.

- B. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
 - 2. Size: Select wire diameter so its stress at 3 times the hanger design load indicated in ASTM C635/C635M, Table 1, Direct Hung, is less than yield stress of wire, but provide not less than 0.135-inch- diameter wire.
- C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- D. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.
- E. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A653/A653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.
- F. Hold-Down Clips: Manufacturer's standard hold-down clips.
- G. Exposed Metal Edge Moldings and Trim: Provide exposed members as indicated, to conceal edges of and penetrations through ceiling, to conceal edges of pans, panels and runners, for fixture trim and adapters, for fasciae at changes in ceiling height, and for other conditions; of metal and finish matching suspension-system members unless otherwise indicated.
 - 1. For Circular Penetrations of Ceiling: Fabricate edge moldings to diameter required to fit penetration exactly.

2.7 ACOUSTICAL SEALANT

A. Acoustical Sealant: As specified in Division 07 Section " Joint Sealants."

2.8 GENERAL FINISH REQUIREMENTS

A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.9 STEEL SHEET FINISHES

A. Color-Coated Finish: Manufacturer's standard baked paint complying with coating manufacturer's written instructions for surface preparation, pretreatment, application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical metal panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical metal panel ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical metal panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans and coordination drawings.

3.3 INSTALLATION

- A. General: Install acoustical metal panel ceiling assemblies to comply with ASTM C636/C636M and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that do not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to ceiling suspension members and to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that does not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.

- 6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
- 7. Do not attach hangers to steel deck tabs.
- 8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
- 9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- 10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical metal panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 - 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
 - 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Cut acoustical metal panel units for accurate fit at borders and at interruptions and penetrations by other work through ceilings. Stiffen edges of cut units as required to eliminate evidence of buckling or variations in flatness exceeding referenced standards for stretcher-leveled metal sheet. Cut and treat edges to comply with manufacturer's written instructions.
- G. Install acoustical metal panels in coordination with suspension system and exposed moldings and trim. Comply with manufacturer's installation tolerances.
 - 1. Install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 - 2. Align joints in adjacent courses to form uniform, straight joints parallel to room axis in both directions unless otherwise indicated.
 - 3. Fit adjoining units to form flush, tight joints.
- H. Install hold-down clips where indicated.

3.4 CLEANING

A. Clean exposed surfaces of acoustical metal panel ceilings, including trim and edge moldings, after removing strippable, temporary protective covering, if any. Comply with manufacturer's written instructions for stripping of temporary protective covering, cleaning, and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and corrected to permanently eliminate evidence of damage, including dented and bent units.

END OF SECTION 09 51 33

SECTION 09 84 36 - SOUND-ABSORBING CEILING UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes shop-fabricated, acoustical panel units tested for acoustical performance, for mounting in exposed suspension ceiling systems, including the following:
 - 1. Sound-absorbing ceiling panels.
 - 2. Sound-diffusing ceiling panels.

1.3 DEFINITIONS

- A. NRC: Noise Reduction Coefficient.
- 1.4 PREINSTALLATION MEETINGS
 - A. Preinstallation Conference: Conduct conference at Project site.
- 1.5 SUBMITTALS, GENERAL
 - A. General: Submit all action submittals and informational submittals required by this Section concurrently.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. Sound-absorbing ceiling panels.
 - 2. Sound-diffusing ceiling panels.
- B. Shop Drawings: For unit assembly and installation.
 - 1. Include reflected ceiling plans, elevations, sections, and mounting devices and details.
- C. Samples: For each type of fabric.

1.7 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Items penetrating or covered by units including the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Detectors.

1.8 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of unit to include in maintenance manuals. Include fabric manufacturer's written cleaning and stain-removal instructions.

1.9 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Ceiling Units: Full-size panels equal to 2 percent of quantity installed of each acoustical panel type, but no fewer than 2 of each type and color.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Comply with unit manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.
- B. Deliver materials and units in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

1.11 FIELD CONDITIONS

- A. Environmental Limitations: Do not install units until spaces are enclosed and weathertight, wetwork in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Air-Quality Limitations: Protect units from exposure to airborne odors, and install units under conditions free from odor contamination of ambient air.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: Units shall comply with "Surface-Burning Characteristics" Subparagraph below, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. Surface-Burning Characteristics: Comply with ASTM E84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 450 or less.

2.2 SOUND-ABSORBING CEILING UNITS

- A. Sound-Absorbing Ceiling Panel for Ceiling Type A5: Manufacturer's standard panel construction.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Focal Point LLC; Ori Acoustic Tiles, or comparable product.
 - 2. Panel Shapes: Varies, as indicated on Drawings.
 - 3. Panel Size: 24 by 24 inches.
 - 4. Mounting: Lay-in panels formed to set in exposed suspension grid.
 - 5. Construction: Manufacturer's standard, prepared for required acoustical performance.
 - 6. Material: Manufacturer's 9 mm thick 100 percent polyester fabric.
 - 7. Acoustical Performance: Sound absorption NRC average 1.10 according to ASTM C423 when tested from 200 Hz to 2500 Hz.
 - 8. Colors: As selected by Architect from manufacturer's full range of standard, premium, and extended colors. Multiple colors may be selected.

2.3 SOUND-DIFFUSING CEILING UNITS

- A. Sound-Diffusing Ceiling Panel for Ceiling Type A5: Manufacturer's standard panel construction consisting of facing material laminated to core.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Kinetics Noise Control, Inc.; Geometric Diffuser Sound-Diffusing Panel, or comparable product.
 - 2. Panel Shape: Offset pyramidal.
 - 3. Panel Size: 24 by 24 inches.
 - 4. Mounting: Lay-in panels formed to set in exposed suspension grid.
 - 5. Construction: Manufacturer's standard, prepared for required acoustical performance.
 - 6. Facing Material: Manufacturer's 100 percent polyester woven fabric, FR701 Style 2100 by Guilford of Maine.
 - 7. Acoustical Performance: Sound absorption NRC of not more than 0.10 according to ASTM C423 for E400 mounting.
 - 8. Colors: As selected by Architect from manufacturer's full range. Multiple colors may be selected.

2.4 FABRICATION

A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated.

2.5 METAL SUSPENSION SYSTEMS, GENERAL

A. Metal Suspension System for Ceiling Type A5: Refer to Division 09 Section "Acoustical Panel Ceilings" for wide-face metal suspension system.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fabricated units, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting unit performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Beginning installation constitutes Contractor's acceptance of substrates and conditions.

3.2 INSTALLATION

- A. Install units in locations indicated.
- B. Comply with manufacturer's written instructions for installation of units in suspension system indicated.

3.3 CLEANING

- A. Clip loose threads; remove pills and extraneous materials.
- B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.
- C. Remove and replace ceiling components that cannot be successfully cleaned and restored to permanently eliminate evidence of damage.

END OF SECTION 09 84 36

SECTION 28 31 11 - DIGITAL, ADDRESSABLE FIRE-ALARM AND VOICE NOTIFICATION SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Scope:
 - 1. Mahopac High School
 - a. Addition of visual and voice notification devices.
- B. Section Includes:
 - 1. Notification appliances.

1.3 REFERENCES

- A. Comply with New York State Uniform Fire Prevention & Building Code.
- B. Comply with U.S. Department of Justice American Disabilities Act.
- C. Acoustical Society of America (ASA)
 - 1. ASA S3.2 Method for Measuring the Intelligibility of Speech Over Communications Systems.
- D. National Fire Protection Association Standards:
 - 1. NFPA 70 National Electrical Code.
 - 2. NFPA 72 National Fire Alarm Code.
 - 3. NFPA 90A Installation of Air Conditioning and Ventilating Systems.
- E. Provide system and components listed by Underwriters Laboratories Inc. (UL) for use in fire protective signaling system under following standards as applicable:
 - 1. UL 864 UOJZ, APOU Control Units for Fire Protective Signaling Systems.
 - 2. UL 268 Smoke Detectors for Fire Protective Signaling Systems.
 - 3. UL 268A Smoke Detectors for Duct Applications.
 - 4. UL 464 Audible Signaling Appliances.
 - 5. UL 1971 Visual Signaling Appliances.
 - 6. UL 1481 Power Supplies for Fire Protective Signaling Systems.

1.4 DEFINITIONS

- A. LED: Light-emitting diode.
- B. NICET: National Institute for Certification in Engineering Technologies.
- C. LOC: Local Operating Console.
- D. VNS: Voice Notification System.

1.5 SYSTEM DESCRIPTION

- A. Non-coded, UL-certified addressable system, with automatic sensitivity control of certain smoke detectors and multiplexed signal transmission, dedicated to fire-alarm service only. Include in the system wiring, raceways, pull boxes, terminal cabinets, outlet and mounting boxes, control equipment, alarm, and supervisory signal initiating devices, alarm notification appliances, supervising station fire alarm system transmitter, and other accessories and miscellaneous items required for a complete operating system even though each item is not specifically mentioned or described. Provide systems complete and ready for operation.
- B. Provide equipment, materials, installation, workmanship, inspection, and testing in strict accordance with the required and advisory provisions of NFPA 70, NFPA 72, except as modified herein. The system layout on the drawings show the intent of coverage and are shown in suggested locations. Submit plan view drawing showing device locations, terminal cabinet locations, junction boxes, other related equipment, conduit routing, wire counts, circuit identification in each conduit, and circuit layouts for all floors. Drawings shall comply with the requirements of NFPA 70. Final quantity, system layout, and coordination are the responsibility of the Contractor.
- C. Provide Common Intelligibility Scale (CIS) and sound pressure level calculations with the shop drawing submittal to confirm that intelligibility requirements will be met. CIS calculations shall be done with computer software intended for that purpose.

1.6 SUBMITTALS

- A. General Submittal Requirements:
 - 1. Shop Drawings shall be prepared by persons with the following qualifications:
 - a. Trained and certified by manufacturer in fire-alarm system design.
 - b. NICET-certified fire-alarm technician, Level IV minimum.
- B. Product Data: Submit manufacturer's documentation for all components of proposed fire alarm system required to demonstrate compliance with specified requirements, including (but not limited to) type, size rating, style, catalog number, manufacturer name, photograph, and catalog data sheet for each component.
- C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
 - 1. Comply with recommendations in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72.

- 2. Include voltage drop calculations for notification appliance circuits with the system operating on battery power, with battery voltage to the system at 20 volts.
- 3. Include battery-size calculations.
- 4. Include performance parameters and installation details for each detector, verifying that each detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
- 5. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale and coordinating installation of duct smoke detectors and access to them. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators. Locate detectors according to manufacturer's written recommendations.
- 6. Include complete one-line riser diagrams showing all equipment locations and sizes, and point-by-point wiring diagram with type and number of all conductors.
- 7. Submit detailed drawing of FAVN Panel(s) including all module/component locations and panel point-to-point wiring diagrams including all field circuit termination points.
- 8. Submit floor plan layout of Graphic Display Panel indicating building zones, room numbers, and "You Are Here" location. Orient building floor plan on graphic to the location of person viewing the installed Graphic Display Panel, i.e. the direction the viewer is facing shall be toward the top of the graphic display.
- D. Qualification Data:
 - 1. Supervisor
 - a. NICET Fire Alarm Technicians to perform the installation of the system. A NICET Level 4 Fire Alarm Technician shall supervise the installation of the fire alarm system/voice notification system. The Fire Alarm technicians supervising the installation of equipment shall be factory trained in the installation, adjustment, testing, and operation of the equipment specified herein and on the drawings.
 - 2. Technician
 - a. NICET Level III Fire Alarm Technicians with a minimum of four years of experience utilized to install and terminate fire alarm/voice notification devices, cabinets and panels. The Fire Alarm technicians installing the equipment shall be factory trained in the installation, adjustment, testing, and operation of the equipment specified herein and on the drawings.

- 3. Installer
 - a. Fire Alarm installer with a minimum of two years of experience utilized to assist in the installation of fire alarm/voice notification devices, cabinets and panels. An electrician shall be allowed to install wire, cable, conduit and backboxes for the fire alarm system/voice notification system. The Fire Alarm installer shall be factory trained in the installation, adjustment, testing, and operation of the equipment specified herein and on the drawings.
- 4. Test Personnel
 - a. Fire Alarm Technicians with a minimum of eight years of experience (NICET Level IV) utilized to test and certify the installation of the fire alarm/voice notification devices, cabinets and panels. The Fire Alarm technicians testing the equipment shall be factory trained in the installation, adjustment, testing, and operation of the equipment specified herein and on the drawings.
- 5. Manufacturer's Representative
 - a. The fire alarm and voice notification equipment manufacturer's representative shall be present for the connection of wiring to the control panel. The Manufacturer's Representative shall be an employee of the manufacturer with necessary technical training (NICET Level IV] on the system being installed.
- 6. Manufacturer
 - a. Components shall be of current design and shall be in regular and recurrent production at the time of installation. Provide design, materials, and devices for a protected premises fire alarm system, complete, conforming to NFPA 72, except as otherwise or additionally specified herein.
- E. Regulatory Requirements
 - 1. Requirements for Fire Protection Service
 - a. Equipment and material shall have been tested by UL and listed in UL Fire Prot Dir or approved by FM and listed in FM APP GUIDE. Where the terms "listed" or "approved" appear in this specification, they shall mean listed in UL Fire Prot Dir or FM APP GUIDE. The omission of these terms under the description of any item of equipment described shall not be construed as waiving this requirement. All listings or approval by testing laboratories shall be from an existing ANSI or UL published standard.

- 2. Fire Alarm/Voice Notification System
 - a. Furnish equipment that is compatible and is UL listed, FM approved, or listed by a nationally recognized testing laboratory for the intended use. All listings by testing laboratories shall be from an existing ANSI or UL published standard. Submit a unique identifier for each device, including the control panel and initiating and indicating devices, with an indication of test results, and signature of the factory-trained technician of the control panel manufacturer and equipment installer. With reports on preliminary tests, include printer information. Include the NFPA 72 Record of Completion and NFPA 72 Inspection and Testing Form, with the appropriate test reports.
- 3. Fire alarm Testing Services or Laboratories
 - a. Construct fire alarm and fire detection equipment in accordance with UL Fire Protection Dir, UL Electrical Construction, or FM APP GUIDE.
- 4. Contractor performing fire alarm system work shall be a licensed fire alarm contractor. Contractor shall provide Fire Alarm Installation Certification with fire alarm system submittal.
- F. Field quality-control reports.
- G. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:
 - 1. Comply with the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.
 - 2. Provide "Record of Completion Documents" according to NFPA 72 article "Permanent Records" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter.
 - 3. Record copy of site-specific software.
 - 4. Provide "Maintenance, Inspection and Testing Records" according to NFPA 72 article of the same name and include the following:
 - a. Frequency of testing of installed components.
 - b. Frequency of inspection of installed components.
 - c. Requirements and recommendations related to results of maintenance.
 - d. Manufacturer's user training manuals.
 - 5. Manufacturer's required maintenance related to system warranty requirements.
 - 6. Abbreviated operating instructions for mounting at fire-alarm control panel.
 - 7. Copy of NFPA 25.

1.7 QUALITY ASSURANCE

- A. Source Limitations for Fire-Alarm/Voice Notification System and Components: Obtain firealarm/Voice Notification system from single source from single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. NFPA Certification: Obtain certification according to NFPA 72 by a Nationally Recognized Testing Laboratory (NRTL).

