

**To:** Bidding Contractors

**Date:** July 24, 2026

**From:** Christopher Police, RA

**Project:** VCSD 2024 Capital Project

**Add. No.:** Pre-Bid Addendum 003

*A d d e n d u m*

---

The contents of this addendum alter and amend the original drawings, specifications, and/or previous addendum and take precedence over the related items therein.

---

The following items are included in Pre-Bid Addendum 003:

**CLARIFICATIONS**

1. New Scoreboard – Delegated design and installation of foundations and steel shall be removed from the GC prime contract.

**Response:** GC shall still be responsible for removal of existing scoreboard.

2. Cutting and Patching:
  - a. GC to be responsible for all concrete and masonry removals and patching.
  - b. Each trade is responsible for all sheetrock cutting and patching not called out on Architectural drawings.

**QUESTIONS/RESPONSES**

1. Would it be feasible to have an allowance for the excavation work in the crawlspace? The interpretation of the quantity of excavation can vary widely from contractor to contractor, so we believe that either an allowance or an established material quantity in the documents to be carried would be the best options to ensure an even playing field. Please advise.

**Response:** MC to carry a \$50,000 Allowance for excavation.

2. Please verify that excavation/trenching is to be done by the prime requiring the excavation/trenching.

**Response:** All primes are to provide their own Excavation/ Trenching.

3. Please clarify if any work would contractually require 2nd shift work by the GC. I understand that contractors are required to do whatever it takes to complete the project per the schedule, but are there any items or work areas that would specifically require 2nd shift work and would not be allowed to take place during regular work hours?

**Response:** 2<sup>nd</sup> shift work will be required for activities that will disrupt the surrounding classrooms during 1<sup>st</sup> shift (I.E. slab penetrations, select demolition, or other excessive noise producing activities)

4. Please advise if the concrete duct bank is by the Electrical prime or the GC prime.

**Response:** Duct bank is the work of the EC.

5. Will fully constructed temporary partitions be required at the 3 room groupings that will be renovated at a time? Or will simple protections and plastic protection at doorways suffice?

**Response:** Simple protection will suffice. All work and material remain inside the rooms.

6. Under Contractor Responsibilities on drawing SF ES-1.0, there is a note that states "General contractor shall be responsible for the delegated design and installation of pole foundations". It is a large assumption for the GC to guess at the sizing of foundations or the reinforcement involved within. Please advise on what concrete foundations should be figured in the GC's bid.

**Response:** GC to reach out to Musco Lighting Rep Nathan Lindsay, Mobile: (315)-418-5072, nathan.lindsay@musco.com, to receive the design information.

7. Under Contractor Responsibilities on drawing SF ES-1.0, there is a note that states "General Contractor shall be responsible for installing the poles and lights on the poles". Is this correct? If the lights/poles are under the state contract with Musco, why would the GC be installing them?

**Response:** This is the work of the EC.

8. Under Renovation Note #2 on drawing SF ES-1.0 states "New Musco field lighting control cabinet on existing concrete pad. Extend pad as required". Detail 3 on ES-1.1 shows the concrete pad, but not the extent of the existing pad versus the new "concrete pad extension" mentioned above. Please provide dimensions that the existing concrete pad should be extended.

**Response:** Existing pad to be field verified but assume 3'-0" x 4'-0" extension.

9. Spec 230500, 1.22A - Mentions "Detailed layout shop drawings on all systems as required in Division 01 – Project Coordination". There is no Division 01 coordination spec. Please review and clarify.

**Response:** Correct there is no Division 1 Coordination spec. All other coordination listed shall remain.

10. At the pre-bid meeting it was heard that the DDC work will be an allowance. Spec 012100 does not list the DDC, nor is it mentioned as an allowance in spec 230923. Spec 230000, 1.4A.16 states Controls will be part of a state contract and to coordinate with the contractor. Please review and clarify.

**Response:** This work is to be provided by the MC under contract work. There will be no alternate or allowance for this work. Section 23 00 00 1.4, A, 16 is in error. DDC shall be as specified in 23 09 23.

11. Spec 230923, 3.33B.2, .3, .4, and .5 - please clarify the quantity of four (4) hour classes that need to be included. (Listed as "three (2)").

**Response:** Quantity shall be two, not three for each.

12. The work on drawing HS M-4.0 is not shown on the schedule. When can it occur?

**Response:** This work will be coordinated with the District once the demand for the chillers is no longer needed for the school year.

13. With regard to the schedule- does the work listed for the basement and crawlspace (occurring between 11/2/26 and 12/25/26) need to be performed off hours?

**Response:** This work will be 1<sup>st</sup> shift, as these are isolated areas.

14. General Conditions, page 48/60, item 11.1.4.6 requires the "General Contractor" to provide Builder's Risk Insurance. Will this be covered under Contract #1: Prime Contract - General/Site? Or does each Prime contract need to have their own policy?

**Response:** It will be the responsibility of the District to provide Builders Risk.

15. For second floor unit ventilators, does the copper condensate drainpipe need to be extended to grade? What type of protection will it need? Is insulation required?

**Response:** Drain shall penetrate exterior and terminate with elbow down. Insulate pipe through wall. Provide pipe sleeve and escutcheon plate. Seal penetration weather tight.

16. For bonding purposes, please provide the budgets for each contract.

**Response:**

GC- \$3,000,000

EC-\$4,000,000

MC- \$12,000,000

PC- \$400,000

Abatement- \$300,000

17. As the General, Electrical and Mechanical Prime Contracts all have work in the Clayton Ave Auditorium, can the scaffolding required to access the ceiling and protection of the floor and seating be covered under some type of allowance? We believe this will save the District money in the long run. Please review and advise.

**Response:** An allowance of \$50,000 is to be carried by the GC For the Auditorium Alternate.

18. Please provide the type and volume of refrigerant that needs to be recovered from the existing Chiller/Condenser system.

**Response:** Per 2005 existing drawings, chiller/condensers have two 80 pound circuits of R-22 refrigerant.

19. In 230923, sect 3.2, it calls for communication interface to lighting controls. I do not see a call for DDC communication interface with the lighting system on the schools M or E drawings. Please clarify if this required as part of the project.

**Response:** Not required

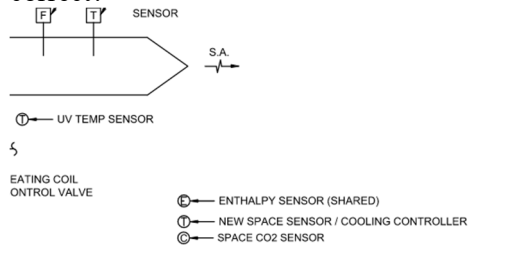
20. Are the UVs to have field installed freezestats, discharge air, and damper actuators or will they come with these devices? The UV spec does not indicate.

**Response:** DDC shall provide.

21. Are the OCC sensors called for in the Clayton Ave dwg M7.0, UV sequence of operations, part of the unit manufacturer tstats, field installed by the ATC (controls contractor), or installed by the EC and picked up by the ATC? Please clarify.

**Response:** ATC is responsible.

22. UV and associated LEV unit are to reference separate space sensors per the attached illustration, correct?



**Response:** Correct

23. For Clayton Elem FCU in drawing M7.0 it says Fan Coil provided by manufacturer controls on line 1 of the SOO (sequence of operations). In the FCU spec it says controller provided by FMCS/ATC in section 2.2.K and 2.2.L. Which is correct?

**Response:** VRF controls shall be by unit manufacturer

24. The Sr. High School control schematics on M7.0. The CAV RTUs have the same unit numbers indicated but the occupied SOO is different. Which is correct? Which applies to units 20-28?

**Response:** Typo error. The SOO at bottom of drawing shall apply to RTU-20-28.

25. In the Sr. High School CAV RTU SOO on M7.0, bottom left, how is the room/space DP sensor expected to be utilized? No reference is made to maintaining room pressure.

**Response:** Not required for RTU-20-28

26. Are the OCC sensors called for in the Sr. HS dwg M7.1, UV sequence of operations, part of the unit manufacturer tstats, field installed by the ATC (controls contractor), or installed by the EC and picked up by the ATC? Please clarify.

**Response:** ATC is responsible

27. For the Sr. HS, dwg M7.1, UV-154 SOO says unit to provided with no controls on the first line and then on line A.1 it says manufacturer to provide controls. Can you please clarify which is correct?

**Response:** Chilled water UV shall be provided with no controls. All controls by ATC.

28. Sr. HS, dwg M6.1, M/E equipment schedule notes, on line 11, “motorized, smoke, and fire/smoke dampers shall be 24v and is considered control wiring”. It is also shown on dwg E0.1 under on line 11. However, in spec 283102 sect 3.4.D.6, it states “the Division 26 Contractor shall wire through the auxiliary contacts in the detector base to the damper motor where the motor is 120 volts. Where the damper motor is low voltage, the wiring shall be by the Division 26 Contractor”. The EC contract typically handles power wiring to the fire/smoke dampers and ATC typically picks up the contacts for monitoring only. Please indicate and/or clarify if that applies here as well.

**Response:** EC shall handle power wiring, and ATC shall pick up contacts for monitoring. Smoke and fire/smoke dampers shall be 24v and considered life safety. Wiring shall be by EC/Fire Alarm Contractor. All other motorized dampers shall be 24v and considered control wiring, by ATC contractor

29. What is the “BCS” that is referred to in the Sr. HS, dwg M7.1, Exhaust Fan sequence of operations?

**Response:** Building Control System (aka BMS Building Management System)

30. Do Unit ventilators require condensate drain traps per the detail on DWG CA M-5.0?

**Response:** Yes

31. Please provide a spec for the VAV’s Scheduled on DWG HS M-6.1.

**Response:** Included in this Addendum

32. The Schedule show the Calyton Avenue classroom UV work being done from October 5, 2026, to June 25, 2027;

- a. Does this work need to be done off-shift? Can the roof work be done during the day?

**Response:** Abatement will need to be completed 2<sup>nd</sup> shift. All other work can be completed 1<sup>st</sup> shift unless the activity volume is excessive to disrupt the surrounding classrooms.

- b. Do the rooms being worked on need to be coordained-off from the other areas? Who is responsible if required?

**Response:** No barricades are required for these rooms. The doors will be the barricade.

- c. Does any temporary heat need to be provided? If yes, by who?

**Response:** No temp heating is required.

- d. What will need to be done to the existing HX system in order to perform work on each of the groups of rooms?

**Response:** The system will need to continue to circulate beyond the rooms being captured for construction.

33. Can you provide a weight or a model number of the existing roof mounted condensers?

**Response:** Existing condensers at High School are approximately 3150 pounds each based on existing drawings. Condenser at Vestal Hills weight is not known.

34. Where existing Condensing Units and Refrigerant Pipe Curbs are to be removed, will the roof patching be performed by the GC? And are there existing roof warranties?

**Response:** Yes, the roof is by the GC. At Clayton Avenue Elementary, a new roof has been installed 2026 and is under warranty. At the High School and Vestal Hills Elementary, roofs are out of warranty.

35. Spec section 230713 Duct Insulation does not list a material or thickness for outside air ducts. Please specify the material and thickness needed.

**Response:** Outside air duct shall be insulated with 2" armaflex

36. Spec section 230713 Duct Insulation does not list material for ductwork exposed in a non-conditioned space. Please specify the material and thickness for these areas.

**Response:** Type B, 2" thick R-6 min.

37. Is the concrete ductbank shown in the electrical drawings solely the responsibility of the electrical prime? Or is the GC expected to have involvement with them? Please verify.

**Response:** This is the work of the EC.

38. Are housekeeping / equipment pads by the contractor requiring them? Or are they the responsibility of the GC? If so, please verify pad locations and pad sizes required.

**Response:** The pads are the work of the GC. (Chris, Joe will need to review the drawings for sizing of the pads)

39. Please provide a site logistics plan showing the extent of any/all temporary fencing and lay-down areas for this project.

**Response:** There is no laydown area for this project. If onsite storage is required, this will be the responsibility of the contractor requiring it. Storage containers can be utilized and will be coordinated during the request.

40. Our insurance agent would like confirmation that only the GC is required to provide builder's risk insurance and that does not apply to PC/MC, thank you.

**Response:** The District will be responsible for Builders Risk.

41. Please confirm what loops if any have glycol fluid in them, thank you.

**Response:** None of the piping loops in any of the three schools contain glycol

42. I cannot locate a milestone schedule or phasing plan in the bid documents, please provide or point me in the right direction. Also please clarify what the MC should plan on as far as any second shift work required.

**Response:** 2<sup>nd</sup> shift will be required when the activity volume is excessive to disrupt the surrounding classrooms.

43. Please consider moving temporary sanitary from PC to GC. PC only has work at one school, GC has better feel for amount of people on site per schedule.

**Response:** PC to anticipate 20 people.

44. We have seen coordination scope gap issues with a similar TRANE/UV/LEV kit job where it was not clear who owned what wiring. Can the design team coordinate with trane and clearly lay out what the EC is responsible for and what the DDC contractor is responsible for in terms of wiring of UV's, LEV kits, condensing units, etc for power and control wiring including auxillary devices such as thermistors.

**Response:** Power Wiring to UV to be by EC

Power Wiring to PAC-AH001 to be by Trane

LEV assembly to be provided by Trane installed by MC

EC will be responsible for the 208v power to the LEVs along with breakers and panel work for the 208v control circuits.

UV controller to be provided and factory installed by Trane

UV end devices to be provided and factory installed by Trane

PAC-AH001 to be provided by Trane for field installed by Trane

PAC-AH001 low voltage wiring to Trane Controller to be by Trane

(4) Thermistors (gas pipe, liquid pipe, suction air, discharge air) to be provided by, installed by, and wired by Trane

Low voltage BACnet between Unit Ventilators to be by Trane

DDC Contractor to communicate with Trane UVs/VRF via Trane SC+ Controller

Classroom Relief Motor operated dampers; provided by MC; installed by MC; wired by DDC Contractor; controlled by Trane

45. Per 011200-GC is responsible for painting please confirm this also pertains to interior exposed duct or pipe, thanks.

**Response:** This is correct.

46. Please confirm for the UV metal shelving you want metal tops, not formica.

**Response:** Metal

47. Please consider having GC patch any exterior openings where ductwork, louvers, pipe, etc are removed. The MC would have to hire a GC to do this work.

**Response:** GC's to carry the exterior patching on penetrations and the masonry removal/patching and associated miscellaneous metals, ect.

48. Please confirm steel joists alterations as discussed on HS M 1.9 are responsibility of GC.

**Response:** This is the work of the GC.

49. Is the MC responsible for any new interior duct holes, patch of existing to be removed duct holes interior, and any new lintels for duct holes?

**Response:** interior cutting and patching is the work of the MC. GC's to carry the exterior patching on penetrations and the masonry removal/ patching and associated miscellaneous metals, ect.

50. HS M 1.17 discusses adding miscellaneous steel to the existing dunnage if required. If using basis of design shouldn't the design team and structural engineer be able to determine that now and have the GC carry what needs to be done instead of being left open?

**Response:** The dunnage is existing and will handle the weight of basis of design units. Miscellaneous steel may be required for mounting. Verify in field.

51. Who is responsible for new or removal of existing concrete housekeeping pads?

**Response:** The GC is responsible for this work.

52. Are we tucking under existing copper and aluminum wall flashing?

**Response:** Yes

53. Are we reusing expansion joints or are new required?

**Response:** Reuse existing

54. Are we tucking under curb flashings? Who is responsible to remove/reinstall?

**Response:** Yes, roofing contractor is responsible

55. Who is responsible to modify existing duct supports and ballasted equipment?

**Response:** Roofing contractor is responsible.

56. General piping notes on P-2.1 call for mechanical contractor to make final gas connections to RTUs. However typical rooftop connection detail on P-3.1 calls for final connection by plumbing contractor. Who is responsible for final gas connections to equipment?

**Response:** The PC is responsible for this work.

57. The insulation on the roof is calling to insulation on all piping. Suction is the only refrigeration piping to be called for insulation. What do you want on the liquid lines?

**Response:** Notes on drawings call for all refrigerant piping for VRF systems to be insulated and jacketed.

Also, please refer to spec section 23 62 14 VARIABLE REFRIGERANT VOLUME SYSTEM, 3.1 D

*“All refrigerant piping must be insulated with 1-1/2” thick closed cell, CFC-free foam insulation with flame-Spread Index of less than 25 and a smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102. R value of insulation must be at least 3.”*

58. On drawing E-2.4 in the bathroom there are 6 D2 lights. D2 lights are not called out on the lighting schedule. Can you provide specs on what these lights are? On drawing E-2.7 in Bio Prep Room 226.1 there are 3 lights that are not designated. Can you tell us what lights are going to be there?

**Response:** E-2.4: The type "D2" fixture is actually a type "D1" fixture. E-2.7: As for the missing fixture type, the bio prep room is type "A0" with no switching legs.

59. Need specification on coil kits for VAVs and HW coils?

**Response:** See revised spec section 23 21 14 HYDRONIC SPECIALTIES

60. Drawing HS E1.6, note 1, states smoke damper to be “OPEN/CLOSE MONITORED BY HVAC SYSTEM”. However, in drawing HS 5.0, on the Rooftop Unit detail, the smoke detectors are already coming with a set of contacts to be wired to the DDC panel. There are fire/smoke damper details on the page as well but no indication if those are to be monitored. Please clarify if the smoke detectors and dampers are to be monitored by the DDC system. If the dampers are to be monitored by the DDC system, please indicate by what means (for example: dry contact at the dampers or via dry contact on the FACP panel in room 113)

**Response:** Smoke detectors and dampers shall be monitored by the DDC. The unit(s) will be started thru the BAS system. Once a system enable command is issued, the duct mounted fire/smoke dampers, associated with this system, will open and after proof of fire/smoke damper open condition via end switches, the respective fan arrays will be allowed to energize.

Upon manual or automatic command at the fire alarm system, the fire/smoke dampers shall close and the unit shall shut down and the outside and relief air dampers shall close. An input to the DDC will be provided to indicate alarm. In case of failure of the smoke dampers, the unit shall be de-energized and alarm sent to the BAS.

61. Drawing CA E1.4 and E1.5, note 7, indicates relief duct smoke dampers to be “OPEN/CLOSE MONITORED BY HVAC SYSTEM”. However, there is no indication on the UV sequence of operations (M7.0) or other equipment sequence of operations, that the dampers are to be monitored. Can you please provide clarification if the smoke dampers are to be monitored by the DDC system, and if so, by what means (for example: dry contact at the dampers or via dry contact on the FACP panel in the boiler room). Does monitoring by the DDC system also apply to the smoke detectors in the relief ducts as well? If so, please indicate by what means

**Response:** Smoke detectors shall be monitored by the DDC. The unit(s) will be started thru the BAS system. Once a system enable command is issued, the duct mounted fire/smoke dampers, associated with this system, will open and after proof of fire/smoke damper open condition via end switches, the respective fan arrays will be allowed to energize.

Upon manual or automatic command at the fire alarm system, the fire/smoke dampers shall close and the unit shall shut down and the outside and relief air dampers shall close. An input to the DDC will be provided to indicate alarm. In case of failure of the smoke dampers, the unit shall be de-energized and alarm sent to the BAS.

62. Spec 011200, 1.8F.10 requires Professional Cleaning. Which contract is required to carry this?

**Response:** The GC is responsible for this work.

63. Roofing work RFI - Mechanical drawing HS MD-1.16 (as an example) calls for patching of roof to match existing at removed mechanical items. This is also noted on HS A-2.16. Other than lay-out of new roof openings, does the Mechanical contract own any roofing work?

**Response:** The MC is responsible for the layout only.

64. For the High School Roof Alternate 003, will there be any Mechanical Scope of work?

**Response:** Only the removal of any equipment needed to install the new roofing.

65. High School floor patching- drawing HS MD-1.9, notes 6 and 7 call for patching of the floor at removed grills. This work is also noted on drawing A-1.9, notes 1 and 2. Please clarify which Contract is to carry this scope of work.

**Response:** The GC is responsible for this work.

66. Demolition legend on demolition drawings hs d-1.10 through hs d-1.12 shows dashed lines indicating existing construction to be removed in its entirety. Architectural drawings show various amounts of wall and ceiling work. If existing construction is to be removed in its entirety what is the extent of reconstruction/painting required?

Response: Drawings revised (not included in addendum) Dashed lines only indicate area of work / demolition. Refer to tag notes on drawings for information.

67. What contract is responsible for the Floor grille work Detail 2/HS D1.6?

Response: The GC is responsible for this work.

68. What contract is responsible for the Floor grille work Detail 2/HS D1.6?

Response: The GC is responsible for this work.

