TETRA TECH
ARCHITECTS & ENGINEERS

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

Addendum

Mahopac Central School District
Mahopac, New York

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

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

Tt Project No. 121111-19002

BID Addendum No. 1
to
Drawings and Project Manual

February 12, 2021

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, ADD the following:

   "08 71 00 Door Hardware"

2. Division 9, ADD the following:

   "09 84 36 Sound Absorbing Ceiling Units"

3. Division 09 51 33 Acoustical Metal Pan and Panel Ceilings, AMEND 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. ADD 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 AMEND 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 AMEND 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. DELETE section in its entirety and, ADD new section attached to this addendum.

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

1. DELETE section in its entirety and, ADD 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., AMEND to read as follows:

   "C. Sound-Absorbing Wall Panel AWP1: . . ."

2. Paragraph 2.1, D., DELETE in its entirety.

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

1. Paragraph 2.5, D., 1., AMEND the following:

   "1. Semi-Flush Radius Lipped – Maple: . . ."

2. Paragraph 2.7,C, AMEND 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

ITEM 1-C-8: SECTION 28 31 11 - DIGITAL, ADDRESSABLE FIRE-ALARM AND VOICE NOTIFICATION SYSTEM

1. DELETE section in its entirety and, ADD new section attached to this addendum.

DRAWING MODIFICATIONS

ITEM 1-C-9: Refer to DRAWING G100

1. DELETE drawing in its entirety and, ADD 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, ADD Wall Type P21 tag.

ITEM 1-C-11: Refer to DRAWING AA160

1. Ceiling Types Legend, Ceiling Type A3, AMEND to read as follows:

   "METAL SLAT CEILING"

2. Ceiling Types Legend, Ceiling Type A5, AMEND to read as follows:

   "SOUND-ABSORBING CEILING UNITS – MUSIC SUITE"

3. Detail 4, AMEND the note to read as follows:

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

4. Detail 5, DELETE 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, ADD Detail 4/A750 keyed into this location.

ITEM 1-C-12: Refer to DRAWING AA161

1. Ceiling Types Legend, Ceiling Type A3, AMEND to read as follows:

   "METAL SLAT CEILING"

2. Ceiling Types Legend, Ceiling Type A5, AMEND to read as follows:

   "SOUND-ABSORBING CEILING UNITS – MUSIC SUITE"

ITEM 1-C-13: Refer to DRAWING AA600

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

DRAWING MODIFICATIONS - MECHANICAL

ITEM 1-C-14: Refer to DRAWING AM600

1. DELETE Air Handling Unit (AHU) Schedule in its entirety and, ADD Air Handling Unit (AHU) Schedule per Drawing AM01B attached to this addendum.

2. DELETE Fan (F) Schedule in its entirety and, ADD Fan (F) Schedule per Drawing AM10B attached to this addendum.

DRAWING MODIFICATIONS - ELECTRIC

ITEM 1-C-15: Refer to DRAWING AE003

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

ITEM 1-C-16: Refer to DRAWING AE161

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

ITEM 1-C-17: Refer to DRAWING AE200

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

ITEM 1-C-18: Refer to DRAWING AE600

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

ITEM 1-C-19: Refer to DRAWING AE700

1. DELETE drawing in its entirety and, ADD new drawing attached to this addendum.

END OF ADDENDUM

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM **EC-001**

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-002

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 be 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:** CREGA **Date:** 2/9/21

Refer to symbols and abbreviations, equipment connection.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-002

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 be shown as mounted on the wall in the pockets?
What is the square with the black dot in the floor to represent?

NO ANSWER TO DOOR HOLDER QUESTION

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 PANEL? Refer to forthcoming Bid Addendum No. 1

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-003

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: 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 PANEL?

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-007

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: 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:** CREGA **Date:** 2/9/21

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

IF YOU TURN TO AE002, THE SECOND DRAWING MARKED AE002, AT THE BOTTOM OF THE DRAWING (2) CIRCLE DETAIL DESIGNATIONS HAVE 1/HE161 AND 2/HE-161. WHERE IS THE DRAWING HE161?

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM **EC-003**

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: 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.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-004

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: All areas A-E

Drawing Number: AE 161, 163, 165, 200, 201, and 202
Plan Area:
Room Number:
Drawing Detail Number:
Specification Section:

Question: (Please be specific)

,

Where are th data racks, Public Address, and Clock headends located?
The drawing for the clock/speaker and F/A, shows a symbol for a computer outlet near most of the speakers in halls, and classrooms, is this an additional data besides what is needed for the IP speaker?

Review by Architect/Engineers: **Responded By:** CREGA **Date:** 2/9/21

REFER TO BID ADDENDUM NO 1

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-005

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: 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?

Review by Architect/Engineers: **Responded By:** CREGA **Date:** 2/9/21

REFER TO DRAWINGS AE601 FOR CIRCUIT DESIGNATION.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM EC-006

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: All areas A-E

Drawing Number: AE 200, 201, 202
Plan Area:
Room Number:
Drawing Detail Number:
Specification Section:

Question: (Please be specific)

With all the new notification/ signal devices shown, what is the intent for the existing devices? Removal, Abandoned, Blanked off? If removal, is there a count or drawing of existing devices? ,

---

Review by Architect/Engineers: **Responded By:** CREGA **Date:** 2/9/21

REFER TO SPECIFICATION SECTION 28 31 11.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM **EC-007**

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: 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:** CREGA **Date:** 2/9/21

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

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM **EC-008**

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: Electrical Panel Schedule

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 Basement, should this be SDP-1 as per AE 700?
You don't show SDP-2 on the schedule, yet on AE 700, you have a 3000 amp SDP2 off the side of an 800 amp MDP2. What is your intention for this? Are both SDP 1, and SDP 2 to be fed from respective MDP? How?

Panel BP on the schedule reads TBD, How do we price this, as a change order after signing contracts?

MDP 1 schedule has it 2000 amp rated, the one-line on AE 700 shows this as a 5000 amp rated with a 2500 amp Main Circuit Breaker. Which is correct?

What is the feeder size, cable and conduit, from SDP-1 to NC32F?

Review by Architect/Engineers: **Responded By:** CREGA **Date:** 2/9/21

REFER TO BID ADDENDUM NO 1

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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:
Room Number:
Drawing Detail Number:
Specification Section: 123213

Question: (Please be specific)

- Note 2.3.B of spec indicates White Maple, however 2.5.D.1 indicates Oak. Please clarify.
- 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:** Mhhunt **Date:** 2-10-21

Refer to upcoming addendum.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: 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:
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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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

Question Pertains to:

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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

Question Pertains to:

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

Question: (Please be specific)

Could you please direct me to the construction milestone schedule. Or if it is not currently in the spec's could you please provide it.

Review by Architect/Engineers: **Responded By:** LR/TPG **Date:** 02-12-202

RESPONSE : Milestone schedule is to be provided in this addendum.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: Steven Mgrdichian
Bidder Company Name: Pierotti Corp.
Bidder Phone: 914-233-9990
Bidder Email Address: stevem@pierotticorp.com

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

---

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

---

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: Steven Mgrdichian
Bidder Company Name: Pierotti Corp.
Bidder Phone: 914-233-9990
Bidder Email Address: stevem@pierotticorp.com

Question Pertains to:

Drawing Number: AA103/105/106
Plan Area: 1 / 1&2 / 1
Room Number: 249/143A/1-C2/242A/244A/2-C1/243A/2C-3/2-C6/2-C5/2-C3
Drawing Detail Number: AA940
Specification Section: 09 66 23

Question: (Please be specific)

1 . Alternate No. 3, deduct high school epoxy flooring - pleas confirm this is T1 areas noted on drawings.
2 . What will be the new finish as part of this deduct?
3. Please confirm T1 finish at patch areas to tie-in existing to new areas is not part of this alternate

---

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.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: 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 specific)

Please advise if new concrete slab a Pump House BLD is to receive a finish

Please advise if there is any painting required in the Pump House BLD

Review by Architect/Engineers: **Responded By:** mhh **Date:** 2-8-21

refer to drawing AA102 for room finish key for clarification.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: Steven Mgrdichian
Bidder Company Name: Pierotti Corp.
Bidder Phone: 914-233-9990
Bidder Email Address: stevem@pierotticorp.com

Question Pertains to:

Drawing Number: AA102/105/106
Plan Area: 1 & 2
Room Number: 111/113/115/242/243/244/235/238/239
Drawing Detail Number: N/A
Specification Section: 09 30 16 / 09 65 19

Question: (Please be specific)

Note under room finish key states QF is part of base bid and VCT is an alternate. There is no alternate for this work in the bid proposal section. Please advise

---

Review by Architect/Engineers: **Responded By:** mhh **Date:** 2-8-21

Refer to spec section 01 23 00

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: Steven Mgrdichian
Bidder Company Name: Pierotti Corp.
Bidder Phone: 914-233-9990
Bidder Email Address: stevem@pierotticorp.com

Question Pertains to:

Drawing Number: AA600
Plan Area: N/A
Room Number: Various
Drawing Detail Number: N/A
Specification Section: N/A

Question: (Please be specific)

General door notes, paragraph M states to provide window treatments at sidelights. Please advise what this is and referenced specification section

---

Review by Architect/Engineers: **Responded By:** mhh **Date:** 2-8-21

refer to upcoming addendum for clarification.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: Steven Mgrdichian
Bidder Company Name: Pierotti Corp.
Bidder Phone: 914-233-9990
Bidder Email Address: stevem@pierotticorp.com

Question Pertains to:

Drawing Number: AA103 / AA601 / AA700
Plan Area: 3,4,7,5 / 12 / 6
Room Number: Various
Drawing Detail Number: N/A
Specification Section: N/A

Question: (Please be specific)

Please advise who is responsible for all solid surface sills

Review by Architect/Engineers: **Responded By:** mhh **Date:** 2-8-21

refer to spec section 12 32 13

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: John Neal
Bidder Company Name: Renu
Bidder Phone: 732-306-0459
Bidder Email Address: jneal@rmny.com

Question Pertains to:

Drawing Number: AA160
Plan Area: Band Ceiling
Room Number:
Drawing Detail Number:
Specification Section: 09 51 33 2.4

Question: (Please be specific)

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

Review by Architect/Engineers:

This will be clarified in
Bid Addendum #1

Responded By: _____ **Date:** _____
Timothy 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: John Neal
Bidder Company Name: Renu
Bidder Phone: 732-306-0459
Bidder Email Address: jneal@rmny.com

Question Pertains to:

Drawing Number: AA160
Plan Area: Detail 4
Room Number: Main Entrance
Drawing Detail Number:
Specification Section:

Question: (Please be specific)

1. Note on 4/AA160 for modifying the ceiling as required- what type of ceiling is there?
2. 5/AA160, at the top of the detail, the top room it calls out for detail 17/AA750 which is axiom trim.... Where is this being utilized in the rooms?
3. 5/AA160, at the new A1 ceiling type that hits into the Corridor 1-C2.... What is happening at this transition between the (2) ceilings?
4. Sheet 1/AA103- Band #143, behind the percussion cabinetry- does it get partition type P21?
5. 2/AA103 at Lay Down Room #105- figure blocking on the north wall for the cabinetry- in existing walls? Same for room #106 on that detail
6. 1/AA105 room #2-C7 the details 6/AA106 on the west wall—you want us to figure blocking in the wall?
7. Sound Absorb Wall Panels- figuring you supply we would install.
8. HS= deck heights of floors?
9. MS= deck height?
10. Schedule? Summer 2021 work- start & complete?

Review by Architect/Engineers: **Responded By:** _____ **Date:** _____

Timothy Stevens 2/9/21

1 - will be addressed in Bid Addendum #1
2 - will be clarified in Bid Addendum #1
3 - will be clarified in Bid Addendum #1
4 - will be clarified in Bid Addendum #1
5 - refer to spec 123213 for fastening requirements
6 - refer to spec 123213 for fastening requirements, detail 6/AA106 refers to a base outlet detail which in itself requires blocking
7 - refer to spec 098433 and Bid Addendum #1 forthcoming
8 + 9 - please identify which areas you need this for and the purpose for this information. Existing owner drawings identify this information which we will use to answer this question but field verification by contractors will still be required for confirmation.
10 - will be issued in Bid Addendum #1

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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)

There are 2 AE002 drawings. On the second one, note 2 says to provide connections for water tank. Please advise what size conduits and wires are required. Also, note 3 is not show on the drawing, is it required.

Review by Architect/Engineers: **Responded By:** CRega **Date:** 02/21/2021

Refer to forthcoming Bid Addendum #1.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: AE202
Plan Area:
Room Number:
Drawing Detail Number:
Specification Section:

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: 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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: AE700
Plan Area:
Room Number:
Drawing Detail Number:
Specification Section:

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.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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:
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.

Review by Architect/Engineers: **Responded By:** CRega **Date:** 02/11/21

Refer to forthcoming Bid Addendum #1.

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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: 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 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

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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: 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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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

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 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.

TETRA TECH
ARCHITECTS & ENGINEERS

INSTRUCTIONS TO BIDDERS
ATTACHMENT #1:
PRE-BID REQUEST FOR INTERPRETATION FORM

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:** CEG **Date:** 02/12/2021

Refer to forthcoming Bid Addendum #1.

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.

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 Virtual Public Bid Opening.*

   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 "**Sealed Bid**", "**Reconstruction to Mahopac High School, Mahopac Middle 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	$ 3,100,000
Contract 2: PLUMBING CONSTRUCTION	$ 950,000
Contract 3: MECHANICAL CONSTRUCTION	$ 1,900,000
Contract 4: ELECTRICAL CONSTRUCTION	$ 1,600,000
Contract 5: HAZARDOUS MATERIAL	$ 300,000
Contract 6: CASEWORK / LAB EQUIPMENT	$ 800,000
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	

the Palombo Group

TETRA TECH

NAME	COMPANY	PHONE	EMAIL
Tyler Doyle	Richards Corporation	860-921-1654	tdoyle@richardscorp.com dczapor@richardscorp.com
Joseph Piazza	Piazza Inc	914-830-1344	jd@Piazzabrothers.com
Jordan Ely	Argenio Bros.	845-561-5102	Jordan@Premiercshv.com
Tom Mawe	HVS Electric	845 429-3300	Angie@HVSLLCNYC.com
Mike Cunningham	Nickerson Corp	631-539-[illegible]1341	mcunningham@nickersoncorp.com
John Stanforth	Spearhead	805-816-7496	john@Spearheadcx.com
Brendan Ford	Landvscape	914-391-5199	office@nick[illegible]iggs.com
Erich Haefner	ELC Industries	914 654-1040	Tsilva@elgindustries.com

NAME	COMPANY	PHONE	EMAIL
Frank Toto	OCS Industries	845 - 479 - 2480	Ftoto@ocsindustries.com
Angelo Lugliese	SPLATTech	914-232-1640	angelo@splattech.com
Daniel Strong	Strong Grounding	856-279-3072	stronggrounding@gmail.com
B. VERICKY	UNITED SAFETY LLC	8622648053	BOBV@UNITEDSAFETYNJ.com
S Vieira	Landscape Unlimited	9142375623	MZLUI3@gmail.c
MARCIN ONCHARSKI	NIRAM INC	973-299-4455	CTKIM@NIRAM.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	

the Palombo Group

TETRA TECH

NAME	COMPANY	PHONE	EMAIL
Geoff Ardolino	Brennan Construction	914 299 7627	gardolino@brennanconstruction.com
Steve Kuprat	Rain For Rent	908 670 5967	SKuprat@RainForRent.com
Bruce Powell	Rain For Rent	908 692 0758	BPOWELL@RainForRent.com
MATT DeROSA	DeROSA Sports Const.	914-341-1506	John@DeRosaSports.com
John Massa	Midlantic Environmental	315-798-8026	Jmassa19@gmail.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	

the Palombo Group   TETRA TECH

NAME	COMPANY	PHONE	EMAIL
Steve Moroitchian	Pierotti Corp.	914-233-9990	stevem@pierotticorp.com
Frank Grange	Darund Assoc.	845 223-5115	f.grange@casi-ny.com
Jim Sass III	Sass Electric	845-849-4937	Jimsass3@JJsass.com
Tony Ramirez	Paladino Concrete Creations	914 699 0907	Tony@Pcccorpny.com
Michael Cunningham	Nickerson Corp	631-539-1341	mcunningham@nickersoncorp.com
Jose A Ramirez	Paladino Concrete	914 699 0907	Jose@PCCCORPNY.com
Augustine Uwagboe	Plains Environment	646 456 8730	Uplains2006@Yahoo.
Marvin Erbo	Plains Environment	646 228 1248	PaintYourWorldLLc@gmail.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	

