

**BID**  
**ADDENDUM NO. 2**  
**TO**  
**CONTRACT DOCUMENTS**  
**AND**  
**TECHNICAL SPECIFICATIONS**  
**FOR**  
**2019 BOND REFERENDUM**  
**CAPITAL IMPROVEMENTS**  
**AT**  
**MAMARONECK HIGH SCHOOL**  
**PHASE 2**  
**NYSED #66-07-01-03-0-001-039**  
**BID # 20/21 – MUFSD-00**

Mamaroneck Union Free School District  
1000 West Boston Post Road  
Mamaroneck, NY 10543

Telephone No. 914-220-3040

Contact: Ms. Sylvia Wallach  
Assistant Superintendent for Business

**LAN Job #4.1092.72.06**  
December 23, 2021

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Michael J. McGovern, RA  
NYS #022257

1.0 General: The original contract documents dated **November 22, 2021**, issued to the New York State Education Department (NYSED) for this project, are hereby amended as noted in this NYSED addendum which shall become part of said contract documents, as if originally included therein. Bidders must acknowledge receipt of this NYSED addendum and all other addenda on the proposal form when submitting proposals. In case any bidder fails to acknowledge receipt of addenda, his proposal will nevertheless be construed as though it has been received, acknowledged, and the submission of his proposal shall constitute acknowledgment by the bidder of the receipt of same.

This is to advise all prospective bidders that this addendum has been issued to all bidders and that it contains a change in the contract documents.

Sealed bid proposals shall be received by **2:00 p.m. prevailing time on Wednesday, January 12, 2022**, by mail or in person at the Boston Post Road main entrance, at the Mamaroneck Union Free School District Office, 1000 West Boston Post Road, NY 10543. All bids must be received by 2:00 p.m. prevailing time at which time they shall be publicly opened and read aloud at 3:00 p.m. prevailing time. **Staff will be available to accept hand delivered bids between the hours of 8:00 a.m. and 2:00 p.m. on January 12, 2022. Please be advised that masks are mandatory, and all attendees will be required to socially distance during the bid opening.**

2.0 Amendments to Specifications:

Section No.	Page No.	Addendum Requirements
01 12 00		The following section was revised as follows:  [01 12 00   Pg. 5 of 28 – IV. Construction Milestones “Mamaroneck High School”] <u>PH-2 MHS Capital Improvement Bond Project Bid Schedule</u> . Activity ID 0180 – Notice to Proceed to Contractor shall be changed from <b>February 2, 2022</b> to <b>February 16, 2022</b> .
TOC	5	Revised Table of Contents to include Specification Section 233113 Metal Ducts
233113	All	Added Specification Section 233113 Metal Ducts

3.0 Amendments to Drawings:

Drawing No.	Addendum Requirements
A 2.10 and A2.11	Floor Plans updated to reflect a new sink added in Prototyping Studio 341.
P1.12	Plumbing Floor Plan updated to reflect a new sink added to Prototyping Studio 341.
P1.13	Plumbing Fixture Schedule – STEAM Lab updated to reflect a new sink added to Prototyping Studio 341.
M1.81	Drawing revised to show existing gas piping to be removed by the Plumbing Contractor.  Additional notes referencing the separation of work between Prime Contracts were added to the drawings.

3.0 Amendments to Drawings: (continued)

Drawing No.	Addendum Requirements
M2.81	Drawing revised to show new gas piping by the Plumbing Contractor.  Drawing revised to show new floor drains by Plumbing Contractor.  Additional notes referencing the separation of work between Prime Contracts were added to the drawings.
P2.81	New Drawing added to the set showing Plumbing scope of work associated with the Palmer Boilers (Work Area H).