69. At Vestal Hills Elementary, what contract is responsible for removing the UV Millwork/casework at this School?

Response: The MC is responsible for this work.

70. Please verify if roof curbs are to be furnished and installed by the mechanical prime, or if the GC will be required to install the curbs.

Response: Rood curbs are provided by MC and installed by GC

## **SPECIFICATIONS**

1. **01 21 00 ALLOWANCES** - Issued Revised Specification
2. **01 12 00 CONTRACT SUMMARY** — Issued Revised Specification
3. **23 36 00 AIR TERMINAL UNITS** - Issued Revised Specification
4. **23 21 14 HYDRONIC SPECIALTIES** -Issued Revised Specification
5. **23 07 13 DUCT INSULATION** - Issued Revised Specification
6. **23 07 19 PIPING INSULATION** - Issued Revised Specification

## **DRAWINGS**

1. **CA-A-1.5** – Issued Revised Drawing
2. **CA-D-1.3** – Issued Revised Drawing
3. **CA-D-1.4** – Issued Revised Drawing
4. **S-1.3** – Issued Revised Drawing
5. **S-2.2** – Issued Revised Drawing

Copies to: J:\2025-067 Vestal 2024 Capital Project\Construction Admin\Addenda\Pre-Bid Addendum 003\VCSD - 2024 Capital Project - Pre Bid Addendum 003.docx

SECTION 01 12 00 - CONTRACT SUMMARY  
GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes a summary of the contract, including responsibilities for coordination and temporary facilities and controls.

1. Design/Management Identification
2. Coordination.
3. Work covered by Contract Documents.
4. General Requirements of Contracts.
5. Working Hours
6. Prime Contractor Scope of Work.

Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.

- C. Related Requirements:

Section 01 23 00 "Administrative Requirements"  
Section 01 50 00 "Temporary Facilities and Controls"

1.3 DESIGN / MANAGEMENT IDENTIFICATION

OWNER:

Vestal Central School District  
201 Main Street  
Vestal, NY 13850

- B. ARCHITECT/ENGINEER:

Highland Associates  
102 Highland Avenue  
Clarks Summit, PA 18411  
Phone: 570-586-4334  
Fax: 570-586-5990

VESTAL CSD  
2024 CAPITAL PROJECT

MULTIPLE CONTRACT SUMMARY  
SECTION 01 12 00  
PAGE 1

HA PN:

Contact: Drew Marcinkevich

- C. CONSTRUCTION MANAGER:  
LeChase Construction  
11849 East Corning Road  
Corning, NY 14830  
Phone: 607-937-5464  
Fax: 607-937-5452  
Contact: Russ Robinson

#### 1.4 OVERALL PRIME/COOP PROJECT COORDINATION

- A. Contracts:
1. CONTRACT No. #1: Prime Contract- General
  2. CONTRACT No. #2: Prime Contract- Mechanical and Controls
  3. CONTRACT No. #3: Prime Contract- Electrical
  4. CONTRACT No. #4: Prime Contract- Plumbing
  5. CONTRACT No. #5: Prime Contract- Abatement

#### COORDINATION

- A. Contractor shall cooperate with and coordinate work with other Contractors and Suppliers, who will, under separate Contract with the District, provide certain labor, equipment and materials for simultaneous projects. Contractor will ensure materials are on site and ready for installation in accordance with the construction schedule so as to not delay the work.
- B. Coordination activities of the Construction Manager Works include, but are not limited to, the following:
1. Provide overall coordination of the Work with the Prime Contractors, State Contracts, and CO-OP.
  2. Coordinate shared access to workspaces.
  3. Provide overall coordination of temporary facilities and controls.
  4. Owner will approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
- C. Coordination by the Contractors: Coordination activities of the Contractor includes, but is not limited to, the following:
1. Schedule and sequence their Work activities.
  2. Preparation and coordination of Coordination Drawings.
  3. Coordinate sharing access to workspaces.

4. Coordinate integration of work into limited spaces.
5. Coordinate protection of work.
6. Coordinate cutting and patching for their work.
7. Coordinate tests and inspections for their work.
8. Coordinate temporary services and facilities.

## 1.6 WORK COVERED BY CONTRACT DOCUMENTS

### A. Project Description:

The project generally consists of the following:

**High School- HVAC Upgrades, Dick Hoover Stadium Video Board, Sammon Field Lighting**

**Clayton Ave- New HVAC system**

**Vestal Hills- New HVAC system**

## 1.7 CONTRACT SCOPE OF WORK

### A. The Following Drawings and Specifications are specifically included and defined as integral to EACH Prime Contract:

#### 1. Specifications:

- a. Division 00 - Procurement and Contracting Requirements
  - 1) All Specification Sections within this Division are owned by ALL contracts
- b. Division 01 - General Requirements:
  - 1) All Specification Sections within this Division are owned by ALL contracts.
- c. Division 07 - Thermal and Moisture Protection
  - 1) Specification Section 07 84 00 - Firestopping:
    - a. All contractors to provide Firestopping for their own trade's penetrations through all fire-rated walls.
  - 2) Specification Section 07 92 00 - Joint Protection:
    - a. All contractors to provide joint protection of their own trade's work.
- d. Division 08 - Openings:
  - 1) Specification Section 08 31 13 - Access Doors and Panels
    - a. All contractors to furnish Access Doors and Panels for their own trade's work.
    - b. Access Doors and Panels to be installed by each trade.
    - c. Include locations of Access Doors and Panels in shop drawings to General Trades Contractor.
- e. Division 09 - Finishes
  - 1) All contractors refer to Room Finish Schedule and all Finish Keys within drawings in coordination with all finishes for each trade.

B. CONTRACT No. #1: Prime Contract- General

1. Provide all labor, material, supervision, equipment, scaffolding, layout, engineering, deliveries, trucking, hoisting, rigging, shop drawings, submittals, and all other items related and required to complete all work in accordance with the Contract Documents but is not limited to, the following:
2. SPECIFICATIONS
  - a. Division 01- General Requirements
    - 1) Specification Section 01 33 00- 1.10 Delegated design
      - a. GC to reach out to Musco Lighting Rep Nathan Lindsay, Mobile: (315)-418-5072, [nathan.lindsay@musco.com](mailto:nathan.lindsay@musco.com), to receive the design information.
  - b. Provide work of Division 02 – Existing Conditions
    - 1) 02 41 19- Selective Structural Demolition
  - c. Provide complete work of Division 03 – Concrete
    - 1) GC to exclude the work of the Duct banks.
  - d. Provide the complete work of Division 05 – Metals
    - 1) GC to coordinate the demolition and alteration of the steel joists for duct routing referenced in the Mechanical Drawings.
  - e. Provide the complete work of Division 06 – Woods, plastics, composites
    - 1) Coordinate wood blocking with all other Primes and any Owner furnished equipment
    - 2) GC to provide blocking for the roof curbs.
  - f. Provide the complete work of Division 07 - Thermal and Moisture Protection
    - 1) 07 84 13- Penetration Firestopping- Each Prime to firestop their own penetrations
  - g. Provide complete work of Division 9- Finishes, unless noted otherwise
  - h. Refer to Specification Section 22 00 00 for coordination of work
  - i. Refer to Specification Section 23 00 00 for coordination of work
  - j. Refer to Specification Section 26 00 00 for coordination of work
3. At the High School and Vestal Hills- All roof penetrations and associated hole protection to be cut and installed by the General Contractor. At Clayton Ave, the penetrations and protection are by the Abatement Prime. Layout provided by the trade requiring the penetration.
4. Mechanical Prime to provide roof curbs, GC to install and flash roof curbs.
5. Each Prime is responsible for their own excavation.
6. GC's to carry the exterior patching on penetrations and the masonry removal/ patching and associated miscellaneous metals, ect.

7. The Contractor represents they have expertise in the performance of Work for this trade and assures all items to be complete, functional and installed in accordance with the best practices consistent with premium quality material and workmanship.

C. CONTRACT No. #2: Prime Contract- Mechanical and Controls

1. Provide all labor, material, supervision, equipment, scaffolding, layout, engineering, deliveries, trucking, hoisting, rigging, shop drawings, submittals, and all other items related and required to complete all work in accordance with the Contract Documents but is not limited to, the following:

2. SPECIFICATIONS

- a. Provide the work of Division 07 - Thermal and Moisture Protection
    - 1) 07 84 13- Penetration Firestopping- Each Prime to firestop their own penetrations
  - b. Refer to Specification Section 22 00 00 for coordination of work
  - c. Provide the complete work of Division 23 – HVAC
3. At the High School and Vestal Hills- All roof penetrations and associated hole protection to be cut and installed by the General Contractor. At Clayton Ave, the penetrations and protection are by the Abatement Prime. Layout provided by the trade requiring the penetration.
  4. Mechanical Prime to provide roof curbs, GC to install and flash roof curbs.
  5. Each Prime is responsible for their own excavation.
  6. The Contractor represents they have expertise in the performance of Work for this trade and assures all items to be complete, functional and installed in accordance with the best practices consistent with premium quality material and workmanship.

D. CONTRACT No. #3: Prime Contract- Electrical

1. Provide all labor, material, supervision, equipment, scaffolding, layout, engineering, deliveries, trucking, hoisting, rigging, shop drawings, submittals, and all other items related and required to complete all work in accordance with the Contract Documents but is not limited to, the following:

2. SPECIFICATIONS

- a. Provide the work of Division 03 – Concrete
  - 1) EC to complete the work required for Duct banks.
- a. Provide the complete work of Division 07 - Thermal and Moisture Protection

- 1) 07 84 13- Penetration Firestopping- Each Prime to firestop their own penetrations
- b. Division 23 – HVAC
  - 1) Specification section 23 08 00 – Commissioning of HVAC, provide necessary electrical support for completion of commissioning as indicated by Commissioning Agent
  - 2) Specification section 23 09 00 – Instrumentation and Control for HVAC, provide electrical support as necessary for successful implementation of HVAC Instrumentation and controls.
- c. Refer to Specification Section 22 00 00 for coordination of work
- d. Refer to Specification Section 23 00 00 for coordination of work
- e. Provide the complete work of Division 26 – Electrical
- f. Provide the complete work of Division 28 – Electronic Safety and Security
3. At the High School and Vestal Hills- All roof penetrations and associated hole protection to be cut and installed by the General Contractor. At Clayton Ave, the penetrations and protection are by the Abatement Prime. Layout provided by the trade requiring the penetration.
4. Each Prime is responsible for their own excavation.
5. The Contractor represents they have expertise in the performance of Work for this trade and assures all items to be complete, functional and installed in accordance with the best practices consistent with premium quality material and workmanship.

E. CONTRACT No. #4: Prime Contract- Plumbing

1. Provide all labor, material, supervision, equipment, scaffolding, layout, engineering, deliveries, trucking, hoisting, rigging, shop drawings, submittals, and all other items related and required to complete all work in accordance with the Contract Documents but is not limited to, the following:
2. SPECIFICATIONS
  - a. Provide the complete work of Division 07 - Thermal and Moisture Protection
    - 1) 07 84 13- Penetration Firestopping- Each Prime to firestop their own penetrations
  - b. Provide the complete work of Division 22 – Plumbing
  - c. Refer to Specification Section 23 00 00 for coordination of work
3. At the High School and Vestal Hills- All roof penetrations and associated hole protection to be cut and installed by the General Contractor. At Clayton Ave, the penetrations and protection are by the Abatement Prime. Layout provided by the trade requiring the penetration.
4. Each Prime is responsible for their own excavation.

5. The Contractor represents they have expertise in the performance of Work for this trade and assures all items to be complete, functional and installed in accordance with the best practices consistent with premium quality material and workmanship.

F. CONTRACT No. #5: Prime Contract- Abatement

1. Provide all labor, material, supervision, equipment, scaffolding, layout, engineering, deliveries, trucking, hoisting, rigging, shop drawings, submittals, and all other items related and required to complete all work in accordance with the Contract Documents but is not limited to, the following:
2. SPECIFICATIONS
  - a. Division 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS (All Sections)
  - b. Division 01 - GENERAL REQUIREMENTS (All Sections)
  - c. Provide work of Division 02 – Existing Conditions
    - 1) 02 82 00- Environmental Remediation & Incidental Demolition (Asbestos)
    - 2) 02 82 10- Submission Review Chart (asbestos)
  - d. Division 09 - Finishes
    - 1) All contractors to refer to Room Finish Schedule and all Finish Keys within drawings in coordination with all finishes for each trade.
3. At the High School and Vestal Hills- All roof penetrations and associated hole protection to be cut and installed by the General Contractor. At Clayton Ave, the penetrations and protection are by the Abatement Prime. Layout provided by the trade requiring the penetration.
4. The Contractor represents they have expertise in the performance of Work for this trade and assures all items to be complete, functional and installed in accordance with the best practices consistent with premium quality material and workmanship.
5. The Abatement Prime is responsible for their own dumpsters and removals.

1.8 GENERAL REQUIREMENTS OF CONTRACT

- A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.

1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
2. **Excavation and backfill** for Mechanical, Electrical and Plumbing utilities are the responsibility of each trade.
3. **Blocking**, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of the General Contractor. Each contract to coordinate the requirements and location for their own work.
4. Furnishing and installation of **access panels** shall be the work of each contract for their own work.
5. Roof-mounted **equipment curbs** supplied by HVAC manufacturer, installed and flashed by General Contractor.
6. **Painting** to be performed and provided by the GC. To include all exposed interior/ exterior piping and duct work.
7. **Cutting and Patching:**
  - a. GC to be responsible for all concrete and masonry removals and patching.
  - b. Each trade is responsible for all sheetrock cutting and patching not called out on Architectural drawings.
8. **Through-penetration firestopping** for the work of each contract shall be provided by each contract for their own work.

Contractors' Construction Schedule: Refer to 01 32 16 Construction Progress Schedule for start up and substantial completion dates.

Substitutions: See Specification 01 60 00

Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 01 50 00 "Temporary Facilities and Controls," each contractor is responsible for the following:

1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for their own activities.

Its own storage and fabrication sheds.

4. Temporary enclosures for their own construction activities.
5. Staging and scaffolding for their own construction activities.
6. Lifts and Hoists for its own construction activities
7. Shoring & bracing for its own construction activities
8. Dewatering facilities and drains for its own construction activities.
9. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
10. Progress cleaning of work areas affected by prime contract operations on a daily basis.

11. Secure lockup of its own tools, materials, and equipment.
12. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

Temporary Heating, Cooling, and Ventilation: See 01 50 00 Temporary Facilities & Controls.

E. Use Charges: Comply with the following:

Sewer Service: By the District

Water Service: By the District

Electric Power Service: By the District

4. Natural Gas Service: By the District
5. Internet Service: By the District

Additional all Prime Contractor Requirements:

1. Contractor must review **all** information in the Contract documents.
2. Contractor shall visit the site to verify and review existing conditions before bidding on the cost of the project.
3. Contractor is responsible for the layout and survey of their own work.
4. Contractor is required to construct the project per the construction **schedule**. The GC will lead this effort for the project. Contractor must complete the building for use by the District on or before the dates listed in the construction schedule. Contractor shall cooperate fully with the intentions of the construction schedule. Contractor is specifically forewarned that any delays caused directly or indirectly by their acts, omissions, and/or failure to perform will result in the District, or its agents, completing the Contractor's Work by whatever means are needed to complete the Work. The Contractor causing the delay will be responsible for any and all costs associated with such issues including, but not limited to, District, Architectural, Engineering, Legal, and Inspections, plus costs submitted by a Contractor hired to complete the Contractor's Work. Refer to Specification 01 32 16 for Milestone schedule and further requirements.
5. Contractor shall provide temporary **bracing, supports or protection systems** needed to complete the Work of their Contract. Contractor is responsible, individually, for maintaining safe working conditions at all times.
6. Contractor is responsible for the **safety** of their own Workers, Subcontractors and other personnel on site. Contractor is responsible for maintaining a safe work site, and for maintaining safe work procedures. Contractor is responsible for safely planning all work to mitigate damage or hazards to all District facilities, personnel, students, and activity areas. **The District adopted minimum PPE requirements of hard-hat, glasses, and safety boots.**
7. Contractor is required to implement and maintain a project specific **safety program**. Contractor shall submit their safety program to the Construction Manager for review, prior to the start of work. The program shall include company safety philosophy, history, action

- plan, manuals, hazardous communications sheets, OSHA filings, meeting minutes and a reporting system for any accidents or injuries. Submission of this material is a prerequisite for first payment.
8. For identification and security purposes, workers are required to wear photo-**identification badges** at all times while working at District occupied sites. Contractor is responsible for control, maintenance and updating of the badges worn by their personnel and by their subcontractors' personnel.
  9. Contractor shall provide temporary protection for adjacent work and existing site areas as required.
  10. Each Prime Contractor is required to **clean** their work area at the end of each workday. Contractor shall provide daily debris removal. Failure to comply with cleaning requirements will activate Owner remedies. **Professional Cleaning** is required at Substantial Completion.
  11. The District has the right of first refusal for any equipment and/or materials being removed or disposed of. The Contractor will move at their own expense, any equipment and/or materials requested by the District to a designated location.
  12. During the active school year, material deliveries into the work areas that are surrounded by student occupied spaces are to occur prior to 7:00 am and after 3:30 pm. Materials are to be unloaded by the prime contractors and stored properly (as well as labeled) by the prime contractor.
  13. Contractor is notified that the use of gasoline or diesel powered engines or motors is prohibited within the occupied building. The use of gas-powered equipment in the school building must be approved by the construction manager prior to use.
  14. Contractor is notified that the dry-cutting of masonry or gypsum based products with rotary cutting equipment is prohibited on the project site. All cutting shall be performed as per the OSHA standard.
  15. All workers must meet the requirements of Labor Law 220-h to perform work on the project site.
  16. Contractor is notified that the project site has hazardous materials present containing Asbestos. The owner has survey reports available for the contractor's review. Contractors are strongly encouraged to review such information prior to bidding and / or commencing work on the project. If asbestos containing material is encountered, abatement will be required by the General Contractor.
  17. Contractor is responsible for covering existing fire alarm smoke detectors in areas of construction affected by their scope of work. If the system is disabled, the Contractor is required to provide a 24/7 fire watch. This is to be done **prior** to demolition work taking place. Duct tape shall not be used to cover fire alarm smoke detectors. Contractor shall be responsible for the actions of their subcontractors in this regard. Any damage to existing fire alarm, camera and other devices that results from the work of Contractor, or their subcontractors will be repaired by the Owner and the cost of same will be back charged to the responsible Contractor. The fire alarm must be operational at all times that the building is occupied by faculty, staff and students.

18. Dust control must be maintained during all interior renovations. Refer to Specification Section 01 50 00.
19. Contractor is responsible for removing, storing, **cleaning and reinstalling** all ceiling and wall mounted equipment and devices in areas of or pertaining to their work that need to be removed for reconstruction and are required to remain. The equipment includes but is not limited to diffusers, grilles, speakers, alarms, cameras, detectors etc.
20. OSHA Filters and Mufflers requirements: All vehicles and gas powered tools used inside the buildings or outside the buildings within 100 feet shall be equipped with a manufacturer's approved exhaust scrubber.

#### 1.9 WORKING HOURS

- A. Generally working hours are first shift from 7:00 am to 3:30 pm with a one-half hour meal break Monday through Friday. The contractor may use shifts as required to meet the schedule of the project, this shift work will not be an additional cost to the owner and will be included in each contractor's bid price if required to meet the schedule. All abatement to take place on 2<sup>nd</sup> shift, unless the work can be completed during school breaks. While the building is occupied for the school year, all work shall be 2nd shift. Contractor occupancy of the building must comply with the requirements of NYSED 155.5 "Unified Safety Standards for School Construction and Maintenance Projects." Contractor shall work to the Owners schedule and needs for times of "quiet construction" during school-wide student exams.
- B. Contractor is responsible for providing adequate manpower as needed throughout the course of the Project to maintain the overall construction schedule and milestone dates. All additional costs for overtime or shift Work required by Contractor to ensure Work completion in accordance with the project completion dates below will be the responsibility of the Contractor.

END OF SECTION 01 12 00

## SECTION 01 21 00 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
  - 1. Contingency allowances.
- C. Related Requirements:
  - 1. Section 01 26 00 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

#### 1.3 DEFINITIONS

- A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Costs Not Included in Allowances: Costs for overhead and profit for items purchased and installed under Allowances. It is the responsibility of the Contractor to include overhead and profit as part of the Base Bid.