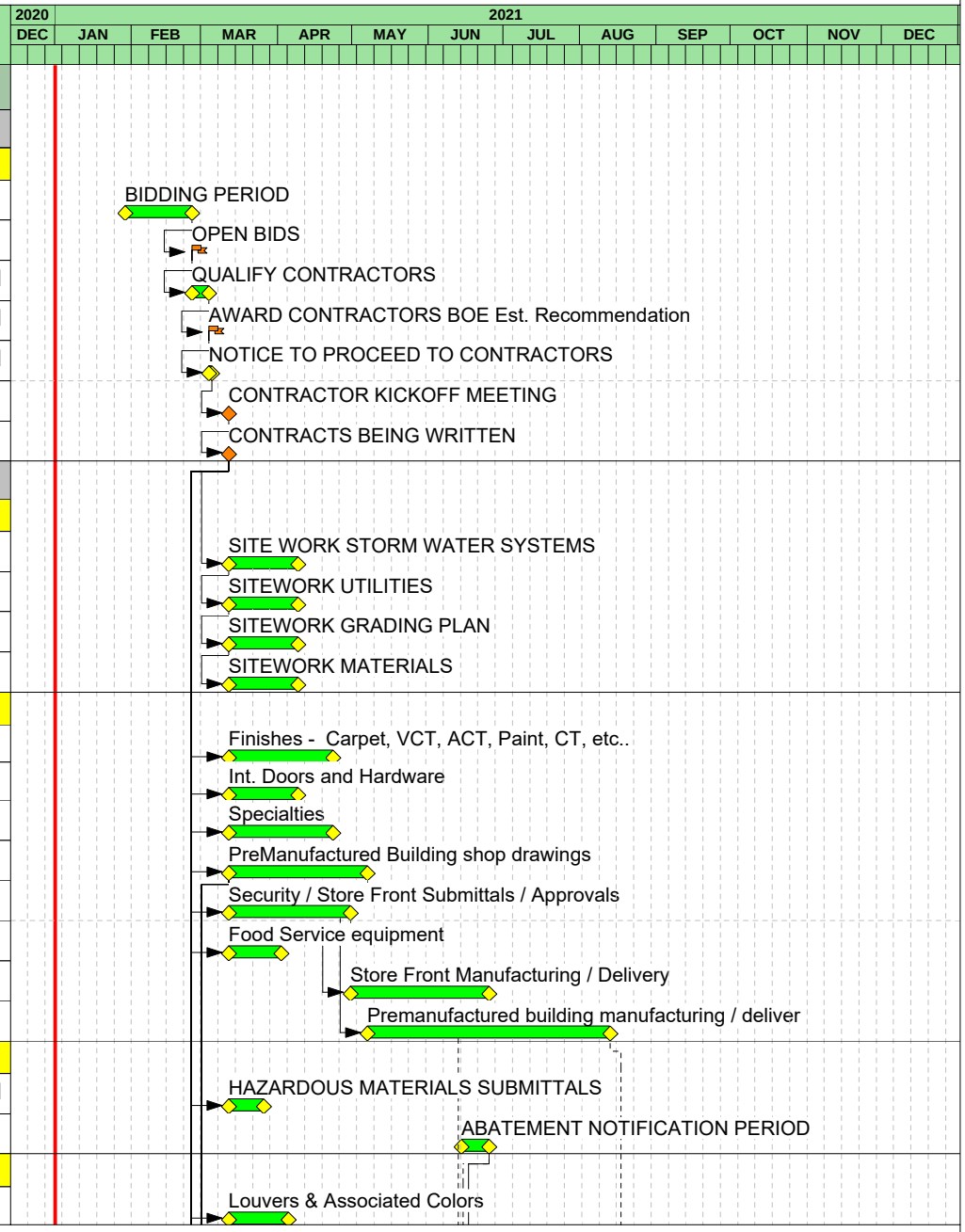
the Palombo Group

TETRA TECH

NAME	COMPANY	PHONE	EMAIL
Chris Colandrea	Northbrook Contracting	914-879-6099	northbrookchris@yahoo.com
Rick Recine	Northbrook	845 661 3894	RickR@northbrookcontracting.co
DARKO NOVKOVIĆ	Neo Planta rest.	518-406-5345	Lnovković pnycap.rr.com
ADEE DUBRAY	WD EXCAVATION	914-271-5726	WDEXCAVATION@gmail.com
ADAM HORTON	TURCO GOLF INC	201-373-2385	A'HORTON @ GRASSKEEPER.NET
DJ SADOWSKI	MEYER CONTRACTING	(845) 635-1416	ESTIMATING @ MEYERCONTRACTING.COM
Thomas Gleason	Meyer Contracting		Estimating@meyercontracting.co

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description	Original Duration	Early Start	Early Finish
PRECONSTRUCTION - PRIMARY SUBMITTALS				
DISTRICT				
BID / CONTRACT AWARD				
0020	BIDDING PERIOD	19d	29JAN21	25FEB21
0030	OPEN BIDS	0		25FEB21
0040	QUALIFY CONTRACTORS	5d	25FEB21	04MAR21
0050	AWARD CONTRACTORS BOE Est. Recommendation	0		04MAR21
0060	NOTICE TO PROCEED TO CONTRACTORS	1d	04MAR21	05MAR21
0070	CONTRACTOR KICKOFF MEETING	0	12MAR21	
0080	CONTRACTS BEING WRITTEN	0	12MAR21	
SUBMITTALS - ALL SCHOOLS				
SITEWORK & AMENITIES				
1000	SITE WORK STORM WATER SYSTEMS	20d	12MAR21	09APR21
1005	SITEWORK UTILITIES	20d	12MAR21	09APR21
1010	SITEWORK GRADING PLAN	20d	12MAR21	09APR21
1015	SITEWORK MATERIALS	20d	12MAR21	09APR21
GENERAL WORK - Double Shifts During the Summer				
1020	Finishes - Carpet, VCT, ACT, Paint, CT, etc..	30d	12MAR21	23APR21
1025	Int. Doors and Hardware	20d	12MAR21	09APR21
1030	Specialties	30d	12MAR21	23APR21
1035	PreManufactured Building shop drawings	40d	12MAR21	07MAY21
1040	Security / Store Front Submittals / Approvals	35d	12MAR21	30APR21
1045	Food Service equipment	15d	12MAR21	02APR21
1055	Store Front Manufacturing / Delivery	40d	30APR21	25JUN21
1050	Premanufactured building manufacturing / deliver	70d	07MAY21	13AUG21
HAZMAT WORK - Double Shifts During the Summer				
1060	HAZARDOUS MATERIALS SUBMITTALS	10d	12MAR21	26MAR21
1065	ABATEMENT NOTIFICATION PERIOD	10d	14JUN21	25JUN21
HVAC WORK - Double Shifts During the Summer				
1070	Louvers & Associated Colors	16d	12MAR21	05APR21



Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	1A

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description	Original Duration	Early Start	Early Finish
1075	UV's, RTU's, Condensing Units, and AHU's	25d	12MAR21	16APR21
1080	Ductwork Shop Drawings	25d	12MAR21	16APR21
1085	Hot water supply and Return Shops Drawings	25d	12MAR21	16APR21
1090	PUMPHOUSE ASSOCIATED SUBMITTALS	25d	12MAR21	16APR21
PLUMBING WORK - Double Shifts During the Summer				
1095	Plumbing Piping & Fixtures	25d	12MAR21	16APR21
1100	PUMPHOUSE WATER SERVICE ASSOCIATED	25d	12MAR21	16APR21
ELECTRICAL WORK - Double Shift During the Summer				
1105	Fire Alarm / PA / Intercom / Clocks	20d	12MAR21	09APR21
1110	Lighting Fixtures	20d	12MAR21	09APR21
1115	Electrical Panels	20d	12MAR21	09APR21
1120	PUMPHOUSE ASSOCIATED SUBMITTALS	25d	12MAR21	16APR21
1125	Score Board	20d	12MAR21	09APR21
CASEWORK				
1130	Manufactured Casework submittal / approval	35d	12MAR21	30APR21
1135	Casework manufactured / delivered - Phase 1	60d	30APR21	23JUL21
1140	Casework manufactured a/ delivered - Phase 2	60d	25JUN21	17SEP21
CONST. WORK PERIOD - 6/26/2021 to 9/3/2021				
MAHOPAC HIGH SCHOOL				
SITEWORK & AMENITIES				
2000	MOBILIZE	5d	03MAY21	07MAY21
2010	Demolition / Site Containment	10d	10MAY21	21MAY21
2020	Site Erosion Control	80d	17MAY21	03SEP21
2030	Storm Water - Retention Pond	25d	17MAY21	18JUN21
2040	Site Clearing / Grading / Storm / Stone Base	45d	07JUN21	06AUG21
2050	Run New Water Service Lines	30d	19JUL21	27AUG21
2060	Well work	30d	19JUL21	27AUG21
2070	Support utility Installs for Field and Pumphouse	20d	19JUL21	13AUG21
2080	Pump House Retaining wall / Pad Establishment	20d	19JUL21	13AUG21
2090	Field Installation including events	25d	02AUG21	03SEP21

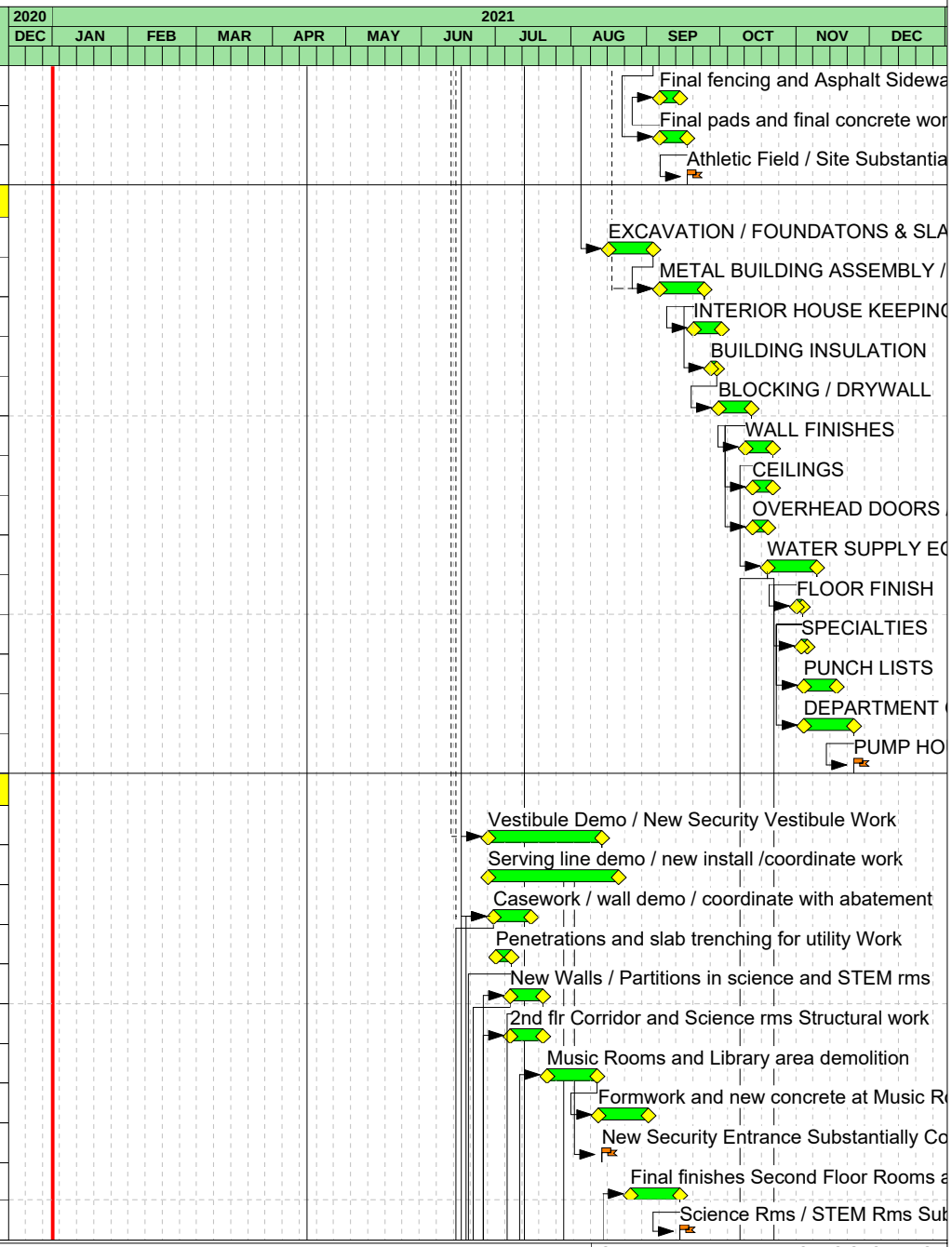
Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	2A

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description	Original Duration	Early Start	Early Finish
2100	Final fencing and Asphalt Sidewalks	7d	06SEP21	14SEP21
2110	Final pads and final concrete work	10d	06SEP21	17SEP21
2120	Athletic Field / Site Substantially Complete	0		17SEP21
GENERAL WORK - PUMP HOUSE				
3000	EXCAVATION / FOUNDATONS & SLAB	15d	16AUG21	03SEP21
3010	METAL BUILDING ASSEMBLY / INTERIOR	15d	06SEP21	24SEP21
3020	INTERIOR HOUSE KEEPING PADS	10d	20SEP21	01OCT21
3030	BUILDING INSULATION	3d	27SEP21	29SEP21
3040	BLOCKING / DRYWALL	10d	30SEP21	13OCT21
3050	WALL FINISHES	10d	11OCT21	22OCT21
3060	CEILINGS	7d	14OCT21	22OCT21
3070	OVERHEAD DOORS / DOORS	5d	14OCT21	20OCT21
3080	WATER SUPPLY EQUIPMENT INSTALLATION	15d	20OCT21	09NOV21
3090	FLOOR FINISH	3d	01NOV21	03NOV21
3100	SPECIALTIES	3d	03NOV21	05NOV21
3110	PUNCH LISTS	10d	04NOV21	17NOV21
3120	DEPARTMENT OF HEALTH APPROVALS	15d	04NOV21	24NOV21
3130	PUMP HOUSE SUBSTANTIALLY COMPLETE	0		24NOV21
GENERAL WORK - Double Shifts During the Summer				
5000	Vestibule Demo / New Security Vestibule Work	35d	28JUN21	13AUG21
5010	Serving line demo / new install /coordinate work	40d	28JUN21	20AUG21
5020	Casework / wall demo / coordinate with abatement	12d	30JUN21	15JUL21
5030	Penetrations and slab trenching for utility Work	5d	01JUL21	07JUL21
5040	New Walls / Partitions in science and STEM rms	10d	07JUL21	20JUL21
5050	2nd flr Corridor and Science rms Structural work	10d	07JUL21	20JUL21
5060	Music Rooms and Library area demolition	15d	22JUL21	11AUG21
5070	Formwork and new concrete at Music Rooms	15d	12AUG21	01SEP21
5080	New Security Entrance Substantially Complete	0		13AUG21
5090	Final finishes Second Floor Rooms and STEM	15d	25AUG21	14SEP21
5100	Science Rms / STEM Rms Substantially Complete	0		14SEP21



Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	3A

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description	Original Duration	Early Start	Early Finish
HAZMAT WORK - Double Shifts During the Summer				
4000	Asbestos work rms 111 through 115	5d	28JUN21	02JUL21
4010	Prep/ Demo/Abate areas 235,239,243,238, C1,C2,C3	7d	28JUN21	06JUL21
4020	Roofing Asbestos Abatement / coordinate with MC	10d	28JUN21	09JUL21
4030	Abatement rms 211, 213, 227, 229	4d	05JUL21	08JUL21
4040	Abatement rms 127, 129, 137, 139	4d	05JUL21	08JUL21
4050	Prep/Demo/Abate areas 142, 143, 143A, 1-C2, 1-C3	7d	05JUL21	13JUL21
4060	Insulation Abatement at Bus Garage	5d	05JUL21	09JUL21
4070	Abatement rms 210, 212, 226, 228	4d	09JUL21	14JUL21
4080	Abatement rms 110, 112, 126, 128, 136	5d	09JUL21	15JUL21
4090	Abatement areas 223, 2-C4, 2-C5, 2C6	5d	15JUL21	21JUL21
4100	Abate rms 106, 19A, Kitchen Storage	4d	16JUL21	21JUL21
HVAC WORK - Double Shifts During the Summer				
6030	RTU's and Condensing Unit Replacements on Roof	40d	28JUN21	20AUG21
6040	Bus Garage Vehicle Exhaust and Unit Heaters	15d	12JUL21	30JUL21
6050	All required ductwork and equipment removals	10d	16JUL21	29JUL21
6060	UV/ Ductwork Installation on Gound & First Floor	15d	21JUL21	10AUG21
6070	UV/Ductwork Installation Rooms on Second Floor	15d	11AUG21	31AUG21
6080	Balancing for all rooms being brought on line	5d	30AUG21	03SEP21
6090	HVAC Work / Science / STEM Rm Substant. Complete	0		03SEP21
6100	HVAC Installation work at the Pump House	10d	03NOV21	16NOV21
PLUMBING WORK - Double Shifts During the Summer				
6000	All required disconnects for demo to occur	5d	30JUN21	06JUL21
6010	In slab plumbing rough in work	10d	05JUL21	16JUL21
6015	Plumbing roughin work Science and STEM	10d	07JUL21	20JUL21
6020	Plumbng Finish Work Science and STEM	10d	28JUL21	10AUG21
6025	Plumbing Installation work at Pump House	15d	20OCT21	09NOV21
ELECTRICAL WORK - Double Shift During the Summer				
6110	Install new Clocks / PA / FA	83d	30APR21	25AUG21
6120	New Sub-Panels and Sub-Panel Upgrades	25d	25JUN21	29JUL21