1.8 PROJECT CONDITIONS

- A. Interruption of Existing Fire-Alarm Service: Do not interrupt fire-alarm service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary guard service according to requirements indicated:
 - 1. Coordinate and comply with the requirements of the local Fire Marshall, or Authority Having Jurisdiction, concerning the fire alarm system shutdown plans, procedures, and fire watch plans that will be implemented for system interruptions during construction. All existing fire alarm devices shall remain active until new cabling and devices are installed. Temporary interruptions are allowed while work is being done on the system. Work shall be coordinated so that system is fully functional at the end of the workday. If system is not fully functional at end of workday, Contractor shall provide personnel for fire watch as required by local Fire Marshall and shall be responsible for all associated costs.
 - 2. Notify Construction Manager and Owner no fewer than two days in advance of proposed interruption of fire-alarm service.
 - 3. Do not proceed with interruption of fire-alarm service without Construction Manager and Owner's written permission.

1.9 SEQUENCING AND SCHEDULING

- A. Existing Fire-Alarm Equipment: Maintain existing equipment fully operational until new equipment has been tested and accepted. As new equipment is installed, label it "NOT IN SERVICE" until it is accepted. Remove labels from new equipment when put into service and label existing fire-alarm equipment "NOT IN SERVICE" until removed from the building. Coordinate and comply with the requirements of the local Fire Marshall, or Authority Having Jurisdiction, concerning the fire alarm system shutdown plans, procedures, and fire watch plans that will be implemented for system interruptions during construction.
- B. Equipment Removal: After acceptance of new fire-alarm system, remove existing disconnected fire-alarm equipment and wiring.

1.10 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

- B. Technical Support: Beginning with Substantial Completion, provide software support for two years.
- C. Upgrade Service: Update software to latest version at Project completion. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system. Upgrade shall include new or revised licenses for use of software.
 - 1. Provide 30 days' notice to Owner to allow scheduling and access to system and to allow Owner to upgrade computer equipment if necessary.

1.11 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Strobe Units: Quantity equal to 5 percent of amount installed, but no fewer than 2 units.
 - 2. Keys and Tools: One extra set for access to locked and tamper proofed components.
 - 3. Audible and Visual Notification Appliances: Quantity equal to 5 percent of amount installed, but no fewer than 2 units.
 - 4. Fuses: Five of each type installed in the system.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. The existing manufacturer for the fire alarm system is Notifier and Edwards at the Mahopac High School.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

- A. Fire-alarm signal initiation shall be by one or more of the following devices systems:
 - 1. Manual stations.
 - 2. Heat detectors.
 - 3. Smoke detectors.
 - 4. Duct smoke detectors.
 - 5. Verified automatic alarm operation of smoke detectors
 - 6. Automatic sprinkler system water flow.
 - 7. Fire-extinguishing system operation.
 - 8. Fire standpipe system.

- B. Fire-alarm signal shall initiate the following actions:
 - 1. Continuously operate alarm/voice notification appliances.
 - 2. Identify alarm at fire-alarm control panel and remote annunciators.
 - 3. Transmit an alarm signal to the remote alarm receiving station.
 - 4. Release fire and smoke doors held open by magnetic door holders.
 - 5. Shut down heating, ventilating, and air-conditioning equipment.
 - 6. Close smoke dampers in air ducts of designated air-conditioning duct systems.
 - 7. Recall elevators to primary or alternate recall floors.
 - 8. Activate emergency shutoffs for gas and fuel supplies.
 - 9. Record events in the system memory.
- C. Supervisory signal initiation shall be by one or more of the following devices and actions:
 - 1. Valve supervisory switch.
 - 2. Elevator shunt-trip supervision.
- D. System trouble signal initiation shall be by one or more of the following devices and actions:
 - 1. Open circuits, shorts, and grounds in designated circuits.
 - 2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
 - 3. Loss of primary power at fire-alarm/voice notification control panel.
 - 4. Ground or a single break in fire-alarm control panel internal circuits.
 - 5. Abnormal ac voltage at fire-alarm control panel.
 - 6. Break in standby battery circuitry.
 - 7. Failure of battery charging.
 - 8. Abnormal position of any switch at fire-alarm/voice notification control panel or annunciator.
- E. System Trouble and Supervisory Signal Actions: Annunciate at fire-alarm/voice notification control panel and remote annunciators.

2.3 ADDRESSABLE INTERFACE DEVICES

- A. Microelectronic monitor module, NRTL listed for use in providing a system address for alarminitiating devices for wired applications with normally open contacts.
- B. Microelectronic relay module: Relay shall have form C dry contacts. NRTL listed for use in providing a system address for providing a signal to:
 - 1. Air handling units to initiate fan shutdown.

2.4 NOTIFICATION APPLIANCES

A. Fire Alarm/Voice Notification Speakers

- 1. Audible appliances shall conform to the applicable requirements of UL 464. Appliances shall be connected into notification appliance circuits. Surface mounted audible appliances shall be factory painted red. Speakers shall conform to the applicable requirements of UL 1480. Speakers shall have six different sound output levels and operate with audio line input levels of 70.7 VRMs and 25 VRMs, by means of selectable tap settings. Tap settings shall include taps of 1/8, 1/4, 1/2, 1, and 2 watt. Speakers shall incorporate a high efficiency speaker for maximum output at minimum power across a frequency range of 150 Hz to 10,000 Hz, and shall have a sealed back construction. Sleeping room speakers must produce a 520 Hz signal temporal three (T3) signal in accordance with NFPA 72. Speakers shall be capable of installation on standard 100 mm square electrical boxes. Where speakers and strobes are provided in the same location, they may be combined into a single wall mounted unit. All inputs shall be polarized for compatibility with standard reverse polarity supervision of circuit wiring via the FAVN panel.
 - a. Provide speaker mounting plates constructed of cold rolled steel having a minimum thickness of 1.519 mm (16 gauge) or molded high impact plastic and equipped with mounting holes and other openings as needed for a complete installation. Fabrication marks and holes shall be ground and finished to provide a smooth and neat appearance for each plate. Each plate shall be primed and painted.
 - b. Speakers shall utilize screw terminals for termination of all field wiring.
- B. Visual Notification Appliances
 - 1. Visual notification appliances shall conform to the applicable requirements of UL 1971 and conform to the Architectural Barriers Act (ABA). The lens of the fire alarm strobe, voice notification strobe, or both (if in the same appliance) shall be located such that the entire lens is located not less than 2032 mm and not more than 2438 mm above the finished floor. The manufacturer shall have the color lens tested to the full UL 1971 polar plotting criteria, voltage drop, and temperature rise as stated in 1971. Fire Alarm Notification Appliances shall have clear high intensity optic lens, xenon flash tubes, and be marked "Fire" in red letters. Voice Notification appliances, Fire Alarm/Voice Notification Appliances shall have clear high intensity optic lens, xenon flash tubes, and output white light and be marked "FIRE" in red letters. Fire Alarm and Voice Notification strobes may be combined into a single device with single strobe. The light pattern shall be disbursed so that it is visible above and below the strobe and from a 90 degree angle on both sides of the strobe. Strobe flash rate shall be 1 flash per second and a minimum of 15 candela, (actual output after derating for tinted lens) based on the UL 1971 test. Strobe shall be surface mounted to existing walls and semi-flush mounted to new walls. Where more than one appliance is located in the same room or corridor or field of view, provide synchronized operation. Devices shall use screw terminals for all field wiring.

2.5 SMOKE DETECTOR REMOTE STATUS AND ALARM INDICATORS

A. Remote power/alarm indicator and key switch. Contains green and red LED power/alarm indicators and keyed test/reset switch mounted on a stainless steel plate.

2.6 DEVICE GUARDS

- A. Description: Welded wire mesh of size and shape for the manual station, smoke detector, gong, or other device requiring protection.
 - 1. Factory fabricated and furnished by manufacturer of device.
 - 2. Finish: Paint of color to match the protected device.
 - 3. Locations where require for additional equipment: Gymnasiums and Adaptive Play Rooms.

2.7 ADDITIONAL FIRE ALARM DEVICES

- A. Additional fire alarm devices not indicated on drawings, the devices below can be added at any time during construction up to and including project final inspections, base bid price to include device, wiring and programming.
 - 1. Include in bid price material and labor to install (4) new fire alarm speaker/strobe lights in existing spaces and wire said speaker/strobe lights, assuming wiring lengths of 50' from speaker/strobe to nearest Notification Appliance Circuit. Wiring is to be on a per device basis.

2.8 FIRE ALARM WIRE AND CABLE

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Comtran Corporation.
 - 2. Draka Cableteq USA.
 - 3. Genesis Cable Products; Honeywell International, Inc.
 - 4. Rockbestos-Suprenant Cable Corp.
 - 5. West Penn Wire; a brand of Belden Inc.
- B. General Wire and Cable Requirements: Install Type FPLP plenum rated fire alarm cable for all initiating circuit wiring and notification circuit wiring, sized in accordance with manufacturer's recommendations. NRTL listed and labeled as complying with NFPA 70, Article 760.
- C. Signaling Line Circuits: Twisted, shielded pair, or twisted, unshielded pair, not less than No. 16 AWG. Refer to fire alarm system manufacturer for recommended sizes and shielding requirements.
- D. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.
 - 1. Low-Voltage Circuits: No. 16 AWG, minimum.
 - 2. Line-Voltage Circuits: No. 12 AWG, minimum.

PART 3 - EXECUTION

3.1 VERIFICATION OF EXISTING CONDITIONS (BY INSTALLER)

- A. Verification of Existing Conditions (by Installer): Examine conditions under which fire alarm system is to be installed in coordination with Installer of materials and components specified in this Section and notify affected Contractors and Architect in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected in a manner acceptable to Installer.
 - 1. When Installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to Architect written confirmation from applicable Installer. Failure to submit written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to Installer.

3.2 **PROTECTION**

A. Protection: Provide dust covers on all existing detectors in renovation areas during construction.

3.3 EQUIPMENT INSTALLATION

- A. Install fire alarm system in accordance with applicable provisions of NEC, NFPA-70, Article 760 Fire Protective Signaling Systems.
 - 1. Contractor performing fire alarm system work shall be a licensed fire alarm contractor. Contractor shall provide Fire Alarm Installation Certification with fire alarm system submittal.
 - 2. Since existing fire alarm system is being replaced, Contractor performing fire alarm system work shall comply with the requirements of the local Fire Marshall concerning the fire alarm system shutdown plans, procedures, and fire watch plans that will be implemented for system interruptions during construction. All existing fire alarm devices shall remain active until new cabling and devices are installed. Temporary interruptions are allowed while work is being done on the system. Work shall be coordinated so that system is fully functional at the end of the workday. If system is not fully functional at end of workday, Contractor shall provide personnel for fire watch as required by local Fire Marshall and shall be responsible for all associated costs.
 - 3. Provide all labor, materials, equipment and services to perform all operations required for complete installation of fire alarm system and related construction as shown on Drawings and specified in this Section.
 - 4. Completely check, program and adjust all new and existing equipment on each system.

- 5. Label each addressable device with label indicating device's unique address. Label shall comply with Specification Section 26 05 53 Identification for Electrical Systems. Labels shall be installed so that they are visible without removing device from mounting base.
- B. Connecting to Existing Equipment: Verify that existing fire-alarm system is operational before making changes or connections by testing 100% of system and submitting complete test reports.
 - 1. Connect new equipment to replacement control panel in existing part of the building.
 - 2. Connect new FAVN to existing monitoring equipment at the supervising station.
 - 3. Expand, modify, and supplement existing equipment as necessary to extend existing functions to the new points. New components shall be capable of merging with existing configuration without degrading the performance of either system.
- C. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.
- D. In areas where detection and notification devices may be subject to physical damage, devices shall have protective wire guards as manufactured by Safety Technology International (www.sti-usa.com). All guards shall be listed for the fire alarm system devices and appliances protected.
- E. In new construction, install all devices flush or semi-flush mounted, unless otherwise authorized by Owner.
- F. In existing construction, install all interior surface mounted devices on surface mounted back boxes supplied by device manufacturer.
- G. In locations where new device is replacing existing, contractor shall coordinate removal/replacement to allow re-use of existing backbox/conduits if possible.
- H. In locations where building construction prohibits flush-mounted installations, provide surface raceway. At such locations obtain written authorization from Owner's representative or Architect prior to providing surface raceway device.
- I. Demolition of existing system:
 - 1. Disconnect and remove existing fire alarm system as indicated on floor plans. Existing wiring may be reused if fire alarm system manufacturer confirms same in writing.
 - 2. Repair all damaged surfaces upon removal of existing devices and raceway. Repair, patch and paint existing construction to match existing finishes.
- J. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct.
- K. Remote Status and Alarm Indicators: Install near each duct detector, smoke detector and each sprinkler water-flow switch and valve-tamper switch that is not readily visible from normal viewing position.

- L. Wire the Notification Appliance Circuits such that the audible alarm indicating devices can be turned off while the visual alarm notifications remain operational.
- M. Locate audible/visible signaling devices in strict accordance with requirements of Americans with Disabilities Act (ADA).
- N. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install speakers on flush-mounted back boxes with the device-operating mechanism concealed behind a grille.
- O. Visible Alarm-Indicating Devices: Install adjacent to each alarm speaker and place strobe light lens 80 inches minimum and 96 inches maximum above floor level. In locations where ceiling height is less than 90 inches AFF, place strobe light lens 6 inches below ceiling.
- P. Where combination audible/visible units used, place strobe light lens 80 inches minimum and 96 inches maximum above floor level. In locations where ceiling height is less than 90 inches AFF, place strobe light lens 6 inches below ceiling.
- Q. Device Location-Indicating Lights: Locate in public space near the device they monitor.
- R. Fire-Alarm/Voice Notification Control Panel: Surface mounted, with tops of cabinets not more than 72 inches (1830 mm) above the finished floor.

3.4 WIRING

- A. Install Type FPLP plenum rated fire alarm cable for all initiating circuit wiring and notification circuit wiring, sized in accordance with manufacturer's recommendations.
- B. Signaling Line Circuits: Power-limited fire alarm cables shall not be installed in the same cable or raceway as signaling line circuits.
- C. Wiring within Enclosures: Separate power-limited and non-power-limited conductors as recommended by manufacturer. Install conductors parallel with or at right angles to sides and back of the enclosure. Bundle, lace, and train conductors to terminal points with no excess. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with the fire alarm system to terminal blocks. Mark each terminal according to the system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- D. Cable Taps: Use numbered terminal strips in junction, pull, and outlet boxes, cabinets, or equipment enclosures where circuit connections are made.
- E. Color-Coding: Color-code fire alarm conductors differently from the normal building power wiring. Use one color-code for alarm circuit wiring and another for supervisory circuits. Color-code audible alarm-indicating circuits differently from alarm-initiating circuits. Use different colors for visible alarm-indicating devices. Paint fire alarm system junction boxes and covers red.
- F. Install all plenum cable above corridor ceilings bundled and tie-wrapped at 5 foot intervals and hung in saddle rings or J-hooks, supported to structure at 5 foot intervals.

- G. Cable shall not be considered properly supported by lying over top of conduits, piping, or building supports or bracing. Approved saddle rings or J-hooks must be used.
- H. For wall mounted devices in existing construction where wiring cannot be concealed, all wiring shall be installed in surface metallic raceway from device location to accessible ceiling space. Paint raceway to match existing surface in occupied spaces.
- I. Install all wiring in approved surface metallic raceway or EMT conduit in the following locations:
 - 1. Unfinished areas (EMT conduit).
 - 2. Exposed areas (Surface metallic raceway).
 - 3. Where subject to damage.
 - 4. Coordinate paragraph below with Drawings. Wind speed is usually a requirement of the applicable building code.

3.5 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."
- B. Install framed instructions in a location visible from fire-alarm control panel.

3.6 ADJUSTING / CLEANING

A. Completely clean all smoke detectors, as instructed by authorized factory representative, when system is substantially complete and when authorized by Owner.