#### 1.4 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.
- B. Responsibilities:
  - 1. Consult with the Owner and Architect for consideration and selection of products, suppliers, and installers.
  - 2. Obtain proposals from suppliers and installers and offer recommendations.
  - 3. Prepare Change Order.
  - 4. On notification of acceptance, execute purchase agreement with designated supplier and installer.
  - 5. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
  - 6. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- C. Funds will be drawn from Allowances only by Change Order. Assignment of additional work directed in the field is at the discretion of the Owner.

3.2 SCHEDULE OF ALLOWANCES

- A. \$ 50,000 – General Trades Prime Contract
- B. \$ 150,000 – Mechanical Contractor (Additional \$50,000 for excavation) - \$200,000 total
- C. \$ 50,000 – Electrical Trades Prime Contract
- D. \$ 5,000 – Plumbing Trades Prime Contract
- E. \$50,000 – General Trades Prime Contract (Applicable to Add Alternate #001. Provide scaffolding for use by all trades relating to work und Add Alternate #001)

PART 4 - PRODUCTS – NOT USED

PART 5 - EXECUTION – NOT USED

END OF SECTION 01 21 00

## SECTION 23 07 13 - DUCT INSULATION

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Ductwork insulation.
- B. Insulation jackets.
- C. Acoustical insulation.

#### 1.2 RELATED WORK

- A. Division 23 – Scope of Work
- B. Division 23 – Common Work Results for HVAC

#### 1.3 REFERENCES

- A. ANSI/ASTM C533 – Calcium Silicate Block and Pipe Thermal Insulation.
- B. ANSI/ASTM C534 – Flexible Elastomeric Cellular Thermal Insulation.
- C. ANSI/ASTM C612 – Mineral Fiber Blocks and Board Thermal Insulation.
- D. ASTM E84 – Surface Burning Characteristics of Building Materials.
- E. NFPA 255 – Surface Burning Characteristics of Building Materials.
- F. UL 723 – Surface Burning Characteristics of Building Materials.
- G. International Energy Conservation Code latest edition.
- H. Energy Conservation Construction Code of New York State, latest edition.
- I. ASHRAE 90.1 latest edition.

#### 1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in ductwork insulation application with five (5) years minimum experience of projects of similar size and scope.

- B. Materials: UL listed; frame spread/smoke developed rating of 25/50 or less in accordance with ASTM E84.

## 1.5 SUBMITTALS

- A. Submit product data under provisions of Division 23 – Basic Mechanical Requirements.
- B. Include product description, list of materials and thickness for each service, and locations.
- C. Submit sound transmission loss for 125 to 4000 Hz frequencies on Type E insulation.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURES – INSULATION

- A. Owens-Corning
- B. Johns Manville
- C. Certainteed
- D. Knauf
- E. Armacell
- F. Thermal Ceramics

### 2.2 MATERIALS

- A. Type A: Flexible glass fiber; ANSI/ASTM C553 and ASTM C 1290; commercial grade; "k" value of 0.26 at 75 degrees F; rated to 250 degrees F; 3/4 lb. density; foil scrim kraft facing ASTM C1136 for air conditioning ducts. Johns Manville Microlite FSK (Basis of Design).
- B. Type B: Rigid glass fiber; ANSI/ASTM C612, Class 1; "k" value of 0.23 at 75 degrees F; 3 lb./cu. ft. density; rated to 450 degrees F; foil scrim facing ASTM C1136 Type II for air conditioning ducts. Johns Manville Series 800 Spin-Glass Board (Basis of Design).
- C. Type C: Flexible glass fiber; ANSI/ASTM C553; "k" value of 0.24 at 75 degrees F; coated air side for maximum 4,000 ft./min. air velocity. Johns Manville Linacoustic RC (rectangular), Spiracoustic Plus (round).
- D. Type D: Flexible elastomeric rubber; ASTM C534, 0.08 perm-in water vapor permeability; 0.28 "k" value of 0.25 at 75 degrees F; 25/50 flame/smoke developed rating per ASTM E84. Armacell AP/Armaflex as Basis of Design.

- E. Type E: Rigid polyisocyanurate foam; ANSI/ASTM C1289 and ASTM C236/C518 0.14 “k” value at 75 degrees F. Closed-cell polyisocyanurate foam core with continuous sheet of aluminum foil face on one side and three-ply laminate of kraft and aluminum foil on the other. DOW TUFF-R (Basis of Design).

| Type Duct   | Thickness | Sound Absorption Coefficients |     |      |      |      |      |     |
|-------------|-----------|-------------------------------|-----|------|------|------|------|-----|
|             |           | 125                           | 250 | 500  | 1000 | 2000 | 4000 | NRC |
| Rectangular | 1"        | .08                           | .31 | .64  | .84  | .97  | 1.03 | .70 |
| Rectangular | 2"        | .25                           | .66 | 1.00 | 1.05 | 1.02 | 1.01 | .95 |
| Round       | 1"        | .05                           | .21 | .71  | 1.01 | 1.07 | 1.04 | .75 |
| Round       | 2"        | .17                           | .63 | 1.10 | 1.05 | 1.04 | 1.06 | .95 |

- F. Adhesives: Waterproof (fire-retardant) type.
- G. Finishing Cement: Fire resistive to ASTM E84.
- H. Joint Tape: Foil backed.
- I. Tie Wire: Annealed steel, 16 gage.
- J. Glass Cloth Jacket: MIL-C-20079H, plain weave, 8 oz/sq yd.
- K. Aluminum Jackets: ASTM B209; 0.020 inch thick; smooth finish.
- L. EPDM Jackets – 0.060" thick, adhered, Mule-Hyde.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Install materials after ductwork has been tested and approved.
- B. Clean surfaces for adhesives.

#### 3.2 GENERAL APPLICATION REQUIREMENTS

- A. Apply insulation materials, accessories, and finishes according to the manufacturer's written instructions; with smooth, straight, and even surfaces; and free of voids throughout the length of ducts and fittings.
- B. Refer to schedules at the end of this Section for materials, forms, jackets, and thicknesses required for each duct system.
- C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften, or otherwise attach insulation or jacket in either wet or dry state.

- D. Apply multiple layers of insulation with longitudinal and end seams staggered.
- E. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.
- F. Keep insulation materials dry during application and finishing.
- G. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.
- H. Apply insulation with the least number of joints practical.
- I. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors, and other projections with vapor-retarder mastic. Apply insulation continuously through hangers and around anchor attachments.
- J. Insulation Terminations: For insulation application where vapor retarders are indicated, seal ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.
- K. Apply insulation with integral jackets as follows:
  - 1. Pull jacket tight and smooth.
  - 2. Joints and Seams: Cover with tape and vapor retarder as recommended by insulation material manufacturer to maintain vapor seal.
  - 3. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to duct flanges and fittings.
- L. Cut insulation according to manufacturer's written instructions to prevent compressing insulation to less than 75 percent of its nominal thickness.
- M. Install vapor-retarder mastic on ducts and plenums scheduled to receive vapor retarders.
  - 1. Ducts with Vapor Retarders: Overlap insulation facing at seams and seal with vapor-retarder mastic and pressure-sensitive tape having same facing as insulation. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-retarder seal.
  - 2. Ducts without Vapor Retarders: Overlap insulation facing at seams and secure with outward clinching staples and pressure-sensitive tape having same facing as insulation.
- N. Roof Penetrations: Apply insulation for interior applications to a point even with top of roof flashing.
  - 1. Seal penetrations with vapor-retarder mastic.
  - 2. Apply insulation for exterior applications tightly jointed to interior insulation ends.
  - 3. Seal insulation to roof flashing with vapor-retarder mastic.
- O. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and partitions, except fire-rated walls and partitions.

- P. Fire-Rated Wall and Partition Penetrations: Terminate insulation at fire/smoke damper sleeves for fire-rated wall and partition penetrations.+
- Q. Insulate diffuser plenums and housings with Type A or B, 2" thickness in a neat manner with vapor barrier jacket and continuous insulation from flex duct to diffuser at ceiling.

### 3.3 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Provide insulation with vapor barrier when air conveyed may be below 60 deg. F. All supply air ductwork throughout shall be insulated with the minimum 1 1/2" insulation, type A, unless specifically scheduled. (See 3.5 Schedule)
- C. Continue insulation with vapor barrier through penetrations.
- D. Where intended lining is used, external insulation may be deleted unless indicated otherwise. Internal insulation shall be of sufficient thickness/R-Value to comply with the energy code where external insulation is deleted.
- E. Insulate outdoor ductwork externally even if insulated internally.
- F. Duct work insulation that is exposed in occupied spaces, shall have an additional layer of Kraft paper jacket with vapor sealing tape and/or an 8 oz./sq. yd. canvas cloth wrap, glued with two coats of sizing. Finish by painting with two coats of latex based paint. Color to be selected by Architect.
- G. Type A Application
  - 1. Secure insulation with vapor barrier on all ductwork and conveying components with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
  - 2. Secure insulation without vapor barrier with staples, tape or wires.
  - 3. Install without sag on underside of ductwork. Use adhesive or mechanical fasteners when necessary to prevent sagging. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
- H. Type B Application
  - 1. Secure insulation with mechanical fasteners on 15 inch centers. Butt all joints tight.
  - 2. On insulation with vapor barrier, cover all mechanical fasteners and joints with foil back adhesive tape.
  - 3. On non-vapor barrier ducts, use plain white facing on insulation.
  - 4. On exterior applications, finish with .060" thick "Mule-Hyde", EPDM top jacket.
  - 5. Duct work insulation that is exposed in occupied spaces, shall have an additional layer of Kraft paper jacket with vapor sealing tape and/or an 8 oz./sq. yd. canvas cloth wrap, glued with two coats of sizing. Finish by painting with two coats of latex based paint. Color to be selected by Architect.

I. Type C Application

1. Adhere insulation with adhesive for 100 percent coverage. Secure insulation with mechanical fasteners on 15 inch centers maximum on top and side of ductwork where dimension exceeds 20 inches. Seal and smooth joints. Do not use nail-type fasteners. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
2. Ductwork dimensions indicated are net inside dimensions required for air flow. Increase ductwork to allow for insulation thickness.
3. Use galvanized sheet metal nosing at the beginning of each lined run.
4. Refer to Division 23 Section "Ductwork" for the double wall ductwork specifications and requirements.
5. Provide internal liner downstream of VAV boxes or other air control devices (including upstream of exhaust valves). Eliminate internal liner in healthcare/hospital applications.

J. Type D Application

1. Apply in sheets; adhered 100% coverage to ductwork after ductwork has been cleaned as per manufacturer's recommendations to duct with all edges butted and joints. Overlap joints for installation of multiple layers.

K. Type E Application

1. Apply in sheets; adhered 100% coverage to ductwork after ductwork has been cleaned as per manufacturer's recommendations with all edges butted and joints. Overlap joints for installation of multiple layers.

3.4 SCHEDULE

| DUCTWORK                                                                  | TYPE   | MINIMUM THICKNESS (Inch)* | MINIMUM INSTALLED R-VALUE |
|---------------------------------------------------------------------------|--------|---------------------------|---------------------------|
| Supply & Return Air Duct (Mechanical Rooms)                               | B      | 2.0                       | R-8                       |
| Supply and Return Air Duct (Outdoor)                                      | E      | 2.0                       | R-12                      |
| Supply Air Duct (Exposed in Conditioned Space)                            | B      | 1.5                       | R-5                       |
| Supply & Return ductwork exposed in a non-conditioned space               | B      | 2.0                       | R-6                       |
| Supply & Return Air Duct (Unconditioned Concealed)                        | A      | 2.0                       | R-6                       |
| Supply & Return Air Duct in Shaft on Outside Wall or Ceiling w/Roof above | A or B | 2.0                       | R-8                       |
| Supply Air Duct** (Return Air Plenum and other non-exposed areas)         | A      | 1.5                       | R-5                       |

|                                             |        |     |     |
|---------------------------------------------|--------|-----|-----|
| Outside air ductwork                        | D      | 2.0 | R-7 |
| Back of Diffusers in Areas of Ducted Return | A or B |     |     |
| Internal Acoustical Lining                  | C      | 2.0 | R-5 |
| Plenums                                     | B      | 2.0 | R-5 |

\*Listed thickness is the minimum thickness commonly available. Provide insulation with greater thickness, if required, to meet the installed R-Value. Insulation thickness less than listed must get approval for use from the engineer.

\*\* Supply Air Ducts within Return Air Plenums or Supply Air Ducts not insulated/described within Schedule shall receive insulation as indicated herein: Type A, 1.5, R-5.

END OF SECTION 23 07 13

## SECTION 23 07 19 - HVAC PIPING INSULATION

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Piping insulation.
- B. Jackets and accessories

#### 1.2 RELATED WORK

- A. Division 23 – HVAC Scope of Work
- B. Division 23 – Common Work Results for HVAC

#### 1.3 REFERENCES

- A. ANSI/ASTM C195 – Mineral Fiber Thermal Insulation Cement.
- B. ANSI/ASTM C533 – Calcium Silicate Block and Pipe Thermal Insulation
- C. ANSI/ASTM C547 – Mineral Fiber Preformed Pipe Insulation.
- D. ANSI/ASTM C552 – Cellular Glass Block and Pipe Thermal Insulation.
- E. ANSI/ASTM C534 – Flexible Elastomeric Cellular Thermal Insulation.
- F. ASTM B209 – Aluminum and Aluminum-Alloy Sheet and Plate.
- G. ASTM C449 – Mineral Fiber Hydraulic-setting Thermal Insulating and Finishing Cement.
- H. ASTM E84 – Surface Burning Characteristics of Building Materials.
- I. NFPA 255 – Surface Burning Characteristics of Building Materials.
- J. UL 723 – Surface Burning Characteristics of Building Materials.
- K. International Energy Conservation Code latest edition.
- L. Energy Conservation Construction Code of New York State, latest edition.
- M. ASHRAE 90.1, latest edition.

#### 1.4 QUALITY ASSURANCE

- A. Applicator: Company specializing in piping insulation application with five (5) years minimum experience of projects of similar size and scope.
- B. Materials: Flame spread/fuel contributed/smoke developed rating of 25/50 in accordance with ASTM E84.

#### 1.5 SUBMITTALS

- A. Submit product data under provisions of Division 23 – Common Work Results for HVAC.
- B. Include product description, list of materials and thickness for each service, and locations.

### PART 2 - PRODUCTS

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Owens-Corning
- B. Johns Manville
- C. Certainteed
- D. Armacell
- E. Pittsburgh Corning
- F. Knauf

#### 2.2 INSULATION

- A. Type A: Glass fiber insulation; ANSI/ASTM C547; "k" value of 0.24 at 75 degrees F; noncombustible.
- B. Type B: Elastomeric rubber; ANSI/ASTM C534; rigid closed cell; maximum water vapor transmission rating of 0.01 perms; "k" value 0.25 at 75 degrees F. Armacell AP/Armaflex as Basis of Design.

#### 2.3 JACKETS

- A. Interior Applications
  - 1. All Service Jackets: Kraft reinforced foil vapor barrier with self-sealing adhesive joints.

2. PVC Jackets: One piece premolded type. PVC jackets not allowed in return air plenums unless ASTM E84 25/50 rated.
3. Glass Cloth Jacket: MIL-C-20079H, plain weave, 8 oz/sq yd.

B. Exterior Applications

1. Aluminum Jackets: ASTM B209; 0.020 inch thick; smooth finish.

2.4 ACCESSORIES

- A. Metal Jacket Bands: 3/8 inch wide; 0.15 inch thick aluminum.
- B. Adhesives: Compatible with insulation.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Install materials after piping has been tested and approved.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Continue insulation through all penetrations including roofs, floors and walls.
- C. In exposed piping, locate insulation and cover seams in least visible locations.
- D. Provide an insert, not less than 6 inches long, of same thickness and contour as adjoining insulation, between support shield and piping, but under the finish jacket, on piping 2 inches diameter or larger, to prevent insulation from sagging at support points. Inserts shall be cork or the heavy density insulating material suitable for the planned temperature range. Factory fabricated inserts may be used.
- E. Neatly finish insulation at supports, protrusions and interruptions. Insulate overhead traced sections of pipe, provide heat transfer compound.
- F. Jackets
  1. Indoor, Concealed Applications: Insulated pipes conveying fluids above ambient temperature shall have all service jackets, factory-applied. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjoining pipe, and finish with PVC jackets.
  2. Indoor, Cold Applications: Insulated pipes conveying fluids below ambient temperature shall have vapor barrier jackets, factory-applied. Insulate fittings, Joints, and valves with

- molded insulation of like material and thickness as adjacent pipe and finish with PVC jackets. Leave no metal surfaces exposed.
3. Exterior Applications: Provide all service jackets with aluminum jacket with seams located on bottom side of horizontal piping. Insulate fittings, joints and valves with insulation of like material and thickness as adjoining pipe, and finish with aluminum jackets. Cover small areas of exposed insulation with Johns Manville Insulkote primer and finish coating.
  4. Calcium Silicate: Glass cloth jacket on indoor insulation. Use aluminum jacket on outdoor insulation.
  5. PVC Jackets: Factory preformed, 30 mil thickness, UV resistant, noncombustible and 25/50 rated as per ASTM E84, nonconductive. Johns Manville Zeston 2000 PVC. Secure with solvent adhesive. Cover joints and fittings with preformed PVC covers.

### 3.3 SCHEDULE: TYPE AND JACKET

| PIPING                                   | TYPE | VAPOR BARRIER |
|------------------------------------------|------|---------------|
| Heating Water Supply and Return          | A    | NO            |
| Cold Condensate Drains                   | A    | YES           |
| Refrigerant Suction (and liquid for VRF) | B    | YES           |
| Refrigerant Hot Gas                      | A    | YES           |
| Chilled Water (Indoors)                  | A    | YES           |
| Chilled Water (Mechanical Rooms)         | B    | YES           |

### SCHEDULE: THICKNESS

#### MINIMUM PIPE INSULATION \*\*\*\*\*

#### INSULATION THICKNESS FOR PIPES SIZES

| Piping System Types                                                            | Fluid Temperature Range | Pipe Size                   |                 |                   |                    |              |                   |
|--------------------------------------------------------------------------------|-------------------------|-----------------------------|-----------------|-------------------|--------------------|--------------|-------------------|
|                                                                                |                         | Runouts*<br>Less Than 1 in. | Less than 1 in. | 1 -<br><1-1/2 in. | 1-1/2 -<br>< 4 in. | 4 -<br><8 in | 8 in. &<br>Larger |
|                                                                                |                         |                             |                 |                   |                    |              |                   |
|                                                                                |                         |                             |                 |                   |                    |              |                   |
| <b>Hot Temperature Piping</b><br>High Pressure Steam, Hot Water or other fluid | 306-1200                | 3.0                         | 4.5             | 5.0               | 5.0                | 5.0          | 5.0               |
|                                                                                |                         |                             |                 |                   |                    |              |                   |

|                                                                                                                 |              |            |            |            |            |            |            |
|-----------------------------------------------------------------------------------------------------------------|--------------|------------|------------|------------|------------|------------|------------|
| Medium Pressure<br>Steam, Hot Water<br>or other fluid                                                           | 251-305      | 2.0        | 3.0        | 4.0        | 4.5        | 4.5        | 4.5        |
|                                                                                                                 |              |            |            |            |            |            |            |
| Low Pressure<br>Steam, Hot Water<br>or other fluid                                                              | 201-250      | 1.5        | 2.5        | 2.5        | 2.5        | 3.0        | 3.0        |
|                                                                                                                 |              |            |            |            |            |            |            |
| Hot Water or other<br>fluid**                                                                                   | 100-200      | 1.5        | 1.5        | 1.5        | 2.0        | 2.0        | 2.0        |
| <b><u>Low Temperature<br/>Piping</u></b><br>Cold Water and<br>Drain Lines,<br>Refrigerant, ***<br>Chilled Water | 40-55<br><40 | 1.5<br>1.5 | 1.5<br>1.5 | 1.5<br>1.5 | 1.5<br>1.5 | 1.5<br>1.5 | 1.5<br>1.5 |

\* Runouts to individual coils between control valve and coil (not exceeding 4 ft. in length).

\*\* Include refrigerant hot gas.

\*\*\* Include refrigerant suction. Liquid line insulation is not required except in VRF systems. See VRF specification.

\*\*\*\* Increase insulation thickness for exterior piping by .5 inches minimum.

END OF SECTION 23 07 19

## SECTION 23 21 14 - HYDRONIC SPECIALTIES

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Expansion tanks
- B. Air vents
- C. Dirt/Air separators
- D. Strainers
- E. Pump specialties
- F. Pump triple duty valve
- G. Relief valves
- H. Pressure gauges
- I. Thermometers
- J. Coil hookup packages

#### 1.2 RELATED WORK

- A. Division 23 – Scope of Work
- B. Division 23 – Common Work Results for HVAC
- C. Division 23 – Hydronic Piping
- D. Division 26 – Electrical Wiring Systems

#### 1.3 REFERENCES

- A. ANSI/ASME – Boilers and Pressure Vessels Code
- B. ASME B31.9 – Building Services Piping

#### 1.4 REGULATORY REQUIREMENTS

- A. Conform to ANSI/ASME Boilers and Pressure Vessels Code Section 8D for manufacture of tanks and air separators.
- B. Conform to ASME 31.9 for materials, products and installation.