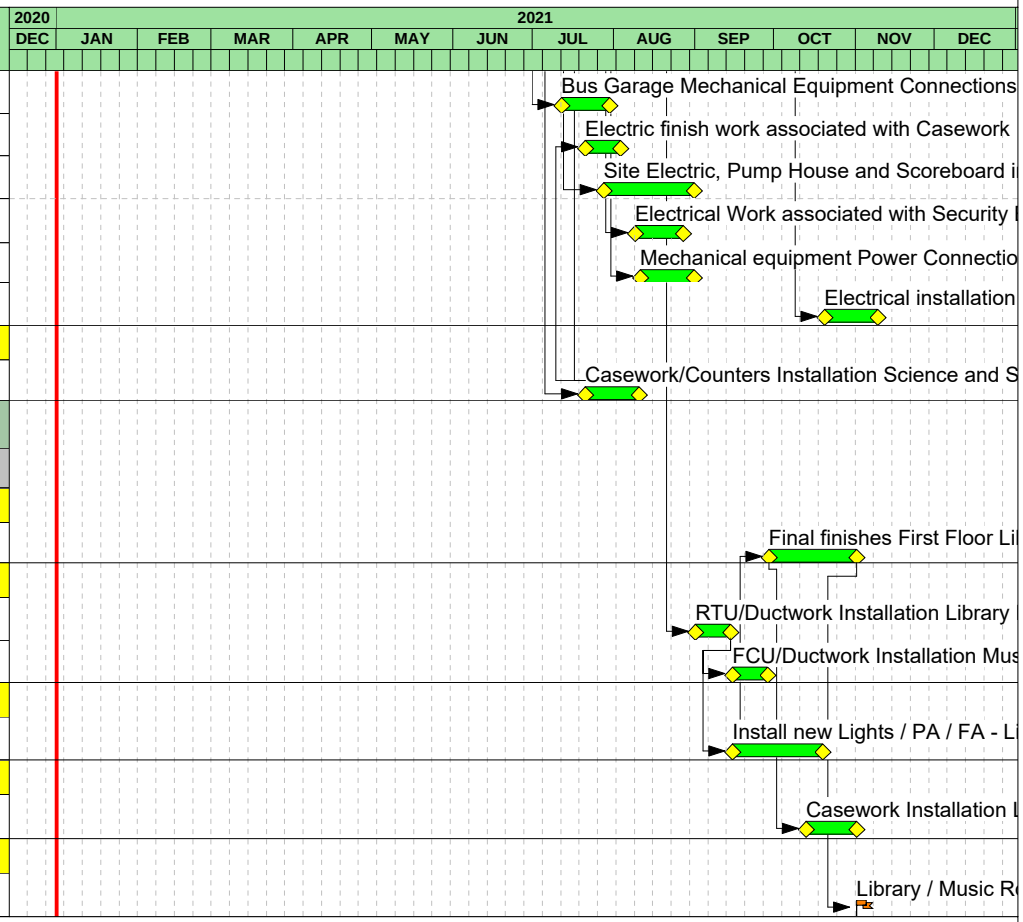
Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	4A

MAHOPAC PHASE 1 RENOVATIONS

Activity ID	Description	Original Duration	Early Start	Early Finish
6130	Bus Garage Mechanical Equipment Connections	15d	12JUL21	30JUL21
6140	Electric finish work associated with Casework	10d	21JUL21	03AUG21
6150	Site Electric, Pump House and Scoreboard install	25d	28JUL21	31AUG21
6160	Electrical Work associated with Security Entranc	15d	09AUG21	27AUG21
6170	Mechanical equipment Power Connections	15d	11AUG21	31AUG21
6180	Electrical installation work at the Pump House	15d	20OCT21	09NOV21
CASEWORK - Double shifts AS NEEDED				
7000	Casework/Counters Installation Science and STEM	15d	21JUL21	10AUG21
WORK PERIOD - 9/3/2021 to 10/29/2021 2nd SHIFT				
MAHOPAC HIGH SCHOOL				
GENERAL WORK - Double Shifts During the Summer				
5130	Final finishes First Floor Library and Music Rms	24d	29SEP21	01NOV21
HVAC WORK - Double Shifts During the Summer				
6190	RTU/Ductwork Installation Library RM 223	10d	01SEP21	14SEP21
6200	FCU/Ductwork Installation Music RMS 142, 143	10d	15SEP21	28SEP21
ELECTRICAL WORK - Double Shift During the Summer				
6210	Install new Lights / PA / FA - Library / Music	25d	15SEP21	19OCT21
CASEWORK - Double shifts AS NEEDED				
7010	Casework Installation Library and Music Rooms	14d	13OCT21	01NOV21
MOVE OUT				
9000	Library / Music Rooms Substantial Completion	0		01NOV21



Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

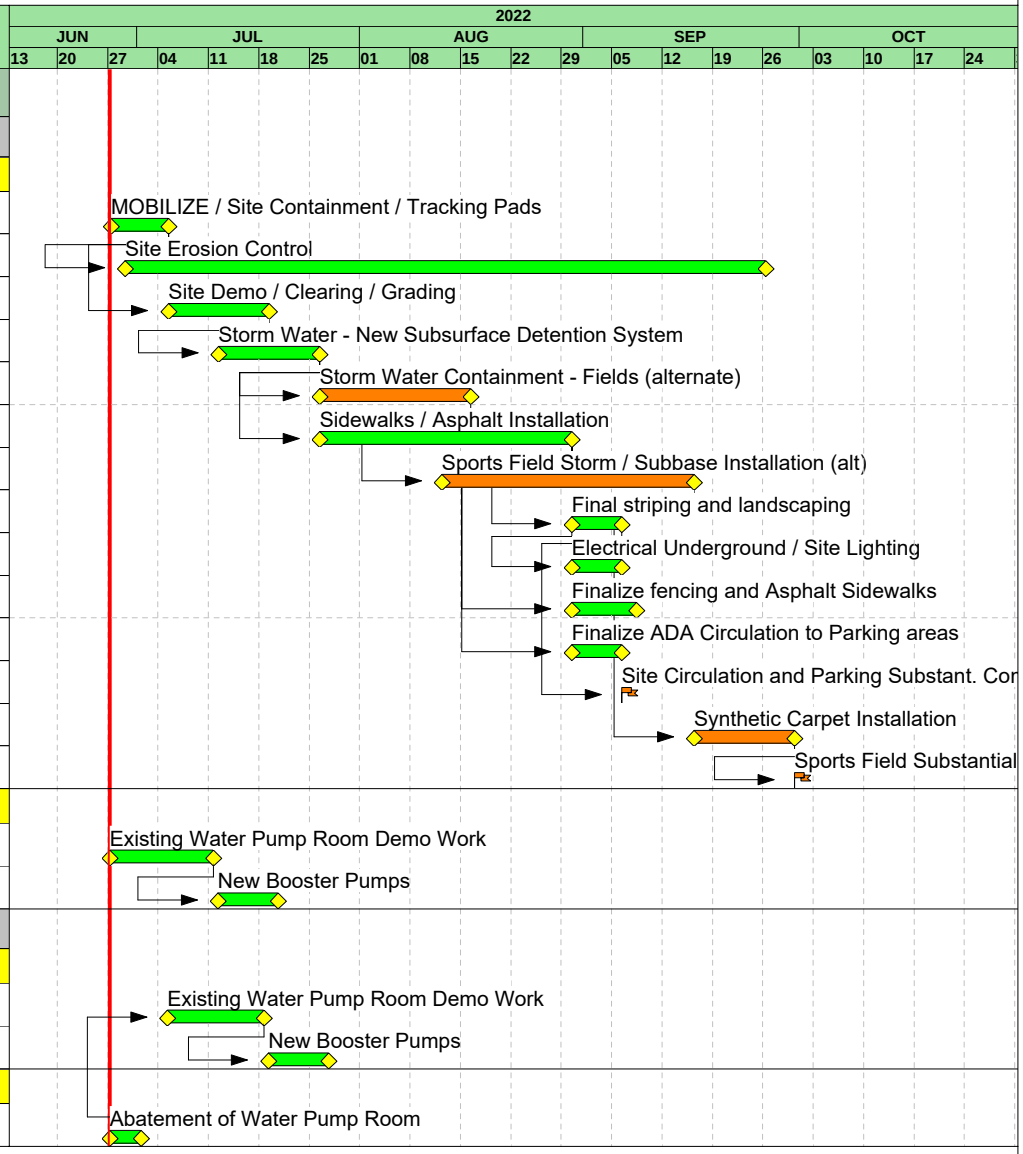
MILESTONE CONSTRUCTION SCHEDULE - PHASE 1 SUMMER / FALL 2021

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	01JAN21
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	5A

MAHOPAC PHASE 1 RENOVATIONS

WORK PERIOD - 6/27/2022 to 9/30/22

Activity ID	Description	Original Duration	Early Start	Early Finish
MAHOPAC MIDDLE SCHOOL				
SITEWORK & AMENITIES				
9100	MOBILIZE / Site Containment / Tracking Pads	5d	27JUN22	05JUL22
9110	Site Erosion Control	62d	29JUN22	26SEP22
9150	Site Demo / Clearing / Grading	10d	05JUL22	19JUL22
9450	Storm Water - New Subsurface Detention System	10d	12JUL22	26JUL22
9550	Storm Water Containment - Fields (alternate)	15d	26JUL22	16AUG22
9700	Sidewalks / Asphalt Installation	25d	26JUL22	30AUG22
9800	Sports Field Storm / Subbase Installation (alt)	25d	12AUG22	16SEP22
9600	Final striping and landscaping	5d	30AUG22	06SEP22
9650	Electrical Underground / Site Lighting	5d	30AUG22	06SEP22
9900	Finalize fencing and Asphalt Sidewalks	7d	30AUG22	08SEP22
9950	Finalize ADA Circulation to Parking areas	5d	30AUG22	06SEP22
9605	Site Circulation and Parking Substant. Complete	0		06SEP22
9805	Synthetic Carpet Installation	10d	16SEP22	30SEP22
9810	Sports Field Substantially Complete	0		30SEP22
PLUMBING WORK - Double Shifts During the Summer				
5110	Existing Water Pump Room Demo Work	10d	27JUN22	11JUL22
5115	New Booster Pumps	7d	12JUL22	20JUL22
FALLS ELEMENTARY SCHOOL				
PLUMBING WORK - Double Shifts During the Summer				
5120	Existing Water Pump Room Demo Work	10d	05JUL22	18JUL22
5125	New Booster Pumps	7d	19JUL22	27JUL22
HAZMAT WORK				
4110	Abatement of Water Pump Room	5d	27JUN22	01JUL22



Early start point
Early finish point
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

MILESTONE CONSTRUCTION SCHEDULE - PHASE1 SUMMER 2022

Company name	THE PALOMBO GROUP INC.
Run date	10FEB21
Data date	27JUN22
Number/Version	Rev.0
Project name	Mahopac Phase 1...
Page number	1A

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 cut-outs.

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, hold-open 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:

1. MK - McKinney
2. MR - Markar
3. PE - Pemko
4. RO - Rockwood
5. SA - SARGENT
6. AD - Adams Rite
7. HS - HES
8. RF - Rixson
9. SU - Securitron
10. 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

Set: 4.0
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

1	Astragal (adhesive, edge mount)	S771C		PE

Set: 5.0
Description: Band; Choral; Library; Serving

3	Hinge (heavy weight)	T4A3786 (qty, size, nrp per spec)	US26D	MK
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	Head & Jamb Seal (adhesive)	S88BL		PE
1	Auto Dr Bott (concealed)	434ARL x ACP112BL		PE

Set: 6.0
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.

Set: 8.0
Description: Alum Library

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
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

1	Continuous Hinge	CFM-HD1 Series		PE
1	Dormitory Lock SA	72 10G54 LL x Red Button SPAR02898		US26D
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 SPAR02898	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: 11.0
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 SPAR02898	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 weight)	T4A3786 (qty, size, nrp per spec)	US26D	MK
1	Dormitory Lock	72 10G54 LL x Red Button SPAR02898	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

Set: 13.0
Description: Study Pod

1	Hardware	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)	MS1850S 5	628	AD

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, wet-work 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 fire-alarm/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 alarm-initiating 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.

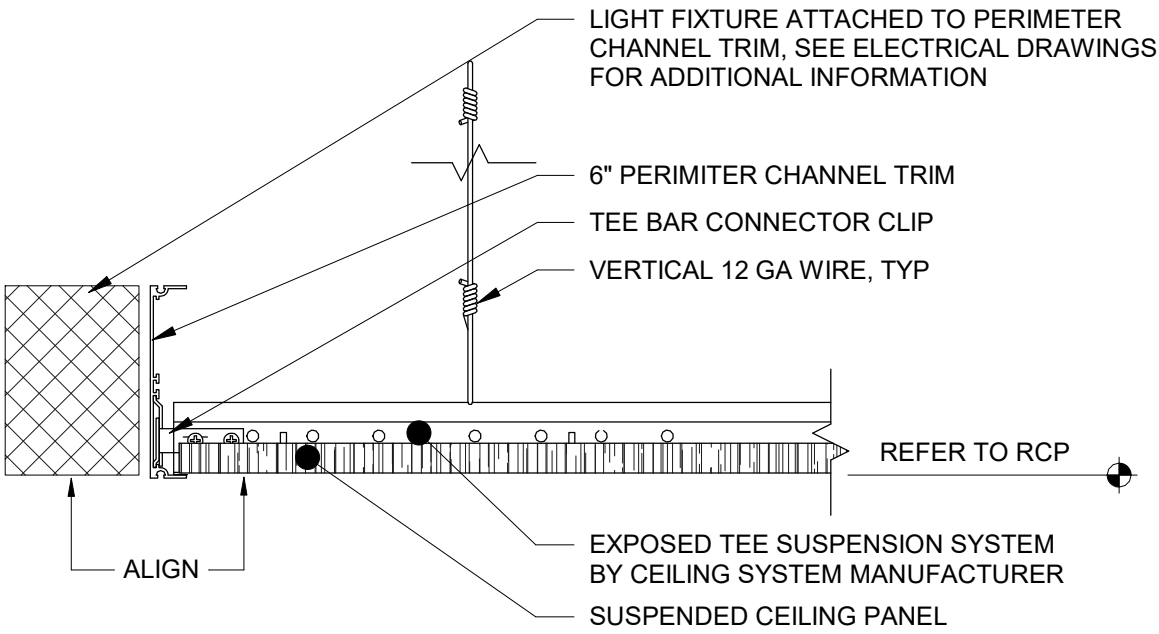
1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

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



1 Ceiling Detail - Floating Panel

3" = 1'-0"

THIS DETAIL SUPERCEDES DETAIL 17/AA750

TETRA TECH ARCHITECTS & ENGINEERS Tetra Tech Engineers, Architects & Landscape Architects, P.C.			Proj. No.: 121111-19002
			Date:02/12/21
	Rev.:	Date:	Drawn By: TS
Mahopac Central School District			Drawing No.:
Mahopac High School			
Ceiling Detail - Floating Panel			AA01B

AIR HANDLING UNIT (AHU) SCHEDULE

Mark	LOCATION	SERVES	MODEL	ZONES	AIRFLOW (CFM)	OA (CFM)	SUPPLY FAN				ELECTRICAL			NOTES
							ESP (IN. WG.)	TSP (IN. WG.)	FLA	MCA	VOLTAGE	HERTZ	PHASE	
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
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.
2. PROVIDE MANUFACTURERS COMBINATION STARTER.

FAN (F) SCHEDULE

Mark	MANUFACTURER	MODEL	Serves	AIRFLOW (CFM)	SONES	FAN DATA					ELECTRICAL		NOTES
						ESP (IN WG)	DRIVE	MOTOR RPM	BHP	HP	VOLTAGE	PHASE	
EF-1HS	LOREN COOK	195SQN-B	AHU-1	2900	7.6	0.25	BELT	711	0.355	1/2	208	3	2,3,4
EF-2HS	LOREN COOK	245CA4SWSI	ROOMS 35-39	3500	5	0.5	BELT	1553	0.332	3/4	208	3	2,3,4
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	2,3,4
EF-5HS	LOREN COOK	245ACEB	AHU-8	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-6HS	LOREN COOK	245ACEB	AHU-3	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-7HS	LOREN COOK	245ACEB	AHU-9	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-8HS	LOREN COOK	245ACEB	AHU-6	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-9HS	LOREN COOK	245ACEB	AHU-12	3100	5.2	0.33	BELT	475	0.367	1/2	208	3	2,3,4
EF-10HS	LOREN COOK	245ACEB	AHU-4	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-11HS	LOREN COOK	245ACEB	AHU-10	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-12HS	LOREN COOK	245ACEB	AHU-5	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-13HS	LOREN COOK	245ACEB	AHU-11	3340	5.7	0.33	BELT	490	0.405	1/2	208	3	2,3,4
EF-14HS	LOREN COOK	245ACEB	AHU-7	3140	5.3	0.33	BELT	478	0.374	1/2	208	3	2,3,4
EF-15HS	LOREN COOK	245ACEB	AHU-13	2960	5.0	0.33	BELT	468	0.349	1/2	208	3	2,3,4
EF-16HS	LOREN COOK	ACRUD-101R17D	CHEM HOOD 235	870	11.4	0.23	DIRECT	1725	.147	1/6	120	1	2,4,5
EF-17HS	LOREN COOK	ACRUD-101R17D	CHEM HOOD 239	870	11.4	0.23	DIRECT	1725	0.147	1/6	120	1	2,4,5
EF-18HS	LOREN COOK	330 ACEB	ROOMS 242-244	5300	7.7	0.5	BELT	410	0.91	1	208	3	2,3,4

NOTES:
1. PROVIDE MANUFACTURERS COMBINATION STARTER.
2. PROVIDE WITH MANUFACTURERS STANDARD 12" HIGH, INSULATED ROOF CURB
3. PROVIDE WITH VARAIBLE SPEED DRIVE.
4. PROVIDE WITH MANUFACTURERS STANDARD DISCONNECT SWITCH.
5. FAN TO BE WIRED THROUGH MANUAL STARTER ON LAB HOOD

Proj. No.:121111-19002
Date:02/11/21
Drawn By: Author
Drawing No.: AM01B

Description:
Date:
Rev.:

TETRA TECH
ARCHITECTS & ENGINEERS
Tetra Tech Engineers, Architects & Landscape Architects, P.C.