3.7 FIELD QUALITY CONTROL

- A. Field tests shall be witnessed by Owners Representative and authorities having jurisdiction.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections, and to assist in testing.
- C. Tests and Inspections:
 - 1. Visual Inspection: Conduct visual inspection prior to testing.
 - a. Inspection shall be based on completed Record Drawings and system documentation that is required by NFPA 72 in its "Completion Documents, Preparation" Table in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter.
 - b. Comply with "Visual Inspection Frequencies" Table in the "Inspection" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

- 2. Perform 100 percent inspection and testing of all system devices.
 - a. Provide complete panel real-time printout as documentation of device, date and time. Any acceptance test not accompanied by real-time printout requires retesting of entire system by Contractor, including both alarm activation tests and tests of supervisory circuit at each device.
 - b. Provide inspection complying with requirements of applicable NFPA standards.
 - c. Provide to Owner and Fire Sub Code Official complete typed list of every initiation, signaling, control, supervisory and auxiliary device with specific information regarding system address of device, location of device, date tested, manufacturer's model number, and serial number of all analog components, status of device and zone or point as related to system. Obtain from Owner, the Owner's room names/numbers that are to be assigned to each device.
- 3. Provide complete set of battery test results for panels including:
 - a. Charger output voltage under normal conditions.
 - b. Charger output current under normal conditions.
 - c. Open battery voltage.
 - d. Supply voltage and current under primary power failure.
 - e. Supply voltage and current under primary power failure and system alarm that has activated all of panel's audible, visual and control circuits.
 - f. Calculations using battery test data obtained to determine minimum battery capacity of 24 hours under normal conditions and 5-minute alarm condition.
 - g. Take voltage readings at end of line of each alarm signal circuit to insure minimum operational levels.
 - h. If voltage drop exceeds the minimum rating of the last device in the circuit, while under full circuit load, rewire circuits with appropriately heavier gage wire as required to comply with specified requirements.
- 4. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
- 5. Test visible appliances for the public operating mode according to manufacturer's written instructions.
- 6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" Section of the "Fundamentals of Fire Alarm Systems" Chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" Section of the "Inspection, Testing and Maintenance" Chapter in NFPA 72.

D. Intelligibility Tests

- 1. Intelligibility testing of the System shall be accomplished in accordance with NFPA 72 for Voice Evacuation Systems, IEC 60268-16, and ASA S3.2. Following are the specific requirements for intelligibility tests:
 - a. Intelligibility Requirements: Verify intelligibility by measurement after installation.
- 2. Ensure that a CIS value greater than the required minimum value is provided in each area where building occupants typically could be found. The minimum required value for CIS is .7
- 3. The contractor must submit a waiver letter for areas of the building they believe will not meet the minimum CIS value at the beginning of the shop drawing phase. Areas of the building provided with hard wall and ceiling surfaces (such as metal or concrete) that are found to cause excessive sound reflections may be permitted to have a CIS score less than the minimum required value if approved by the Architect, and if it can be determined that building occupants in these areas can determine that a voice signal is being broadcast and they can walk no more than 30 feet m to find a location with at least the minimum required CIS value within the same area.
- 4. Areas of the building where occupants are not expected to be normally present are permitted to have a CIS score less than the minimum required value if personnel can determine that a voice signal is being broadcast and they must walk no more than 50 feet to a location with at least the minimum required CIS value within the same area.
- 5. Take measurements near the head level applicable for most personnel in the space under normal conditions (e.g., standing, sitting, as appropriate).
- 6. The distance the occupant must walk to the location meeting the minimum required CIS value shall be measured on the floor or other walking surface as follows:
 - a. Along the centerline of the natural path of travel, starting from any point subject to occupancy with less than the minimum required CIS value.
 - b. Curving around any corners or obstructions, with a 12 inch clearance there from.
 - c. Terminating directly below the location where the minimum required CIS value has been obtained.
- 7. Use commercially available test instrumentation to measure intelligibility as specified by ISO 7240-19 and ISO 7240-16 as applicable. Use the mean value of at least three readings to compute the intelligibility score at each test location.
- E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.
- F. Fire-alarm system will be considered defective if it does not pass tests and inspections.
- G. Prepare test and inspection reports.

H. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.8 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
 - 1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
 - 3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

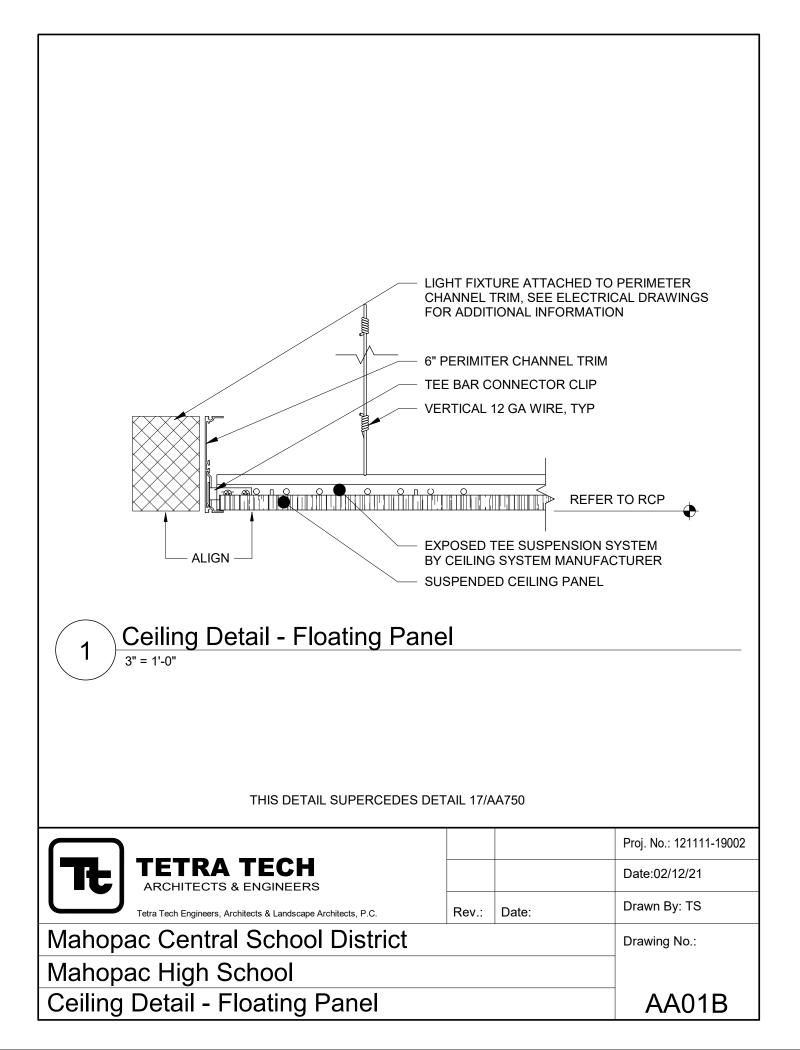
3.9 SOFTWARE SERVICE AGREEMENT

- A. Comply with UL 864.
- B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.
- C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.
 - 1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system. Training shall consist of a total of 8 hours delivered in 2 hour blocks.
- B. Provide copy of sign-in sheet of District staff receiving training in O&M Manuals.

END OF SECTION 28 31 11



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						AIRFLOW			SUPPLY FAN			EL	ECTRICAL	_	
∢	Mark	LOCATION	SERVES	MODEL	ZONES	(CFM)	OA (CFM)	ESP (IN. WG.)	TSP (IN. WG.)	FLA	MCA	VOLTAGE	HERTZ	PHASE	NOTES
	AHU-1	24	24,25,26,27,28	AHU-I-03-H-MZ-TB	2	2900	1580	0.6	1.65	4	5	208	60	3	1,2
	AHU-2	113	111,113,115	AHU-I-03-H-MZ-TB	3	3360	1715	0.6	1.65	4	5	208	60	3	1,2
	AHU-3	182/183	180,182,183,184	AHU-I-03-H-MZ-TB	4	3340	1750	0.6	1.65	4	5	208	60	3	1,2
	AHU-4	189/190	132,133,189,190	AHU-I-03-H-MZ-TB	4	3340	1750	0.6	1.65	4	5	208	60	3	1,2
	AHU-5	166/167	165,166,167,171	AHU-I-03-H-MZ-TB	4	3340	1740	0.6	1.65	4	5	208	60	3	1,2
-	AHU-6	186/187	185,186,187,188	AHU-I-03-H-MZ-TB	4	3340	1740	0.6	1.65	4	5	208	60	3	1,2
	AHU-7	176	105,106,175,176	AHU-I-03-H-MZ-TB	3	3140	1585	0.6	1.65	4	5	208	60	3	1,2
	AHU-8	211/213	209,211,213,215	AHU-I-03-H-MZ-TB	4	3340	1720	0.6	1.65	4	5	208	60	3	1,2
	AHU-9	272/273	271,272,273,274	AHU-I-03-H-MZ-TB	4	3340	1725	0.6	1.65	4	5	208	60	3	1,2
	AHU-10	210/212	208,210,212,214	AHU-I-03-H-MZ-TB	4	3340	1720	0.6	1.65	4	5	208	60	3	1,2
ш	AHU-11	226/228	224,226,228,230	AHU-I-03-H-MZ-TB	4	3340	1740	0.6	1.65	4	5	208	60	3	1,2
	AHU-12	239	235,239,241	AHU-I-03-H-MZ-TB	3	3100	1485	0.6	1.65	4	5	208	60	3	1,2
	AHU-13	238	234,236,238,240	AHU-I-03-H-MZ-TB	3	2960	1630	0.6	1.65	4	5	208	60	3	1,2

NOTES:

1.

DESIGN BASIS: ANNEX AIR. PROVIDE MANUFACTURERS COMBINATION STARTER. 2.

					AIRFLOW				FAN DATA			ELECTRI	CAL	
М	1ark	MANUFACTURER	MODEL	Serves	(CFM)	SONES	ESP (IN WG)	DRIVE	MOTOR RPM	BHP	HP	VOLTAGE	PHASE	NOT
EF-	-1HS	LOREN COOK	195SQN-B	AHU-1	2900	7.6	0.25	BELT	711	0.355	1/2	208	3	2,3,
EF-	-2HS	LOREN COOK	245CA4SWSI	ROOMS 35-39	3500	5	0.5	BELT	1553	0.332	3/4	208	3	2,3,
EF-	-3HS	LOREN COOK	70C17DEC	S101	50	3.3	0.25	DIRECT	1267	0.013	1/6	120	1	1
EF-	-4HS	LOREN COOK	245ACEB	AHU-2	3360	5.7	0.33	BELT	491	0.406	1/2	208	3	2,3,
EF-	-5HS	LOREN COOK	245ACEB	AHU-8	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-6HS	LOREN COOK	245ACEB	AHU-3	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-7HS	LOREN COOK	245ACEB	AHU-9	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-8HS	LOREN COOK	245ACEB	AHU-6	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-9HS	LOREN COOK	245ACEB	AHU-12	3100	5.2	0.33	BELT	475	0.367	1/2	208	3	2,3,
EF-	10HS	LOREN COOK	245ACEB	AHU-4	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-11HS	LOREN COOK	245ACEB	AHU-10	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	12HS	LOREN COOK	245ACEB	AHU-5	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-13HS	LOREN COOK	245ACEB	AHU-11	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,
EF-	-14HS	LOREN COOK	245ACEB	AHU-7	3140	5.3	0.33	BELT	478	0.374	1/2	208	3	2,3,
EF-	15HS	LOREN COOK	245ACEB	AHU-13	2960	5.0	0.33	BELT	468	0.349	1/2	208	3	2,3,
EF-	-16HS	LOREN COOK	ACRUD-101R17D	CHEM HOOD 235	870	11.4	0.23	DIRECT	1725	.147	1/6	120	1	2,4,
EF-	-17HS	LOREN COOK	ACRUD-101R17D	CHEM HOOD 239	870	11.4	0.23	DIRECT	1725	0.147	1/6	120	1	2,4,
EF-	-18HS	LOREN COOK	330 ACEB	ROOMS 242-244	5300	7.7	0.5	BELT	410	0.91	1	208	3	2,3,

PROVIDE WITH MANUFACTURERS STANDARD DISCONNECT SWITCH. 4.

			Proj. No.:121111-19002
			Data:02/11/21
ARCHITECTS & ENGINEERS			
Tetra Tech Engineers, Architects & Landscape Architects, P.C. Rev.:	Rev.: Date:	Description:	Drawn by: Author
Mahopac Central School District	ct		 Drawing No.:
Mahopac High School			
Air Handling Unit (AHU)/Fan (F)	Schedule	е	AM01B