#### 1.5 QUALITY ASSURANCE

- A. Manufacturer: For each product specified, provide components by same manufacturer throughout.

#### 1.6 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 23 – Common Work Results for HVAC.
- B. Include component sizes, rough-in requirements, service sizes, and finishes. Include product description, model and dimensions.
- C. Submit shop drawings on the following:
  - 1. Expansion tanks
  - 2. Dirt/Air separators
  - 3. Strainers
  - 4. Pump specialties
  - 5. Triple duty valves
  - 6. Coil hookup packages
  - 7. Relief valves
  - 8. Pressure gauges
  - 9. Thermometers
  - 10. Pressure independent control valves

#### 1.7 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Division 23 – Common Work Results for HVAC. Submit ASME certification.
- B. Include installation instruction, assembly views, lubrication instructions, and replacement parts list.

### PART 2 - PRODUCTS

VESTAL CSD  
CAPITAL PROJECT 2024  
SR HIGH SCHOOL SED#: 03-16-01-06-0-001-024  
CLAYTON AVE ELEM SED#: 03-16-01-06-0-003-022  
VESTAL HILLS ELEM SED#: 03-16-01-06-0-011-012  
HA PN: 2025-067P

HYDRONIC SPECIALTIES  
SECTION 23 21 14  
PAGE 2

2.1 ACCEPTABLE MANUFACTURERS – EXPANSION TANKS

- A. Bell & Gossett
- B. Armstrong
- C. Amtrol (Basis of Design)
- D. Wheatley
- E. John-Wood
- F. Reviewed equivalent

2.2 EXPANSION TANKS

- A. Construction: Welded steel, tested and stamped in accordance with Section 8D of ANSI/ASME Code; supplied with National Board Form U-1, rated for working pressure of 125 psig for standard HVAC design. Integral heavy duty Butyl rubber diaphragm or bladder as scheduled.
- B. Accessories: Pressure gauge and air-charging fitting, tank drain, pre-charge to 12 psig. Unit shall have integral steel legs or provide saddles for elevated installation. Anchor floor mounted units securely to structure.

2.3 ACCEPTABLE MANUFACTURERS – AIR VENTS

- A. Armstrong
- B. Bell and Gossett
- C. Wheatley
- D. Reviewed equivalent

2.4 AIR VENTS

- A. Manual Type: Line sized tee with ball valve and U-shaped copper pipe for discharge into hand-held container.
- B. Float Type: Cast iron body, stainless steel float, stainless steel valve and valve seat; suitable for system operating temperature and pressure; with isolating valve. Bell and Gossett Model 107A Basis of Design, Metraflex MetraVent MV or reviewed equivalent.

2.5 ACCEPTABLE MANUFACTURERS – DIRT/AIR SEPARATORS

- A. Caleffi (Basis of Design)
- B. Spirotherm
- C. Taco
- D. Wessels
- E. Armstrong
- F. Reviewed equivalent

2.6 DIRT/AIR SEPARATORS

- A. Furnish and install as shown on the drawings a Caleffi (Basis of Design) coalescing type air eliminator and dirt separator on the hot and process water systems. All combination units shall be fabricated steel, rated for 150 psig working pressure with entering velocities up to 10 feet per second. Units shall include an internal bundle filling the entire vessel to suppress turbulence and provide high efficiency. The bundle may consist of a copper core tube with continuous wound copper medium permanently affixed to the core. A separate medium is to be wound completely around and permanently affixed to the internal element. Each eliminator shall have a separate venting chamber to prevent system contaminants from harming the float and venting valve operation. At the top of the venting chamber shall be an integral full port float actuated brass venting mechanism. Units shall include a valved side tap to flush floating dirt or liquids and for quick bleeding of large amounts of air during system fill or refill. Separator shall have the vessel extended below the pipe connections an equal distance for dirt separation. Air eliminators shall be capable of removing 100% of the free air, 100% of the entrained air, and up to 99.5% of the dissolved air in the system fluid. Dirt separation shall be at least 80% of all particles 30 micron and larger within 100 passes.

2.7 ACCEPTABLE MANUFACTURERS – STRAINERS

- A. Armstrong
- B. Wheatley
- C. Keckley (Basis of Design)
- D. Reviewed equivalent

## 2.8 STRAINERS

- A. Size 2 ½ inch TO 8 inch: ASTM A126 Class B Cast Iron Body, 200 psi WOG at 150°F, Class 125, Y pattern, bolted screen retainer, off center blow down fitted with gate valve and plug. Provide stainless steel perforated screen for liquid service. Keckley Style A as Basis of Design.
- B. Size 2 inch and Under: Cast Bronze Body, 200 psi at 150°F, Class 125, Y pattern, screwed screen retainer, blow down fitted with gate vane and plug, threaded or screwed ends. Provide stainless steel perforated screen for liquid service. Keckley F-150 (screwed) and E-150 (solder joint) as Basis of Design.
- C. Well Water Basket Strainers: Flanged carbon steel (ASTM A216, Grade WCB) body rated for 200 psig working pressure, basket pattern with 1/8 stainless steel perforation screen and 80 mesh stainless steel screen, thumbwheel cover. Keckley SGFV-K as Basis of Design.
- D. 5 inch and larger Basket Strainers: Flanged carbon steel (ASTM A216, Grade WCB) body rated for 200 psig working pressure, basket pattern with stainless steel perforation screen for liquid service, thumbwheel cover. Keckley SGFV-K as Basis of Design.

## 2.9 ACCEPTABLE MANUFACTURERS – PUMP SPECIALTIES

- A. Metraflex (Basis of Design)
- B. Reviewed equivalent

## 2.10 PUMP SUCTION SPECIALTY

- A. Combination reducing elbow, flex connector and rotational vanes. Constructed of steel reducing elbow, ANSI Class 150 flanges and Type 304 stainless steel, close pitch corrugated hose with Type 304 stainless steel outer braided covering. Provide CRV vane that imparts a rotational motion as the fluid enters the elbow and counteract elbow induced turbulence enabling the fluid to turn uniformly and exit with a flat velocity profile. Rated for 190 psi at 70° F and 175 psi at 200° F. Metraflex CRV Flex as Basis of Design.

## 2.11 PUMP DISCHARGE SPECIALTY

- A. Combination increaser, flex connector and straightening vanes. Construct of steel increaser, ANSI Class 150 flanges and Type 304 stainless steel, close pitched corrugated hose with Type 304 stainless steel outer braided covering. Provide carbon steel straightening vane that reduces turbulence equal to 5-10 pipe diameters of straight pipe while allowing full movement of the connector. Rated for 190 psi at 70° F and 175 psi at 200° F. Provide carbon steel reducing elbow where required. Metraflex Vane Flex as Basis of Design.

2.12 ACCEPTABLE MANUFACTURERS – TRIPLE DUTY VALVES

- A. Bell and Gossett
- B. Paco (Basis of Design)
- C. Armstrong
- D. Weinman
- E. Reviewed equivalent

2.13 PUMP TRIPLE DUTY VALVE

- A. Valves: Straight or angle pattern, flanged cast-iron valve body bolt-on bonnet for 175 psig operating pressure, non-slam check valve with spring-loaded bronze disc and seat, stainless steel stem, and calibrated adjustment permitting flow regulation, repacking under line pressure.

2.14 ACCEPTABLE MANUFACTURERS – RELIEF VALVES

- A. Bell and Gossett
- B. Kunkle (Basis of Design)
- C. Watts
- D. Reviewed equivalent

2.15 RELIEF VALVES

- A. Bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, capacities ASME certified and labeled.

2.16 ACCEPTABLE MANUFACTURERS – PRESSURE GAUGES

- A. Ashcroft 1009 (Basis of Design)
- B. Trerice 600CB
- C. Miljoco P4598L
- D. Weksler EA14
- E. Weiss 4CTS-1

- F. Reviewed equivalent

## 2.17 PRESSURE GAUGES

- A. Gauges shall be ASME B40-100, 4-1/2" diameter, stainless steel case, bronze bourbon tube, brass socket, acrylic/glass window, white dial with black pointer and numbers, liquid filled, 1% of full span accuracy, provide pressure, snubber, union and shut-off.
- B. For liquid fill, verify liquid and gauge compatibility for the operating temperature of the measured medium. Provide appropriate liquid fill: Glycerin for temperatures from 30 - 150°F, silicone for temperatures -30 to 240°F.
- C. Range: Comply with the following
1. Vacuum: 30 inches Hg of vacuum to 15 psig pressure.
  2. Fluids under Pressure: Two times operating pressure.

## 2.18 ACCEPTABLE MANUFACTURERS – THERMOMETERS

- A. Terice BX (Basis of Design)
- B. Miljoco SX935
- C. Weksler AA5H-9
- D. Weiss 9VU
- E. Reviewed equivalent

## 2.19 THERMOMETERS

- A. ASTM E1, industrial type, glass tubing, red reading, 9" long, cast aluminum with chrome front double strength glass, adjustable angle, organic liquid filled with magnifying lens, extended neck to clear insulation. Provide wells and separable sockets and oil or graphite heat transfer liquid.
- B. Scale Range:
1. Hot Water: 30 to 240° F with 2° F scale division.
  2. Chilled Water: 0 to 100° F with 2° F scale divisions.
  3. Geothermal: 0 to 100° F with 2° F scale divisions,
  4. Steam and Condensate: 50 to 400° F with 5° F scale divisions.
  5. Glycol: (Verify Operating Temperatures of System) Cold Water only: (-) 40 to 110°F, Drycooler water loop with economizer operation: Custom Range (-) 20 to 180°F.

## 2.20 COIL HOOKUP PACKAGES

- A. Provide for each coil a combination valving package from one manufacturer throughout.
- B. For the supply water line; provide a combination inlet shutoff valve/PT plug/ Y-strainer with blowdown valve and 20 mesh stainless steel screen/union and on the return line; a combination union/PT plug, ATC valve by others and combination union/PT plugs/Venturi balance valve. For 3-way control valves, provide a combination union/PT plugs and Venturi balance valve on the bypass line.
- C. Connections shall be sweat 2" and below and flanged 2 1/2" and above.
- D. Shutoff valves shall be full port bronze ball type for 2" and below rated at 300 psi at 265° F and butterfly type for 2 1/2" and above rated at 200 psi WP at 250° F. Ball valves shall have extension kit, nylon coated lever handle, Teflon seats and seals, blow-out proof shafts and double shaft seals. Butterfly valves shall be lug pattern, cast iron body, EPDM cartridge seat, one-piece Type 416 stainless steel shaft, lever operator for 6" and below, worm-gear operator for 8" and above.
- E. Balance valves shall have hang tag and memory-stop/position indicating plate.
- F. Manufacturer:
  - 1. Supply line 2" and below – Nexus UltraY UY
  - 2. Return line 2" and below – Nexus Ultra U and Ultra XB ORTURI
  - 3. Supply line 2 1/2" and up – Nexus Strainex SXGV
  - 4. Return line 2 1/2" and up – Nexus NXFB
  - 5. Reviewed equivalent by FDI, Tour & Anderson

## PART 3 - EXECUTION

### 3.1 INSTALLATION AND APPLICATION

- A. Install specialties in accordance with manufacturer's instructions to permit intended performance.
- B. Provide manual air vents at system high points, at end of mains, at terminal return runouts and wherever are needed to purge entrained air. Provide automatic air vents where indicated.
- C. For automatic air vents in ceiling spaces or other concealed locations, provide vent tubing to nearest drain.
- D. Provide dirt/air separator on suction side of system circulation pump and connect to expansion tank, where indicated on the drawings.
- E. Provide pump specialties for centrifugal pumps.

- F. Provide pump triple valve on discharge side of constant speed base mounted centrifugal pumps. For VFD driven pumps, substitute a silent check valve and isolation valve.
- G. Support pump suction specialty with floor (base) mounted pipe and flange supports.
- H. Provide coil hookup packages for each terminal unit, rooftop unit coils, rooftop unit condensers, heat pumps (chilled, hot geothermal) and where temperature or pressure control is necessary for satisfactory system operation, thermal comfort and control. Flow control devices may be substituted in lieu of manual balancing valves.
- I. Provide pressure relief valves on pressure vessels (including but not limited to) expansion tanks, buffer tanks, heat exchangers, and boilers.
- J. Select system pressure relief valve capacity so that it is greater than make-up pressure reducing valve capacity. Select equipment pressure relief valve capacity to exceed rating of connected equipment.
- K. Pipe pressure relief valve outlet to nearest floor drain or trench drain. Piping shall be supported so that no stress is induced on the pressure relief valve.
- L. Provide isolation valves and balance valves at return line locations where branches tap off mains and sub-branches or as required for proper system isolation and balance and for future isolation and balancing ease due to building renovations. Provide isolation valves and balance valve at taps from risers at each floor.
- M. Locate specialties at accessible locations.
- N. Provide pressure gauges at the suction and discharge of each pump, at heat pumps, heat exchangers, filters, coils, etc. and where else required to monitor, troubleshoot and measure system water pressures; where indicated on the plans (or not) and control drawings. Provide additional snubber, as required to steady gauge readings. Locate gauges where dials can be easily read; provide pressure gauge cabinet where required for ease of reading.
- O. Provide thermometers and pressure gauges at all water source heat pumps, boilers, at heat exchanger supply and return, where pipes enter and exit mechanical rooms and where else required to monitor, troubleshoot and measure system water temperatures and pressures and where indicated on the plans (or not) and control drawings. Locate thermometers and pressure gauges where temperatures can be easily read. Locate thermometers where temperatures can be easily read.
- P. Provide thermometers at all main air handling unit coil runouts, at chiller, boiler and heat exchanger supply and return (both sides), at mixing valve locations, at mains entering or leaving mechanical rooms and where else required to monitor and measure system water temperatures and where indicated on the plans (or not) and control drawings. Locate thermometers where temperatures can be easily read. Locate thermometers where temperatures can be easily read.
- Q. Provide strainers at inlet of pumps, chillers, condensers, control valves, on main lines, incoming water service (PRV) and where needed and not indicated on the diagrammatic plans. Provide a blowdown valve with capped chain and hose bibb at each strainer.

- R. Provide expansion tanks on each water system. Install per manufacturer's instructions. Charge to final pressure with nitrogen when system is at operating design conditions. Schedules indicate approximate calculated pressures, provide shutoff valve for tank isolation and pressure relief valve between valve and tank, pipe to floor at non-scalding location.
- S. Provide specialties in accordance with details on the drawing and as required per manufacturer's recommendations and code regulations.

END OF SECTION 23 21 14

## SECTION 23 36 00 - AIR TERMINAL UNITS

### PART 1 - GENERAL

#### 1.1 WORK INCLUDED

- A. Variable Volume Terminal Units

#### 1.2 RELATED WORK

- A. Division 23 – Scope of Work
- B. Division 23 – Common work Results for HVAC
- C. Division 23 - Building Automation System
- D. Division 23 – Direct Digital Control Systems for HVAC
- E. Division 23 – Sequence of Operation for HVAC
- F. Division 26 – Electrical Wiring Systems

#### 1.3 REFERENCES

- A. NFPA 90A – Installation of Air Conditioning and Ventilation Systems.
- B. UL 181 – Factory-Made Air Ducts and Connectors.
- C. ARI 880 – Air Terminals

#### 1.4 SUBMITTALS

- A. Submit shop drawings and product data under provision of Division 01 and 23, Common Work Results for HVAC.
- B. Submit product data indicating configuration, general assembly, and materials used in fabrication, leakage characteristics, constructions, options, etc. Include catalog performance ratings which indicate air flow, static pressure, coil performance, air pressure drop, etc. Submit power and control wiring diagrams. Submit installation instructions. Submit spare parts listings.
- C. Include schedules listing discharge and radiated sound power level for each of second through sixth octave sixth octave bands as inlet static pressures of 0.5 to 4 inch wg. Sound levels shall match those as cataloged by Basis of Design manufacturer as indicated herein.

- D. Coil connection and control box location is indicated on the drawings which are diagrammatic in nature. Contractor may move box in shop drawing phase which shall be submitted in his ductwork shop drawings which are to be reviewed by the Engineer. Vendor and Contractor to coordinate both proper hand location of coil and control box location so that both coil connections can be properly made and access to control box is proper for access.
- E. Submit shop drawing data on the following:
  - 1. Variable volume terminal units.

#### 1.5 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Division 23, Basic Mechanical Requirements.
- B. Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listings.

#### 1.6 DELIVERY, STORAGE, PROTECTION AND HANDLING

- A. Deliver, store and protect and handle products under provisions of Division 23 and manufacturer's instructions.
- B. Protect units from physical damage by storing off site until roof mounting steel is in place, ready for immediate installation of units.
- C. Deliver as factory-assembled units with protective crating and covering as recommended by the manufacturer.
- D. Coordinate delivery of units in sufficient time to allow movement onto final locations.
- E. Handle to comply with manufacturer's written hoisting and installation instructions for unloading and moving to final location.

#### 1.7 WARRANTY

- A. Provide 1 year warranty on parts and labor from date of final acceptance.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Trane (Basis of Design)

- B. Carrier
- C. Anemostat
- D. Enviro-Tec
- E. Titus
- F. Warren
- G. Reviewed equivalent

## 2.2 GENERAL

- A. Above ceiling mounted variable air volume as scheduled supply air control terminals for connection to medium pressure duct, with DDC volume control.
- B. Identify each airflow unit with clearly marked identification label and airflow indicator. Label shall include unit nominal air flow.
- C. Each unit performance shall bear the ARI 880 certification seal.
- D. Units shall be factory assembled, pressure independent operation, externally powered complete with casing, primary air valve, airflow sensor volume controller, heating coil, universal larger hinged control box, unit mounting bracket and accessories.
- E. Equip each terminal unit with a calibration chart and wiring diagram.

## 2.3 CASING

- A. Outer Casing: Minimum 20 gauge galvanized steel.
- B. Lining: Minimum ½" thick matt-faced dual-density fiberglass insulation, 1.92 min R value at 75 deg F, 4 PCF skin and 1.5 PCF core meeting NFPA 90A requirements and UL 181 erosion requirements. Line attenuator sections with 2 inch thick insulation of same type.
- C. Inner Casing: Minimum 22 gauge galvanized steel with no insulation exposed to the airstream for healthcare and laboratory use; else units shall be single wall.
- D. Assembly: Air volume damper, and controls in single cabinet.
- E. Duct Air Inlets: Round, square or oval stub connections for duct attachment.
- F. Plenum Air Outlets: Slip and drive connections. Provide Sound Attenuator adjacent to unit outlet. Attenuator shall be as provided by terminal unit manufacturer.
- G. Provide factory installed unit mounting brackets for threaded rod installation hardware.

## 2.4 PRIMARY AIR VALVE

- A. The damper assembly shall consist of a round blade that requires nominal 90-degree rotation from fully opened to fully closed positions on sizes 05 through 16. The damper blade shall be mechanically attached to the die-cast metal damper shaft with through the shaft machine-applied rivets. The low leakage damper shall be constructed of a gasket material sandwiched between two 22-gauge zinc coated steel plates. Leakage through the damper shall be less than 1% of the maximum rated airflow at 3" w.g. inlet static pressure. The damper gasket material is securely fastened between the two damper plates using machine applied rivets. The damper assembly shall rotate freely in self-lubricating bearings. Damper position shall be indicated on the end of the shaft on the outside of the casing. Inlet connection and damper on size 24 x 16 shall be rectangular. Warren Zebra sliding plate damper is an acceptable equivalent.

## 2.5 PRIMARY AIRFLOW SENSOR

- A. A multi-point airflow sensor (Velocity Ring) of the center averaging type shall be located in the terminal inlet. The airflow sensor shall be aerodynamically designed to provide low pressure loss, quiet operation and have not less than 20 sensing points on any given size unit. The sensor shall amplify the velocity pressure signal and provide feedback of actual flow to the controller. An identification label with piping/wiring diagram and airflow calibration chart shall be affixed to each unit. Flow taps with caps, separate from the airflow sensor or controller taps shall be provided for flow readjustment.

## 2.6 THERMOSTAT AND DDC CONTROLLER

- A. By ATC vendor
- B. Factory or field mount DDC controls provided by controls vendor. Coordinate prior to bid.