Mahopac Central School District
Mahopac High School
Air Handling Unit (AHU)/Fan (F) Schedule

Site Symbols

+ 83.36	SPOT ELEVATION
+ 99.50 TC	TOP OF CURB ELEVATION
99.00 BC	BOTTOM OF CURB ELEVATION
+ 83.36	EXISTING SPOT ELEVATION
136	CONTOUR
136	EXISTING CONTOUR
TB-1	SOIL TEST BORING
TP-1	TEST PIT LOCATION
	TREE OR SHRUB
	TREE OR SHRUB TO REMAIN
	TREE OR SHRUB TO BE REMOVED
	ASPHALT PAVING OR TOP COURSE
	HEAVY-DUTY ASPHALT PAVING
	REMOVE AND REPLACE ASPHALT PAVING
	CONCRETE PAVING
	CONCRETE SECTION
	CURBING
	CURBING TO REMAIN
	CURBING TO BE REMOVED
	FENCING
	FENCING TO REMAIN
	FENCING TO BE REMOVED
	SILT FENCING
	TEMPORARY CONSTRUCTION FENCING
	HAY BALES
	TEMPORARY TREE PROTECTION
	UTILITY POLE
	UTILITY POLE TO REMAIN
	UTILITY POLE TO BE REMOVED
	NEW OR RELOCATED FIRE HYDRANT
	FIRE HYDRANT TO REMAIN
	DROP INLET
	CATCH BASIN
	STORM/SANITARY MANHOLE
	DROP INLET TO REMAIN
	MANHOLE/CATCH BASIN/DRYWELL TO REMAIN
	DRYWELL W/ GRATE
	DRYWELL W/ SOLID COVER TO GRADE
	DRYWELL W/ COVER BURIED
ST	STORM LINE WITH HEADWALL
ST	STORM LINE WITH ENDWALL
ST	STORM LINE WITH END SECTION
ST	STORM PIPE
ST	STORM PIPE TO REMAIN
ST	STORM PIPE TO BE REMOVED/ABANDONED
UD	UNDERDRAIN
UD	UNDERDRAIN TO REMAIN
UD	UNDERDRAIN TO BE REMOVED/ABANDONED
SAN	SANITARY LINE
SAN	SANITARY LINE TO REMAIN
SAN	SANITARY LINE TO BE REMOVED/ABANDONED
G	GAS LINE
G	GAS LINE TO REMAIN
G	GAS LINE TO BE REMOVED/ABANDONED
W	WATER LINE
W	WATER LINE TO REMAIN
W	WATER LINE TO BE REMOVED/ABANDONED
CO	STORM/SANITARY CLEANOUT
	GATE VALVE
	SIGN POST
	UNIVERSAL HANDICAP SYMBOL
	REMOVAL
	RIP-RAP

Architectural Symbols

	EXISTING TO REMAIN
	DEMOLITION WORK
	NEW WORK IN EXISTING (MATERIAL INDICATION VARIES)
	NEW WORK (MATERIAL INDICATION VARIES)
	CMU AND BRICK CAVITY WALL
	CMU WALL
	GYPSUM BOARD PARTITION W/ METAL STUD WALL
	OPERABLE PARTITION
100 / 1	DOOR NUMBER (ROOM NO W/ DOOR NO)
A	WINDOW TYPE
126	RELOCATED EQUIPMENT FURNITURE OR CASEWORK NUMBER
P3.8	PARTITION TYPE
MGM	BOARD UNIT SYMBOL
	FINISH CHANGE

ROOF SYMBOLS

	AREA OF TAPERED INSULATION
	EXISTING ROOF DRAIN WITH RETROFIT ROOF DRAIN INSERT IN NEW FACTORY-TAPERED SUMP
	EJ/CONTROL JOINT
TAPERED 1/4"/FT	DIRECTION OF DOWNWARD SLOPE AND DEGREE OF SLOPE OF TAPERED INSULATION (MINIMUM 1/8"/FT, TYP UNO)
OR	DIRECTION OF DOWNWARD SLOPE OF TAPERED INSULATION CRICKET (MINIMUM 1/4"/FT, TYP UNO)
SLOPE STRU	DIRECTION OF DOWNWARD SLOPE OF ROLLED OR SLOPED STRUCTURE
+X"	TOTAL THICKNESS OF INSULATION
+X" FLAT	TOTAL THICKNESS OF AREA OF FLAT INSULATION
RS-X	DESIGNATES ROOF SYSTEM TYPE
	WALKWAY PAD
S L	SKYLIGHT (REINSTALLED OR REPLACED)
	SMOKE VENT OR ROOF HATCH
● OR ○	PIPE PENETRATION
OR	ROOFTOP HOOD ON CURB, TYP
	ROOFTOP EQUIPMENT ON CURB, TYP (SHAPE AND SIZE VARY)

REFLECTED CEILING SYMBOLS

A 0'-0"	BOTTOM OF CEILING AFF
	CEILING MATERIAL
	CEILING HUNG UNIT VENTILATOR OR CEILING HUNG FAN COIL UNIT
	CEILING RETURN/EXHAUST GRILLE
	CEILING SUPPLY DIFFUSER/GRILLE
	EXIT LIGHT
	2 X 4 FIXTURE IN 2 X 2 PATTERN

Structural Symbols

- INDICATES AREA IS EXISTING
- INDICATES SLAB IS DEPRESSED OR RECESSED
- TOP OF FTG ELEVATION FROM DATUM
- CONTINUOUS FTG
- FOUNDATION WALL
- BM POCKET ELEVATION FROM DATUM
- STEPPED FOOTING
- INDICATES PIER TYPE
- TOP OF PIER ELEVATION FROM DATUM
- TOP OF FOOTING ELEVATION FROM DATUM
- INDICATES FOOTING TYPE REFER TO FOOTING SCHEDULE
- INDICATES A FRAMED ROOF OR FLOOR OPNG COORD SIZE AND LOCATION
- INDICATES FRAMED OPNG IS FOR:
  - RD = ROOF DRAIN
  - ME = MECH EQUIP
  - SL = SKYLIGHT
  - SH = SMOKE HATCH
  - AH = ACCESS HATCH
- ELEVATION FROM DRAWING DATUM
- BEAM SIZE
- NUMBER OF SHEAR STUDS OVER FULL LENGTH OF BEAM
- INDICATES TOP OF BEAM AT ADJ GIRDER ELEV
- END REACTION- KIPS
- DEFLECTION (INCHES) APPROX W/ WET CONC
- LINTEL DESIGNATION SEE SCHEDULE
- INDICATES LINTEL CONNECTION TO COLUMN
- INDICATES MEMBER IS EXISTING
- INDICATES BEAM SPLICE
- INDICATES MOMENT CONNECTION
- OVER COLUMN
- INDICATES SHEAR WALL CONNECTION TO BEAM
- INDICATES BM TO HAVE TOP OF WALL CLIPS
- JOIST DESIGNATION
- INDICATES BEAM FRAMES HORIZONTAL BRIDGING
- JOIST
- DIAGONAL BRIDGING
- MASONRY LOAD BEARING WALL
- SHEAR WALL SEE SCHEDULE
- CFMF BEARING WALL
- FIREWALL
- WALL TYPE

Mechanical Symbols

TAG NO. / VALUE	EQUIPMENT TAG (NON-MOTORIZED) CFM, GPM, CAPACITY
TAG NO. / VALUE	EQUIPMENT TAG (MOTORIZED)
TAG NO. / NECK SZ. / CFM	REGISTER, GRILLE, DIFFUSER
FTR-TYPE / ENC. LENGTH / ELEM. LENGTH / GPM	FIN TUBE RADIATION ENCLOSURE NOTED AS: W/W: WALL TO WALL, W/U: WALL TO UNIT, W/D: WALL TO DOOR, ETC...
	SUPPLY DUCT - POSITIVE PRESSURE
	RETURN DUCT - NEGATIVE PRESSURE
	EXHAUST DUCT - NEGATIVE PRESSURE
8x8	DUCTWORK, FIRST VALUE IS SIZE OF SIDE IN VIEW
	DUCT TRANSITION
	DUCT OFFSET
	RECTANGULAR ELBOW W/TURNING VANES
	RECTANGULAR ELBOW
	ROUND DUCTWORK W/ MITERED ELBOW
	RADIUS ELBOW W/ TURNING/SPLITTER VANES
	RADIUS ELBOW
	STANDARD BRANCH DUCT W/VOLUME DAMPER
	ACOUSTICALLY LINED DUCTWORK
	ACOUSTICALLY LINED DUCTWORK (UP/DOWN)
OR	FLEXIBLE DUCT
	VOLUME DAMPER
FD	FIRE DAMPER
SD	SMOKE DAMPER
FSD	FIRE AND SMOKE DAMPER
AAD	AUTOMATIC AIR DAMPER
BDD	BACKDRAFT DAMPER
	EXISTING DUCTWORK
	AIR FLOW
	DUCT AIR FLOW
	EXISTING MECHANICAL EQUIPMENT TO BE REMOVED
	EXISTING MECHANICAL EQUIPMENT
	MECHANICAL EQUIPMENT
	ACCESS CLEARANCE

ATV	ATMOSPHERIC VENT
BBD	BOILER BLOW DOWN
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
CGS	CHILLED GLYCOL SUPPLY
CGR	CHILLED GLYCOL RETURN
CD	CONDENSATE DRAIN
C	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
GS	GLYCOL SUPPLY
GR	GLYCOL RETURN
HGS	HOT GLYCOL SUPPLY
HGR	HOT GLYCOL RETURN
HPWS	HEAT PUMP SUPPLY
HPWR	HEAT PUMP RETURN
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HCR	HOT/CHILLED WATER RETURN
LPS	LOW PRESSURE STEAM
LPC	LOW PRESSURE CONDENSATE
LPWC	LOW PRESSURE STEAM WET (FLOODED) CONDENSATE
MU	MECHANICAL EQUIPMENT MAKE-UP COLD WATER(NON-POTABLE)
RS	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID
HG	REFRIGERANT HOT GAS
PD	PUMP DISCHARGE
	REMOVE EXG. DUCT, PIPING, EQUIPMENT
EXG	EXISTING HVAC PIPE
	BOTTOM PIPE CONNECTION
	TOP PIPE CONNECTION
	PIPE ELBOW DOWN
	PIPE ELBOW UP
	PIPE DOWN WITH CLEANOUT AT BASE
	PIPE DOWN WITH SHUTOFF VALVE
	CAP OR PLUG
	UNION CONNECTION
	FLANGE CONNECTION
	PIPING REDUCER (CONCENTRIC)
	PIPING REDUCER (ECCENTRIC)
	PIPE ANCHOR
	PIPE GUIDE
	EXPANSION COMPENSATOR
	EXPANSION JOINT
	FLEX CONNECTOR
	TEMPERATURE OR PRESSURE PROBE WELL
	THERMOMETER
P	PRESSURE SWITCH
P	PRESSURE GAUGE
TP	TEMPERATURE/ PRESSURE GAUGE
	MANUAL AIR VENT
AV	AUTOMATIC AIR VENT
SV	STEAM VENT
VB	VACUUM BREAKER
F	FLOW SWITCH
M	FLOW METER
	ORIFICE METER
	VENTURI FLOW METER
	WYE STRAINER
	WYE STRAINER WITH BLOW DOWN VALVE
	DIRECTION OF FLOW
	PIPE BREAK
M	WATER METER

	BASKET STRAINER
	DUPLEX BASKET STRAINER
A	AQUASTAT
D	PITCH PIPING (DOWN)
	AUTOMATIC FLOW CONTROL VALVE
	BACKFLOW PREVENTOR
B	BALANCING VALVE
	BALL VALVE
	EXISTING BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	2-WAY CONTROL MODULATING VALVE
	3-WAY CONTROL, MODULATING VALVE (INSTALL STEM VERTICAL)
	3-WAY CONTROL, THERMOSTATIC MIXING VALVE (SELF-CONTAINED)
S	SOLENOID (ELECTRIC) ON/OFF
M	MOTORIZED MODULATING VALVE
	FUSIBLE LINK VALVE
	GAS PRESSURE REGULATOR VALVE
	TRIPLE DUTY VALVE
	GATE VALVE
	GLOBE VALVE
	OS&Y GATE VALVE
	PLUG VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	STEAM TRAP
T	THERMOSTATIC STEAM TRAP
FT	FLOAT AND THERMOSTATIC STEAM TRAP
B	BUCKET STEAM TRAP
	AIR SEPARATOR
	CIRCULATING PUMP
	WATER HAMMER ARRESTOR
	CLEANOUT PLUG
CODP	CLEANOUT DECK PLATE
F	FIRE RISER VALVE ASSEMBLY
BS	BURNER SHUT OFF
H	HUMIDISTAT
H S	HUMIDITY SENSOR
H SG	HUMIDITY SENSOR W/ GUARD
P S	PRESSURE SENSOR
P SG	PRESSURE SENSOR W/ GUARD
S	SWITCH
T	THERMOSTAT
T G	THERMOSTAT W/ GUARD
T S	TEMPERATURE SENSOR
CO2	CO2 SENSOR
POC	POINT OF CONNECTION
	FIRE DEPARTMENT CONNECTION

	CONNECTION TO EXISTING PIPING
	PLATE STRAINER
	HOSE BIBB
CA	COMPRESSED AIR
LV	LABORATORY VENT
LW	LABORATORY WASTE
LW	LABORATORY WASTE (BURIED)
V	VENT
SAN	SANITARY (ABOVE GRADE)
SAN	SANITARY (BURIED)
IW	INDIRECT WASTE
ST	STORM (ABOVE GRADE)
ST	STORM (BURIED)
SP	FIRE STANDPIPE
F	FIRE MAIN
SPRK	FIRE SPRINKLER
	EXISTING COLD WATER
	EXISTING HOT WATER
	EXG HOT WATER RETURN
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
110° HW	110° HOT WATER
140° HW	140° HOT WATER
180° HW	180° HOT WATER
TW	TEMPERED (HOT) WATER
RAW	RAW WATER
SW	SOFT WATER
DE	DEIONIZED WATER
DI	DISTILLED WATER
G	GAS
P	PROPANE
D	DIESEL FUEL
U	UNLEADED GASOLINE
FOS	EXG FUEL OIL SUPPLY
FOS	FUEL OIL SUPPLY
FOR	EXG FUEL OIL RETURN
FOR	FUEL OIL RETURN
FOV	EXG FUEL OIL VENT
FOV	FUEL OIL VENT
MU	MECHANICAL EQUIPMENT MAKE-UP COLD WATER (NON-POTABLE)
	EXISTING ROOF DRAIN
	ROOF DRAIN REPLACING EXG
	ROOF DRAIN
	SCUPPER ROOF DRAIN
	EXG PLUMBING FIXTURE TO BE REMOVED
	EXG PLUMBING FIXTURE
	PLUMBING FIXTURE
	FLOOR DRAINS
	FLOOR SINK
	WALL HYDRANT
	FIRE HOSE CABINET
	UPRIGHT SPRINKLER HEAD
	PENDANT SPRINKLER HEAD
	CONCEALED SPRINKLER HEAD
	RECESSED SPRINKLER HEAD
	SIDEWALL SPRINKLER HEAD

Electrical and Technology Symbols

#	LIGHT FIXTURE # DENOTES TYPE
#	LIGHT FIXTURE # DENOTES TYPE
	RETROFITTED LIGHT FIXTURE AS NOTED
#	COMBINATION EXIT/EMERGENCY LIGHT # DENOTES TYPE
#	EMERGENCY LIGHT W/BATTERY PACK # DENOTES TYPE
#	EMER. LIGHT/WALL MOUNT # DENOTES TYPE
	EMERGENCY FIXTURE # DENOTES TYPE
#	EMERGENCY FIXTURE # DENOTES TYPE
#	EXIT LIGHT- CEILING MOUNTED # DENOTES TYPE
#	EXIT LIGHT -WALL MOUNTED # DENOTES TYPE
DLS	DAYLIGHT SENSOR
AR #	AREA OF RESCUE LIGHT FIXTURE # DENOTES TYPE
#	POLE MOUNTED SITE LIGHT # DENOTES TYPE
$	LIGHT SWITCH K - KEY OPERATED 3 - 3 WAY 4 - 4 WAY D - DIMMER P - W/PILOT LIGHT OS - OCCUPANCY SENSOR VS - VACANY SENSOR
TC	TIME CLOCK
OS	OCCUPANCY SENSOR
VS	VACANCY SENSOR
PC	PHOTO CELL
LC	LIGHTING CONTROL
F	FIRE ALARM MANUAL PULL STATION
F F	FIRE ALARM BELL- W/STROBE W/0 STROBE
F F	FIRE ALARM HORN- W/STROBE W/0 STROBE
S	SMOKE DETECTOR
B	BEAM SMOKE DETECTOR
S D	DUCT SMOKE DETECTOR
H	RATE OF RISE HEAT DETECTOR
H F	FIXED HEAT DETECTOR
S	FIRE ALARM STROBE LIGHT
DH	MAGNETIC DOOR HOLDER
A	FIRE ALARM / VOICE NOTIFICATION SPEAKER (WALL)
A	FIRE ALARM / VOICE NOTIFICATION SPEAKER (CEILING)
A	FIRE ALARM / VOICE NOTIFICATION SPEAKER STROBE (CEILING)
A	FIRE ALARM / VOICE NOTIFICATION SPEAKER STROBE (WALL)
A	FIRE ALARM / VOICE NOTIFICATION STROBE (WALL)
R	RELAY
RTS	REMOTE INDICATOR TEST SWITCH
FS	SPRINKLER FLOW SWITCH
TS	SPRINKLER TAMPER SWITCH
FAA	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FAGA	FIRE ALARM GRAPHIC ANNUNCIATOR
CS	CONTROL STATION- TYPE AS DESCRIBED ON DWGS.
HCL	HOUSE LIGHTING CONTROL STATION
DCR	DIMMER CONTROL OUTLET
AR	AREA OF RESCUE STATION
MJ	MICROPHONE JACK
SJ	SPEAKER JACK
P	HOUSE LIGHT PANIC STATION
AI	AUDITORIUM INTERCOM
S	COMBINATION CLOCK/SPEAKER
	CLOCK
	EXISTING TELEPHONE
	TELEPHONE OUTLET W - WALL MOUNT AT 54" AFF IC - INTERCOM SOUND SYSTEM HAND SET BLANK - WALL MOUNT AT 16" AFF
	FLOOR TELEPHONE OUTLET
	INTERCOM CALL SWITCH
TV	TELEVISION OUTLET
CO	COMPUTER OUTLET
A/V	AUDIO/VIDEO OUTLET
	PROJECTOR MOUNTING TILE
AP	ACCESS POINT