4.0 Requests for Information (RFIs):

No.	Question / Response
1	<p>Question: Ceiling Hung Assembly: Upon review of spec section 010101-1.08, Note 12 states, "Temporarily remove, carefully store and reinstall existing hung ceiling panel assembly as required to access areas of work within plenum." After review it is unclear what area(s) this is in reference to, please advise</p> <p>Response: This note refers to each prime contractor being responsible to carefully remove, store and reinstall existing ceilings when their work requires them to be removed to gain access above.</p> <p>This requirement is also stated in 011200 - Special Provisions, Section IX. MANAGEMENT OF WORK, Note #12</p> <p>Each Prime Contractor shall be solely responsible to remove and replace the existing ceiling tiles and grid in areas of the existing building where their work is required but new ceilings are not scheduled. In the event that the existing ceilings are damaged and cannot be replaced to the satisfaction of the Owner, the responsible Prime Contractor shall be solely responsible for replacing, in kind, the existing ceilings with new tile and grid. A qualified Contractor, acceptable to the Owner, shall perform all ceiling replacements.</p>
2	<p>Question: BMS Power Wiring: Please refer to Spec Section 010000-1.32, "Control wiring must connect to a point of electrical power supply as shown in the contract documents. (Power wiring and supply shall be provided by the Electrical Contractor)". Please confirm the power wiring required from BMS devices to a point of electrical power supply is to be provided by the Electrical Contractor.</p> <p>Response: Power (120VAC) wiring from a BMS device to a point of electrical power supply is to be provided by the Electrical Contractor.</p>

4.0 Requests for Information (RFIs): (continued)

No. Question / Response

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- 3 Question: STEAM Lab Existing Ceilings to Remain: Please refer to contract Drawing A2.01, Construction Key Notes A23 & A25, (2) existing suspended ceiling systems are to remain in place. As indicated on A4.10, penetration of existing plaster barrel vault and existing gypsum wallboard ceiling for hangers & supports and misc. mechanical devices, will be required. Access to these areas will require openings larger than 12"x12". Per spec 011010 (PCGC) #23 it appears that this is the responsibility of the Prime GC, please confirm.
- Response: GC is to coordinate with the other trades to provide openings larger than 12" x 12" for equipment AND access to the space above the STEAM lab.
- 4 Question: STEAM Lab Convactor Cover Painting: Please refer to contract Drawing M2.11, note 1 regarding FTR-1. Existing cover is to be reinstalled and painted. Please advise if GC is to perform the painting of the cover as part of the surrounding areas that are scheduled to be painted.
- Response: Convactor covers to be painted by the GC.
- 5 Question: Project Schedule: Please confirm the Steam Lab and Culinary Arts scheduled for a Construction Start of March 2022 are to be performed on 2nd shift (3:30pm start). In addition, please advise if the schedule can be advanced for the Palmer Boiler Room to start on 2nd shift (3:30pm start)
- Response: Second Shift is confirmed prior to 6/27. An early start will be discussed with the Owner, once the project is awarded.
- 6 Question: Palmer Boiler Room Trench Drain: Please refer to Contract Drawing M2.81 Key Note 2, please confirm installation of new floor drains including "televise existing drain pipe and snake line, patch floor to match existing", is by PC. Please refer to A1.80 which indicates this work is within the PC's scope. In addition, please confirm New Floor Drain indicated to be replaced on M2.81 near P-1 thru 3 is to be performed by others.
- Response: Scope of work for floor drawings is the responsibility of the Plumbing Contractor. A new plumbing drawing reflecting this work (P2.81) has been added to the drawing set.
- 7 Question: STEAM Lab Existing Space Above Ceiling: During walkthrough access to existing Attic Mechanical Space above future Steam Lab, was not available. Please refer to Contract Drawing M1.11 Key Plan 3 & M2.11 Key Plan 3. If possible, please provide additional information or pictures of this space. Does the entire space have an existing continuous floor surface or is a temporary surface required to perform scope of work?
- Response: Any additional site visit can be requested through Mr. Stephen Brugge, Director of Facilities, at 914-220-3081.