A	S	Site Symbols		Archit	tectural	Sym	bols	Struc	tural	Symbols
_	+ 83.36 + 99.50 TC + 99.00 BC + 83.36	SPOT ELEVATION TOP OF CURB ELEVATION BOTTOM OF CURB ELEVATION EXISTING SPOT ELEVATION			EXISTIN	IG TO REMAI	N			INDICATES AREA IS EXISTING INDICATES SLAB IS
в	— — <u>136</u> — — — — <u>136</u> — — — TB-1 — TP-1	CONTOUR EXISTING CONTOUR SOIL TEST BORING TEST PIT LOCATION			 DEMOLI	TION WORK				DEPRESSED OR RECESSED TOP OF FTG ELEVATION FROM DATUM CONTINUOUS FTG
_		TREE OR SHRUB				ORK IN EXIS [°] IAL INDICATI			1'-8>	FOUNDATION WALL BM POCKET
U		TREE OR SHRUB TO BE REMOVED ASPHALT PAVING OR TOP COURSE HEAVY-DUTY ASPHALT PAVING				ork Ial Indicati Id Brick Ca ^v	ŕ			ELEVATION FROM DATUM
_		REMOVE AND REPLACE ASPHALT PA CONCRETE PAVING CONCRETE SECTION	AVING		GYPSU	ALL M BOARD PA AL STUD WA		P1 (-8) -		— TOP OF PIER ELEVATION FROM DATUM
D		CURBING CURBING TO REMAIN CURBING TO BE REMOVED			DOOR NUMBER (ROOM NO W/ DOO	BLE PARTITIO	N	F4 [-3'-0] -		 TOP OF FOOTING ELEVATION FROM DATUM INDICATES FOOTING TYPE REFER TO FOOTING SCHEDULE
_		FENCING FENCING TO REMAIN FENCING TO BE REMOVED SILT FENCING TEMPORARY CONSTRUCTION FENCI	NC	A (126)	WINDOW TYPE RELOCATED EQUIP FURNITURE OR CA		MBER		RD	INDICATES A FRAMED ROOF OR FLOOR OPNG COORD SIZE AND LOCATION
ш		TEMPORARY CONSTRUCTION FENCI HAY BALES TEMPORARY TREE PROTECTION	NG	(P3.8)	PARTITION TYPE	OL				INDICATES FRAMED OPNG IS FOR: RD = ROOF DRAIN ME = MECH EQUIP SL = SKYLIGHT SH = SMOKE HATCH AH = ACCESS HATCH
_	- - - -	UTILITY POLE UTILITY POLE TO REMAIN UTILITY POLE TO BE REMOVED	_	ROOF S	FINISH CHANGE	INSULATION	N			
ц	F∘ ⊢J ⊘	NEW OR RELOCATED FIRE HYDRANT FIRE HYDRANT TO REMAIN DROP INLET CATCH BASIN			EXISTING ROOF DF ROOF DRAIN INSEF FACTORY-TAPEREI EJ/CONTROL JOINT	RT IN NEW D SUMP	ETROFIT	(-6) W8X15 [14 21K 0.7] (GIR) - 21K	AT ADJ GIRDER ELEV
_		STORM/SANITARY MANHOLE DROP INLET TO REMAIN MANHOLE/CATCH BASIN/DRYWELL TO REMAIN DRYWELL W/ GRATE		TAPERED 1/4"/FT	DIRECTION OF DOW DEGREE OF SLOPE INSULATION (MINIM DIRECTION OF DOW TAPERED INSULAT	OF TAPERE IUM 1/8"/FT, 1 VNWARD SLO	ED TYP UNO) OPE OF			END REACTION- KIPS DEFLECTION (INCHES) APPROX W/ WET CONC LINTEL DESIGNATION SEE SCHEDULE INDICATES LINTEL
IJ		DRYWELL W/ SOLID COVER TO GRAD	DE	< SLOPE STRU +X"	(MINIMUM 1/4"/FT, T DIRECTION OF DOW ROLLED OR SLOPE TOTAL THICKNESS	VNWARD SLO	RE	$\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$		CONNECTION TO COLUMN INDICATES MEMBER IS EXISTING INDICATES BEAM
_	ST ST	STORM LINE WITH HEADWALL STORM LINE WITH ENDWALL STORM LINE WITH END SECTION		+X" FLAT	TOTAL THICKNESS INSULATION DESIGNATES ROOF WALKWAY PAD					SPLICE INDICATES MOMENT CONNECTION OVER COLUMN INDICATES SHEAR WALL
т	ST ST UD	STORM PIPE STORM PIPE TO REMAIN STORM PIPE TO BE REMOVED/ABANE UNDERDRAIN	DONED	SCL OR O	SKYLIGHT (REINST SMOKE VENT OR R PIPE PENETRATION	OOF HATCH	,	\ / <u>12K3</u>		CONNECTION TO BEAM
_	UD	UNDERDRAIN TO REMAIN UNDERDRAIN TO BE REMOVED/ABAN SANITARY LINE SANITARY LINE TO REMAIN			ROOFTOP HOOD O ROOFTOP EQUIPMI (SHAPE AND SIZE \	ENT ON CUR			<u> </u>	— —— JOIST —— DIAGONAL BRIDGING
_		SANITARY LINE TO BE REMOVED/ABA GAS LINE GAS LINE TO REMAIN GAS LINE TO BE REMOVED/ABANDON WATER LINE		REFLEC	CTED CEILING	G AFF				MASONRY LOAD BEARING WALL SHEAR WALL SEE SCHEDULE
_	W W 	WATER LINE TO REMAIN WATER LINE TO BE REMOVED/ABANE STORM/SANITARY CLEANOUT GATE VALVE	DONED		CEILING HUNG UNI CEILING HUNG FAN CEILING RETURN/E CEILING SUPPLY D	N COIL UNIT	ILLE	(SW1)—		CFMF BEARING WALL FIREWALL WALL TYPE
L		SIGN POST UNIVERSAL HANDICAP SYMBOL REMOVAL			EXIT LIGHT 2 X 4 FIXTURE IN					
_		ADDITIONAL ABBREVIATIONS AND	BOD B BOF B	Y OTHERS OTTOM OF DUCT OTTOM OF FOOTING	2 X 2 PATTERN	CONT C	CONSTRUCTION CONTINOUS CONTRACT (OR)		EB EC ECF	EXPANSION BOLT ELECTRICAL CONTRACTOR ENHANCED CONCRETE FLOC
×	AAD AUTOMAT AB ANCHOR AC AIR CONE CURRENT ACCMP ASPHALT ACM ASBESTO	IS ABATEMENT CONTRACTOR FIC AIR DAMPER BOLT, AIR BARRIER DITIONING, ALTERNATING COATED CORR METAL PIPE IS CONTAINING MATERIAL	BOT B BPL B BR B BRDG B BRG B BRK B BRK B	OTTOM OF STEEL OTTOM EARING PLATE OTTOM REGISTER RIDGING EARING RICK RICKSHELF RONZE		CORR C COWP C CPVC C CR C CRS C CSK C CSMT C	CEILING REGISTEI COURSE (S) COUNTERSINK CASEMENT	PLATE LY VINYL CHLORIDE	EIFS EF EJ ELEC ELEM ELEV EM EMT	EXTERIOR INSULATION SYST EACH FACE, EXHAUST FAN EXPANSION JOINT ELECTRIC (AL) ELEMENT ELEVATION, ELEVATOR EMERGENCY ELECTRICAL METALLIC TUBIN ENCLOSURE
_	ACU AIR COND AD AREA DR	DITIONICO NG UNIT AIN N DISABILITIES ACT JM IAL I E	BS B BSMT B BSPL B BT B BTU B BTU B BTUH B BUR B	OTH SIDES, BOTTOM ASEMENT ACKSPLASH ENT RITISH THERMAL UNI RITISH THERMAL UNI UILT-UP ROOFING OTTOM OF WALL	TS	CTD C CTOP C CTR C CU C CUH C CV C CW C	COATED COATED COUNTER TOP CENTER CUBIC CABINET UNIT HE/ CONVECTOR, CUF COLD WATER CHILLED WATER F	ATER B VALVE	EOD EOS EQ EQC EQC EQUIP ES ESF ESM	ENGLOSINE EDGE OF DECK EDGE OF SLAB EQUAL, EQUIVALENT EQUIPMENT CONTRACTOR EQUIPMENT EXPOSED SURFACE, EXPOSE ELASTIC SHEET FLASHING ELASTIC SHEET MEMBRANE
	AFFABOVE FIAHACCESS HAHUAIR HANDAIBAIR INFILTALTALTERNAALTBACOUSTIC	POSED STRUCTURAL STEEL NISH FLOOR HATCH DLING UNIT TRATION BARRIER TE CALLY LINED TRANSFER BOX	C C CA C CAB C CAB C CATV C CB C	ACK WATER CHECK \ ONDUIT, CONVECTOF OMMON, CARPET OMPRESSED AIR ABINET ABLE TELEVISION ATCH BASIN, CIRCUIT	R, CONDENSOR,	CWT C D D DB D DC D DC D DC D DC D DE D	CHILLED WATER S CERAMIC WALL TI DIESEL FUEL, DEF DRY BULB DIRECT CURRENT DIRECT DIGITAL C DELONIZED WATE	LE TH ONTROL	EW EWC EWT EXH EXG EXP EXT	EACH WAY ELECTRIC WATER COOLER ENTERING WATER TEMPERAT EXHAUST EXISTING EXPANSION EXTERIOR, EXTERNAL
Μ	AMPAMPEREANODANODIZEDANTACID NEUAPACCESS FAPPROX APPROXIDAPCAPCARCHITEDARCHARCHITED	D ITRALIZATION TANK PANEL MATE (LY) CTURAL PRECAST CONCRETE CT (URAL)	CCTV C CD C CEM C CER C CFM C CFM C CFMF C CFT C	HALKBOARD LOSED CIRCUIT TELE EILING DIFFUSER, CC EMENT ERAMIC CF CUBIC FE UBIC FEET PER MINU OLD FORMED METAL ERAMIC FLOOR TILE EILING GRILLE	ONDENSATE DRAIN ET, CEILING FAN TE	DEMO D DEP D DET D DF D DH D DHU D DI D		AIN	F FA FAI FCU FD FDC FE FEC FE	FAHRENHEIT FIRE ALARM FRESH AIR INTAKE FAN COOLING UNIT FLOOR DRAIN, FIRE DAMPER FIRE DEPARTMENT CONNECT FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET FINE EXTINGUISHER CABINET
_	AUD AUDITORI AUTO AUTOMAT AVE AVERAGE	IS IERIC VENT IUM TC	CHAN C CHUV C CI C CIP C CIRC C CJ C CL C	EILING GRILLE HANNEL EILING HUNG UNIT VE AST IRON AST IN PLACE IRCUMFERENCE ONTROL JOINT ENTER LINE EILING	ENTILATOR	DIA D DIAG D DIM D DISP D DIST D DIV D DL D	VATER DIAMETER DIAGONAL DIMENSION DISPENSER DISTANCE DIVISION DEAD LOAD DOWN		FF FFE FFL FG FH FHC FIN FIXT FL	FINISH FLOOR, FACTORY FINI FINISH FLOOR ELEVATION FINISH FLOOR LINE FLOOR GRILLE FIRE HYDRANT FIRE HOSE CABINET FINISH (ED) FIXTURE FLUSH
Z	BBBASKETBBBDBOILER BBCBOTTOM BBCUBLOWERBCXBOTTOM BBDBOARDBDDBACKDRA	ALL LOWDOWN OF CURB COIL UNIT CHORD EXTENSION NFT DAMPER DW PREVENTER GRILLE	CLKG C CLL C CLR C CLRM C CMP C CMP C CMT C CMU C COU C CODP C	AULKING ONTRACT LIMIT LINE LEAR (ING) (ENCE) LASSROOM ORRUGATED METAL I ERAMIC MOSAIC TILE ONCRETE MASONRY LEAN OUT LEAN OUT LEAN OUT DECK PLA ⁻ OLUMN	PANEL UNIT	DO D DP D DPR D DR D DWG D DS D DT D DTA D DTL D	DITTO DAMPPROOF (ING DAMPER DOOR, DEEP RIB DRAWING	AINAGE STRUCTURE	FLD FLEX FLG FLR	FLOOR DUCT FLEXIBLE FLASHING FLOOR (ING) FLUORESCENT FLOOR MOUNTED FLEXIBLE METAL CONDUIT FOUNDATION FREIGHT ON BOARD, FLAT ON FUEL OIL GAUGE
	BIT BITUMINC BLDG BUILDING BLK BLOCKING BM BEAM	BLOCK G BLKG	COMB C COMP C CONC C COND C	OLUMN OMBINATION OMPRESS (ED) (ION) ONCRETE ONDENSATE ONNECTION	(IBLE), COMPOSITE	DWL D DWR D E E	DUMBWAITER, DIS DOWEL DRAWER EAST EXHAUST AIR, EAG ENTERING AIR TEI	Эн	FOG FOR FOS FOT FP FPM FR	FUEL OIL GAUGE FUEL OIL RETURN FUEL OIL SUPPLY FLAT ON TOP FIREPROOF (ING) FEET PER MINUTE FRAME, FLOOR REGISTER

9 10 11

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Mechanical Symbols mbols ATV ATMOSPHERIC VENT BASKET STRAINER TAG NO. EQUIPMENT TAG (NON-MOTORIZED) CATES AREA IS - BBD-BOILER BLOW DOWN VALUE CFM, GPM, CAPACITY DUPLEX BASKET STRAINER _____X_____ CATES SLAB IS /TAG NO. EQUIPMENT TAG (MOTORIZED) AQUASTAT RESSED OR ESSED \VALUE/ ------ CGS------- CHILLED GLYCOL SUPPLY PITCH PIPING (DOWN) ___**>** D ------- CGR -------- CHILLED GLYCOL RETURN AUTOMATIC FLOW CONTROL VALVE OF FTG ELEVATION TAG NO. A DATUM CD CONDENSATE DRAIN BACKFLOW PREVENTOR NECK SZ. REGISTER, GRILLE, DIFFUSER TINUOUS FTG C CONDENSER WATER SUPPLY CFM B BALANCING VALVE CR CR
CONDENSER WATER RETURN BALL VALVE GLYCOL SUPPLY FTR-TYPE FIN TUBE RADIATION EXISTING BALL VALVE DATION WALL ------ GR------- GLYCOL RETURN ENC. LENGTH ENCLOSURE NOTED AS: BUTTERFLY VALVE W/W: WALL TO WALL HGS HOT GLYCOL SUPPLY ELEM. LENGTH TION FROM DATUM W/U: WALL TO UNIT, CHECK VALVE W/D: WALL TO DOOR, ETC ... HGR HOT GLYCOL RETURN GPM ED FOOTING 2-WAY CONTROL MODULATING VALVE ------ HPWS------ HEAT PUMP SUPPLY HPWR HEAT PUMP RETURN SUPPLY DUCT - POSITIVE PRESSURE 3-WAY CONTROL, ATES PIER TYPE MODULATING VALVE HWS HOT WATER SUPPLY (INSTALL STEM VERTICAL) F PIER ELEVATION RETURN DUCT - NEGATIVE PRESSURE HWR HOT WATER RETURN 3-WAY CONTROL, DATUM THERMOSTATIC MIXING HCS HOT/CHILLED WATER SUPPLY VALVE (SELF-CONTAINED) EXHAUST DUCT - NEGATIVE PRESSURE HCR HCR HOT/CHILLED WATER RETURN SOLENOID (ELECTRIC) ON/OFF LPS LPS LOW PRESSURE STEAM 8x8 DUCTWORK, FIRST VALUE IS SIZE OF F FOOTING SIDE IN VIEW TION FROM DATUM LPC LOW PRESSURE CONDENSATE MOTORIZED MODULATING VALVE _____ LPWC_____ LOW PRESSURE STEAM WET DUCT TRANSITION ATES FOOTING TYPE (FLOODED) CONDENSATE _____fX|_____ FUSIBLE LINK VALVE TO FOOTING DUCT OFFSET MU MECHANICAL EQUIPMENT MAKE-GAS PRESSURE REGULATOR VALVE UP COLD WATER(NON-POTABLE) RECTANGULAR ELBOW TRIPLE DUTY VALVE W/TURNING VANES ------ RS ------- REFRIGERANT SUCTION CATES A FRAMED GATE VALVE F OR FLOOR OPNG REFRIGERANT LIQUID GLOBE VALVE RD SIZE AND HG REFRIGERANT HOT GAS RECTANGULAR ELBOW TION OS&Y GATE VALVE PD PUMP DISCHARGE PLUG VALVE CATES FRAMED ROUND DUCTWORK W/ REMOVE EXG. DUCT ----G IS FOR: PRESSURE REDUCING VALVE MITERED ELBOW PIPING, EQUIPMENT ROOF DRAIN MECH EQUIP EXG EXISTING HVAC PIPE PRESSURE RELIEF VALVE RADIUS ELBOW W/ SKYLIGHT TURNING/SPLITTER VANES SMOKE HATCH BOTTOM PIPE CONNECTION STEAM TRAP ACCESS HATCH THERMOSTATIC STEAM TRAP RADIUS ELBOW C PIPE ELBOW DOWN FLOAT AND THERMOSTATIC VATION FROM ______(X)' STEAM TRAP WING DATUM O PIPE ELBOW UP BUCKET STEAM TRAP M SIZE STANDARD BRANCH DUCT PIPE DOWN WITH CLEANOUT AT BASE W/VOLUME DAMPER IBER OF SHEAR AIR SEPARATOR S OVER FULL PIPE DOWN WITH SHUTOFF VALVE GTH OF BEAM CATES TOP OF BEAM ACOUSTICALLY LINED CAP OR PLUG DJ GIRDER ELEV DUCTWORK WATER HAMMER ARRESTOR ACOUSTICALLY LINED FLANGE CONNECTION **REACTION- KIPS** CLEANOUT PLUG DUCTWORK (UP/DOWN) CODP • CLEANOUT DECK PLATE ECTION (INCHES) PIPING REDUCER (CONCENTRIC) ROX W/ WET CONC OR // PIPING REDUCER (ECCENTRIC) FLEXIBLE DUCT L DESIGNATION FIRE RISER VALVE ASSEMBLY VIII SCHEDULE PIPE ANCHOR \LLLLLL. CATES LINTEL PIPE GUIDE INECTION TO VOLUME DAMPER BS EXPANSION COMPENSATOR BURNER SHUT OFF CATES MEMBER EXPANSION JOINT XISTING H FIRE DAMPER HUMIDISTAT FLEX CONNECTOR CATES BEAM TEMPERATURE OR HUMIDITY SENSOR CATES MOMENT SMOKE DAMPER PRESSURE PROBE WELL INECTION H HUMIDITY SENSOR W/ GUARD THERMOMETER SG R COLUMN FIRE AND SMOKE DAMPER CATES SHEAR WALL PRESSURE SWITCH PRESSURE SENSOR NECTION TO BEAM AUTOMATIC AIR DAMPER CATES BM TO HAVE PRESSURE GAUGE _____ PRESSURE SENSOR W/ GUARD OF WALL CLIPS SG T DESIGNATION TEMPERATURE/ PRESSURE GAUGE BACKDRAFT DAMPER SWITCH ZOTESABERANDERAGAES MANUAL AIR VENT 🗆 AV THERMOSTAT EXISTING DUCTWORK AUTOMATIC AIR VENT _____ SV STEAM VENT ONAL BRIDGING AIR FLOW THERMOSTAT W/ GUARD 🖵 VB VACUUM BREAKER DUCT AIR FLOW TEMPERATURE SENSOR ONRY LOAD FLOW SWITCH RING WALL EXISTING MECHANICAL EQUIPMENT TO BE REMOVED (CO2) _____(M)___ FLOW METER با ايتا آغ CO2 SENSOR AR WALL SCHEDULE ORIFICE METER EXISTING MECHANICAL EQUIPMENT (POC)-POINT OF CONNECTION F BEARING WALL VENTURI FLOW METER \vdash FIRE DEPARTMENT CONNECTION WYE STRAINER MECHANICAL EQUIPMENT WYE STRAINER WITH BLOW DOWN VALVE _ TYPE DIRECTION OF FLOW ACCESS CLEARANCE PIPE BREAK M WATER METER PLAS PLASTER, PLASTIC ON BOLT FRESH AIR MAX MAXIMUM FRA INCHES ICAL CONTRACTOR FIRE RESISTANT COATING INCL INCLUDE (D) (ING) PLF POUNDS PER LINEAR FOOT MB MARKER BOARD ED CONCRETE FLOORING FIBERGLASS REINFORCED PANEL INSULATE (D) (ION) THOUSAND BTUH PLYWD PLYWOOD FRP MBH INS INSULATION SYSTEM INTERIOR MBR MEMBER FRT FIRE RETARDANT PM PLUGMOLD INVERT MOTORIZED DAMPER PNL PANEL ACE, EXHAUST FAN FLOOR SINK MD FS POC POINT OF CURVATURE, POINT OF ION JOINT FIRE AND SMOKE DAMPER IRON PIPE MECHANICAL EQUIPMEN IRON PIPE SIZE MECH MECHANICAL (LY) CONNECTION FEET. FLOOR TREATMENT (AL) FTG FOOTING INDIRECT WASTE MED MEDIUM POL POLISHED ON, ELEVATOR FIN TUBE RADIATION POS POSITIVE FTR MEMB MEMBRANE POT POINT OF TANGENCY JANITORS CLOSET MEZZ MEZZANINE FLUSH VALVE FV CAL METALLIC TUBING JANITORS CLOSET MIXING FAUCET PR PAIR MF GAS, GLYCOL PRE POWER ROOF EXHAUSTER JUNCTION BOX MFR MANUFACTURE (R) DECK GAUGE JANITORS CLOSET MAN HOLE PREP PREPARE (ATION) JUNCTION MINIMUM PREFORMED SLAB GALLON MIN PRF GAL QUIVALENT JOINT MIRROR PROJ PROJECT GALVANIZED NT CONTRACTOR MISCELLANEOUS GASK GASKET (ED) MISC KILOWATT POUNDS PER SQUARE FOOT GENERAL CÓNTRACT (OR MASONRY OPENING KW SURFACE, EXPOSED STRUCTURE GCMU GLAZED CONCRETE MASONRY UNIT KWH KILOWATT PER HOUR MOD MODULE (OR), MODEL POUNDS PER SQUARE INCH GCO GRADE CLEANOUT GF GROUND FACE SHEET FLASHING KV KILOVOLT MOP RECEPTOR POINT, PORCELAIN TILE SHEET MEMBRANE GLASS, GLAZING KVA KILOVOLT AMPERE MULTICOLOR WALL COATING PAINTED MOUNT GROUND WATER COOLER GALLONS PER MINUTE I FNGTH I ONG MOUNTED PTP PRESSURE TREATED PRESERVATIVE GPM MTD PVC POLYVINYL CHLORIDE G WATER TEMPERATURE