## 2.7 HEATING COILS

- A. Hot Water Heating Coil: 1/2 inch or 5/8 inch copper tube mechanically expanded into aluminum plate fins, leak tested performed under water to 450 psig air pressure in the tubes, factory installed and rated for 300 psig working pressure at 200° F.

## 2.8 CONTROL CABINET

- A. Factory or field mount controls, Contractor, ATC vendor and Contractor to coordinate prior to bid. All mounting hardware should be provided by the DDC control supplier. It shall be the responsibility of the DDC supplier to coordinate and provide job specific wiring diagrams to the terminal manufacturer.
- B. Mount components in universal large control box with hinged cover and camlock.

- C. Incorporate single point electrical connection to power source with factory mounted and wired for 24V power with non-fused disconnect switch.
- D. Provide terminal strip in control box for field wiring of thermostat and power source.

### PART 3 - EXECUTION

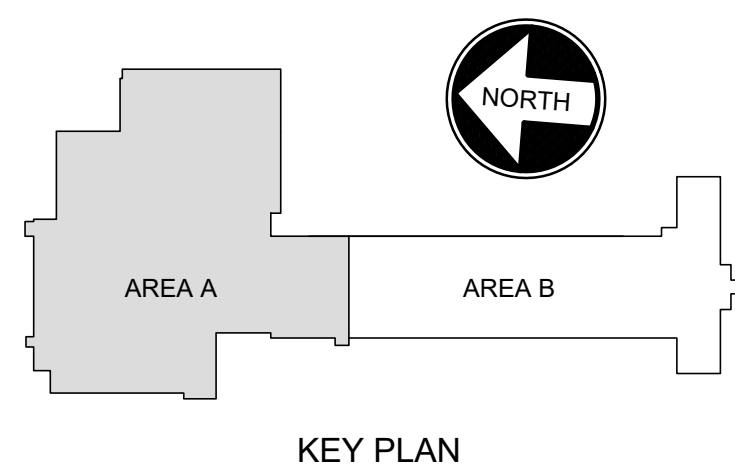
#### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide ceiling access doors for units located above hard ceilings or locate units above easily removable ceiling components.
- C. Use factory mounting brackets to support units individually from structure. Do not support from adjacent ductwork.
- D. Provide minimum 24" long straight runout duct section directly adjacent to the inlet to box runout. Duct shall be spiral sheetmetal; see schedule for sizes (2" larger than box inlet size with transition immediately at box inlet collar).
- E. Install heating coils in accordance with Division 23.
- F. Transition from box outlet to reheat coils where indicated on the plans. Follow details.
- G. Install fan powered boxes on vibration isolators see Division 23.
- H. Utilize Buckley M-BM fitting from tap of main to inlet of box.
- I. Provide coil hook-up packages and pressure independent control valves at hydronic coils. Refer to Division 23 "Hydronic Specialties."

#### 3.2 ADJUSTING

- A. Reset volume with damper operator attached to assembly allowing flow range modulation from 100 percent of design flow to minimum heating and cooling setpoints as scheduled or indicated on the drawing.

END OF SECTION 23 36 00



**COPYRIGHT:**  
HIGHLAND ASSOCIATES, LTD. ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 © SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT.  
**UNAUTHORIZED DOCUMENT USE:**  
THIS DRAWING MAY BE UTILIZED ONLY FOR THE PURPOSE OF CONSTRUCTING OR INSTALLING THE WORK SHOWN THEREON AT THE SITE OF THE WORK SPECIFIED. ANY OTHER USE OF THIS DRAWING, INCLUDING WITHOUT LIMITATION ANY REPRODUCTION OR ALTERATION OF THIS DRAWING, WITHOUT THE PRIOR WRITTEN APPROVAL OF HIGHLAND ASSOCIATES, LTD. ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 IS A VIOLATION OF THE LAW AND IS PROHIBITED.

PROJECT TITLE:



201 Main Street | Vestal, NY 13850

**2024  
Capital Project**  
CLAYTON AVE. ELEMENTARY  
NYSED # 03-16-01-06-0-003-022

SEALS:

DRAWING TITLE:

**ROOF  
PART A  
RENOVATION**

DRAWN BY: DN CHECKED BY: CTP

DATE: 06/22/2026 PROJECT NO: 2025-067

DRAWING NO:

BUILDING

CA

A-1.5

CAD FILE: 060CA-11090 PLOT DATE: 7/23/2026

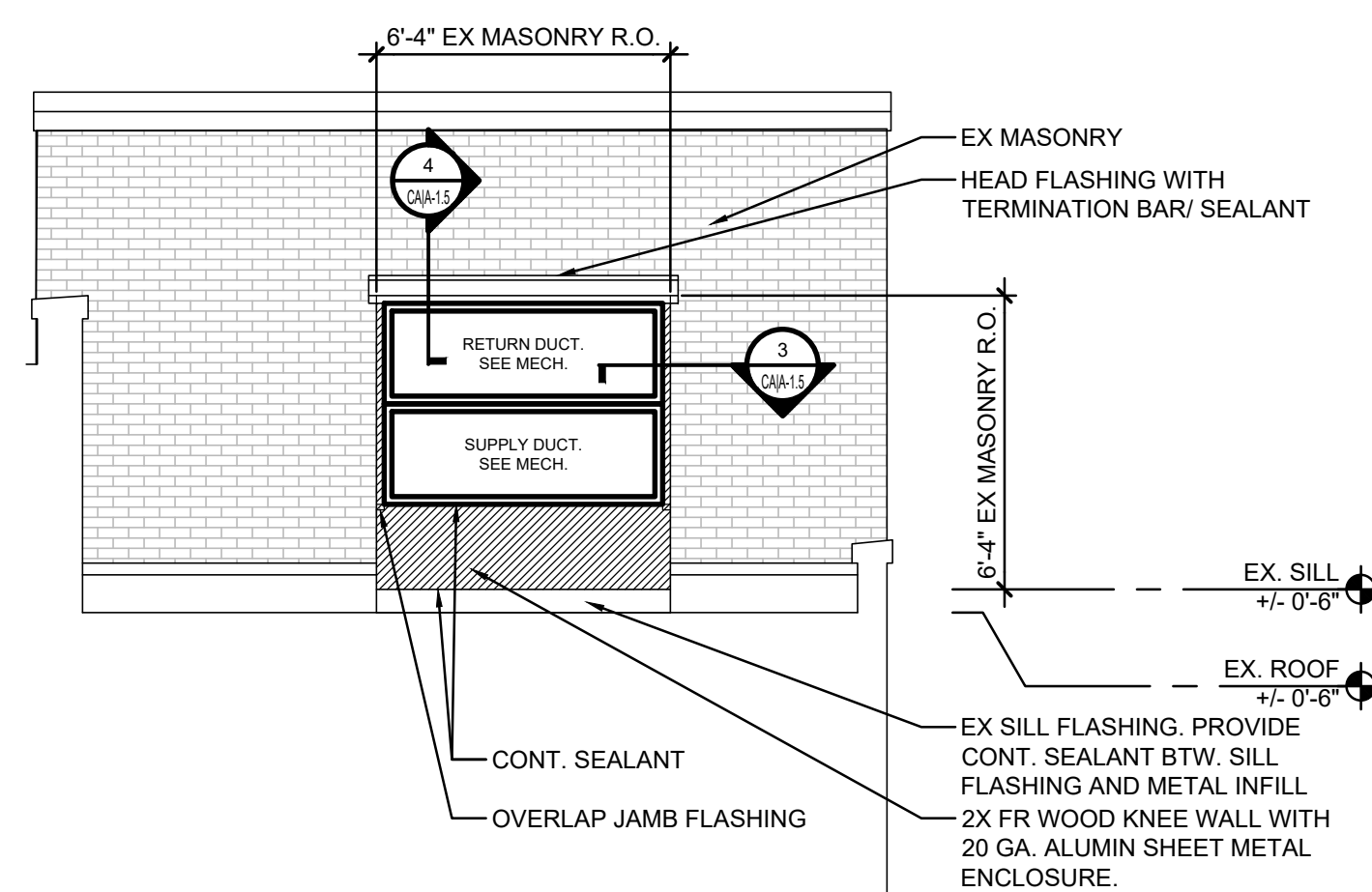
**LEGEND**

|  |                                               |
|--|-----------------------------------------------|
|  | INDICATED CONSTRUCTION KEYNOTE                |
|  | INDICATES SLOPE OF ROOF                       |
|  | HIGH POINT                                    |
|  | LOW POINT                                     |
|  | EXISTING EXHAUST FAN                          |
|  | EXISTING VENT THRU ROOF                       |
|  | EXISTING ROOF DRAIN                           |
|  | EXISTING ROOF ACCESS LADDER MOUNTED TO FACADE |
|  | MECHANICAL UNIT                               |
|  | AIR CONDITIONER UNIT                          |
|  | GAS PIPING AND SUPPORTS                       |
|  | ELECTRICAL CONDUIT                            |
|  | EQUIPMENT TAG. SEE MECHANICAL DRAWINGS        |

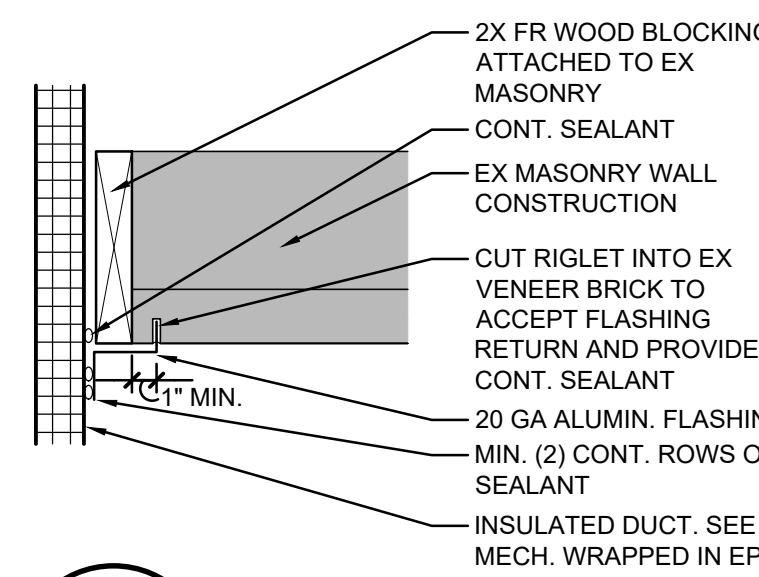
**CONSTRUCTION KEY NOTES:**

APPLICABLE TO THIS SHEET ONLY

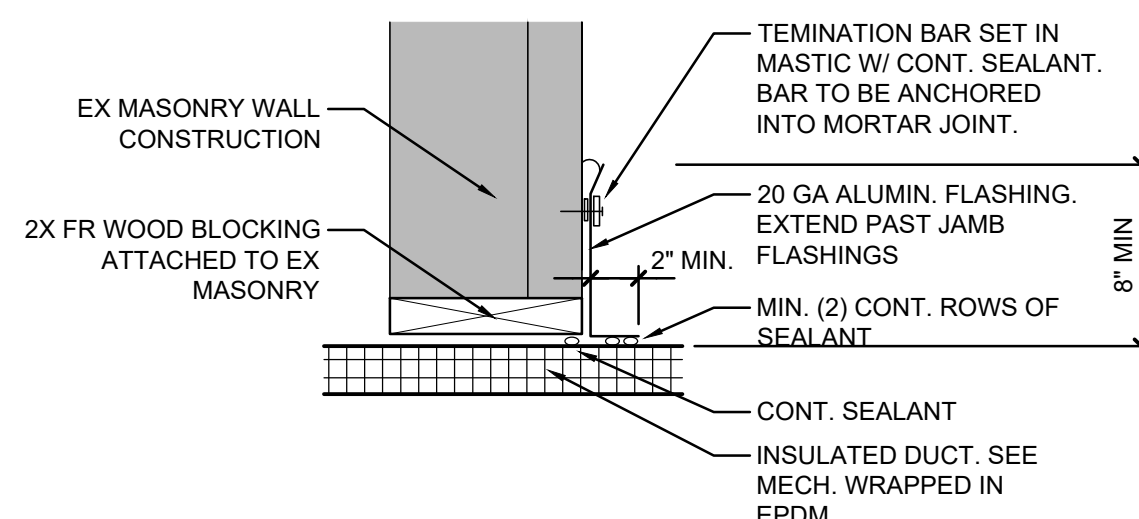
- NEW LADDER. PROVIDE A CODE COMPLIANT 2'-0" WIDE ALUMINUM FIXED TUBULAR LADDER WITH WALK THRU AND PLATFORM. MANUFACTURED BY "PRECISION LADDERS" MODEL "FL SERIES". MOUNT TO C.M.U. WALL WITH 3/16" DIA. ADHESIVE ANCHORS. PROVIDE (2) 2'-0x2'-0" CONC. PADS AT TOP AND BOTTOM OF LADDER. FIELD VERIFY HEIGHT REQUIRED.
- NEW DUNNAGE TO SUPPORT MECHANICAL UNIT. FLASH AROUND ALL ROOF PENETRATIONS AND ENSURE WEATHER TIGHT IN ACCORDANCE WITH ROOF MANUF. SPECIFICATIONS/WARRANTY. DO NOT VOID WARRANTY. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.
- INFILL AROUND NEW DUNNAGE WITH EXISTING MASONRY AS REQUIRED AND SEAL WEATHER TIGHT WITH BACKER ROD AND CONTINUOUS SEALANT. COORDINATE WITH STRUCTURAL DRAWINGS.
- REFRIGERANT PIPING RUN ON ROOF. SEE MECHANICAL DRAWINGS.
- PIPE CURB ON ROOF FLASHED AND SEALED WEATHER TIGHT. SEE MECHANICAL DRAWINGS.
- NEW DUNNAGE FRAMING AND PLATFORM AROUND ROOF TOP UNIT. PROVIDE 42" HIGH SAFETY RAILING AT EDGES. SEE STRUCTURAL AND MECHANICAL DRAWINGS FOR MORE INFORMATION.
- PROVIDE AND INSTALL OSHA COMPLIANT LADDER AND GUARDRAIL. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION.
- DUCT WORK THROUGH EXISTING OPENINGS. INFILL REMAINING OPENING WITH SHEET METAL. SEE DETAIL. COORDINATE WITH MECHANICAL AND STRUCTURAL. PENETRATIONS SHALL BE SEALED WEATHER TIGHT.
- NOT USED
- NEW DUNNAGE TO SUPPORT CONDENSING UNIT. COORDINATE STRUCTURAL DRAWINGS.
- REFRIGERANT PIPING RUN ON ROOF. RACK PIPING ALONG EXTERIOR AUDITORIUM WALL. SEE MECHANICAL DRAWINGS. SEAL ALL PENETRATIONS THROUGH ROOF WEATHER TIGHT

**2 PARTIAL ELEVATION**

SCALE: 1/4"=1'-0"

**3 JAMB DETAIL**

SCALE: 1 1/2"=1'-0"

**4 HEAD DETAIL**

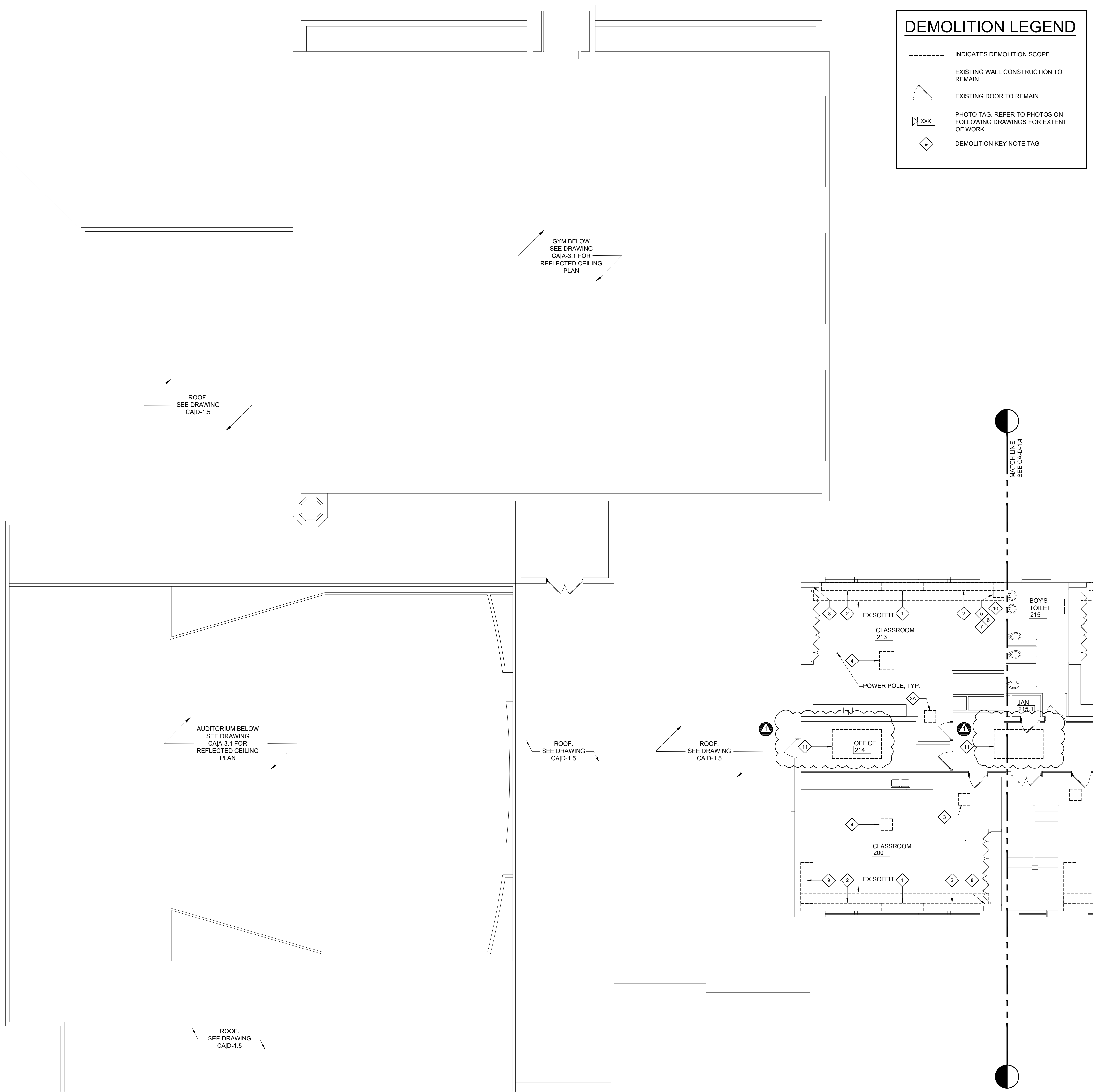
SCALE: 1 1/2"=1'-0"

ADD ALTERNATE #001 AUDITORIUM - INCLUDE ALL WORK, ALL TRADES FOR WORK ASSOCIATED WITH THE AUDITORIUM SCOPE OF WORK.

ADD ALTERNATE #002 GYMNASIUM - INCLUDE ALL WORK, ALL TRADES FOR WORK ASSOCIATED WITH THE GYMNASIUM SCOPE OF WORK.

**1 ROOF - PART A - RENOVATION PLAN**

SCALE: 1/8"=1'-0"



**DEMOLITION LEGEND**

----- INDICATES DEMOLITION SCOPE.

===== EXISTING WALL CONSTRUCTION TO REMAIN

↖ EXISTING DOOR TO REMAIN

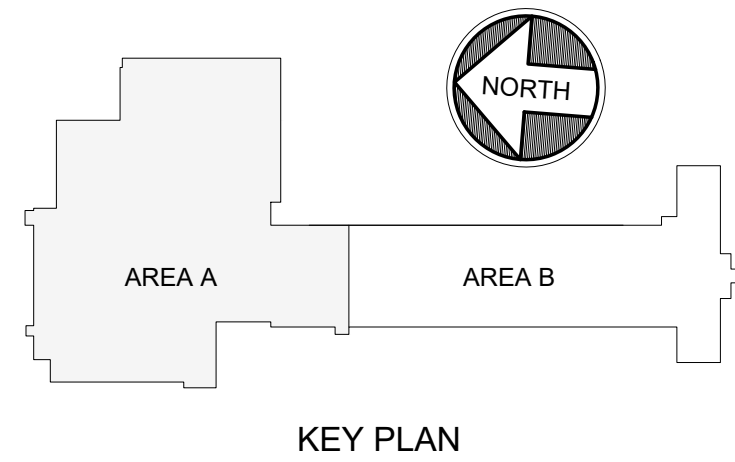
xxx PHOTO TAG. REFER TO PHOTOS ON FOLLOWING DRAWINGS FOR EXTENT OF WORK.