	CABLE TRAY - LADDER TYPE
	CABLE TRAY - BASKET TYPE
SR	SURFACE RACEWAY TYPE AS DESCRIBED ON DWGS.
CI	COMMUNICATION INTERFACE OUTLET
S	CEILING MOUNT SPEAKER
S	WALL MOUNT SPEAKER
VC	VOLUME CONTROL
H	HORN SPEAKER
P	PROGRAM BELL
FB	FLOOR BOX
DR	DOOR RELEASE
SE	SECURITY ALARM HORN
SE	SECURITY SENSOR GB - GLASS BREAK MD - MOTION DETECTOR SD - SOUND DETECTOR
DC	SECURITY DOOR CONTACT
KP #	SECURITY SYSTEM KEYPAD # DENOTES DESIGNATION
#	SECURITY CAMERA # DENOTES DESIGNATION
REX	SECURITY REQUEST TO EXIT SENSOR
PS #	LOW-VOLTAGE POWER SUPPLY # DENOTES DESIGNATION
ELH	SECURITY ELECTRIC LOCKING HARDWARE
IC #	DOOR INTERCOM CALL STATION # DENOTES DESIGNATION
CR #	ACCESS CONTROL CARD READER # DENOTES DESIGNATION
ADA	ADA PUSH BUTTON
MON	SECURITY CCTV MONITOR
DB	SECURITY DURESS BUTTON
	EXISTING PANEL TO REMAIN
	EXISTING PANEL TO REPLACE
	NEW PANEL
SPD	SURGE PROTECTION DEVICE
	MOTOR
LABEL #	NEW MOTOR SEE SCHEDULE FOR DESCRIPTION
PB	PULL BOX
J	JUNCTION BOX
H	HAND/HAIR DRYER
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE
	DUPLEX FLOOR RECEPTACLE
CR	CORD REEL
	TELE./DATA POWER POLE
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR STARTER
	COMBINATION STARTER
C	CONTACTOR
CB	ENCLOSED CIRCUIT BREAKER
	EQUIPMENT CONNECTION
	EMERGENCY OFF BUTTON
T#	TRANSFORMER # DENOTES DESIGNATION REFER TO RISER DIAGRAM
CM	CARBON MONOXIDE DETECTOR
P	UTILITY POLE
UT	UNDERGROUND TELEPHONE
T	OVERHEAD TELEPHONE
UTV	UNDERGROUND TELEVISION
TV	OVERHEAD TELEVISION
UL	UNDERGROUND LIGHTING
L	OVERHEAD LIGHTING
UE	UNDERGROUND ELECTRIC
E	OVERHEAD ELECTRIC
UC	UNDERGROUND COMPUTER
C	OVERHEAD COMPUTER

Symbol Tags

F	= REMOVE EXISTING
F E	= EXISTING TO REMAIN
F RL	= RELOCATE EXISTING
F RE	= REPLACE EXISTING

TYPICAL FOR ALL ELEC SYMBOLS

AC = ABOVE CEILING
AUX = AUXILLARY CONTACT
WP = WEATHERPROOF
WG = WIRE GUARD
A = ABOVE (CASEWORK)
B = BELOW (CASEWORK)
H = HORIZONTAL
TK = TOE KICK
TS = TEACHER STATION
USB = UNIVERSAL SERIAL BUS

Standard Symbols

	STANDARD REFERENCE BUBBLE
2	DETAIL NUMBER
A12	DRAWING NUMBER
Floor Plan 1/8"=1'-0"	DRAWING TITLE & SCALE
	BUILDING SECTION
CLL	CONTRACT LIMIT LINE
	ADA 5' TURNING RADIUS
100'-0" 1st FF	ELEVATION CALL OUT
	WALL SECTION
	ELEVATION
	INTERIOR ELEVATION
	DETAIL
	NORTH ARROW
CLASSROOM 101	ROOM NAME AND NUMBER
	PROPERTY LINE
	CUT LINE
A	COLUMN CENTER LINE
	CENTER LINE
A B	MATCH LINE
	DRAWING REVISION NUMBER
	EARTH
	GRAVEL
	SAND
	CONCRETE
	NEW ASPHALT PAVING OR TOP COURSE
	NEW HEAVY-DUTY ASPHALT PAVING
	REMOVE AND REPLACE ASPHALT PAVING
	BRICK
	CONCRETE MASONRY UNITS
	STONE
	FINISHED WOOD TRIM
	PLYWOOD
	INSULATION (LOOSE OR BATT)
	ROUGH WOOD
	STRUCTURAL GLAZED TILE
	RIGID INSULATION
	METAL, STEEL
	TERRAZZO
	ACOUSTICAL PANEL
	CERAMIC TILE
	RESILIENT FLOORING
	GLASS (LARGE SCALE)
	PLASTER, CEMENT, GROUT, GYPSUM WALL BOARD

NOTE:	REFER TO FINISH PLANS FOR ROOM FINISH KEY AND ADDITIONAL ABBREVIATIONS AND TYPES
AAC	ASBESTOS ABATEMENT CONTRACTOR
AAD	AUTOMATIC AIR DAMPER
AB	ANCHOR BOLT, AIR BARRIER
AC	AIR CONDITIONING, ALTERNATING CURRENT
ACCMP	ASPHALT COATED CORR METAL PIPE
ACM	ASBESTOS CONTAINING MATERIAL
ACT	ACOUSTICAL CEILING TILE
ACU	AIR CONDITIONICO NG UNIT
AD	AREA DRAIN
ADA	AMERICAN DISABILITIES ACT
ADD	ADDENDUM
ADDL	ADDITIONAL
ADDN	ADDITION
ADH	ADHESIVE
ADJ	ADJACENT
ADR	ACCESS DOOR
AESS	ARCH EXPOSED STRUCTURAL STEEL
AFF	ABOVE FINISH FLOOR
AH	ACCESS HATCH
AHU	AIR HANDLING UNIT
AIB	AIR INFILTRATION BARRIER
ALT	ALTERNATE
ALTB	ACOUSTICALLY LINED TRANSFER BOX
ALTN	ALTERATION ALUM ALUMINUM
AMP	AMPERE
ANOD	ANODIZED
ANT	ACID NEUTRALIZATION TANK
AP	ACCESS PANEL
APPROX	APPROXIMATE (LY)
APC	ARCHITECTURAL PRECAST CONCRETE
ARCH	ARCHITECT (URAL)
A/S	AIR SEPARATOR
ASB	ASBESTOS
ASPH	ASPHALT
ATV	ATMOSPHERIC VENT
AUD	AUDITORIUM
AUTO	AUTOMATIC
AVE	AVERAGE
B	BOILER, BRICK, BOTTOM
BB	BASKETBALL
BBD	BOILER BLOWDOWN
BC	BOTTOM OF CURB
BCU	BLOWER COIL UNIT
BCX	BOTTOM CHORD EXTENSION
BD	BOARD
BDD	BACKDRAFT DAMPER
BFP	BACK FLOW PREVENTER
BG	BOTTOM GRILLE
BIT	BITUMINOUS
BLDG	BUILDING BLOCK
BLK	BLOCKING BLKG
BM	BEAM
BO	BY OTHERS
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BPL	BEARING PLATE
BR	BOTTOM REGISTER
BRDG	BRIDGING
BRG	BEARING
BRK	BRICK
BRSH	BRICKSHELF
BRZ	BRONZE
BS	BOTH SIDES, BOTTOM OF STAIR
BSMT	BASEMENT
BSPL	BACKSPLASH
BT	BENT
BTU	BRITISH THERMAL UNITS
BTUH	BRITISH THERMAL UNITS PER HOUR
BUR	BUILT-UP ROOFING
BW	BOTTOM OF WALL
BWC	BACK WATER CHECK VALVE
C	CONDUIT, CONVECTOR, CONDENSOR, COMMON, CARPET
CA	COMPRESSED AIR
CAB	CABINET
CATV	CABLE TELEVISION
CB	CATCH BASIN, CIRCUIT BREAKER, CHALKBOARD
CCTV	CLOSED CIRCUIT TELEVISION
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CEM	CEMENT
CER	CERAMIC CF CUBIC FEET, CEILING FAN
CFM	CUBIC FEET PER MINUTE
CFMF	COLD FORMED METAL FRAMING
CFT	CERAMIC FLOOR TILE
CG	CEILING GRILLE
CHAN	CHANNEL
CHUV	CEILING HUNG UNIT VENTILATOR
CI	CAST IRON
CIP	CAST IN PLACE
CIRC	CIRCUMFERENCE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLKG	CAULKING
CLL	CONTRACT LIMIT LINE
CLR	CLEAR (ING) (ENCE)
CLRM	CLASSROOM
CMP	CORRUGATED METAL PANEL
CMT	CERAMIC MOSAIC TILE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CODP	CLEAN OUT DECK PLATE
COL	COLUMN
COMB	COMBINATION
COMP	COMPRESS (ED) (ION) (IBLE), COMPOSITE
CONC	CONCRETE
COND	CONDENSATE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINOUS
CONTR	CONTRACT (OR)
COORD	COORDINATE
CORR	CORRUGATED, CORRIDOR
COWP	CLEAN OUT WALL PLATE
CPVC	CHLORINATED POLY VINYL CHLORIDE
CR	CEILING REGISTER
CRS	COURSE (S)
CSK	COUNTERSINK
CSMT	CASEMENT
CT	COMPUTER TERMINAL, CERAMIC BASE TILE
CTD	COATED
CTOP	COUNTER TOP
CTR	CENTER
CU	CUBIC
CUH	CABINET UNIT HEATER
CV	CONVECTOR, CURB VALVE
CW	COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CWT	CERAMIC WALL TILE
D	DIESEL FUEL, DEPTH
DB	DRY BULB
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DE	DELONIZED WATER
DEG	DEGREES
DEMO	DEMOLISH
DEP	DEPRESS (ED) (ION)
DET	DETAIL (ED)
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DHU	DEHUMIDIFICATION UNIT
DI	DROP INLET, DUCTILE IRON, DISTILLED WATER
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DIST	DISTANCE
DIV	DIVISION
DL	DEAD LOAD
DN	DOWN
DO	DITTO
DP	DAMPPROOF (ING)
DPR	DAMPER
DR	DOOR, DEEP RIB
DWG	DRAWING
DS	DOWNSPOUT, DRAINAGE STRUCTURE
DT	DRAIN TILE
DTA	DOVETAIL ANCHOR
DTL	DETAIL
DW	DUMBWAITER, DISHWASHER
DWL	DOWEL
DWR	DRAWER
E	EAST
EA	EXHAUST AIR, EACH
EAT	ENTERING AIR TEMPERATURE
EB	EXPANSION BOLT
EC	ELECTRICAL CONTRACTOR
ECF	ENHANCED CONCRETE FLOORING
EIFS	EXTERIOR INSULATION SYSTEM
EF	EACH FACE, EXHAUST FAN
EJ	EXPANSION JOINT
ELEC	ELECTRIC (AL)
ELEM	ELEMENT
ELEV	ELEVATION, ELEVATOR
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENC	ENCLOSURE
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EQ	EQUAL, EQUIVALENT
EQC	EQUIPMENT CONTRACTOR
EQUIP	EQUIPMENT
ES	EXPOSED SURFACE, EXPOSED STRUCTURE
ESF	ELASTIC SHEET FLASHING
ESM	ELASTIC SHEET MEMBRANE
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXG	EXISTING
EXP	EXPANSION
EXT	EXTERIOR, EXTERNAL
F	FAHRENHEIT
FA	FIRE ALARM
FAI	FRESH AIR INTAKE
FCU	FAN COOLING UNIT
FD	FLOOR DRAIN, FIRE DAMPER
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR, FACTORY FINISH
FFE	FINISH FLOOR ELEVATION
FFL	FINISH FLOOR LINE
FG	FLOOR GRILLE
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIN	FINISH (ED)
FIXT	FIXTURE
FL	FLUSH
FLD	FLOOR DUCT
FLEX	FLEXIBLE
FLG	FLASHING
FLR	FLOOR (ING)
FLUOR	FLUORESCENT
FM	FLOOR MOUNTED
FMC	FLEXIBLE METAL CONDUIT
FND	FOUNDATION
FOB	FREIGHT ON BOARD, FLAT ON BOTTOM
FOG	FUEL OIL GAUGE
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOT	FLAT ON TOP
FP	FIREPROOF (ING)
FPM	FEET PER MINUTE
FR	FRAME, FLOOR REGISTER
FRA	FRESH AIR
FRC	FIRE RESISTANT COATING
FRP	FIBERGLASS REINFORCED PANEL
FRT	FIRE RETARDANT
FS	FLOOR SINK
FSD	FIRE AND SMOKE DAMPER
FT	FEET, FLOOR TREATMENT
FTG	FOOTING
FTR	FIN TUBE RADIATION
FV	FLUSH VALVE
G	GAS, GLYCOL
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GASK	GASKET (ED)
GC	GENERAL CONTRACT (OR)
GCMU	GLAZED CONCRETE MASONRY UNIT
GCO	GRADE CLEANOUT GF GROUND FACE
GL	GLASS, GLAZING
GND	GROUND
GPM	GALLONS PER MINUTE
GR	GRADE (ING), GLYCOL RETURN
GS	GLYCOL SUPPLY
GVL	GRAVEL
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
HB	HOSE BIB
HBD	HARD BOARD
HC	HEATING CONTRACT (OR), HANDICAP
HCR	HOT/CHILLED RETURN
HCS	HOT/CHILLED SUPPLY
HD	HEAVY DUTY
HDPE	HIGH DENSITY POLYETHYLENE
HDR	HEADER
HDW	HARDWARE
HG	HOT GLYCOL
HIP	HIGH IMPACT PANEL
HM	HOLLOW METAL
HORZ	HORIZONTAL
HP	HORSEPOWER, HIGH PRESSURE, HEAT PUMP
HPS	HEAT PUMP LOOP WATER SUPPLY
HPR	HEAT PUMP LOOP WATER RETURN
HPC	HIGH PERFORMANCE COATING
HPL	HIGH PRESSURE LAMINATE
HR	HANDRAIL, HOUR
HT	HEIGHT
HTG	HEATING
HV	HIGH VOLTAGE
HVAC	HEATING/VENTILATING/AIR CONDITIONING
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWH	HOT WATER HEATER
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCHES
INCL	INCLUDE (D) (ING)
INS	INSULATE (D) (ION)
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IW	INDIRECT WASTE
J	JANITORS CLOSET
JAN	JANITORS CLOSET
JB	JUNCTION BOX
JC	JANITORS CLOSET
JCT	JUNCTION
JT	JOINT
KW	KILOWATT
KWH	KILOWATT PER HOUR
KV	KILOVOLT
KVA	KILOVOLT AMPERE
L	LENGTH, LONG
LAB	LABORATORY
LAD	LADDER
LAM	LAMINATE (D)
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LBL	LABEL
LBP	LEAD BASED PAINT
LC	LANDSCAPE CONTRACTOR (SITE)
LCC	LEAD COATED COPPER
LDR	LEADER
LEV	LEVEL
LV	LABORATORY VENT
LW	LABORATORY WASTE
LF	LINEAR FOOT
LFMC	LIQUID-TIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT
LG	LENGTH, LONG
LGI	LARGE GROUP INSTRUCTION
LH	LEFT HAND
LIN	LINEAR
LKR	LOCKER
LL	LIVE LOAD
LP	LOW PRESSURE
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LPT	LOW POINT
LS	LINOLEUM SHEET
LT	LIGHT, LINOLEUM TILE
LTL	LINTEL
LV	LOW VOLTAGE
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MAN	MANUAL
MAS	MASONRY
MAT	MATERIAL
MAU	MAKE UP AIR UNIT
MAX	MAXIMUM
MB	MARKER BOARD
MBH	THOUSAND BTUH
MBR	MEMBER
MD	MOTORIZED DAMPER
ME	MECHANICAL EQUIPMENT
MECH	MECHANICAL (LY)
MED	MEDIUM
MEMB	MEMBRANE
MEZZ	MEZZANINE
MF	MIXING FAUCET
MFR	MANUFACTURE (R)
MH	MAN HOLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MOD	MODULE (OR), MODEL
MR	MOP RECEPTOR
MP	MULTICOLOR WALL COATING
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTH	MARBLE THRESHOLD
MTR	METER
MULL	MULLION
MVEJ	MASONRY VENEER EXPANSION JOINT
N	NORTH, NO WORK REQUIRED
NAT	NATURAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEG	NEGATIVE
NEUT	NEUTRALIZATION
NIC	NOT IN CONTRACT
NO	NUMBER, NORMALLY OPEN
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OA	OVERALL, OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
P	PAINT SURFACE(S) INCLUDING SOFFITS
PAR	PARALLEL
PART	PARTITION
PC	PLUMBING CONTRACT (OR), PIGMENTED CONCRETE
PCC	PRECAST CONCRETE
PE	PORCELAIN ENAMEL
PENC	PRE-EXISTING NON-CONFORMING
PERF	PERFORATE (ION) (ED)
PERI	PERIMETER
PERP	PERPENDICULAR
PL	PLATE, PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER, PLASTIC
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PM	PLUGMOLD
PNL	PANEL
POC	POINT OF CURVATURE, POINT OF CONNECTION
POL	POLISHED
POS	POSITIVE
POT	POINT OF TANGENCY
PR	PAIR
PRE	POWER ROOF EXHAUSTER
PREP	PREPARE (ATION)
PRF	PREFORMED
PROJ	PROJECT
PS	PAINT EXPOSED STRUCTURE/DECK
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, PORCELAIN TILE
PTD	PAINTED
PTFR	PRESSURE TREATED FIRE RETARDANT
PTP	PRESSURE TREATED PRESERVATIVE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWE	POWER WALL EXHAUSTER
QF	QUARTZ FLOORING
QT	QUARRY TILE
R	RADIUS, RETURN, REFRIGERANT
RA	RETURN AIR
RAD	RADIATION
RAF	RETURN AIR FAN, RESILIENT ATHLETIC FLOORING
RB	RESILIENT BASE
RC	ROOFING CONTRACT (OR)
RCA	RECYCLED CONCRETE AGGREGATE
RCP	REINFORCED CONCRETE PIPE, REFLECTED CEILING PLAN
RCU	REMOTE CONDENSING UNIT
RD	ROOF DRAIN
RECEPT	RECEPTACLE
REF	REFERENCE
REFL	REFLECT (ED) (IVE) (OR)
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE (D) (ING)
REM	REMOVED
REQD	REQUIRED
RESIL	RESILIENT
RET	RETAINING, RETURN
REV	REVISION, REVISED, REVEAL
RF	RUBBER FLOORING
RFG	ROOFING
RFH	ROOF HATCH
RFM	RECESSED FLOOR MAT
RG	RETURN GRILLE
RGS	RIGID GALVANIZED STEEL
RH	RIGHT HAND
RHC	REHEAT COIL
RI	ROUGH-IN
RL	RAIN LEADER
RLG	RAIL(ING)
RM	ROOM
RMC	RIGID METAL CONDUIT
RNC	RIGID NONMETALLIC CONDUIT
RNT	RUNNING TRAP
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RR	REMOVE EXISTING AND REPLACE WITH NEW
RS	RUBBER STAIR TREAD/RISER
RTH	ROOF TOP HOOD
RTU	ROOF TOP UNIT
RW	RAW WATER
S	SOUTH, SUPPLY, SURGE PROTECTED
SA	SUPPLY AIR
SAN	SANITARY
SAS	SMOOTH ALL SIDES
SC	SOLID CORE, SILL COCK, SEALED CONCRETE
SCHED	SCHEDULE
SCT	STRUCTURAL CLAY TILE
SD	STORM DRAIN, SPLITTER DAMPER, SMOKE DAMPER
SEC	SECTION
SF	SQUARE FEET
SGI	SMALL GROUP INSTRUCTION
SGT	STRUCTURAL GLAZED TILE
SH	SHELF, SHELVING, SMOKE HATCH
SHR	SHOWER, SHEAR WALL
SHT	SHEET
SHTHG	SHEATHING
SIM	SIMILAR
SK	SINK
SL	SOUND LINED, SKYLIGHT
SLC	SILLCOCK
SLV	SLEEVE
SLVR	STORM LOUVER
SMH	SANITARY MANHOLE
SOG	SLAB ON GRADE
SP	STATIC PRESSURE, STANDPIPE, SPACE (ING) (ES)
SPEC	SPECIFICATION (S)
SPKR	SPRINKLER
SPL	SPECIAL
SQ	SQUARE
SS	STAINLESS STEEL
SST	STRUCTURAL STEEL TUBING
ST	STORM, STORAGE
STA	STATION
STC	SHOWER TEMPERATURE CONTROLLER, STAINED CONCRETE
STD	STANDARD
STG	SEATING
STL	STEEL
STN	STAIN (ED)
STOR	STORAGE
STRU	STRUCTURAL
SURF	SURFACE
SUSP	SUSPENDED
SV	SHEET VINYL, STEAM VENT
SW	SWITCH, SOFTENED WATER
SWCI	SERVICE WEIGHT CAST IRON
SYM	SYMMETRICAL
SYN	SYNTHETIC
SYS	SYSTEM
T	TREAD, TOP, TOILET ROOM, TONS, TERRAZZO
TB	TOP AND BOTTOM, TACK BOARD, TERRAZZO BASE
TBD	TO BE DETERMINED
TC	TEMPERATURE CONTROL, TEMPERED CLEAR, TELECOMMUNICATIONS CONTRACTOR, TOP OF CURB
TCX	TOP CHORD EXTENTION
TDV	TRIPLE DUTY VALVE
TEL	TELEPHONE
TEMP	TEMPERATURE
TG	TOP GRILLE, TONGUE AND GROOVE
THK	THICKNESS
THR	THRESHOLD
TME	TO MATCH EXISTING
TMV	THERMOSTATIC MIXING VALVE
TOD	TOP OF DUCT
TOF	TOP OF FASCIA, TOP OF FOOTING
TOL	TOLERANCE
TOM	TOP OF MASONRY
TOP	TOP OF PIPE, TOP OF PIER
TOS	TOP OF STEEL, TOP OF STAIR
TPART	TOILET PARTITION
TR	TOP REGISTER
TRN	TRANSOM
TS	TOP OF STAIR
TV	TELEVISION
TW	TEMPERED WATER, TOP OF WALL
TYP	TYPICAL
UC	UNDERCUT
UD	UNDERDRAIN
UE	UNDERGROUND ELECTRIC
UG	UNDERGROUND
UH	UNIT HEATER
UNF	UNFINISHED
UNIF	UNIFORM
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UT	UNDERGROUND TELEPHONE
UV	UNIT VENTILATOR
V	VENT, VOLT
VAR	VARIES, VARIABLE
VARN	VARNISH
VAT	VINYL ASBESTOS TILE
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER, VAPOR RETARDER BARRIER, VOLLEYBALL
VCB	VENTED COVE BASE
VCT	VINYL COMPOSITE TILE
VD	VOLUME DAMPER
VERM	VERMICULITE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VIN	VINYL
VIT	VITREOUS TILE
VNR	VENEER
VOL	VOLUME
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST, WIDTH, WIDE, WASTE, WATT
WB	WET BULB
WC	WATER CLOSET, WALL COVERING
WD	WOOD, WOOD FLOORING
WDW	WINDOW
WDWC	WINDOW CONTRACTOR
WF	WASH FOUNTAIN
WG	WALL GRILLE, WATER GAUGE
WH	WALL HUNG, WALL HYDRANT
WHA	WATER HAMMER ARRESTOR
WI	WROUGHT IRON
WM	WIREMOLD
WP	WATER PROOFING, WORKING POINT
WR	WATER REPELLENT, WIDE RIB, WALL REGISTER
WS	WATER STOP
WSCT	WAINSCOT
WT	WEIGHT
WWHP	WATER TO WATER HEAT PUMP
WWM	WELDED WIRE MESH
W/	WITH
W/O	WITHOUT
XHCI	EXTRA HEAVY CAST IRON
YD	YARD DRAIN, YARD