R, EXTERNAL IR INTAKE LING UNIT DRAIN, FIRE DAMPER PARTMENT CONNECTION INGUISHER TINGUISHER CABINET LOOR, FACTORY FINISH

HB

HBD

HCR

HCS

HD

HG

HM

HPS

HPR

HPC

HR

HTG

HV

HVU

IE INVERT ELEVATION

LOOR ELEVATION LOOR LINE GRILLE RANT SE CABINET DUCT

SCÉNT IOUNTED E METAL CONDUIT ON BOARD. FLAT ON BOTTOM HW GAUGE L RETURN L SUPPLY

GRADE (ING), GLYCOL RETURN GLYCOL SUPPLY GRAVEL GYPSUM WALL BOARD GYP GYPSUM HOSE BIB HARD BOARD HEATING CONTRACT (OR), HANDICAP HOT/CHILLED RETURN HOT/CHILLED SUPPLY HEAVY DUTY HDPE HIGH DENSITY POLYETHYLENE HDR HEADER HDW HARDWARE HOT GLYCOL HIGH IMPACT PANE HOLLOW METAL HORZ HORIZONTAL HORSEPOWER. HIGH PRESSURE, HEAT PUMP LH HEAT PUMP LOOP WATER SUPPLY HEAT PUMP LOOP WATER RETURN HIGH PERFORMANCE COATING HIGH PRESSURE LAMINATE HANDRAIL, HOUR HEIGHT HEATING HIGH VOLTAGE HVAC HEATING/VENTILATING/AIR CONDITIONING HEATING AND VENTILATING UNIT HOT WATER HWH HOT WATER HEATER HWP HOT WATER PLIMP HWR HOT WATER RETURN HWS HOT WATER SUPPLY

LAB LABORATO LABORATORY LAM LAMINATE (D) LEAVING AIR TEMPERATURE IAT LAV LAVATORY POUND LABEL LEAD BASED PAINT LANDSCAPE CONTRACTOR (SITE) LEAD COATED COPPER LDR LEADER LEV LEVEL LABORATORY VENT IV LABORATORY WASTE LW LINEAR FOOT LFMC LIQUID-TIGHT FLEXIBLE METAL CONDUIT LFNC LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT LENGTH, LONG LARGE GROUP INSTRUCTIO LEFT HAND LIN LINEAR LOCKER LKR LIVE LOAD LOW PRESSURE LOW PRESSURE CONDENSATE LOW PRESSURE STEAM LOW POINT LINOLEUM SHEET LIGHT, LINOLEUM TILE LINTEL LTL LOW VOLTAGE IV I VR I OUVER LWT LEAVING WATER TEMPERATURE

MAN MANUAL

MAS MASONRY

MAU MAKE UP AIR UNIT

MTG MOUNTING MTL METAL PVMT PAVEMENT MTH MARBLE THRESHOLD MTR METER QUARTZ FLOORING MULL MULLION MVEJ MASONRY VENEER EXPANSION JOINT QT QUARRY TILE NORTH, NO WORK REQUIRED NAT NATURAL NC NORMALLY CLOSED RA NATIONAL ELECTRIC CODE RAD NEGATIVE NEG RAF NEUTRALIZATION NOT IN CONTRACT RESILIENT BASE NIC RB NUMBER, NORMALLY OPEN NOM NOMINAL NOISE REDUCTION COEFFICIENT NRC NTS NOT TO SCALE RD ROOF DRAIN OVERALL, OUTSIDE AIR OA ON CENTER RECEPT RECEPTACLE OUTSIDE DIAMETER REF REFERENCE OH OVERHEAD REFL REFLECT (ED) (IVE) (OR) OPNG OPENING REFR REFRIGERATOR OPP OPPOSITE REG REGISTER OPP HD OPPOSITE HAND REINF REINFORCE (D) (ING) REM REMOVED PAINT SURFACE(S) INCLUDING SOFFITS REQD PAR PARALLEL RESIL RESILIENT PART PARTITION RET RETAINING, RETURN PC PLUMBING CONTRACT (OR), PIGMENTED CONCRETÈ PCC PRECAST CONCRETE REG ROOFING RFH ROOF HATCH PORCELAIN ENAME PENC PRE-EXISTING NON-CONFORMING RFM RECESSED FLOOR MAT PERF PERFORATE (ION) (ED) PERI PERIMETER RGS RIGID GALVANIZED STEEL PERP PERPENDICULAR RH RIGHT HAND PLATE PRO RI ROUGH-IN PLAM PLASTIC LAMINATE

RETURN AIR

RADIATION

FLOORING

REQUIREI

RETURN GRILLE

2	13	1	1	14	15	16		17		
				E	Electrical and	Technol	ogy S	Symbols	A	Sta
	┝┰┨	CONNECTION T EXISTING PIPIN			IGHT FIXTURE DENOTES TYPE			- LADDER TYPE		2-
		PLATE STRAINE	ER		IGHT FIXTURE DENOTES TYPE	SR	SURFACE RA	' - BASKET TYPE ACEWAY SCRIBED ON DWGS.		
	~ _	HOSE BIBB			ETROFITTED LIGHT FIXTURE S NOTED	CI		TION INTERFACE OUTL	_ET	1/8"=
	- LV	COMPRESSED			OMBINATION EXIT/EMERGENCY LIG DENOTES TYPE	3		JNT SPEAKER		2
	- LW	LABORATORY	WASTE		MERGENCY LIGHT W/BATTERY PAC DENOTES TYPE	к <u>§</u> VC	WALL MOUN		В	A112
	- LW 	LABORATORY	WASTE (BURIED)		MER. LIGHT/WALL MOUNT DENOTES TYPE	Ŵ	HORN SPEA	KER	Н	
	V	VENT			MERGENCY FIXTURE					, , , , , , , , , , , , , , , , , , ,

DENOTES TYPE

SAN SAN SANITARY (ABOVE GRADE) SAN SANITARY (BURIED) INDIRECT WASTE ST STORM (ABOVE GRADE) STORM (BURIED) ------ F ------ FIRE MAIN EXISTING COLD WATER EXISTING HOT WATER _____ —110° HW — EXISTING 110° HOT WATER -140° HW ---- EXISTING 140° HOT WATER -180° HW --- EXISTING 180° HOT WATER COLD WATER HOT WATER HOT WATER RETURN TW TEMPERED (HOT) WATER ------RAW------- RAW WATER ------ DE ------ DEIONIZED WATER DI DI DISTILLED WATER _____ G _____ GAS PROPANE DIESEL FUEL U UNLEADED GASOLINE ------- FOS ------- EXG FUEL OIL SUPPLY FOS FUEL OIL SUPPLY _____FOR_____ - EXG SUEL OIL RETURN FUEL OIL RETURN _____ FOV — EXGFUEL OIL VENT MAKE-UP COLD WATER (NON-POTABLE) EXISTING ROOF DRAIN $(\mathbf{0})$ ROOF DRAIN SCURPER ROOF DRAIN - ~ 1 **Q PLUMBING FIXTURE**

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FLOOR BOX FB EMERGENCY FIXTURE # # DENOTES TYPE DR DOOR RELEASE EXIT LIGHT- CEILING MOUNTED EXIT LIGHT -WALL MOUNTED SECURITY SENSOR # DENOTES TYPE \preceq # SE -DLS DAYLIGHT SENSOR AREA OF RESCUE LIGHT FIXTURE AR # DENOTES TYPE POLE MOUNTED SITE LIGHT # DENOTES TYPE SECURITY CAMERA 口# LIGHT SWITCH (K - KEY OPERATED REX 3 - 3 WAY 4 - 4 WAY EXG HOT WATER RETURN D - DIMMER PS # P - W/PILOT LIGHT **OS - OCCUPANCY SENSOR** VS - VACANY SENSOR SECURITY ELECTRIC LOCKING HARDWARE TIME CLOCK OCCUPANCY SENSOR VACANCY SENSOR (VS CR # PC PHOTO CELL ADA ADA PUSH BUTTON LC LIGHTING CONTROL MON FIRE ALARM MANUAL PULL STATION DB C ● FIRE ALARM BELL-W/STROBE W/0 ST W/STROBE W/0 STROBE FIRE ALARM HORN-W/STROBE W/0 STROBE NEW PANEL $\langle S \rangle$ SMOKE DETECTOR SPD ⟨B⟩→ BEAM SMOKE DETECTOR DUCT SMOKE DETECTOR MOTOR RATE OF RISE HEAT DETECTOR LABEL NEW MOTOR FIXED HEAT DETECTOR 2 # FIRE ALARM STROBE LIGHT PB PULL BOX DH MAGNETIC DOOR HOLDER JUNCTION BOX FIRE ALARM / VOICE NOTIFICATION SPEAKER (WALL) HAND HAIR DRYER FIRE ALARM / VOICE NOTIFICATION SPEAKER (CEILING) SINGLE RECEPTACLE FIRE ALARM / VOICE NOTIFICATION DUPLEX RECEPTACLE SPEAKER STROBE (CEILING) FIRE ALARM / VOICE NOTIFICATION SPEAKER STROBE (WALL) FIRE ALARM / VOICE NOTIFICATION STROBE (WALL) RELAY CORD REEL REMOTE INDICATOR TEST SWITCH ECHANICAL EQUIPMENT SPRINKLER FLOW SWITCH SPRINKLER TAMPER SWITCH FIRE ALARM ANNUNCIATOR PANEL FIRE ALARM CONTROL PANEL MOTOR STARTER FIRE ALARM GRAPHIC ANNUNCIATOR ROOF DRAIN REPLACING EXG CONTROL STATION-CONTACTOR TYPE AS DESCRIBED ON DWGS. HOUSE LIGHTING CONTROL STATION HCL DCR DIMMER CONTROL OUTLET AR AREA OF RESCUE STATION MICROPHONE JACK MJ TRANSFORMER BE REMOVED SPEAKER JACK REFER TO RISER DIAGRAM HOUSE LIGHT PANIC STATION (CM)Q PLUMBING FIXTURE CARBON MONOXIDE DETECTOR AUDITORIUM INTERCOM UTILITY POLE UNBING FIXTURE \bigcirc COMBINATION CLOCK/SPEAKER ------UT------------------------UNDERGROUND TELEPHONE CLOCK LOOR DRAINS — T — OVERHEAD TELEPHONE EXISTING TELEPHONE LQOR SINK TELEPHONE OUTLET WALL HYDRANT W - WALL MOUNT AT 54" AFF CIC - INTERCOM SOUND SYSTEM HAND SET REHOSE CABINET BLANK - WALL MOUNT AT 16" AFF FLOOR TELEPHONE OUTLET — L — OVERHEAD LIGHTING JPRIGHT SPRINKLER HEAD INTERCOM CALL SWITCH PENDANT SPRINKLER HEAD TELEVISION OUTLET — E — OVERHEAD ELECTRIC COMPUTER OUTLET CONCEALED SPRINKLER HEAD AUDIO/VIDEO OUTLET RECESSED SPRINKLER HEAD PROJECTOR MOUNTING TILE SIDEWALL SPRINKLER HEAD Symbol Tags AC = ABOVE CEILING (AP) ACCESS POINT WP = WEATHERPROOF WG = WIRE GUARD F = REMOVE EXISTING F^{E} = EXISTING TO REMAIN TYPICAL FOR H = HORIZONTAL ALL ELEC SYMBOLS **F RELOCATE EXISTING** TK = TOE KICK F RE = REPLACE EXISTING