4 DEMOLITION KEY NOTE TAG

- DEMOLITION KEY NOTES:**
- APPLICABLE TO THIS SHEET ONLY
- 1 REMOVE EXISTING UNIT VENTILATOR (UV) IN ITS ENTIRETY. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
  - 2 REMOVE EXISTING MILLWORK/CASEWORK IN ITS ENTIRETY. PATCH AND REPAIR WALL AS REQUIRED AND PREPARE AREA TO RECEIVE NEW WORK AND FINISHES.
  - 3 REMOVE PORTION OF CONCEALED SPLINE PLASTER CEILING AS REQUIRED TO ACCOMMODATE RETURN GRILLE/DUCT. SUPPORT NEW OPENING IN EXISTING PLASTER CEILING AS REQUIRED. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION. COORDINATE FINAL LOCATION WITH EXISTING CEILING GRID AND PLASTER CEILING FRAMING. NEW GRILLE SHALL CONCEAL CUT EDGES.
  - 3A REMOVE PORTION OF CONCEALED SPLINE PLASTER CEILING AS REQUIRED TO ACCOMMODATE RETURN GRILLE/DUCT. SUPPORT NEW OPENING IN EXISTING PLASTER CEILING AS REQUIRED. REMOVE EXISTING CEILING TILE AND MODIFY EXISTING GRID AS REQUIRED TO ACCOMMODATE RELIEF AIR GRILLE. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION. COORDINATE FINAL LOCATION WITH EXISTING CEILING GRID AND PLASTER CEILING FRAMING. NEW GRILLE SHALL CONCEAL CUT EDGES.
  - 4 INDICATES APPROXIMATE LOCATION OF NEW OPENING REQUIRED IN ROOF TO ACCOMMODATE NEW RELIEF DUCT/ROOF HOOD. REMOVE PORTION OF EXISTING CONCEALED SPLINE/PLASTER CEILING/FRAMING CONSTRUCTION AND RESUPPORT AS REQUIRED TO FACILITATE CONSTRUCTION AND INFILL VOID CREATED WITH 2X4 ACT AND GRID AS REQUIRED. RE-SUPPORT OPENING AS REQUIRED. COORDINATE FINAL LOCATION/OPENING SIZE WITH EXISTING CONDITIONS, STRUCTURAL AND MECHANICAL DRAWINGS.
  - 5 REMOVE PORTION OF EXISTING METAL STUD AND GYPSUM BOARD SOFFIT AS REQUIRED TO FACILITATE NEW RELIEF AIR DUCT. MODIFY EXISTING FRAMING AS REQUIRED. PATCH AND REPAIR EXISTING SOFFIT/FRAMING AND REFINISH ENTIRE SOFFIT TO MATCH EXISTING. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
  - 6 REMOVE PORTION OF EXISTING CONCEALED SPLINE /PLASTER CEILING ABOVE EXISTING METAL STUD/GYPSUM BOARD SOFFIT AS REQUIRED TO FACILITATE NEW RELIEF AIR DUCT. RE-SUPPORT AS REQUIRED. SEE STRUCTURAL AND MECHANICAL DRAWINGS FOR MORE INFORMATION.
  - 7 INDICATES APPROXIMATE LOCATION OF NEW OPENING REQUIRED IN EXISTING FLOOR SLAB TO ACCOMMODATE NEW OPEN RELIEF DUCT. REMOVE PORTION OF EXISTING SECOND FLOOR FINISH/WALL BASE AND SLAB/DECK AS REQUIRED. COORDINATE WITH MECHANICAL AND STRUCTURAL DRAWINGS.
  - 8 REMOVE PORTIONS OF, AND PATCH, REPAIR AND REFINISH EXISTING WALL AS REQUIRED TO ACCOMMODATE NEW LINES RUN IN SOFFIT. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
  - 9 REMOVE WALL CABINETS. PATCH AND REPAIR WALL AS REQUIRED AND PREPARE AREA TO RECEIVE NEW WORK AND FINISHES.
  - 10 REMOVE EXISTING CONCEALED SPLINE/PLASTER CEILING AS REQUIRED TO ACCOMMODATE FLOOR OPENING/DUCT WORK IF REQUIRED. PATCH AND REPAIR TO MATCH EXISTING CEILING.
  - 11 TO ACCOMMODATE HEAT PUMP DUNNAGE SCOPE AT ROOF ABOVE. REMOVE, SALVAGE AND REINSTALL ACT, GRID AND CEILING DEVICES AS REQUIRED. REMOVE PORTION OF EXISTING CONCEALED SPLINE /PLASTER CEILING ABOVE EXISTING ACT AND GRID AND RE-SUPPORT AS REQUIRED. COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS.

1 SECOND FLOOR - PART A - DEMOLITION  
CA-D-1.3 SCALE: 1/8"=1'-0"

BID DOCUMENTS  
06/22/2026



**COPYRIGHT:**  
HIGHLAND ASSOCIATES, LTD. ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 ® SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT.

**UNAUTHORIZED DOCUMENT USE:**  
THIS DRAWING MAY BE UTILIZED ONLY FOR THE PURPOSE OF CONSTRUCTING OR INSTALLING THE WORK SHOWN THEREON AT THE SITE OF THE WORK SPECIFIED. ANY OTHER USE OF THIS DRAWING, INCLUDING WITHOUT LIMITATION ANY REPRODUCTION OR ALTERATION OF THIS DRAWING, WITHOUT THE PRIOR WRITTEN APPROVAL OF HIGHLAND ASSOCIATES, LTD. ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 ® IS A VIOLATION OF THE LAW AND IS PROHIBITED.

PROJECT TITLE:



201 Main Street | Vestal, NY 13850

2024  
Capital Project

CLAYTON AVE. ELEMENTARY  
NYS ED # 03-16-01-06-0-003-022

SEALS:

DRAWING TITLE:

SECOND FLOOR  
PART A  
DEMOLITION

DRAWN BY: CTP CHECKED BY: DM

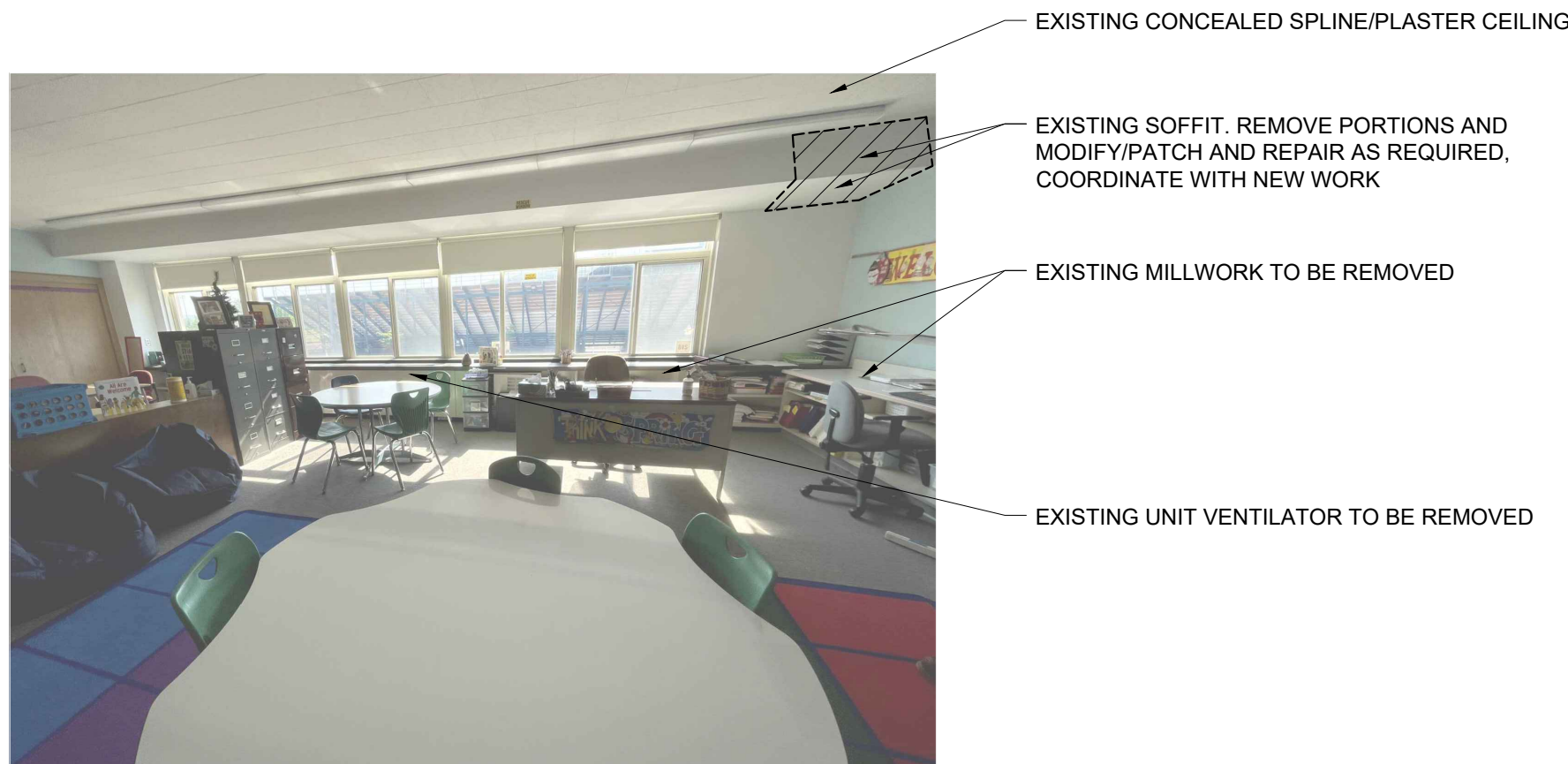
DATE: 06/22/2026 PROJECT NO: 2025-067

DRAWING NO:

BUILDING

CA

D-1.3



EXISTING CONCEALED SPLINE/PLASTER CEILING

EXISTING SOFFIT. REMOVE PORTIONS AND MODIFY/PATCH AND REPAIR AS REQUIRED. COORDINATE WITH NEW WORK

EXISTING MILLWORK TO BE REMOVED

EXISTING UNIT VENTILATOR TO BE REMOVED

2 EXISTING PHOTOGRAPH  
SCALE: NTS  
CA-D-1.4

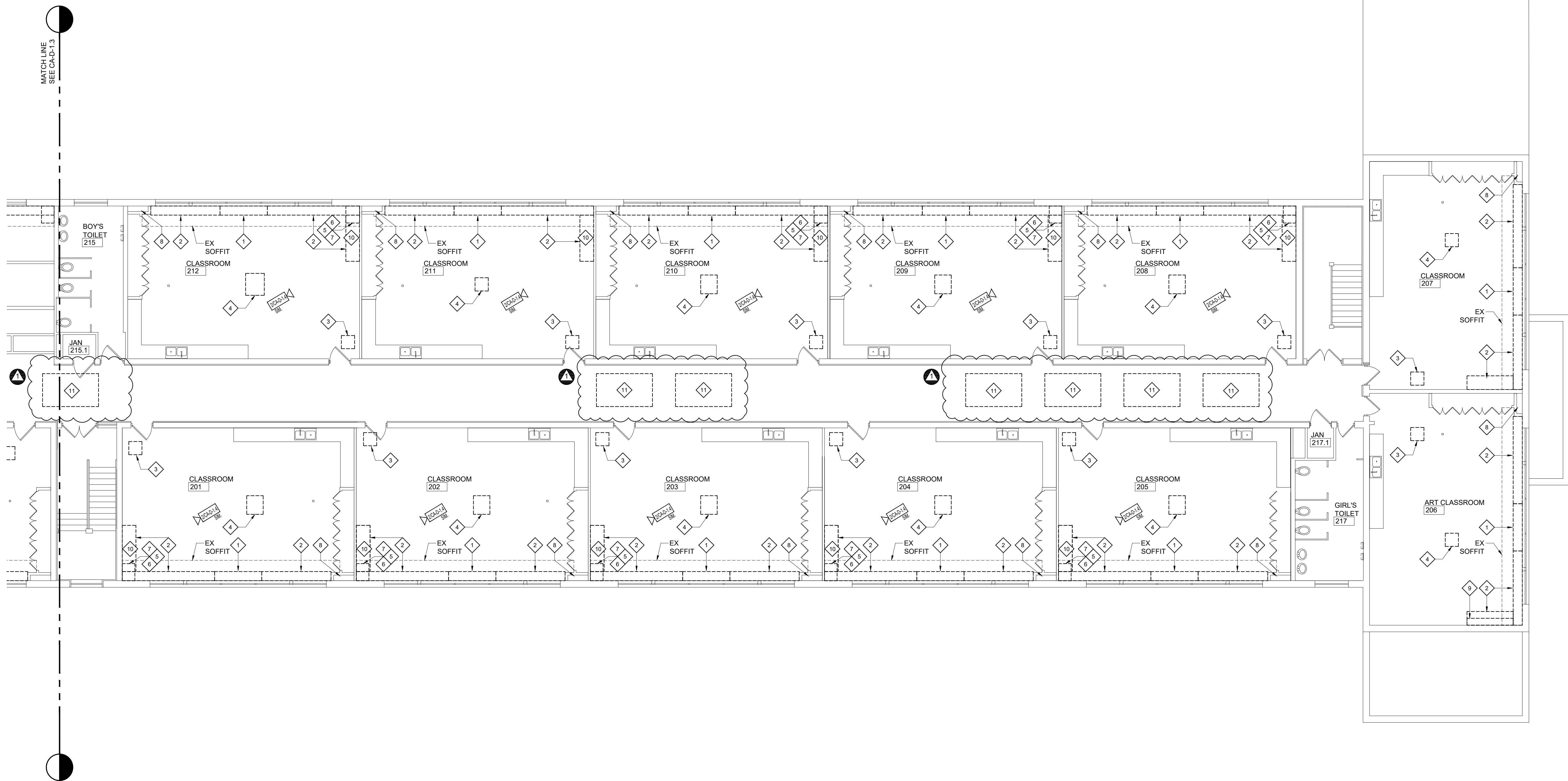
## DEMOLITION LEGEND

- INDICATES DEMOLITION SCOPE.
- EXISTING WALL CONSTRUCTION TO REMAIN
- EXISTING DOOR TO REMAIN
- PHOTO TAG. REFER TO PHOTOS ON FOLLOWING DRAWINGS FOR EXTENT OF WORK.
- DEMOLITION KEY NOTE TAG

## DEMOLITION KEY NOTES:

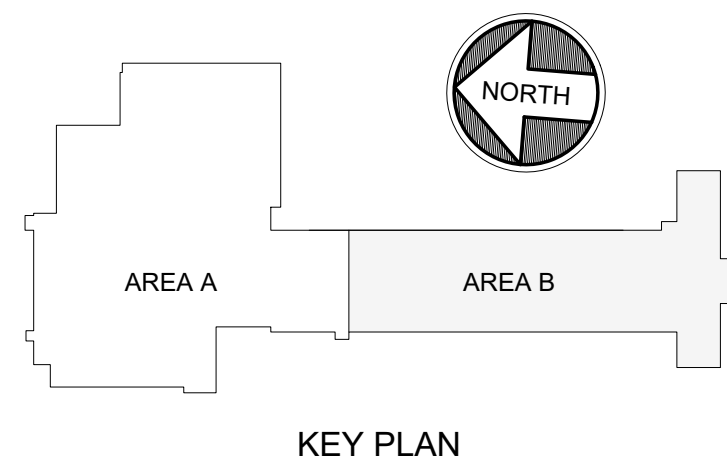
APPLICABLE TO THIS SHEET ONLY

- REMOVE EXISTING UNIT VENTILATOR (UV) IN ITS ENTIRETY. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
- REMOVE EXISTING MILLWORK/CASEWORK IN ITS ENTIRETY. PATCH AND REPAIR WALL AS REQUIRED AND PREPARE AREA TO RECEIVE NEW WORK AND FINISHES.
- REMOVE PORTION OF CONCEALED SPLINE PLASTER CEILING AS REQUIRED TO ACCOMMODATE RETURN GRILLE/DUCT. SUPPORT NEW OPENING IN EXISTING PLASTER CEILING AS REQUIRED. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION. COORDINATE FINAL LOCATION WITH EXISTING CEILING GRID AND PLASTER CEILING FRAMING. NEW GRILLE SHALL CONCEAL CUT EDGES.
- INDICATES APPROXIMATE LOCATION OF NEW OPENING REQUIRED IN ROOF TO ACCOMMODATE NEW RELIEF DUCT/ROOF HOOD. REMOVE PORTION OF EXISTING CONCEALED SPLINE/PLASTER CEILING/FRAMING CONSTRUCTION AND RESUPPORT AS REQUIRED TO FACILITATE CONSTRUCTION AND INFILL VOID CREATED WITH 2X4 ACT AND GRID AS REQUIRED. RE-SUPPORT OPENING AS REQUIRED. COORDINATE FINAL LOCATION/OPENING SIZES WITH EXISTING CONDITIONS, STRUCTURAL AND MECHANICAL DRAWINGS.
- REMOVE PORTION OF EXISTING METAL STUD AND GYPSUM BOARD SOFFIT AS REQUIRED TO FACILITATE NEW RELIEF AIR DUCT. MODIFY EXISTING FRAMING AS REQUIRED. PATCH AND REPAIR EXISTING SOFFIT/FRAMING AND REFINISH ENTIRE SOFFIT TO MATCH EXISTING. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
- REMOVE PORTION OF EXISTING CONCEALED SPLINE/PLASTER CEILING ABOVE EXISTING METAL STUD/GYPSUM BOARD SOFFIT AS REQUIRED TO FACILITATE NEW RELIEF AIR DUCT. RE-SUPPORT AS REQUIRED. SEE STRUCTURAL AND MECHANICAL DRAWINGS FOR MORE INFORMATION.
- INDICATES APPROXIMATE LOCATION OF NEW OPENING REQUIRED IN EXISTING FLOOR SLAB TO ACCOMMODATE NEW OPEN RELIEF DUCT. REMOVE PORTION OF EXISTING SECOND FLOOR FINISH/WALL BASE AND SLAB/DECK AS REQUIRED. COORDINATE WITH MECHANICAL AND STRUCTURAL DRAWINGS.
- REMOVE PORTIONS OF, AND PATCH, REPAIR AND REFINISH EXISTING WALL AS REQUIRED TO ACCOMMODATE NEW LINES RUN IN SOFFIT. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
- REMOVE WALL CABINETS. PATCH AND REPAIR WALL AS REQUIRED AND PREPARE AREA TO RECEIVE NEW WORK AND FINISHES
- REMOVE EXISTING CONCEALED SPLINE/PLASTER CEILING AS REQUIRED TO ACCOMMODATE FLOOR OPENING/DUCT WORK IF REQUIRED. PATCH AND REPAIR TO MATCH EXISTING CEILING
- TO ACCOMMODATE HEAT PUMP DUNNAGE SCOPE AT ROOF ABOVE. REMOVE. SALVAGE AND REINSTALL ACT/GRID AND CEILING DEVICES AS REQUIRED. REMOVE PORTION OF EXISTING CONCEALED SPLINE/PLASTER CEILING ABOVE EXISTING ACT AND GRID AND RE-SUPPORT AS REQUIRED. COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS



1 SECOND FLOOR - PART B - DEMOLITION  
SCALE: 1/8"=1'-0"  
CA-D-1.4

## BID DOCUMENTS 06/22/2026



**COPYRIGHT:**  
HIGHLAND ASSOCIATES, LTD. ARCHITECTURE/ENGINEERING/INTERIOR DESIGN 2026 ® SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT.  
**UNAUTHORIZED DOCUMENT USE:**  
THIS DRAWING MAY BE UTILIZED ONLY FOR THE PURPOSE OF CONSTRUCTING OR INSTALLING THE WORK SHOWN THEREON AT THE SITE OF THE WORK SPECIFIED. ANY OTHER USE OF THIS DRAWING, INCLUDING WITHOUT LIMITATION ANY REPRODUCTION OR ALTERATION OF THIS DRAWING, WITHOUT THE PRIOR WRITTEN APPROVAL OF HIGHLAND ASSOCIATES, LTD. ARCHITECTURE/ENGINEERING/INTERIOR DESIGN 2026 ® IS A VIOLATION OF THE LAW AND IS PROHIBITED.