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	2/12/21	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

TETRA TECH
ARCHITECTS & ENGINEERS

Mahopac Central School District
Mahopac, NY

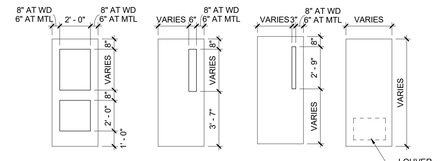
Reconstruction To:
Mahopac High School

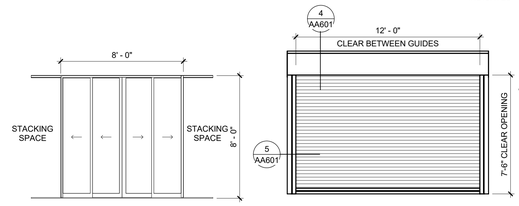
Symbols and Abbreviations

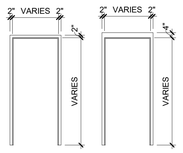
Drawn By: TTAE
Date: 8/21/20
Drawing Number: G100
Project No.: 121111-19002

Door Schedule

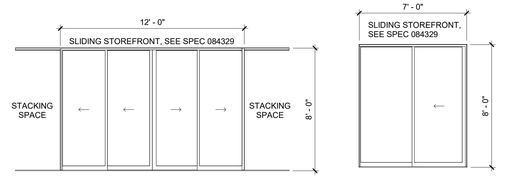
ROOM NUMBER	DOOR NUMBER	DOOR TYPE	DOOR MATERIAL	DOOR WIDTH	DOOR HEIGHT	DOOR RATING	DOOR GLAZING	FRAME TYPE	FRAME MATERIAL	FRAME WIDTH	FRAME HEIGHT	FRAME RATING	FRAME GLAZING	HEAD	JAMB	SILL	HDW SET	REMARKS
BASEMENT																		
247	1	N-PR	WD	3' - 0"	7' - 0"	20 MIN	FP	F1	HM	6' - 4"	7' - 4"	20 MIN	-	H4	J4		11	
247	2	F-PR	WD	3' - 0"	7' - 0"	-	FC	F1	HM	6' - 4"	7' - 4"	-	-	H14	J13		4	
247	3	F	WD	3' - 0"	7' - 0"	-	FC	F1	HM	3' - 4"	7' - 4"	-	-	H13	J13		5	
1st FLOOR																		
104	1	F	HM	3' - 0"	7' - 0"	-	-	F1	HM	3' - 4"	7' - 4"	-	-	H7	J6		17	
104	2	F	HM	3' - 0"	7' - 0"	-	-	F1	HM	3' - 4"	7' - 4"	-	-	H7	J6		17	
106	1	N	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		12	
106E	1	F	WD	3' - 0"	7' - 0"	-	-	F1	HM	3' - 4"	7' - 4"	-	-	H5	J6		10	
111	1	G2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S4	AL	0"	0"	60 MIN	FC	2/AA601	3/AA601		9	
111	2	N	WD	3' - 0"	7' - 0"	45 MIN	FRI	F2	HM	3' - 4"	7' - 2"	45 MIN	-	H13	J13		10	
111A	1	N	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		15	
113A	1	N-PR	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	6' - 4"	7' - 2"	20 MIN	-	H14	J13		6	
113A	2	N-PR	WD	3' - 0"	7' - 0"	45 MIN	FRI	F2	HM	6' - 4"	7' - 2"	45 MIN	-	H14	J13		4	
113F	1	F-PR	HM	4' - 10"	7' - 0"	-	FC	F2	HM	10' - 0"	7' - 2"	-	-	H7	J6		14	SOUND CONTROL DOOR ASSEMBLY
115	1	G2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S4	AL	0"	0"	60 MIN	FC	2/AA601	3/AA601		9	
115	2	N	WD	3' - 0"	7' - 0"	45 MIN	FRI	F2	HM	3' - 4"	7' - 2"	45 MIN	-	H13	J13		10	
142	1	N	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H4	J4		8	SOUND CONTROL DOOR ASSEMBLY
142	2	N	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H13	J13		5	SOUND CONTROL DOOR ASSEMBLY
142	3	F	WD	3' - 0"	7' - 0"	-	-	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		5	SOUND CONTROL DOOR ASSEMBLY
143	1	N	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H13	J13		5	SOUND CONTROL DOOR ASSEMBLY
143A	1	N	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H13	J13		15	
143A	2	N	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		15	
L101	1	N2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S3	AL	0"	0"	60 MIN	-	2/AA601	3/AA601		7	
L101	2	N2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S3	AL	0"	0"	60 MIN	-	2/AA601	3/AA601		7	
L101	3	N2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S3	AL	0"	0"	60 MIN	-	2/AA601	3/AA601		7	
L101	4	N2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S3	AL	0"	0"	60 MIN	-	2/AA601	3/AA601		7	
S101	1	N	WD	3' - 0"	7' - 0"	20 MIN	FPC	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H13	J13		9	
V101	1	G2-PR	AL	3' - 0"	7' - 0"	-	FC	S2	AL	0"	0"	-	FC	2/AA601	3/AA601		1	
V101	2	G2-PR	AL	3' - 0"	7' - 0"	-	FC	S2	AL	0"	0"	-	FC	2/AA601	3/AA601		2	
2nd FLOOR																		
218	1	F	WD	3' - 0"	7' - 0"	-	-	F1	HM	3' - 4"	7' - 4"	-	-	H6	J6		10	
219A	1	N	WD	3' - 0"	7' - 0"	20 MIN	-	F1	HM	3' - 4"	7' - 4"	20 MIN	-	H6	J6		10	
223	1	G2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S6	AL	0"	0"	60 MIN	FRI	2/AA601	3/AA601		8	
223	2	G2	AL	3' - 0"	7' - 0"	60 MIN	FRI	S6	AL	0"	0"	60 MIN	FRI	2/AA601	3/AA601		8	
223	3	N	WD	3' - 0"	7' - 0"	20 MIN	FP	F2	HM	3' - 4"	7' - 2"	20 MIN	-	H13	J13		5	
223-2	1	N	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		12	
223-4	1	G2	AL	3' - 0"	7' - 0"	-	FC	S15	AL	0"	0"	-	FC	2/AA601	3/AA601		9	
223S1	1	LMC-1	AL	7' - 0"	8' - 0"	-	FC	LMC-1	AL	7' - 0"	8' - 0"	-	-	6/AA601	7/AA601	6/AA601	13	SLIDING STOREFRONT
223S2	1	LMC-1	AL	7' - 0"	8' - 0"	-	FC	LMC-1	AL	7' - 0"	8' - 0"	-	-	6/AA601	7/AA601	6/AA601	13	SLIDING STOREFRONT
223S3	1	F	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H13	J13		12	
223S4	1	F	WD	3' - 0"	7' - 0"	-	FC	F2	HM	3' - 4"	7' - 2"	-	-	H14	J13		12	
235	1	N	AL	3' - 0"	7' - 0"	60 MIN	FRI	S5	AL	0"	0"	60 MIN	FRI	2/AA601	3/AA601		9	
238	1	N	AL	3' - 0"	7' - 0"	60 MIN	FRI	S5	AL	0"	0"	60 MIN	FRI	2/AA601	3/AA601		9	
238F	1	F-PR	HM	4' - 10"	7' - 0"	-	-	F2	HM	10' - 0"	7' - 2"	-	-	H7	J6		14	SOUND CONTROL DOOR ASSEMBLY
238I	1	F	HM	3' - 0"	7' - 0"	-	-	F1	HM	3' - 4"	7' - 4"	-	-	H13	J13		15	
239	1	N	AL	3' - 0"	7' - 0"	60 MIN	FRI	S5	AL	0"	0"	60 MIN	FRI	2/AA601	3/AA601		9	
239F	1	F-PR	HM	4' - 10"	7' - 0"	-	-	F2	HM	10' - 0"	7' - 2"	-	-	H7	J6		14	SOUND CONTROL DOOR ASSEMBLY
242	1	N	AL	3' - 0"	7' - 0"	20 MIN	FPC	S5	AL	0"	0"	20 MIN	FPC	2/AA601	3/AA601		9	
242	2	N	WD	3' - 0"	7' - 0"	20 MIN	FPC	F1	HM	3' - 4"	7' - 4"	20 MIN	-	-	-		10	
242A	1	SC-1	AL	12' - 0"	8' - 0"	-	FC	SEE DOOR	AL	SEE DOOR	SEE DOOR	-	-	8/AA601	9/AA601	8/AA601	16	SLIDING STOREFRONT
243	1	N	AL	3' - 0"	7' - 0"	20 MIN	FPC	S5	AL	0"	0"	20 MIN	FPC	2/AA601	3/AA601		9	
243	2	N	WD	3' - 0"	7' - 0"	20 MIN	FPC	F1	HM	3' - 4"	7' - 4"	20 MIN	-	-	-		10	
243A	1	SC-1	AL	12' - 0"	8' - 0"	-	FC	SEE DOOR	AL	SEE DOOR	SEE DOOR	-	-	8/AA601	9/AA601	8/AA601	16	SLIDING STOREFRONT
244	1	N	AL	3' - 0"	7' - 0"	20 MIN	FPC	S5	AL	0"	0"	20 MIN	FPC	2/AA601	3/AA601		9	
244A	1	SC-2	AL	8' - 0"	8' - 0"	-	FC	SEE DOOR	AL	SEE DOOR	SEE DOOR	-	-	8/AA601	9/AA601	8/AA601	16	SLIDING STOREFRONT