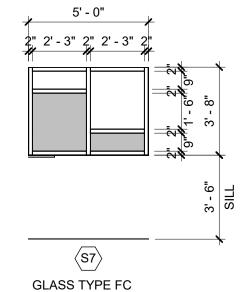
PROGRAM BELL SECURITY ALARM HORN \A112/ GB - GLASS BREAK MD - MOTION DETECTOR SD - SOUND DETECTOR 4 (A112) 2 SECURITY DOOR CONTACT SECURITY SYSTEM KEYPAD # DENOTES DESIGNATION # DENOTES DESIGNATION SECURITY REQUEST TO EXIT SENSOR _____ LOW-VOLTAGE POWER SUPPLY # DENOTES DESIGNATION DOOR INTERCOM CALL STATION B B # DENOTES DESIGNATION ACCESS CONTROL CARD READER # DENOTES DESIGNATION <u>|| | ___ | | |</u> EARTH SECURITY CCTV MONITOR SECURITY DURESS BUTTON EXISTING PANEL TO REMAIN EXISTING PANEL TO REPLACE TOP COURS SURGE PROTECTION DEVICE ASPHALT F CONCRETE SEE SCHEDULE FOR DESCRIPTION FINISHED W STRUCTUR/ ____/ METAL, STE DOUBLE DUPLEX RECEPTACLE SPECIAL PURPOSE RECEPTACLE DUPLEX FLOOR RECEPTACLE TTTTT RESILIENT TELE./DATA POWER POLE NON-FUSED DISCONNECT SWITCH FUSED DISCONNECT SWITCH COMBINATION STARTER ENCLOSED CIRCUIT BREAKER EQUIPMENT CONNECTION EMERGENCY OFF BUTTON # DENOTES DESIGNATION

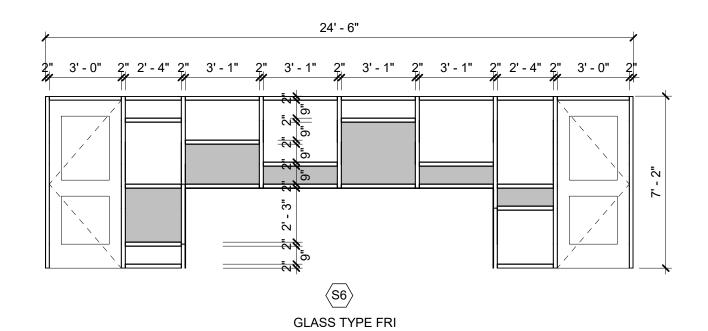
S.E.D, Contr 0 1 _ 2/12/21 ----- C ----- OVERHEAD COMPUTER • Rev. No.: Date: AUX = AUXILLARY CONTACT A = ABOVE (CASEWORK) B = BELOW (CASEWORK) TS = TEACHER STATION USB = UNIVERSAL SERIAL BUS SWITCH, SOFTENED WATER RAIN LEADER VERM VERMICULITE SW RAIL(ING) ROOM SWCI SERVICE WEIGHT CAST IRON VERT VERTICAL RLG SYM SYMMETRICAL VEST XESTIBULE RM complex/world RIGID METAL CONDUNT SYN SYNTHEIR RIGID NONMETALLIC CONDUIT RNC CLEA VITREOUS TILE RNT RUNNING TRAP TREAD, TOP, TOILET ROOM, TONS, ROUGH OPENING VNR VENEER ROW RIGHT OF WAY TFRRA770 VOLUME REVOLUTIONS PER MINILITE TOP AND BOTTOM, TACK BOARD, VENT THROUGH ROOF TB VTR RPM REMOVE EXISTING AND REPLACE WITH NEW TERRAZZO BASE VINYL WALL COVERING VWC RUBBER STAIR TREAD/RISER TO BE DETERMINE Tetra Tech Engine ROOF TOP HOOD TEMPERATURE CONTROL, TEMPERED WEST, WIDTH, WIDE, WASTE, WATT RTH & Landscape Arch RTU ROOF TOP UNIT WET BULB TELECOMMUNICATIONS CONTRACTOR, RAW WATER WATER CLOSET, WALL COVERING RW WC WOOD, WOOD FLOORING TOP OF CURB PAINT EXPOSED STRUCTURE/DECK SOUTH, SUPPLY, SURGE PROTECTED TOP CHORD EXTENTION WINDOW TCX WDW SUPPLY AIR TRIPLE DUTY VALVE WDWC WINDOW CONTRACTOR SAN SANITARY TELEPHONE WASH FOUNTAIN SMOOTH ALL SIDES TEMPERATURE WALL GRILLE, WATER GAUGE SOLID CORE, SILL COCK, SEALED CONCRETE TOP GRILLE, TONGUE AND GROOVE WALL HUNG, WALL HYDRANT WATER HAMMER ARRESTOR PTFR PRESSURE TREATED FIRE RETARDANT SCHED SCHEDULE THICKNESS STRUCTURAL CLAY TILE WROUGHT IRON SCT THR THRESHOLD STORM DRAIN, SPLITTER DAMPER TO MATCH EXISTING WIREMOI D THERMOSTATIC MIXING VALVE WATER PROOFING WORKING POINT SMOKE DAMPER WP WATER REPELLENT, WIDE RIB, WALL PWE POWER WALL EXHAUSTER SECTION TOP OF DUCT WR TOP OF FASCIA, TOP OF FOOTING SQUARE FEET REGISTER SMALL GROUP INSTRUCTION TOI TOLERANCE WS WATER STOP STRUCTURAL GLAZED TILE TOP OF MASONRY WSCT WAINSCOT Mahopac TOP OF PIPE TOP OF WEIGHT SHELF, SHELVING, SMOKE HATCH RADIUS, RETURN, REFRIGERANT SHR SHOWER, SHEAR WALL TOS TOP OF STEEL, TOP OF STAIR WWHP WATER TO WATER HEAT PUMP Mahopac, SHT SHEET TPART TOILET PARTITION WWM WELDED WIRE MESH SHTHG SHEATHING TOP REGISTER WITH TR W/ RETURN AIR FAN, RESILIENT ATHLETIC SIM SIMILAR W/O WITHOUT TRN TRANSOM TOP OF STAIR SINK SOUND LINED, SKYLIGHT XHCI EXTRA HEAVY CAST IRON TELEVISION TV TEMPERED WATER, TOP OF WALL ROOFING CONTRACT (OR) Reconstru SILLCOCK SLC TW RCA RECYCLED CONCRETE AGGREGATE SLEEVE YD YARD DRAIN, YARD TYP SLV TYPICAL RCP REINFORCED CONCRETE PIPE SLVR STORM LOUVER Mahopac I SMH SANITARY MANHOLE UNDERCUT REFLECTED CEILING PLAN UC RCU REMOTE CONDENSING UNIT UNDERDRAIN SOG SLAB ON GRADE STATIC PRESSURE, STANDPIPE, UNDERGROUND ELECTRIC UF SPACE (ING) (ES) UNDERGROUND UG SPEC SPECIFICATION (S) UNIT HEATER SPKR SPRINKLER UNF UNFINISHED SPECIAL SQUARE UNIFORM UNI UNO UNLESS NOTED OTHERWISE Symbols a STAINLESS STEEL URINAL UNDERGROUND TELEPHONE STRUCTURAL STEEL TUBING STORM, STORAGE UNIT VENTILATOR STATION STA SHOWER TEMPERATURE CONTROLLER, VENT, VOLT STC Drawn By: REV REVISION, REVISED, REVEAL STAINED CONCRETE VARIES, VARIABLE VAR TTAE RUBBER FLOORING STD STANDARD VARN VARNISH VINYL ASBESTOS TILE STG SEATING VAT STL STEEL VAV VARIABI E AIR VOLUME Project No.: VACUUM BREAKER, VAPOR RETARDER STN STAIN (ED) VB 121111-19002 STOR STORAGE BARRIFR VOLLEYBALL STRU STRUCTURAL SURF SURFACE VCB VENTED COVE BASE JSP SUSPEN VINVI COMPOSITE VD VOLUME DAMPER SV SHEET VINYL, STEAM VENT

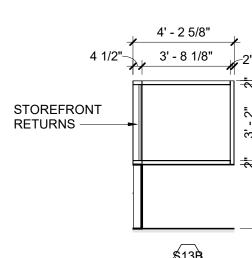
ç	Standard	Symbo	ls
2-	STANDA	RD REFERENCE BUE	BBLE
A12-	Floor Plan	G NUMBER DRAWING TITLE &	SCALE
2 A11	2 2 A112	BUILDING SECTION	٧
		CONTRACT LIMIT L	INE
5	ADA 5' TURNING RADIUS	100'-0" 1st FF	ELEVATION CALL OUT
	WALL SECTION	2 A12	ELEVATION
2)2		2 A112	DETAIL
	NORTH ARROW	CLASSROOM	ROOM NAME AND NUMBER
	PROPERTY LINE	V	CUT LINE
	COLUMN CENTER LINE		CENTER LINE
A B	MATCH LINE		DRAWING REVISION NUMBER
EART	Ή	G	RAVEL
SAND)	C(ONCRETE
	ASPHALT PAVING OR COURSE	A.	EW HEAVY-DUTY SPHALT PAVING
	OVE AND REPLACE IALT PAVING		RICK
7			TONE
\sim	HED WOOD TRIM		LYWOOD
	LATION (LOOSE OR)		
	ICTURAL GLAZED TILE		
Ź	JSTICAL PANEL		ERRAZZO
)	LIENT FLOORING		LASS (LARGE SCALE)
	TER, CEMENT, GROUT, C _ BOARD		
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It	ARCHI		NGINEERS
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NEW ASPH

									Doo	r Sched	ule						
ROOM NUMBER	DOOR NUMBER	TYPE	MATERIAL] WIDTH	DOOR HEIGHT	RATING	GLAZING	TYPE	MATERIAL	WIDTH	HEIGHT	FRAME RATING		EAD JAME	B SILL HDW SE	T REMARKS	
BASEMENT																	
247	1	N-PR		3' - 0"	7' - 0"	20 MIN		F1	HM	6' - 4"	7' - 4"	20 MIN	- H4	J4	11		
247 247	2	F-PR	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	-		F1 F1	HM HM	6' - 4" 3' - 4"	7' - 4" 7' - 4"	-	- H14 - H13	J13 J13	4		_
Ist FLOOR				0 0						0	, , ,			010			
104	1	F	НМ	3' - 0"	7' - 0"	-		F1	HM	3' - 4"	7' - 4"	-	- H7	J6	17		
04	2	F	HM	3' - 0"	7' - 0"	-		F1	HM	3' - 4"	7' - 4"	-	- H7	J6	17		_
106 106E	1	F	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	-		F2 F1	HM HM	3' - 4" 3' - 4"	7' - 2" 7' - 4"	-	- H13 - H5	J13 J6	12		
11	1	G2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S4	AL	0"	0"	60 MIN	FC 2/AA6		<u> </u>	X	_
11	2	N	WD	3' - 0"	7' - 0"	45 MIN		F2	НМ	3' - 4"	7' - 2"	45 MIN	- H13	J13			_
11A 13A	1	N N-PR	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	- 20 MIN ~	-	F2 F2	HM	3' - 4" 6' - 4"	7' - 2" 7' - 2"	- 20 MIN	- H13 - H14	J13 J13	<u>{ الج</u>		_
13A 13A	2	N-PR	WD	3' - 0"	7'-0	20-MIN -{ 45 MIN		F2 F2	HM	6' - 4"	7' - 2"	45 MIN	- H14	J13	4		$\sqrt{-2}$
13F	1	F-PR	НМ	4' - 10"	7' - 0"	- Lin		F2	НМ	10' - 0"	7' - 2"	-	- H7	J6		SOUND CONTROL DOOR ASSEMBLY	\rightarrow
15	1	G2	AL	3' - 0"	7' - 0"	60 MIN		S4	AL	0"	0"	60 MIN	FC 2/AA6		9 / 21	<u> </u>	_)
15 42	2	N	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	45 MIN 20 MIN		F2 F2	HM	3' - 4" 3' - 4"	7' - 2" 7' - 2"	45 MIN 20 MIN	- H13 - H4	J13 J4		SOUND CONTROL DOOR ASSEMBLY	\prec
42	2	N	WD	3' - 0"	7' - 0"	20 MIN		F2	HM	3'-4"	7' - 2"	20 MIN	- H13	J13	5	SOUND CONTROL DOOR ASSEMBLY	$-\chi$
42	3	F	WD	3' - 0"	7' - 0"	-		F2	НМ	3' - 4"	7' - 2"	-	- H13	J13	5	SOUND CONTROL DOOR ASSEMBLY	_)
43	1	N	WD	3' - 0"	7' - 0"	20 MIN		F2	HM	3' - 4"	7' - 2"	20 MIN	- H13	J13	5	SOUND CONTROL DOOR ASSEMBLY	7
43A 43A	1	N	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	20 MIN		F2 F2	HM	3' - 4" 3' - 4"	7' - 2" 7' - 2"	20 MIN	- H13 - H13	J13 J13	1515		_
.101	1	N2	AL	3' - 0"	7' - 0"	60 MIN		S3	AL	0"	0"	- 60 MIN	- 2/AA6		7		_
.101	2	N2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S3	AL	0"	0"	60 MIN	- 2/AA6	01 3/AA601	7		
.101	3	N2	AL	3' - 0"	7' - 0"	60 MIN		S3	AL	0"	0"	60 MIN	- 2/AA6		7		_
_101 \$101	4	N2	AL WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	60 MIN 20 MIN		S3 F2	AL HM	0" 3' - 4"	0" 7' - 2"	60 MIN 20 MIN	- 2/AA6 - H13	01 3/AA601 J13	/ 9		
/101	1	G2-PR	AL	3' - 0"	7' - 0"	-		S2	AL	0"	0"	-	FC 2/AA6		1		_
/101	2	G2-PR	AL	3' - 0"	7' - 0"	-	FC	S2	AL	0"	0"	-	FC 2/AA6	01 3/AA601	2		
2nd FLOOR		-		01 01	71 01			-4		0.4"				10			
218 219A	1	F	WD WD	3' - 0" 3' - 0"	7' - 0" 7' - 0"	- 20 MIN		F1 F1	HM HM	3' - 4" 3' - 4"	7' - 4" 7' - 4"	- 20 MIN	- H6 - H6	J6	<u> </u>		_
223	1	G2	AL	3' - 0"	7' - 0"	60 MIN		S6	AL	0"	0"	60 MIN	FRI 2/AA6		8		_
223	2	G2	AL	3' - 0"	7' - 0"	60 MIN		S6	AL	0"	0"	60 MIN	FRI 2/AA6		8		_
223	3	N	WD	3' - 0"	7' - 0"	20 MIN		F2	HM	3' - 4"	7' - 2"	20 MIN	- H13	J13	5		_
223-2 223-4	1	N G2	WD AL	3' - 0" 3' - 0"	7' - 0" 7' - 0"	-		F2 S15	HM AL	3' - 4" 0"	7' - 2" 0"	-	- H13 FC 2/AA6	J13 01 3/AA601	9		_
223S1	1	LMC-1	AL	7' - 0"	8' - 0"	-	FC	LMC-1	AL	7' - 0"	8' - 0"	-	- 6/AA6		6/AA601 13	SLIDING STOREFRONT	_
223S2	1	LMC-1	AL	7' - 0"	8' - 0"	-	FC	LMC-1	AL	7' - 0"	8' - 0"	-	- 6/AA6			SLIDING STOREFRONT	
223S3	1	F	WD	3' - 0"	7' - 0"	-		F2	HM	3' - 4"	7' - 2"	-	- H13	J13	12		_
223S4 235	1	F	WD AL	3' - 0" 3' - 0"	7' - 0" 7' - 0"	- 60 MIN		F2 S5	HM AL	3' - 4"	7' - 2" 0"	- 60 MIN	- H14 FRI 2/AA6	J13 01 3/AA601	12		<u> </u>
238	1	N	AL	3' - 0"	7' - 0"	60 MIN		S5	AL	0"	0"	60 MIN	FRI 2/AA6				_
238F	1	F-PR	НМ	4' - 10"	7' - 0"	-		F2	НМ	10' - 0"	7' - 2"	-	- H7	J6	9	SOUND CONTROL DOOR ASSEMBLY	_
2381	1	F	НМ	3' - 0"	7' - 0"	-		F1	HM	3' - 4"	7' - 4"	-	- H13	J13	(15)		
239 239F	1	N F-PR	AL HM	3' - 0" 4' - 10"	7' - 0" 7' - 0"	60 MIN		S5 F2	AL HM	0" 10' - 0"	0" 7' - 2"	60 MIN	FRI 2/AA6	01 3/AA601	9 9		<u></u>
239F 242	1	N	AL	4 - 10 3' - 0"	7' - 0"	- 20 MIN		F2 S5		0"	0"	- 20 MIN	- H/ FPC 2/AA6			SOUND CONTROL DOOR ASSEMBLY	\neg
242	2	N	WD	3' - 0"	7' - 0"	20 MIN		F1	HM	3' - 4"	7' - 4"	20 MIN	-		٤ 10 }		_
242A	1	SC-1	AL	12' - 0"	8' - 0"	-		SEE DOOR	AL	SEE DOOR	SEE DOOR	-	- 8/AA6		8/AA601 16	SLIDING STOREFRONT	
243	1	N	AL	3' - 0"	7' - 0"	20 MIN	FPC	S5	AL	0"	0"	20 MIN	FPC 2/AA6	01 3/AA601	9		