PROJECT TITLE:



201 Main Street | Vestal, NY 13850

## 2024 Capital Project

CLAYTON AVE. ELEMENTARY  
NYSID # 03-16-01-06-0-003-022

SEALS:

DRAWING TITLE:

## SECOND FLOOR PART B DEMOLITION

DRAWN BY: CTP CHECKED BY: DM

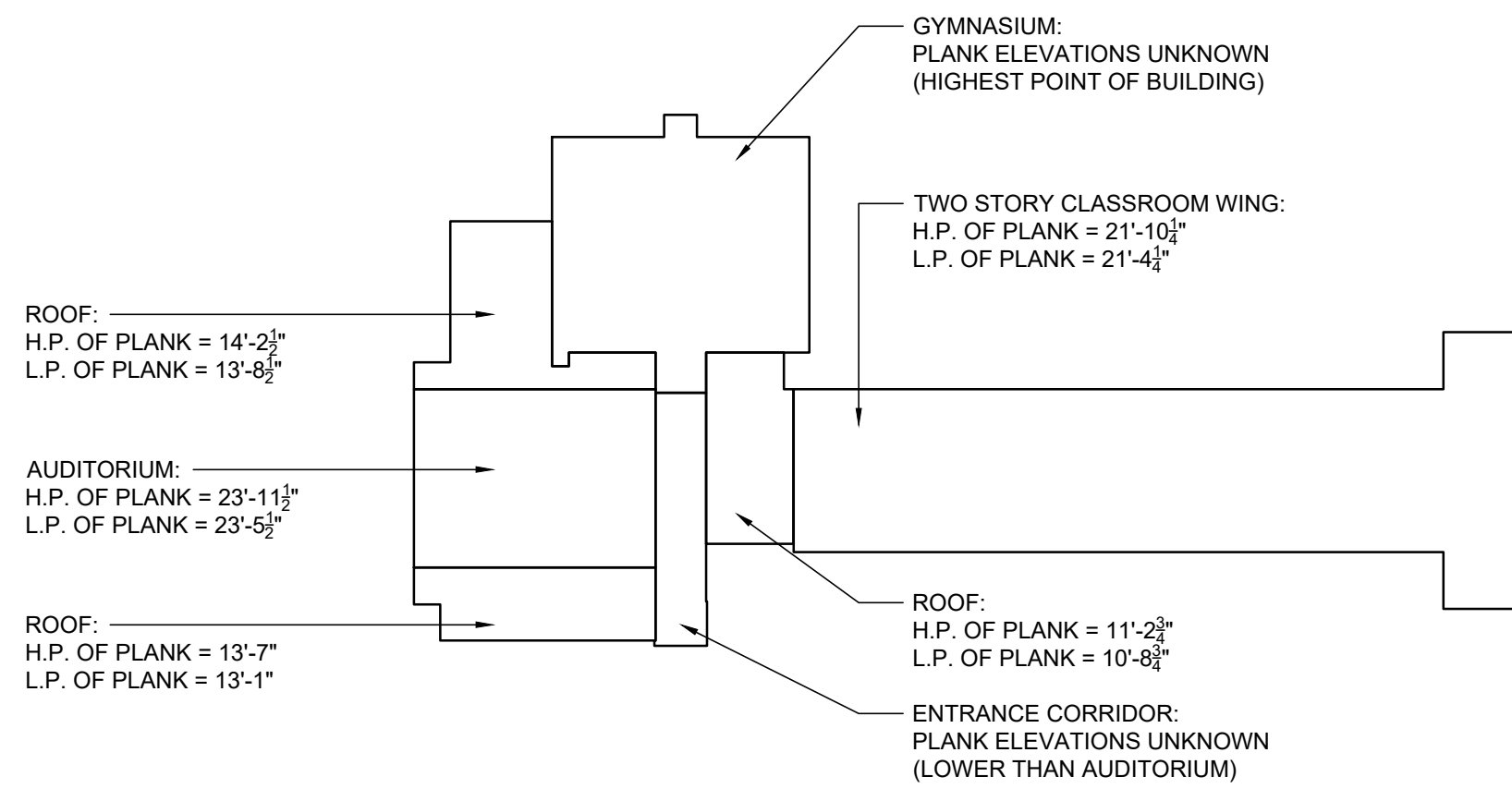
DATE: 06/22/2026 PROJECT NO: 2025-067

DRAWING NO:

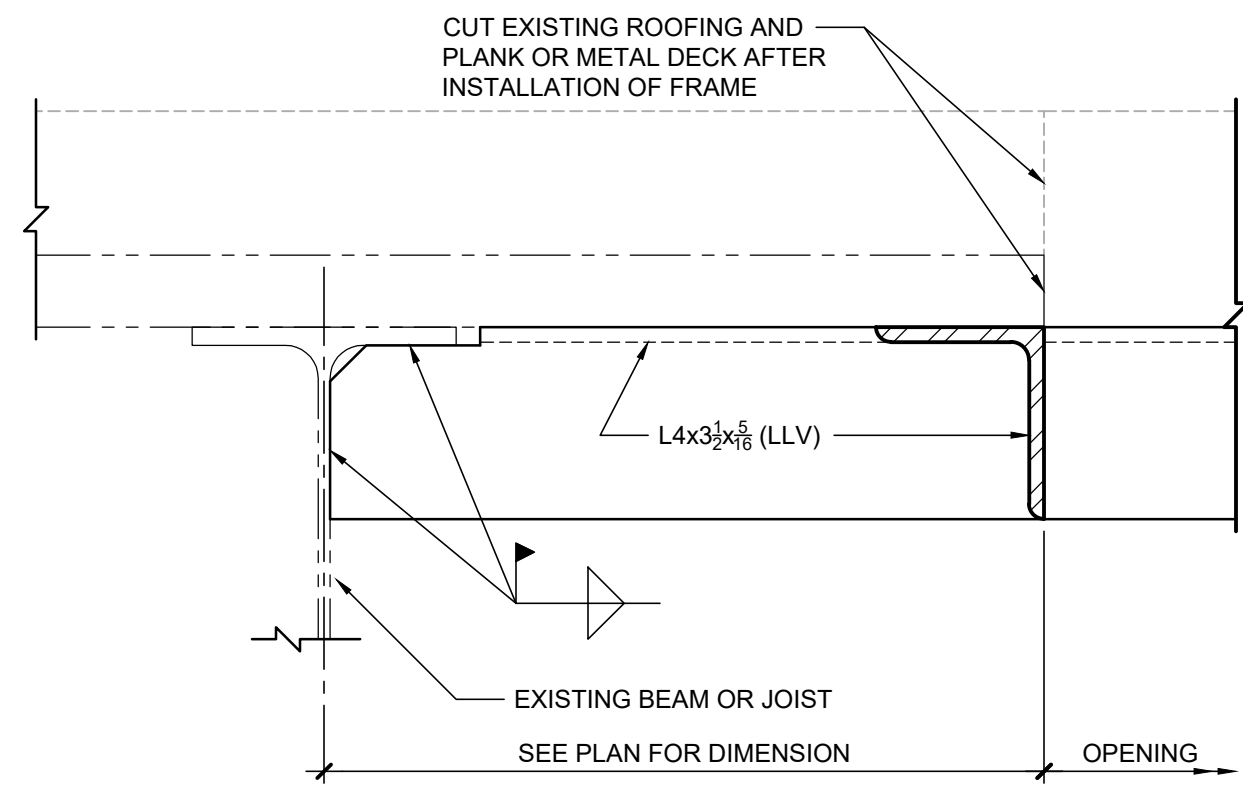
BUILDING

CA

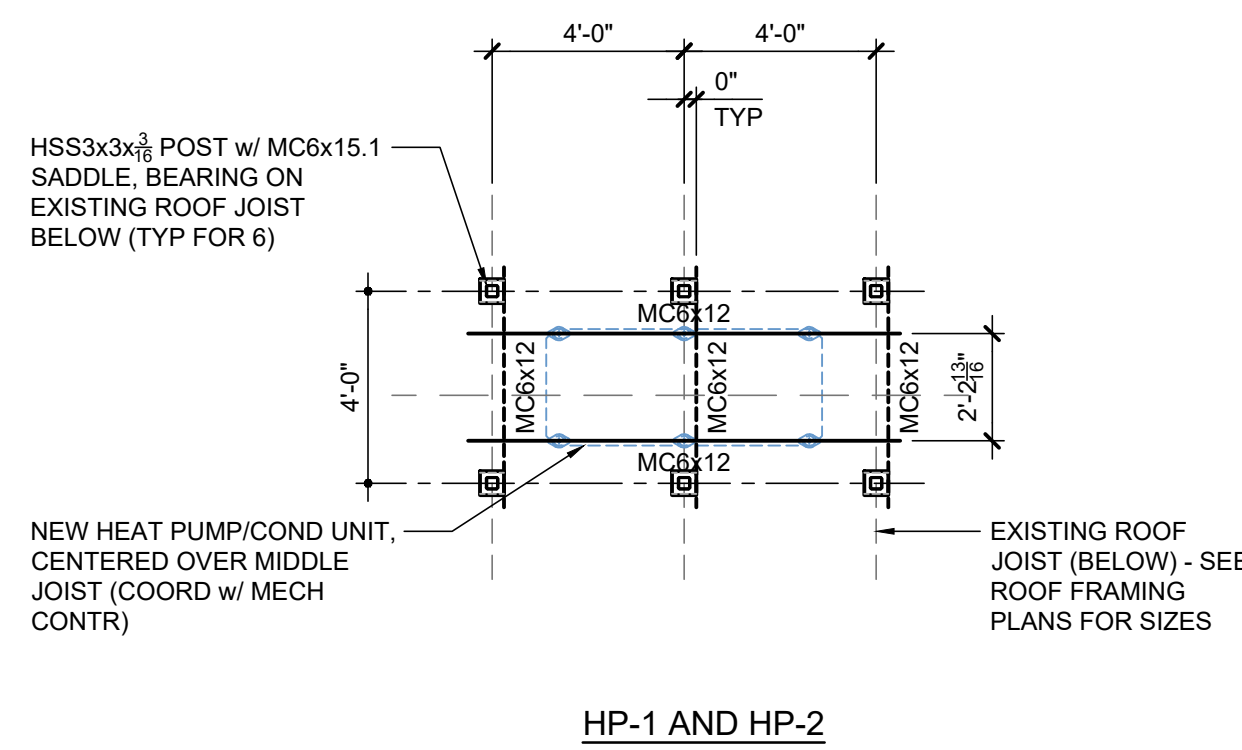
D-1.4



**ROOF LEVEL KEY PLAN**  
SCALE: NONE



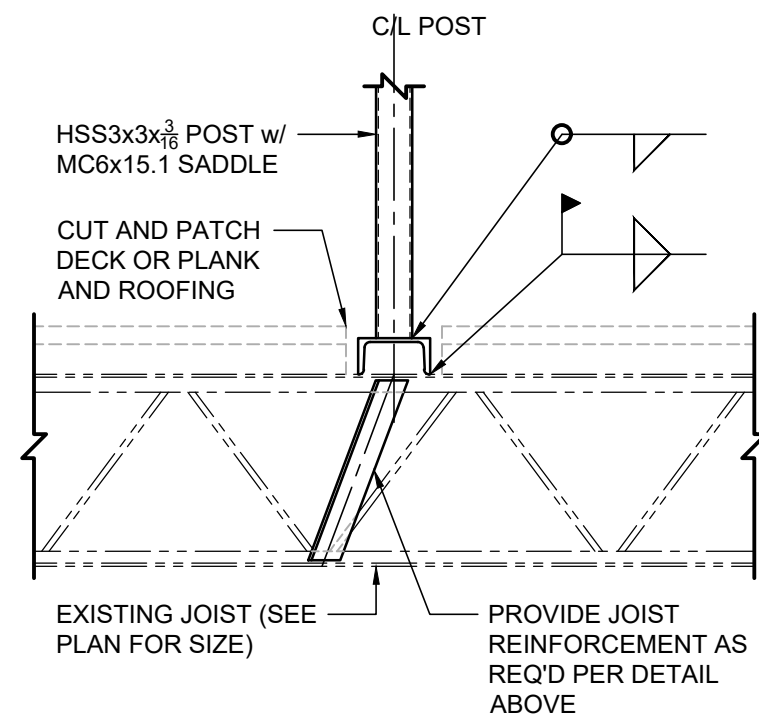
**TYPICAL NEW OPENING DETAIL IN EXISTING ROOF**  
NOT TO SCALE



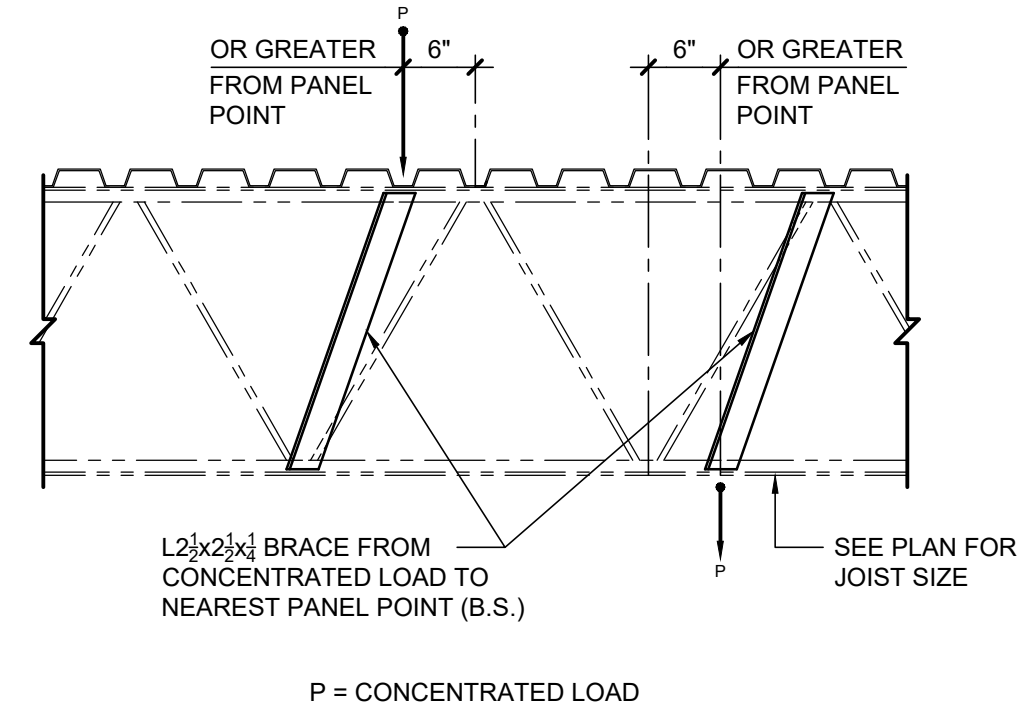
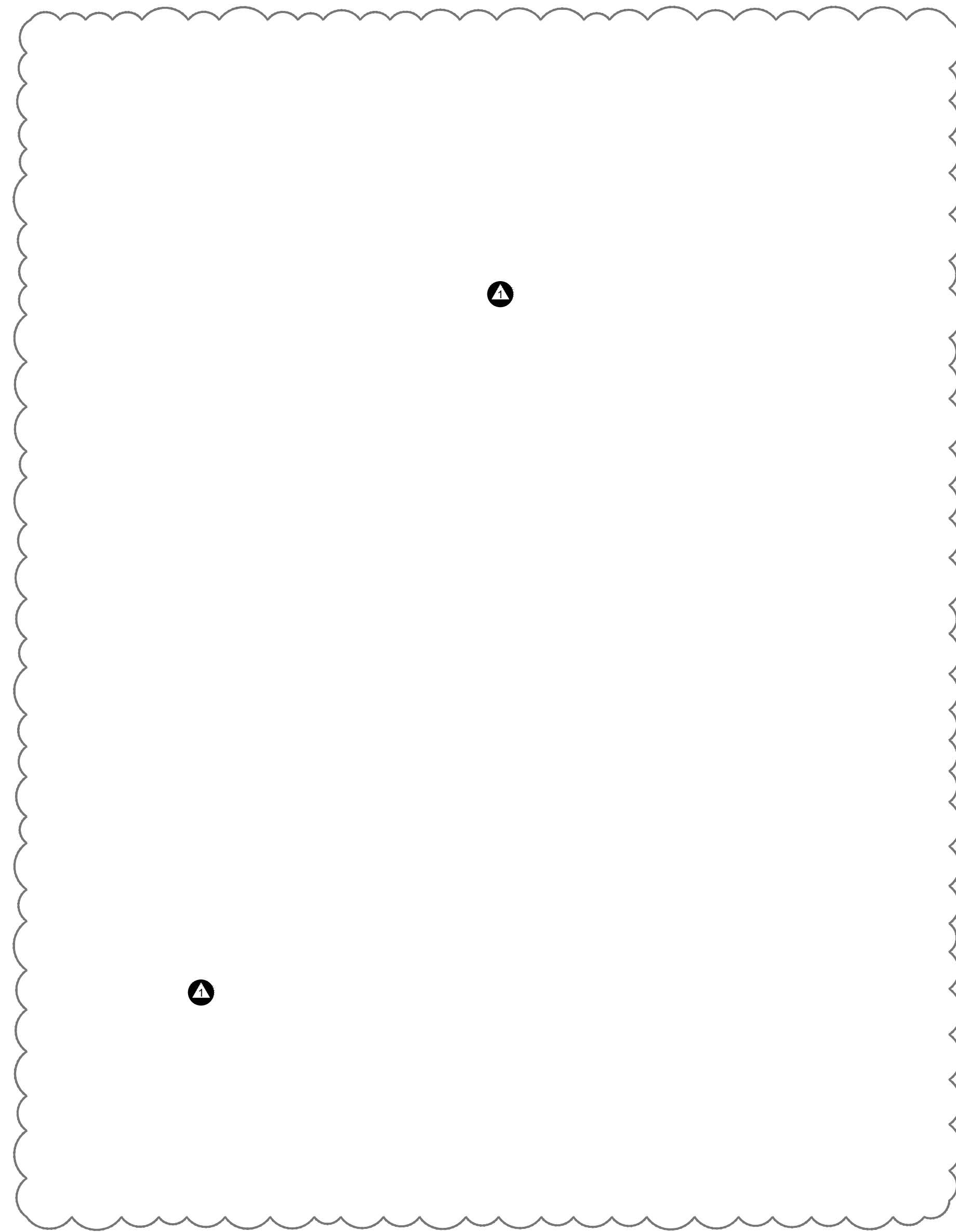
HP-1 AND HP-2

**HEAT PUMP/CONDENSING UNIT  
DUNNAGE FRAMING PLAN**

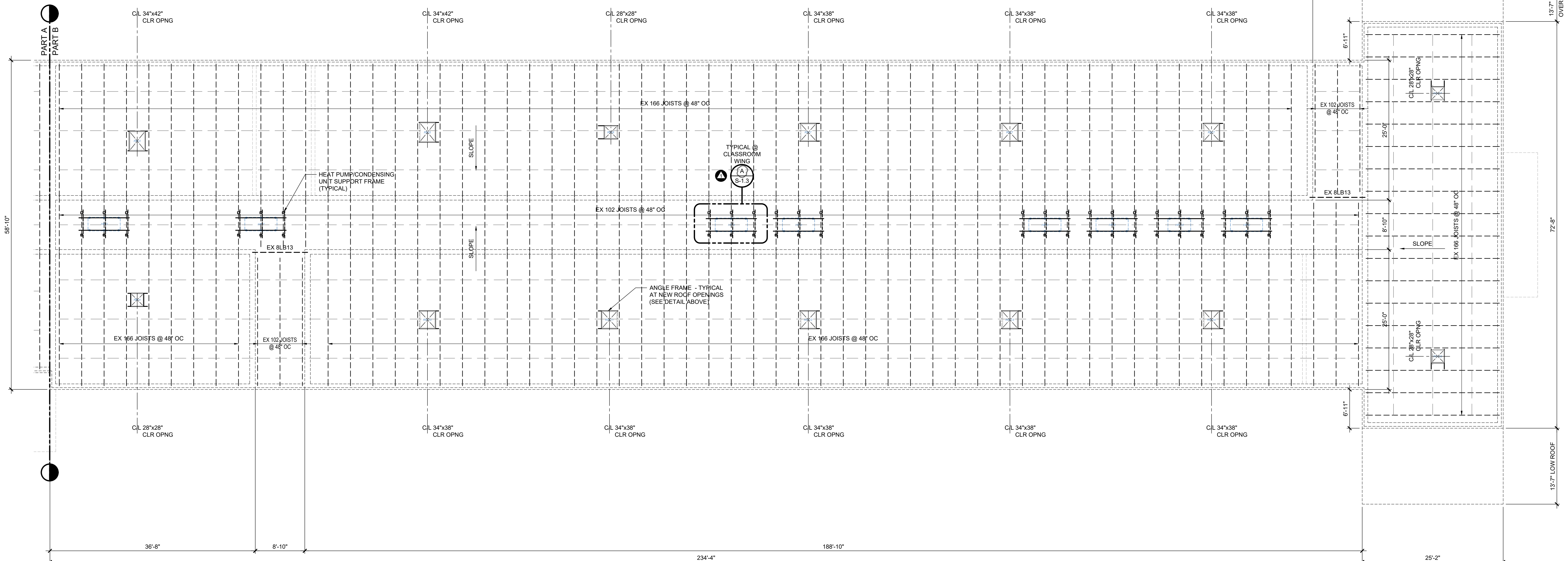
- SCALE: 1/4" = 1'-0"
- TOP OF DUNNAGE FRAMING ELEVATION SHALL BE 2'-6" ABOVE H.P. OF EXISTING JOISTS BELOW. SEE PLAN FOR ORIENTATION.
  - TWO (2) ASSEMBLIES REQUIRED (CONFIRM WITH MECHANICAL DRAWINGS).
  - ALL DUNNAGE STEEL SHALL BE GALVANIZED (SEE SPECS).
  - EQUIPMENT AND VIBRATION ISOLATORS SHALL BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS.
  - NOTE! PROVIDE JOIST REINFORCEMENT AT ALL POST BEARING LOCATIONS.