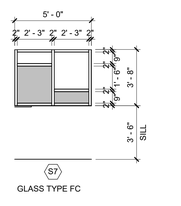


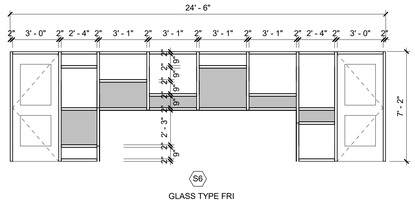


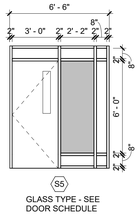
FRAME TYPES

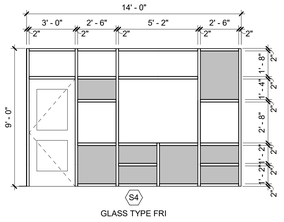


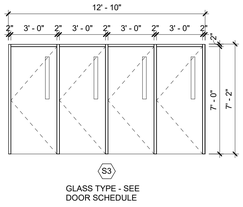
DOOR TYPES

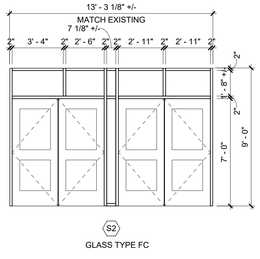


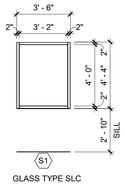


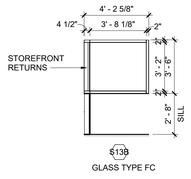


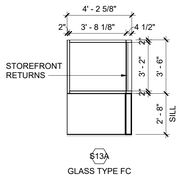


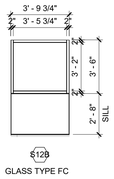


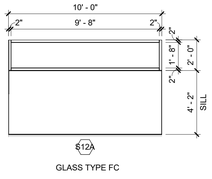


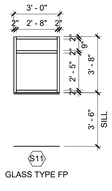


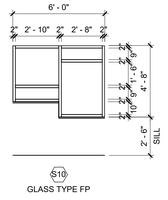


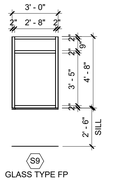


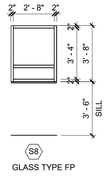


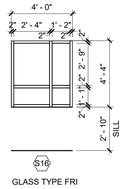


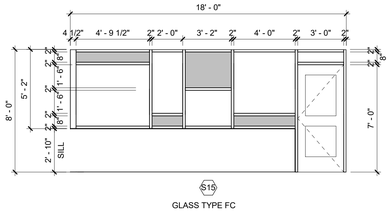


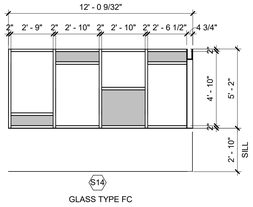












ALL STOREFRONT HEAD
DETAILS ARE 2 / AA601
UNLESS NOTED OTHERWISE

ALL STOREFRONT JAMB
DETAILS ARE 3 / AA601
UNLESS NOTED OTHERWISE

GRAY HATCHED GLASS AREAS
ARE ACID ETCHED GLASS

STOREFRONT TYPES

General Door Notes

A. SEE DWGS _____ FOR ADDITIONAL INFORMATION AND DETAILS.

B. HARDWARE ON DOORS FROM SPACES OF PUPIL OCCUPANCY SHALL BE A TYPE WHICH WILL ALWAYS PERMIT THE DOOR TO BE OPENED FROM THE INSIDE WITHOUT DIRECT MANIPULATION OF ANY TYPE LOCKING DEVICE.

C. METAL VISION PANEL TRIM SHALL BE PAINTED SAME COLOR AS DOOR FRAMES.

D. ALL DOORS WITH ELECTRO-MAGNETIC HOLD OPEN DEVICES SHALL SWING TOWARDS ADJACENT WALLS. COORDINATE ALL INSTANCES WITH CONTRACTOR RESPONSIBLE FOR ELECTRICAL WORK, AND SEE ELECTICAL DWGS.

E. ALL DOOR HARDWARE FROM OCCUPIED SPACES SHALL BE OF A TYPE THAT WILL ALWAYS PERMIT THE DOOR TO BE OPENED FROM WITHIN THE SPACE WITHOUT USE OF A KEY.

F. ALL HM FRAMES IN CMU WALLS SHALL BE GROUTED SOLID.

G. APPLY CONTINOUS JOINT SEALANT TO ALL JOINTS BETWEEN FRAMES AND WALLS, TYP ALL.

J. PAINT ALL HM DOORS AND FRAMES IN ACCORDANCE W/ SECTION 09900.

K. 1 PROVIDE LINTELS AT ALL DOOR AND WINDOW OPENINGS IN ACCORDANCE WITH LINTEL SCHEDULE ON STRUCTURAL DWGS.

L. PROVIDE MARBLE THRESHOLDS AT ALL TOILET ROOMS WHERE ADJACENT FINISH IS CERAMIC TILE. REFER TO DET 11/A2828.

M. NOT USED 1

N. NOTE THAT DUE TO REQUIREMENTS IN THE BCNYS, SOME FIRE RESISTANCE RATINGS MAY DIFFER BETWEEN DOORS (AND ITS GLASS, IF ANY) AND THAT DOOR'S FRAME ESPECIALLY IF THAT FRAME HAS GLASS (SIDELITES; TRANSOMS; ETC).

General Window Notes

A. NOTE USED

B. RESCUE WINDOWS ARE INDICATED BY THE DESIGNATION "RW".

C. PROVIDE ALL ALUMINUM FLASHINGS, RECEIVERS, TRIM AND SILLS REQUIRED FOR A COMPLETE AND FINISHED INSTALLATION REGARDLESS OF IF SHOWN ON DRAWINGS.

D. REFER TO WINDOW TREATMENTS AS SHOWN ON DRAWINGS.

E. GLAZING SYSTEMS FRAME TYPE KEY:

C	ALUMINUM CURTAIN WALL
F	HOLLOW METAL
S	ALUMINUM STOREFRONT
W	ALUMINUM WINDOWS

F. PROVIDE INTERNAL STEEL REINFORCEMENT TO WINDOW, STOREFRONT AND CURTAIN WALL SYSTEMS AS REQUIRED TO COMPLY WITH WIND LOADING OR OTHER DESIGN CRITERIA, OR AS RECOMMENDED BY MANUFACTURER,

G. ALUMINUM WINDOW, STOREFRONT AND CURTAIN WALL FRAME EXTRUSIONS ARE INTENDED AS GENERIC GRAPHIC REPRESENTATIONS ONLY.

H. GLASS TYPES PER SPEC 08 80 00 ARE FC, FP, FRI, FRD AND SCL. DESIGNATIONS ARE SHOWN ON DOOR SCHEDULE AND TYPE ELEVATIONS.

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	2/12/21	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

TETRA TECH ARCHITECTS & ENGINEERS

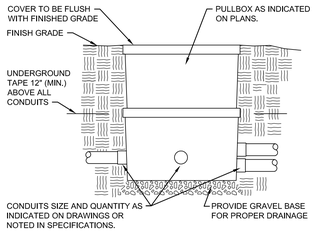
Mahopac Central School District
Mahopac, NY

Reconstruction To:
Mahopac High School

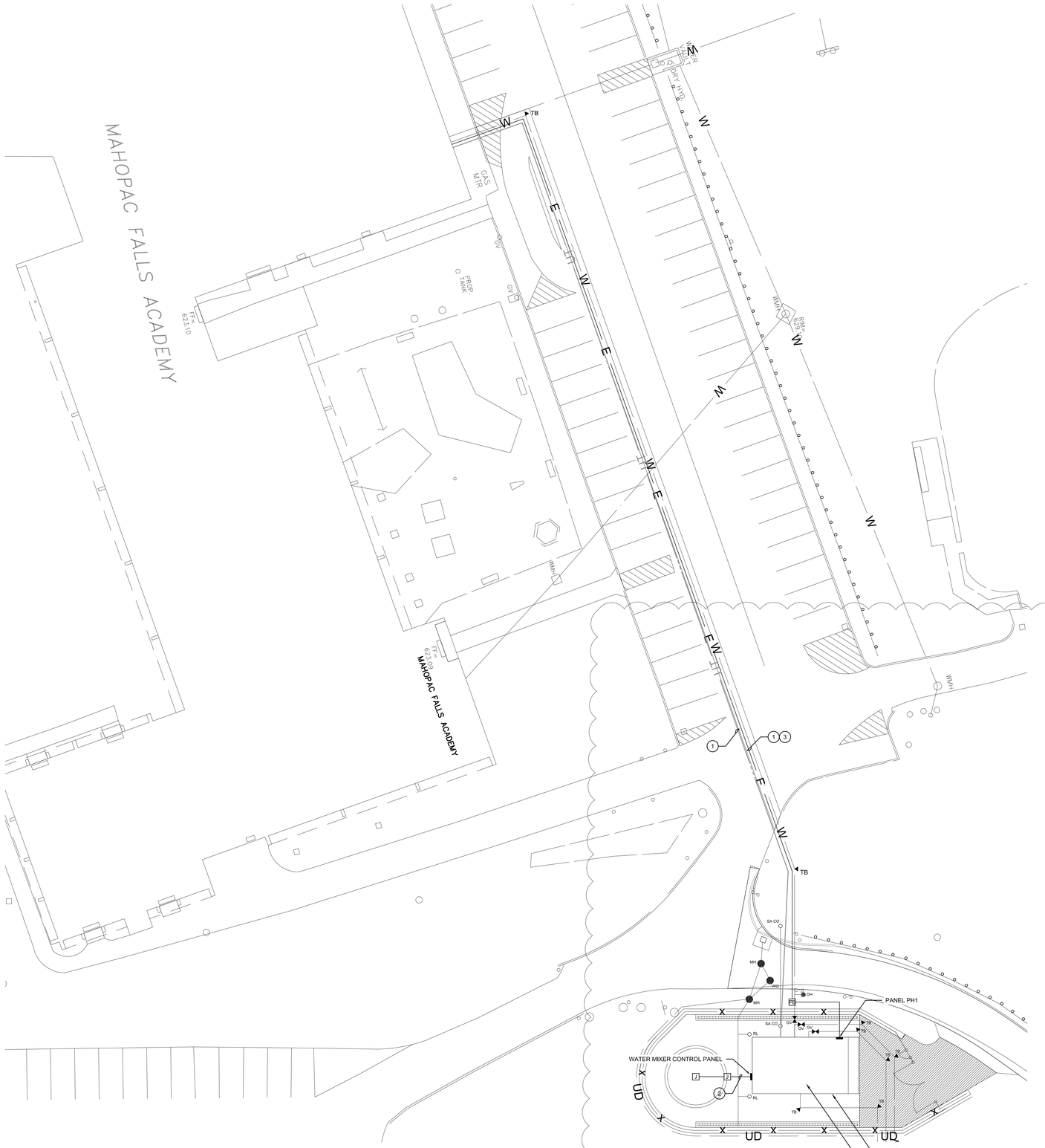
Door Schedule, Door Types and Window Types

Drawn By:	Date:	Drawing Number:
TS	8/21/20	AA600

Project No.: 121111-19002



② Typical Buried Pull Box Detail
N.T.S.



① Electrical Site Plan
3/4" = 1'- 0'

Keyed Notes:

① PROVIDE (1) 3" SCHEDULE 80 PVC AND (2) 2" SCHEDULE 80 PVC CONDUITS FROM CUSTODIAL ROOM TO PUMP HOUSE PANEL PH1. PROVIDE (4) #4/0 WITH (1) #2 GROUND IN THE 3" CONDUIT FROM MDP IN MAIN ELECTRIC ROOM TO PANEL PH1. THE (2) 2" CONDUITS SHALL BE USED FOR COMMUNICATIONS CABLING. PROVIDE A 225A3P BREAKER IN MDP MATCHING THE AIC RATING OF MDP AND UL LISTED FOR PANEL. ALL CONDUITS ABOVE GRADE SHALL BE EMT.

② PROVIDE REQUIRED POWER CONNECTIONS FROM WATER MIXER CONTROL PANEL TO BLOWER ON ROOF OF WATER STORAGE TANK.

③ PROVIDE 3/4" UINDERGROUND CONDUIT FOR FIRE ALARM CONNECTION TO PUMP HOUSE.

S.E.D. Control No. 48-01-01-06-0-006-013
S.E.D. Control No. 48-01-01-06-7-026-001
S.E.D. Control No. 48-01-01-06-0-003-008
S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	02/12/21	BID Addendum No 1

complex world
CLEAR SOLUTIONS

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

BID SET

TETRA TECH
ARCHITECTS & ENGINEERS

Mahopac Central School District
Mahopac, NY

Reconstruction to:
Mahopac High School

Electrical Site Plan

Drawn by: CR
Date: 08/21/20
T+ Project No.: 121111-19002
Drawing No.: AE003

DRAWING RE-ISSUED BY BID ADDENDUM NO 1

KITCHEN EQUIPMENT SCHEDULE

ITEM ⬡	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

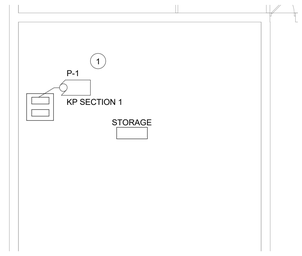
CONNECTOR TYPE
SR - SINGLE OUTLET
DR - DOUBLE OUTLET

NOTES
* CONTRACTOR SHALL PROVIDE A NEUTRAL TO EVERY CONNECTION
** CONNECTION TO BE COORDINATED WITH SUBMITTED AND APPROVED EQUIPMENT

REMARKS
1. RECEPTACLE TO BE A NEMA 5-15P
2. RECEPTACLE TO BE A NEMA 5-20P
3. RECEPTACLE TO BE A NEMA 15-50P
4. RECEPTACLE TO BE A NEMA 6-50P
5. PROVIDE HUBBELL SA-6685 PEDESTAL TYPE BOX.
6. PROVIDE 20A1P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED.
7. PROVIDE 30A1P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED.
8. PROVIDE 30A2P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED.
9. PROVIDE 50A3P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED.

GENERAL NOTE:
ALL CIRCUITS SUPPLYING RECEPTACLES SHALL BE GROUND FAULT PROTECTED.

2 Basement Cafeteria & Kitchen Power & Communications Plan - Area B
1/8" = 1'-0"



1 Basement Storage Power & Communications Plan - Area B
1/8" = 1'-0"

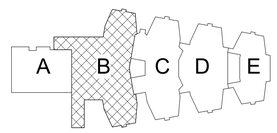
DRAWING RE-ISSUED BY BID ADDENDUM NO 1

Keyed Notes

1. PROVIDE 40A3P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED. CONNECT USING (3)#8, (1)#10G. IN 3/4" CONDUIT. NEW BREAKER TO BE UL LISTED FOR USE IN PANEL AND MEET OR EXCEED AIC RATING OF EXISTING PANEL. AMEND PANEL DIRECTORY ACCORDINGLY.
2. RE-CONNECT POWER CIRCUITRY PREVIOUSLY SERVING HVAC EQUIPMENT INDICATED. EXTEND/MODIFY CIRCUITRY AS REQUIRED.
3. PROVIDE 20A1P BREAKER IN AVAILABLE SPACE IN PANEL INDICATED. CONNECT USING (2)#12, (1)#12 G. IN 1/2" CONDUIT. NEW BREAKER TO BE UL LISTED FOR USE IN PANEL AND MEET OR EXCEED AID RATING OF EXISTING PANEL. AMEND PANEL DIRECTORY ACCORDINGLY.

General Notes

A. REFER TO DRAWING AE050 FOR GENERAL AND DEMOLITION NOTES.
B. CONNECT ALL LUMINAIRES AND GENERAL RECEPTACLES WITH (2)#12, #12G IN 1/2" C TO PANEL AS INDICATED.



Key Plan
N.T.S.