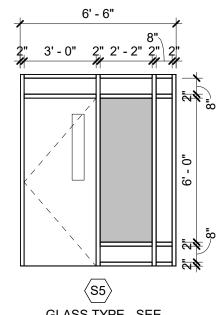


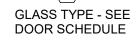


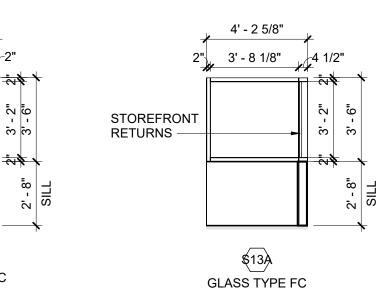
GLASS TYPE FC

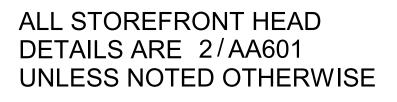
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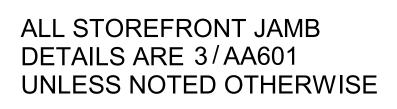
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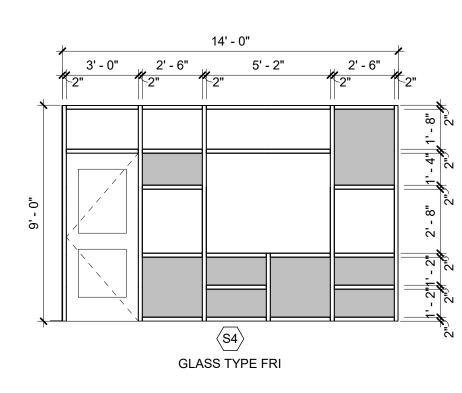