**TYPICAL SADDLE DETAIL FOR  
NEW DUNNAGE POSTS**  
SCALE: 3/4" = 1'-0"



**TYPICAL JOIST REINFORCEMENT AT  
CONCENTRATED LOAD DETAIL**  
NOT TO SCALE



**PARTIAL EXISTING ROOF FRAMING PLAN - PART B**

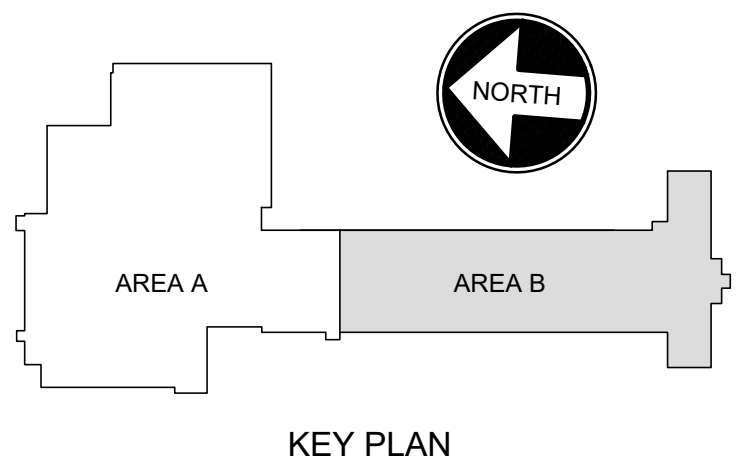
- SCALE: 3/4" = 1'-0"
- EXISTING HIGH POINT OF STEEL ELEVATION VARIES.
  - SEE DRAWING S-1.2 FOR ADDITIONAL NOTES.

**NOTE!**

ALL ROOF WORK SHALL BE DONE IN ACCORDANCE WITH EXISTING ROOF MANUFACTURER'S RECOMMENDATIONS SO AS NOT TO VOID ANY EXISTING ROOF WARRANTIES. CONSULT WITH EXISTING ROOF MANUFACTURER PRIOR TO COMMENCEMENT OF WORK. PROVIDE WALL NECESSARY ROOF PROTECTION TO MAINTAIN ROOF PERFORMANCE AND WARRANTY (TYP)

- DELETED DUNNAGE FRAMING PLAN B/S-1.3
- REVISED DUNNAGE REFERENCE FROM PLAN B/S-1.3 TO PLAN A/S-1.3
- DELETED SADDLE DETAIL FOR DUNNAGE POSTS ON WALL

**BID DOCUMENTS**  
06/22/2026



**COPYRIGHT:**  
HIGHLAND ASSOCIATES, LTD., ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 © SHALL BE DEEMED THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER RESERVED RIGHTS INCLUDING COPYRIGHT.  
**UNAUTHORIZED DOCUMENT USE:**  
THIS DRAWING MAY BE UTILIZED ONLY FOR THE PURPOSE OF CONSTRUCTING OR INSTALLING THE WORK SHOWN THEREON AT THE SITE OF THE WORK SPECIFIED. ANY OTHER USE OF THIS DRAWING, INCLUDING WITHOUT LIMITATION ANY REPRODUCTION OR ALTERATION OF THIS DRAWING, WITHOUT THE PRIOR WRITTEN APPROVAL OF HIGHLAND ASSOCIATES, LTD., ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 © IS A VIOLATION OF THE LAW AND IS PROHIBITED.

PROJECT TITLE:



201 Main Street | Vestal, NY 13850

**2024  
Capital Project**

CLAYTON AVE. ELEMENTARY  
NYSID # 03-16-01-06-0-003-022

SEALS:

DRAWING TITLE:

**PARTIAL ROOF AND  
DUNNAGE FRAMING  
PLAN - AREA B**

DRAWN BY: M.M.Y. CHECKED BY: E.D.M.

DATE: 06/22/2026 PROJECT NO: 2025-067

DRAWING NO:

BUILDING

**CA**

**S-1.3**

TOP/COPING AT FAN ROOM/  
GYMNASIUM (BEYOND)  
ELEV +30'-2 1/2"  
BOT/COPING AT FAN ROOM/  
GYMNASIUM (BEYOND)  
ELEV +29'-4 1/2"

L4x3x 3/8 LLV LOOSE LINTEL FOR BRICK SUPPORT  
DURING BEAM INSTALLATION; REMOVE AFTER  
DUNNAGE INSTALLATION AND POCKET  
INFILL/WALL RESTORATION OR WATERPROOF  
FOR PERMANENT INSTALLATION (TYP AT  
POCKETED DUNNAGE BEAMS)

TO/EX JOISTS AT  
AUDITORIUM  
ELEV VARIES FROM  
+23'-3 1/2" TO 23'-9 1/2" (VIF)

REMOVE EX BRICK AND CUT BLOCK AS NEEDED  
TO CREATE POCKET FOR NEW DUNNAGE BEAM  
INSTALLATION; GROUT SOLID AND  
RECONSTRUCT FACADE AFTER DUNNAGE IS IN  
PLACE (TYP AT DUNNAGE BEAMS)

TOP/NEW DUNNAGE STEEL  
ELEV +21'-4 1/2" ± (VERIFY COURSING)

BEARING PL 3/4"x7"x10"L w/ (2)-3/4"x6"L STUDS  
SHOP WELDED TO BOT/PL - SET ON SHALLOW  
GROUT AS NEEDED TO LEVEL STEEL AND  
MAKE FULL CONTACT W/ BLOCK BELOW

EX AUDITORIUM  
CEILING ELEV +20'-0"

GROUT TWO COURSES SOLID BENEATH  
ALL DUNNAGE BEAM BEARING LOCATIONS

EX FAN ROOM FLOOR (BEYOND)  
ELEV +17'-8"

NEW RTU-1 - SEE  
MECHANICAL DRAWINGS

GUARDRAIL: 1 1/2" STD WT  
PIPE W/ INTERMEDIATE  
RAIL AND 4" H TOE PL

HSS4"x4"x 1/2" POST W/  
2"x6"x12" CAP PL  
AND (4)-1" Ø H.S.  
BOLTS

BEARING PL 3/4"x7"x7" w/  
(2)-3/4" Ø x 6" L HEADED  
STUDS ON 3/4" D  
NON-SHRINK  
NON-METALLIC GROUT

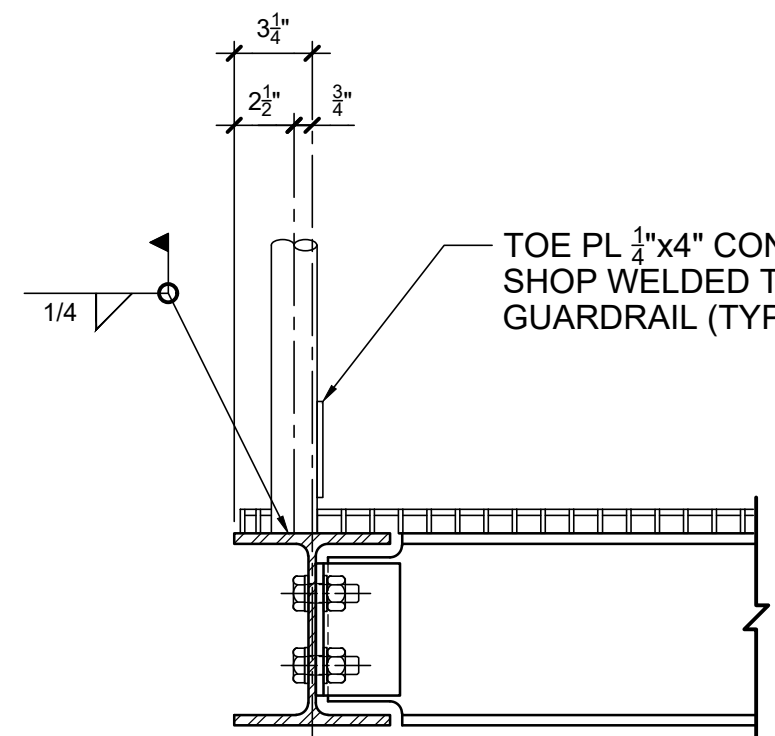
GROUT TWO COURSES  
SOLID BENEATH POST  
BEARING

TO/EX JOISTS AT OFFICES  
ELEV VARIES FROM  
+10'-6 1/2" TO 11'-0 1/2" ± (VIF)

MAIN CORRIDOR  
AND LOBBY

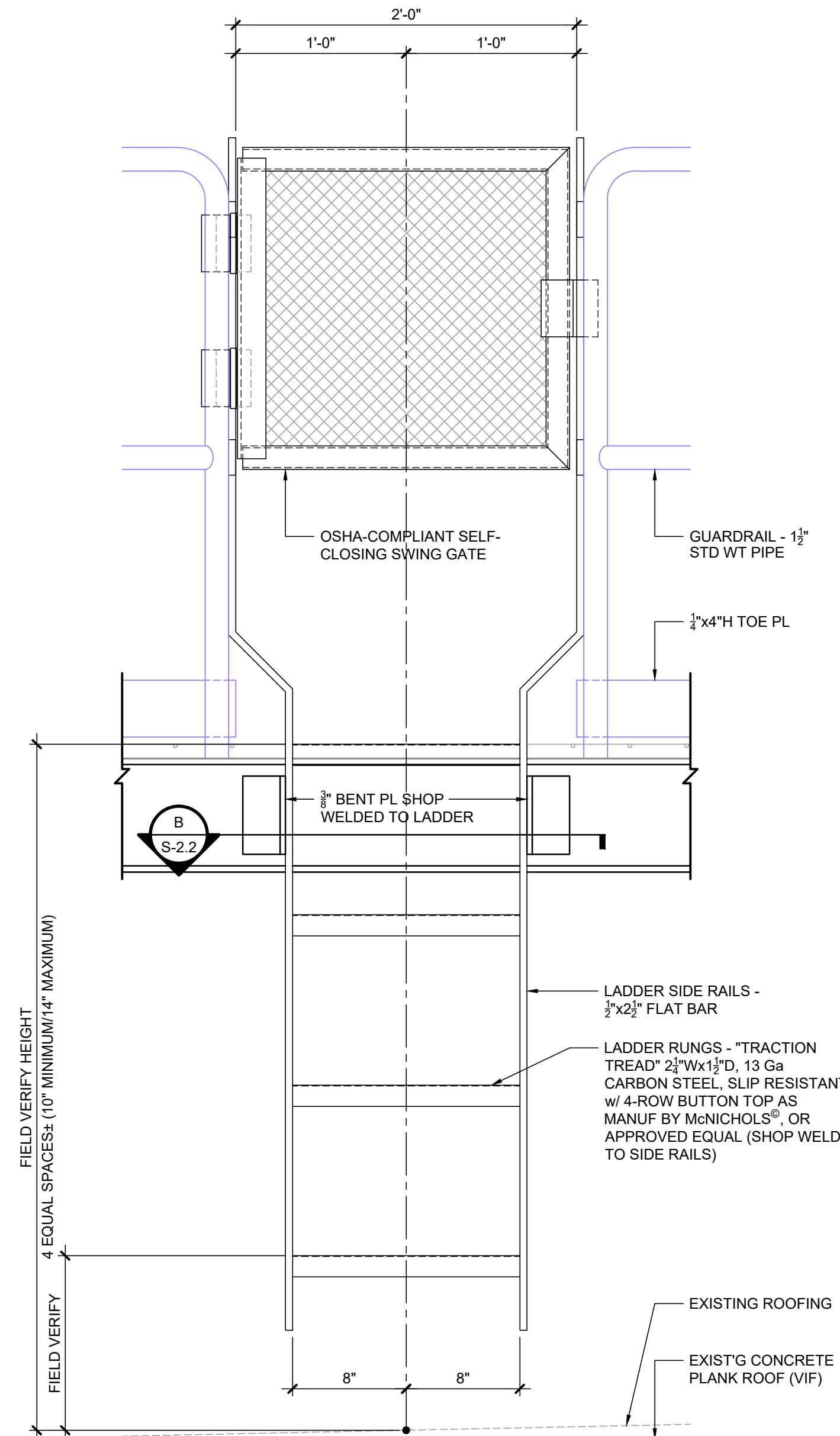
### 1 SECTION THRU RTU-1 DUNNAGE

SCALE: 3/4" = 1'-0"  
NOTE: ALL CONNECTIONS SHOWN ARE DIAGRAMMATIC AND SHALL  
BE DESIGNED BY THE FABRICATOR'S ENGINEER.



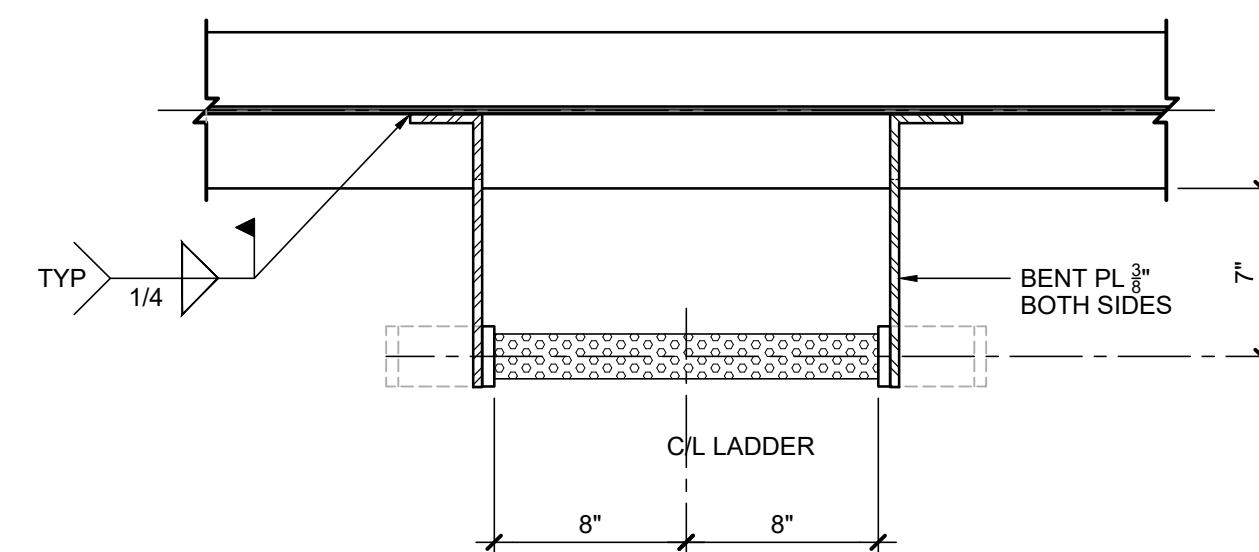
### 2 SECTION AT BASE OF GUARDRAIL

SCALE: 1 1/2" = 1'-0"



### A DETAIL AT DUNNAGE LADDER

SCALE: 1 1/2" = 1'-0"



### B DETAIL AT LADDER CONNECTION TO STEEL

SCALE: 1 1/2" = 1'-0"

**NOTE!**  
ALL ROOF WORK SHALL BE DONE IN ACCORDANCE WITH EXISTING ROOF  
MANUFACTURER'S RECOMMENDATIONS SO AS NOT TO VOID ANY EXISTING  
ROOF WARRANTIES. CONSULT WITH EXISTING ROOF MANUFACTURER  
PRIOR TO COMMENCEMENT OF WORK. PROVIDE WALL NECESSARY ROOF  
PROTECTION TO MAINTAIN ROOF PERFORMANCE AND WARRANTY (TYP)

ADD ALTERNATE #002: GYMNASIUM - INCLUDE ALL WORK, ALL TRADES,  
FOR WORK ASSOCIATED WITH THE GYMNASIUM SCOPE OF WORK

**HIGHLAND  
ASSOCIATES**  
Architecture | Engineering | Interior Design

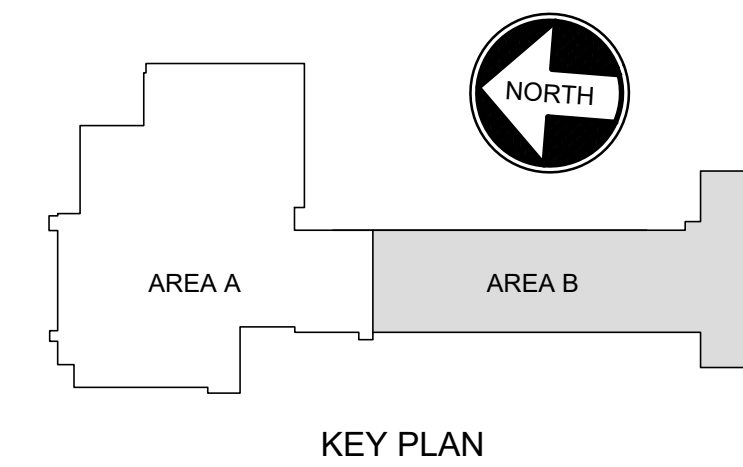
102 Highland Avenue  
Clarks Summit, PA 18411  
(570) 586-4334 (office)  
www.highlandassociates.com

New York • Pennsylvania • Florida

REVISION NO:

| PRE-BID ADDENDUM 003                                                          | 7/24/26 |
|-------------------------------------------------------------------------------|---------|
| • ADDED KEYS FOR DETAIL A/S-2.2 AND SECTION 2/S-2.2 TO<br>RTU DUNNAGE SECTION |         |
| • ADDED DETAILS A AND B/S-2.2 AND SECTION 2/S-2.2                             |         |

**BID DOCUMENTS**  
06/22/2026



**COPYRIGHT:**  
HIGHLAND ASSOCIATES, LTD., ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 © SHALL BE DEEMED  
THE AUTHOR OF THESE DOCUMENTS AND SHALL RETAIN ALL COMMON LAW STATUTORY AND OTHER  
RESERVED RIGHTS INCLUDING COPYRIGHT.  
**UNAUTHORIZED DOCUMENT USE:**  
THIS DRAWING MAY BE UTILIZED ONLY FOR THE PURPOSE OF CONSTRUCTING OR INSTALLING THE WORK  
SHOWN THEREON AT THE SITE OF THE WORK SPECIFIED. ANY OTHER USE OF THIS DRAWING, INCLUDING  
WITHOUT LIMITATION ANY REPRODUCTION OR ALTERATION OF THIS DRAWING, WITHOUT THE PRIOR WRITTEN  
APPROVAL OF HIGHLAND ASSOCIATES, LTD., ARCHITECTURE ENGINEERING INTERIOR DESIGN 2026 © IS A  
VIOLATION OF THE LAW AND IS PROHIBITED.

PROJECT TITLE:



201 Main Street | Vestal, NY 13850

**2024  
Capital Project**  
CLAYTON AVE. ELEMENTARY  
NYS ED # 03-16-01-06-0-003-022

SEALS:

| DRAWING TITLE:                                    |                         |
|---------------------------------------------------|-------------------------|
| RTU DUNNAGE<br>SECTIONS AND<br>DETAILS            |                         |
| DRAWN BY:<br>M.M.Y.                               | CHECKED BY:<br>E.D.M.   |
| DATE:<br>06/22/2026                               | PROJECT NO:<br>2025-067 |
| DRAWING NO:                                       |                         |
| BUILDING<br>CA                                    | S-2.2                   |
| CAD FILE: 000CA5-12.5-13.DWG PLOT DATE: 7/24/2026 |                         |