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	02/11/2021	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

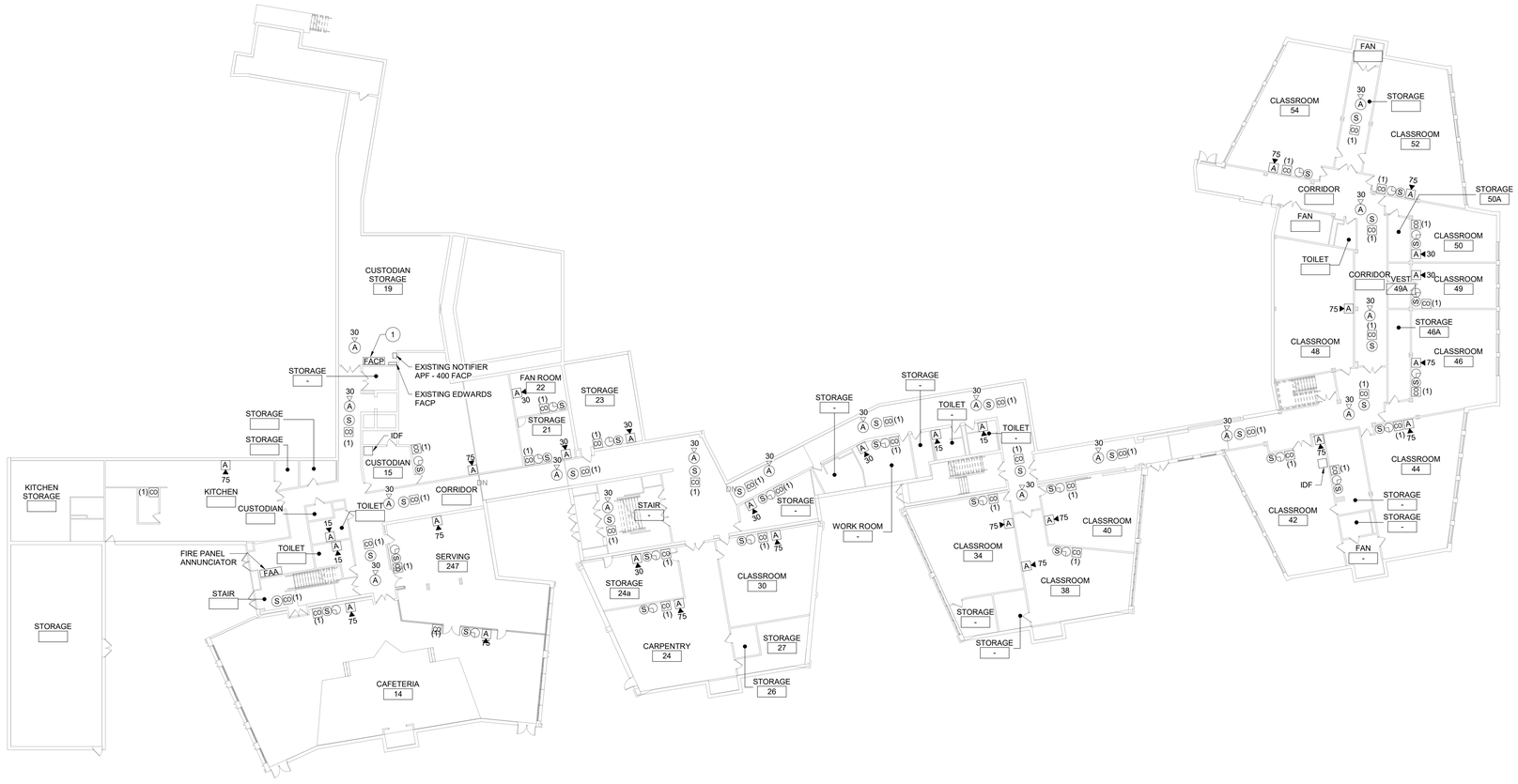
TETRA TECH
ARCHITECTS & ENGINEERS

Mahopac Central School District
Mahopac, NY

Reconstruction To:
Mahopac High School

Partial Basement Power & Communications Plans

Drawn By:	Date:	Drawing Number:
CR	8/21/20	AE161
Project No.: 121111-19002		



1 Basement Speaker, Clock and Fire Alarm Plan - Areas B, C, D & E
1" = 20'-0"

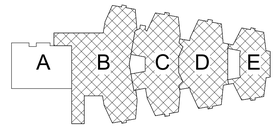
DRAWING RE-ISSUED BY BID ADDENDUM NO 1

Keyed Notes

1. CONNECT NEW FIRE ALARM DEVICES TO HONEYWELL 4040 FIRE ALARM PANEL. THE EXISTING SYSTEM IS NOTIFIER.

General Notes

A. REFER TO DRAWING AE050 FOR GENERAL AND DEMOLITION NOTES.



Key Plan
N.T.S.

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	02/11/2021	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

TETRA TECH
ARCHITECTS & ENGINEERS

Mahopac Central School District
Mahopac, NY

Reconstruction To:
Mahopac High School

Basement Speaker, Clock and Fire Alarm Plan

Drawn By:	Date:	Drawing Number:
CR	8/21/20	AE200
Project No.:		
121111-19002		

PANEL NAME	AREA IN BUILDING	ROOM	MOUNTING	EXG NUM OF SPACES	REPLACEMENT NUM OF SPACES	VOLTAGE / PHASE	PANEL RATING (A)	PANEL LUG RATING	MAIN CIRCUIT BREAKER REQUIRED (RATING)	PANEL AIC	1P15	1P20	1P20 GFCI	1P30	1P50	2P15	2P20	2P30	2P50	2P60	2P100	3P15	3P20	3P30	3P40	3P50	3P60	3P70	3P80	3P90	3P100	3P150	3P175	3P200	3P225	3P250	3P300	3P350	3P400	3P3000	NOTES
OL	Basement	Custodial Storage 019	Surface	24	24	120/208/3P	100A	100A	-	10K		22			2																									
EX	Basement	Custodial Storage 019	Surface	12	12	120/208/3P	100A	100A	-	10K	7	2										1																	
GB1	Basement	Teacher's Work Rm030	Surface	42	42	120/208/3P	225A	225A	-	10K	1	25											3				1												
KP SECTION 1	Basement	Kitchen 007	Recessed	36	42	120/208/3P	400A	400A	-	10K	3	5						2	2			2	1	2				1											
KP SECTION 2	Basement	Kitchen 007	Recessed	42	42	120/208/3P	400A	400A	-	10K	9	18						1				1	1		2														
SH1 SECTION 1	Basement	Tech Room 024	Surface	7	7	120/208/3P	225A	-	225A	10K		6																							1				
SH1 SECTION 2	Basement	Tech Room 024	Surface	24	24	120/208/3P	225A	225A	-	10K												8																	
SH1 SECTION 3	Basement	Tech Room 024	Surface	42	42	120/208/3P	225A	225A	-	10K		9	9				1		1			3		1		1													
SH2 SECTION 1	Basement	Serving	Recessed	7	7	120/208/3P	250A	-	250A	10K		6																							1				
SH2 SECTION 2	Basement	Serving	Recessed	12	42	120/208/3P	400A	400A	-	10K		2										2				1													
SH2 SECTION 3	Basement	Serving	Recessed	42	42	120/208/3P	400A	400A	-	10K	1	17	8	4			2	2				3	1			2													
SH3 SECTION 1	Basement	Cafeteria	Recessed	7	7	120/208/3P	225A	-	225A	10K		6																							1				
SH3 SECTION 2	Basement	Cafeteria	Recessed	9	9	120/208/3P	225A	225A	-	10K		8													1														
SDP	Basement	Meter Room 131	Floor	1	1	120/208/3P	3000A	-	2500A	10K																													1
GBB1	Basement	Custodial Storage 019	Surface	15	15	120/208/3P	100A	100A	-	10K								1				1	2								1								
BP	TBD	TBD	Surface	30	30	120/208/3P	100A	100A	60A	10K																													
MDP1	Basement	Meter Room 131	Floor	Switchboard	Switchboard	120/208/3P	3000A	-	2500A	65K																	3			4		8				4		
MDP2	1st Floor	Storage 186	Floor	Switchboard	Switchboard	120/208/3P	800A	800A	800A	10K																	4			4		6				5		
AP	1st Floor	Gym Storage 117	Surface	36	36	120/208/3P	225A	225A		10K								6																				
1A1	1st Floor	Janitor Closet 129	Recessed	42	42	120/208/3P	225A	225A	-	10K		39										1																
1A2	1st Floor	Corridor 131	Recessed	30	30	120/208/3P	225A	225A	-	10K		14				1		1																				
1A3	1st Floor	Outside 120 Janitor CL.	Recessed	36	36	120/208/3P	225A	225A	-	10K		36																										
1A4	1st Floor	Gym Storage 116	Surface	18	18	120/208/3P	100A	100A	-	10K		17																										
1B1	1st Floor	Stairway across 186 Rm	Recessed	42	42	120/208/3P	400A	400A	-	10K		36											1			1												
1B2	1st Floor	Corridor across 184 Rm	Recessed	42	42	120/208/3P	400A	400A	-	10K		39											1															
1B3	1st Floor	Corridor outside 189 Rm	Recessed	42	54	120/208/3P	400A	400A	-	10K		36		2				2	2		1	2																
1B4	1st Floor	Corridor outside 199 Rm	Recessed	42	54	120/208/3P	225A	225A	-	10K		45					1					1																
SP	1st Floor	Corridor 131	Recessed	42	42	120/208/3P	400A	400A	-	10K		34					2					1																
2A1 SECTION 1	2nd Floor	Corridor outside 218 Rm	Recessed	24	24	120/208/3P	225A	225A	-	10K		14		4									2															
2A1 SECTION 2	2nd Floor	Corridor outside 218 Rm	Recessed	24	24	120/208/3P	225A	225A	-	10K		24																										
2A2	2nd Floor	Corridor across 201 Rm	Recessed	42	42	120/208/3P	225A	225A	-	10K	1	37		1									1															
2B1	2nd Floor	Corridor outside 242 Rm	Recessed	36	36	120/208/3P	400A	400A	-	10K		33										1																
2B2	2nd Floor	Corridor outside 268 Rm	Recessed	30	30	120/208/3P	400A	400A	-	10K		22						1				2																
2B3 SECTION 1	2nd Floor	Corridor outside 253 Rm	Recessed	30	42	120/208/3P	200A	-	200A	10K		38		2																								
2B3 SECTION 2	2nd Floor	Corridor outside 253 Rm	Recessed	30	42	120/208/3P	200A	-	200A	10K		36							1			1																
2B4	2nd Floor	Corridor outside 260 Rm	Recessed	42	42	120/208/3P	225A	225A	-	10K		31		2								1			2													
LPSC1	2nd Floor	Chemistry 263	Surface	24	24	120/208/3P	60A	60A	-	10K		22				1																						
LPSC2	2nd Floor	Storage 247	Surface	18	24	120/208/3P	100A	100A	-	10K		23																										

1

**PROVIDE (6)30A 3P BREAKERS

1 Panel Replacement Schedule

NTS

LUMINAIRE SCHEDULE

***ALL LUMINAIRES ARE 120V

* MANUFACTURER AND MODEL NUMBER ARE PROVIDED TO SHOW BASIS OF DESIGN ONLY.

ITEM	SYMBOL	ITEM	LAMPS			MANUFACTURERS (OR EQUAL)*		NOTE
			LUMENS	WATTAGE	TYPE	NAME	MODEL OR SERIES	
1		2' X 2' RECESSED TROFFER	4500	42	LED	SIGNIFY	2FXP-45L-835-2-DS-UNV-DIM	
1EM		2' X 2' RECESSED TROFFER WITH INTEGRAL BATTERY BACKUP	4500	42	LED	SIGNIFY	2FXP-45L-835-2-DS-UNV-DIM-EMLED	
2		2.25" APERATURE WITH 12" BAFFLE ACOUSITIC SUSPENDED LINEAR	1655	4.6	LED	FINELITE	HP-2-B-P-D-4'-835-F-SC-FC-10%-C4-FE	
2EM		2.25" APERATURE WITH 12" BAFFLE ACOUSITIC SUSPENDED LINEAR AND INTEGRAL BATTERY BACKUP	1655	4.6	LED	FINELITE	HP-2-B-P-D-4'-835-F-SC-FC-10%-C4-FE-BSL310LP	
3		2.25" X 4' APERATURE REGRESSED 1" DIFFUSER SURFACE MOUNT LINEAR	1486	4.6	LED	FINELITE	HP-2-SM-D-4-B-835-RG-D-120-SC-FC-10%-C4-FE	
3EM		2.25" X 4' APERATURE 1" REGRESSED DIFFUSER SURFACE MOUNT LINEAR WITH INTEGRAL BATTERY BACKUP	1486	4.6	LED	FINELITE	HP-2-SM-D-4-B-835-RG-D-120-SC-FC-10%-C4-FE-BSL310LP	
3A		2.25" X 4' APERATURE REGRESSED 1" DIFFUSER RECESSED LINEAR	1486	4.6	LED	FINELITE	HP-2-R-D-2-B-835-RG-D-120-SC-FC-10%-C4-FE	REFER TO PLANS FOR LENGTH AND CORNERS
4		2.25" X 4' APERATURE WITH SUSPENDED LINEAR	1486	4.6	LED	FINELITE	HP-2-B-P-D-4'-835-F-SCFC-10%-C4-FE	
4EM		2.25" X 4' APERATURE WITH SUSPENDED LINEAR WITH INTEGRAL BATTERY BACKUP	1486	4.6	LED	FINELITE	HP-2-B-P-D-4'-835-F-SCFC-10%-C4-FE-BSL310LP	
5		3.5" DIAMETER 12" CYLINDER PENDANT	950	18	LED	INTENSE LIGHTING	MXPRD-TW2-2-D10V1-WF-FR	
6		4" DIAMETER RECESSED DOWNLIGHT	1000	20	LED	INTENSE LIGHTING	4-R-N-Z4RDL-10-835-W-O-CD-Z10-U	
7		.30" X 1.14" DISPLAY TASK LINEAR LIGHT	418lm/ft	4.1	LED	VODE LIGHTING	707-Z1-SL	REFER TO PLANS FOR LENGTH
8		2.25"X 4' RECESSED LINEAR	1692	4.6	LED	FINELITE	HP-2-R-D-4'-B-835-F-SC-FC-10%-C4-FE	
8EM		2.25"X 4' RECESSED LINEAR WITH INTEGRAL BATTERY BACKUP	1692	4.6	LED	FINELITE	HP-2-R-D-4'-B-835-F-SC-FC-10%-C4-FE-BSL310LP	
9		4" DIAMETER RECESSED SHOWER DOWNLIGHT	1000	11	LED	SIGNIFY (LIGHTOLIER)	4-R-N-Z4RDL-10-835-W-O-CD-Z10-U	
9EM		4" DIAMETER RECESSED SHOWER DOWNLIGHT WITH INTEGRAL BATTERY BACKUP	1000	11	LED	SIGNIFY (LIGHTOLIER)	4-R-N-Z4RDL-10-835-W-O-CD-Z10-U-EM	
10		48" X 46" X 38" CABLE MOUNTED ALUMINIUM/GLASS CHANDELIER		750	LED	NEMO LIGHTING	CRO HOW 52	
20		EXIT SIGN (SINGLE FACE)		2.5	LED	SIGNIFY (CHLORIDE)	ER46L-1-W-R	SEE PLANS FOR DIRECTIONAL INDICATORS
21		EXIT SIGN (DOUBLE FACE)		2.5	LED	SIGNIFY (CHLORIDE)	ER46L-2-W-R	SEE PLANS FOR DIRECTIONAL INDICATORS
30		BATTERY PACK EMERGENCY LIGHT		.027	LED	SIGNIFY	CLUN-W	

General Notes

A. REFER TO DRAWING AE050 FOR GENERAL AND DEMOLITION NOTES.

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	02/11/2021	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

TETRA TECH ARCHITECTS & ENGINEERS

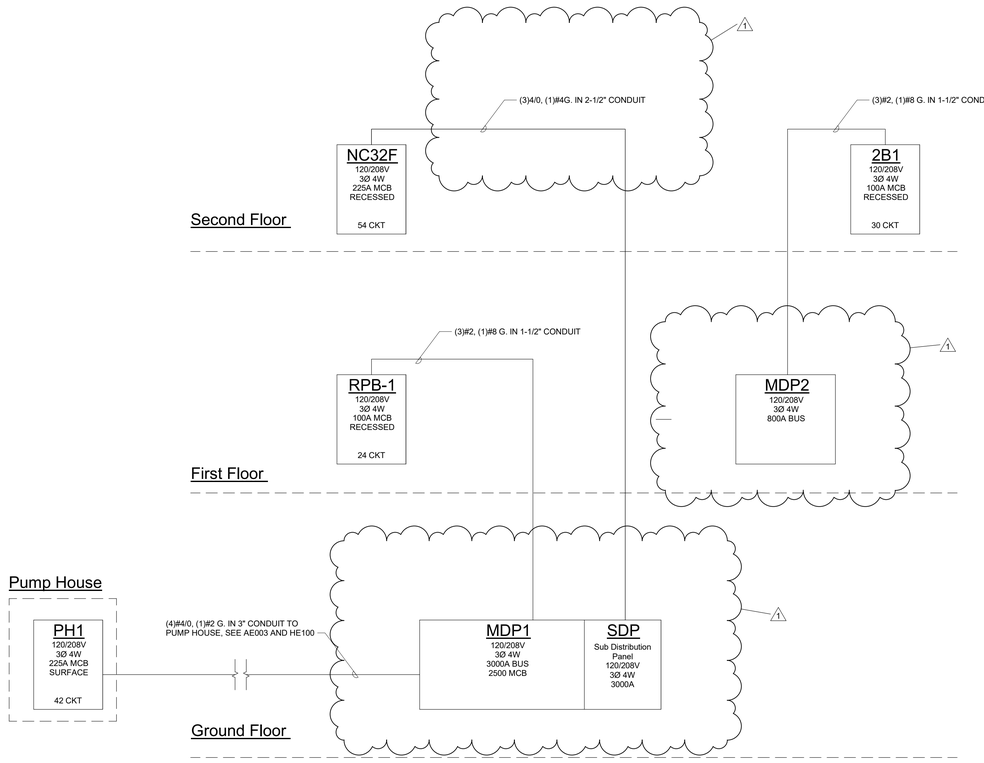
Mahopac Central School District
Mahopac, NY

Reconstruction To:
Mahopac High School

Schedules

Drawn By: CR | Date: 8/21/20 | Drawing Number: AE600

Project No.: 121111-19002



1 Single Line Diagram
NTS

General Notes

A. REFER TO DRAWING AE050 FOR GENERAL AND DEMOLITION NOTES.

DRAWING RE-ISSUED BY BID ADDENDUM NO 1

S.E.D. Control No. 48-01-01-06-0-004-020

Rev. No.:	Date:	Description:
1	02/11/2021	BID Addendum No 1

complex world | CLEAR SOLUTIONS

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

BID SET

TETRA TECH
ARCHITECTS & ENGINEERS

Mahopac Central School District
Mahopac, NY

Reconstruction To:
Mahopac High School

Single Line Diagram

Drawn By:	Date:	Drawing Number:
CR	8/21/20	AE700

Project No.: 121111-19002