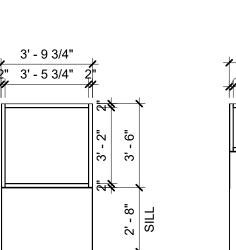




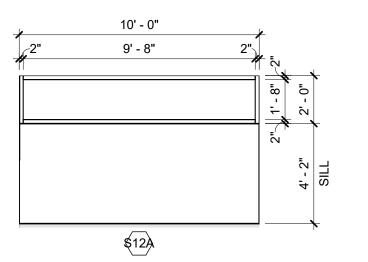


GRAY HATCHED GLASS AREAS ARE ACID ETCHED GLASS

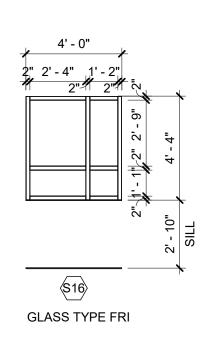


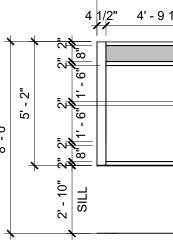


\$12B GLASS TYPE FC

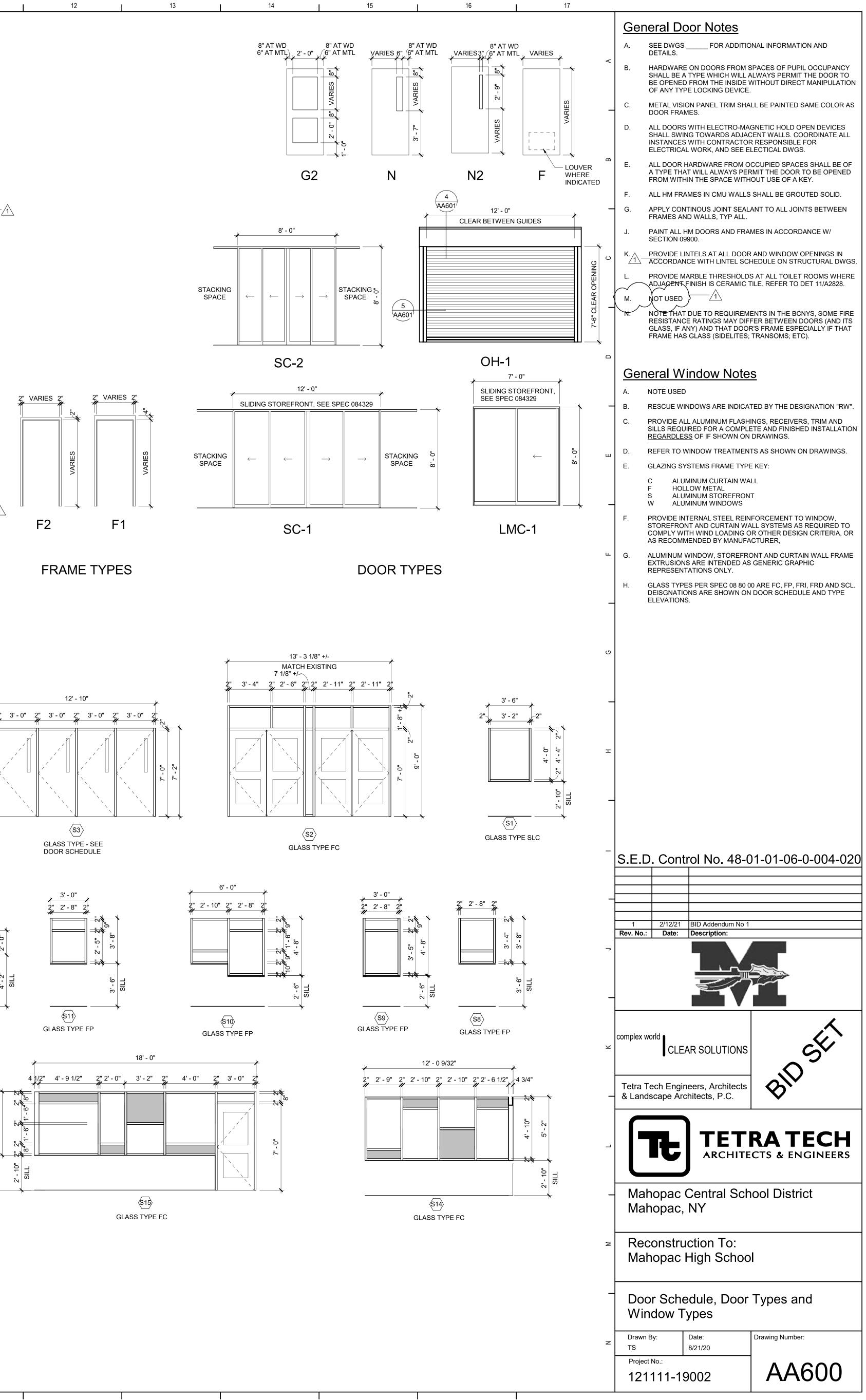


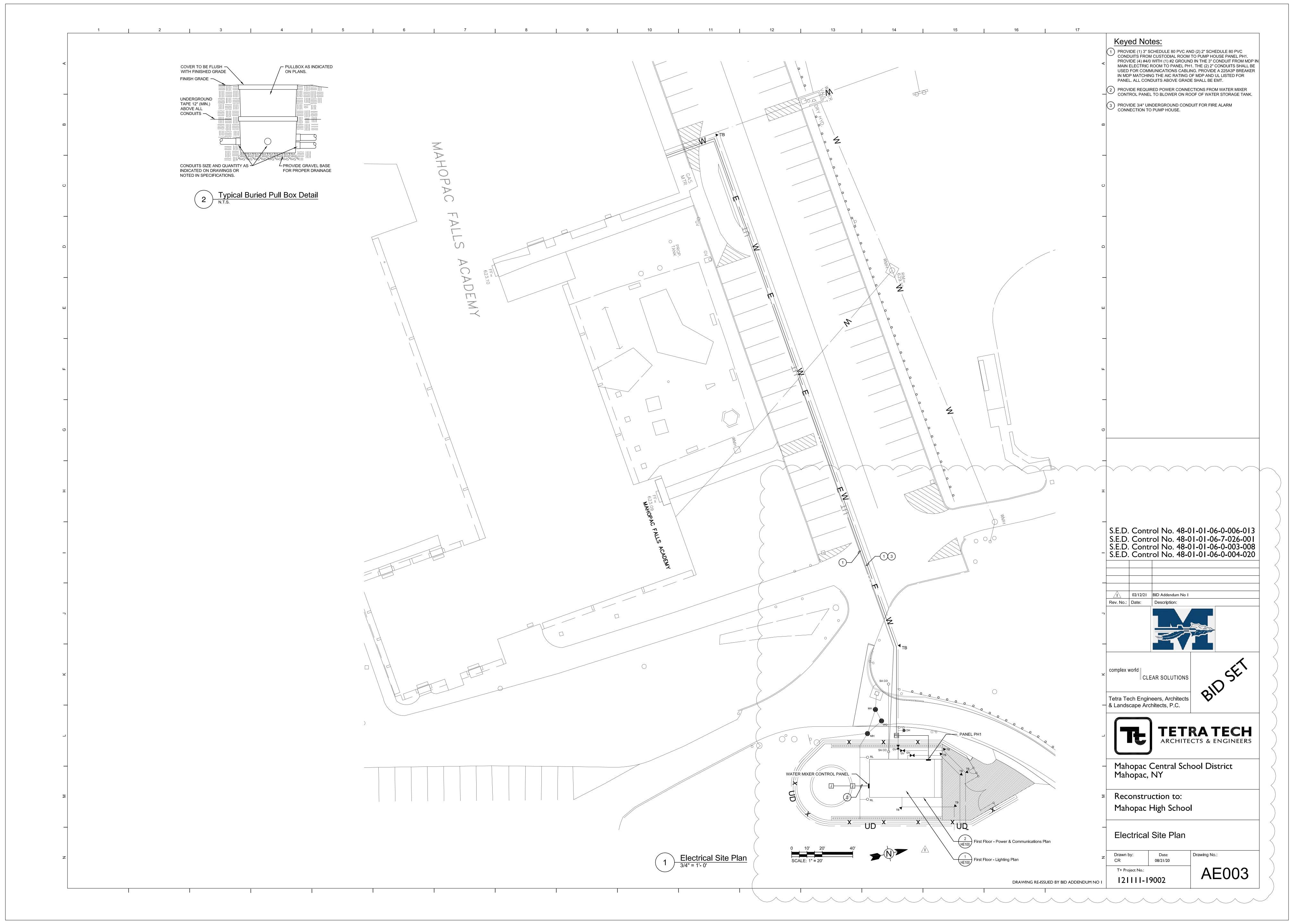
GLASS TYPE FC

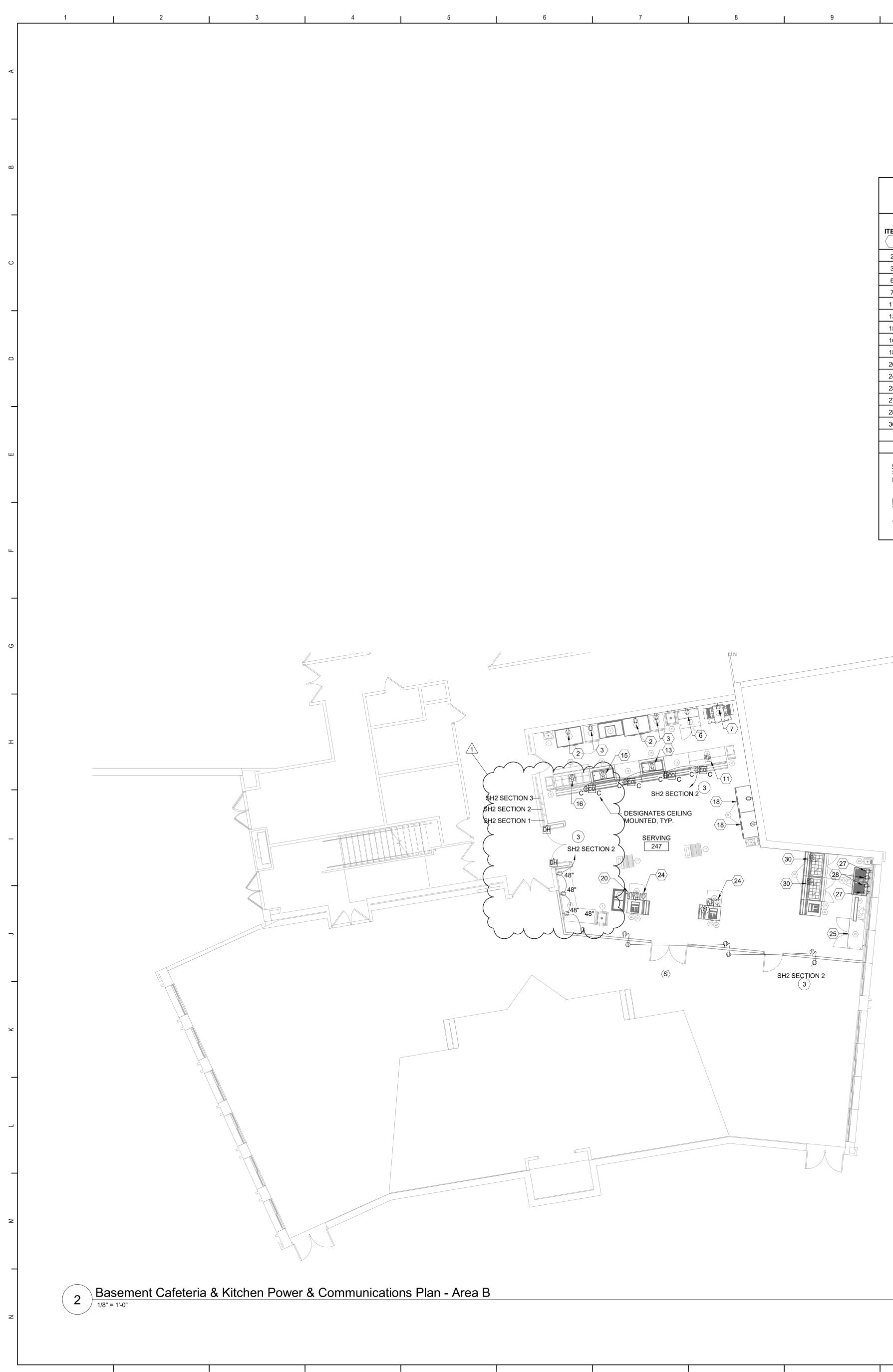




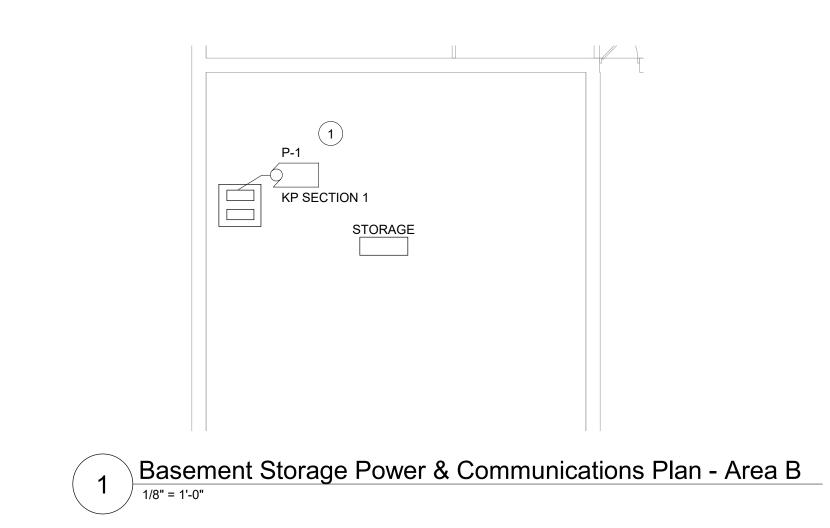
STOREFRONT TYPES







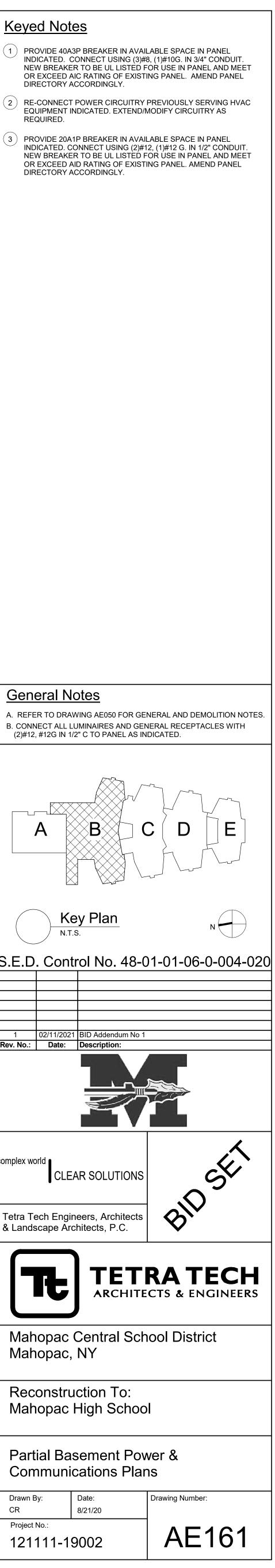
			Kľ	TCHEN EQ	UIPMENT SCHE	DULE			
	DESCRIPTION	LOAD (WATTS)	VOLTS /PHASE	PANEL	WIRE & CONDUIT	CONN .TYPE **	CONN LOC. **	CONN HGT. **	REMARKS
2	REACH-IN REFRIGERATOR	6.9A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	80"	1, 6
3	HEATED CABINET	17.5A	120V1PH	SH2 SECTION 2	(2)#10, (1)#10 G., 3/4" C.	DR	WALL	12"	2, 7
6	PIZZA PREP UNIT	6.7A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	12"	1, 6
7	PIZZA OVEN	40A	208V3PH	SH2 SECTION 2	(3)#6 (1)#6 G., 1" C.	SR	WALL	36"	3, 9
11	PIZZA COUNTER	5.4A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
13	SALAD COUNTER	6.3A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
15	COLD FOOD COUNTER	6.3A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
16	HOT FOOD COUNTER	24A	208V1PH	SH2 SECTION 2	(2)#10, (1)#10 G., 3/4" C.	SR	FLOOR		4, 5, 8
18	GRAB-N-GO REFRIGERATOR	12A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	12"	1, 6
20	ICE CREAM FREEZER	3.5A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
24	OPEN AIR MILK COOLER	12A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
25	WORKTOP REFRIGERATOR	2.46A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	12"	1, 6
27	PANINI GRILL	15A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	48"	1, 6
28	VENTILATION UNIT	5.5A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	WALL	48"	1, 6
30	SANDWICH UNIT	4.5A	120V1PH	SH2 SECTION 2	(2)#12, (1)#12 G., 1/2" C.	DR	FLOOR		1, 5, 6
SR - DR - NOT * C(NE ** C(NECTOR TYPE SINGLE OUTLET DOUBLE OUTLET ONTRACTOR SHALL PROVIDE A EUTRAL TO EVERY CONNECTION DNNECTION TO BE COORDINATED WITH JBMITTED AND APPROVED EQUIPMENT	 2. RECEPTA 3. RECEPTA 4. RECEPTA 5. PROVIDE 6. PROVIDE 7. PROVIDE 8. PROVIDE 	ACLE TO BE ACLE TO BE ACLE TO BE HUBBELL S 20A1P BRE 30A1P BRE 30A2P BRE	AKER IN AVAILABLE S AKER IN AVAILABLE S	/PE BOX. SPACE IN PANEL INDICATED. SPACE IN PANEL INDICATED. SPACE IN PANEL INDICATED. SPACE IN PANEL INDICATED.	ALL C			ECEPTACLES ROTECTED.

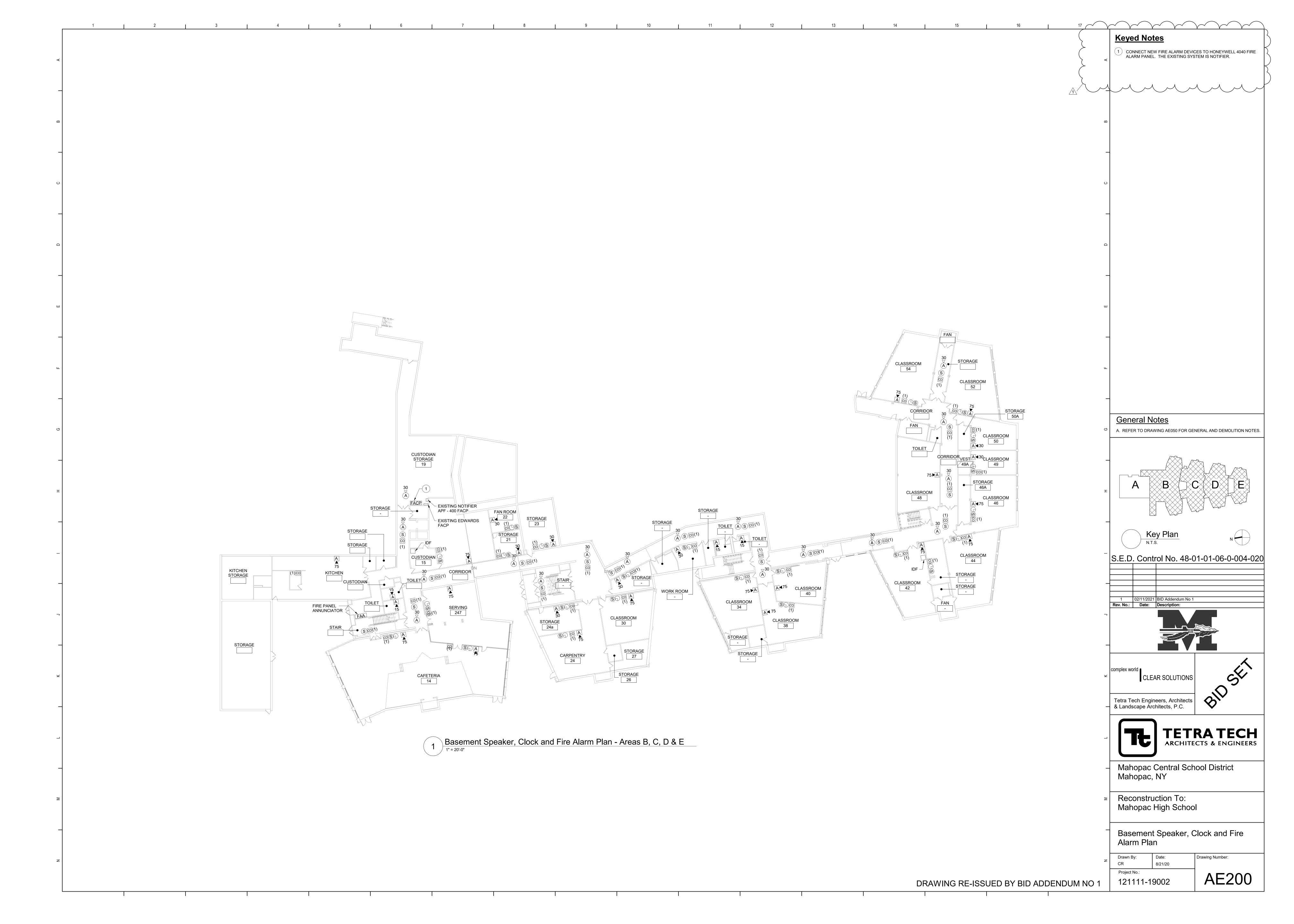


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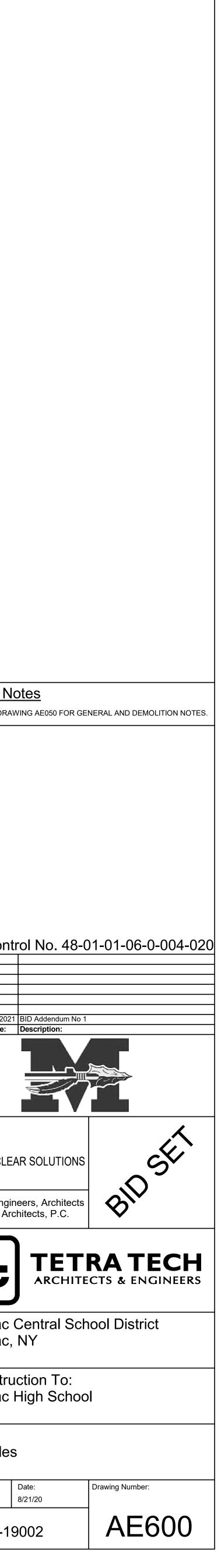
omplex world Tetra Tech Engineers, Architects & Landscape Architects, P.C.

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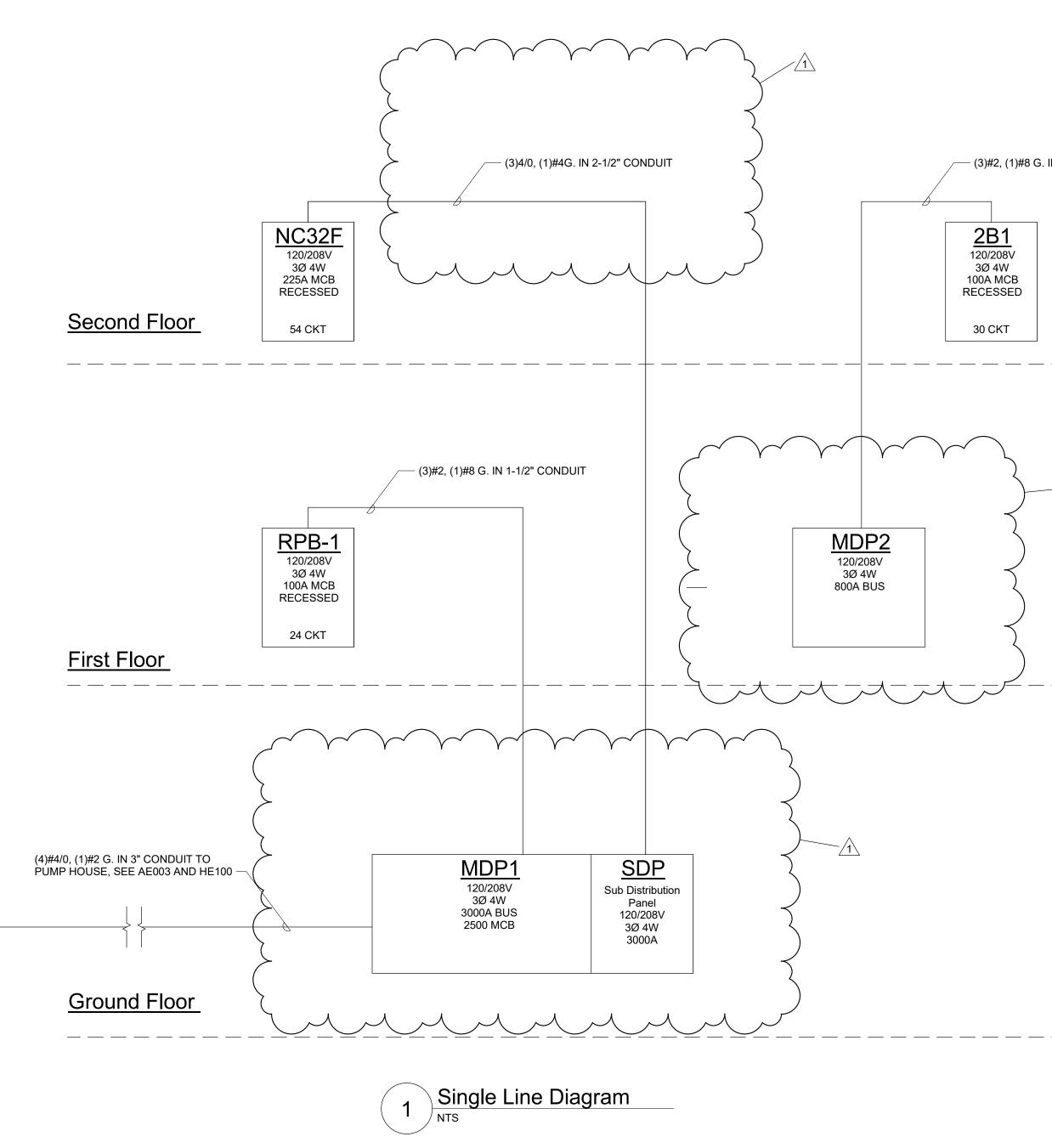




	IEL NAM			NUM OF	PLACEMEN NUM OF SPACES	TAGE / HASE	(A) IEL LUG ATING	IAIN CIRCUI BREAKER REQUIRED (RATING)	IEL AIC P15	P20 GFC	P50 P15 P20	:P30 :P50	:P100 :P15 :P20	P30	8P50	3P80 3P90 3P100	8P150 8P175 8P200	8P225 8P250	FP300 FP350 FP400	00024		TES
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(BP MDP1	Bas	ement Meter Ro	oom 131 Flo		d Switchboard 120		DA -	2500A	10K 65K						3	4	8		4	**PROVIDE (6	(6)30A 3P BRE/	AKERS
MDP2 AP			age 117 Surft	*ce 36		0/208/37 225	A 285A		YOK						\mathcal{V}	4		\bigvee			\mathcal{A}	
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