4.0 Requests for Information (RFIs): (continued)

No. Question / Response

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- 8 Question: STEAM Lab Metal Wood Shop Ductwork: Please refer to Contract Drawing M2.13, Steam Equipment Schedule indicates required ductwork connection requirements for associated equipment furnished and installed by others (A2.10). Upon review of M2.11, no ductwork system is shown to support these individual pieces of equipment. Please advise
- Response: The portable dust collectors shall be utilized to remove dust contaminated air. No ductwork network is required, however proper flex ductwork accessory shall be selected to each piece of equipment based on each MFR requirements.
- 9 Question: STEAM Lab Access Window Opening Size: Can you please confirm center mullion will be removed in Classroom 306 for Steam Lab delivery access? Can you please provide expected opening width and height?
- Response: Window units will be removed including center window mullion. No brick or wall area will be removed. Windows can be measured onsite.
- 10 Question: DCH – Portable Dust Collector: Please confirm PCM is to furnish and install Portable Dust Collectors tagged "DCH" as shown on Contract Drawing M2.13 in room 345A and in room 346A. In room 346A please clarify if Airflow Systems DCH-1 or DCH-2 is desired? Please clarify if any additional accessories are required.
- Response: Basis of design is Airflow systems and if contractor want to substitute. they need to provide a substitution request per the contract documents with the substituted units meeting the basis of design including meeting all the required all applicable codes.
- 11 Question: STEAM Lab Louvers: Please refer to Contract Drawing M2.11 Part Plan 2 & 3, (5) Greenheck 24"x14" louvers are scheduled to be installed in the Steam Lab serving ERV-1, ERV-2 & MAU-1. These openings will be larger than 12"x12". Per Spec Section, 01-10-10 PCGC Item# 23 these openings shall be performed by PCGC. Upon review of site conditions scaffolding will be required to perform this work. Please confirm scaffolding and openings are to be provided by PCGC. Please confirm Louvers are to be provided by the PCM.
- Response: The GC is to provide unabated access to areas of work where other Prime contractors are performing installation or demolition, where BOTH Prime contractors require access. This includes access via scaffold for new exterior louvers where the PCGC and PCM will work and coordinate on louver openings. This general note should extend for any work that includes both the PCGC and PCM, PCP and PCE's contract work. Anywhere the PCGC is not providing cutting, patching or modification of existing walls/floors/roofs/etc.,, access will be by the specific trade performing the work.
- 12 Question: Boiler Room Emergency Shut-Off Switch: Please refer to Contract Drawing M2.81, a switch symbol with the note "Provide new emergency shut-off switch" is indicated. This system is detailed on Electrical Contract Drawings E0.02 Detail 3 and E2.80 Note 7. Please confirm no scope of work is required by Mechanical Contractor for this system.
- Response: Emergency shut off switch to be provided, wired and installed by the Electrical Contractor.

4.0 Requests for Information (RFIs): (continued)

No. Question / Response

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- 13 Question: STEAM Lab Culinary Arts Exposed Double Wall Ductwork:  
Please refer to Contract Drawing M2.13, in Metal Shop Room 346 "Double Wall Spiral Ductwork" is indicated. In addition, please refer to Contract Drawing M2.2 1, in Culinary Arts Room C100 "Exposed Double Wall Flat Oval Ductwork" is indicated. Please provide a desired product specification.
- Response: Use double wall spiral ductwork in Metal Shop Room 346 & use exposed double wall flat oval ductwork in Culinary Arts Room C100.
- 14 Question: Boiler Room Equipment Rigging:  
During a recent site visit and in review of rigging needed for the boiler room equipment we noticed that the area between the stairs and the chimney has a permanent barrier installed. Upon review, the area shown clouded in the attached pictures appears to be slab on deck with blacktop covering. Please advise on the weightcapacity of this area; we are assuming a crane is needed to rig the new equipment into the boiler room due to existing constraints.
- Response: This area adjacent to the building is the electrical Transformer vault. The weight capacity is 0 lbs. and this area should be avoided.
- 15 Question: Condensate Piping:  
Upon review of Contract drawings, the condensate piping for the A/C Units in the STEAM area and the Culinary Arts area is not shown. Please provide a drawing showing desired routing and termination location.
- Response: Refer to Plumbing contract drawings P2.06 & P1.12 for Condensate piping plan in the areas listed.
- 16 Question: Sheetmetal Specifications:  
Upon review of specifications, a general ductwork specification (typically 233113) does not appear to be included. Please confirm Contract Drawing M0.01 - H.V.A.C. Materials - Ductwork & Spec Section 233522 - Kitchen Ventilation System is to be utilized for project duct construction standards (less lined ductwork).
- Response: 1. duct spec section 233113 added to Addendum 2.  
2. All Acoustic duct insulation shall follow 230714 regardless. All other ductwork insulation shall follow what's listed on the material schedule on M0.01.
- 17 Question: Maintenance bond/warranty/guarantee. Can you please advise on what the maintenance bond/warranty/guarantee period is?
- Response: 3 years from date of Substantial Completion.
- 18 Question: M-001 under "Controls Note" states that the district has a standardization of Schneider Electric/Continuum. Is there a specific controls vendor who is currently serving the school in which we need to utilize?
- Response: EMF Building Automation Systems  
Walter E. Greenwood "Chip"  
Phone: 914-747-1007 | Mobile: 914-403-4702

4.0 Requests for Information (RFIs): (continued)

No. Question / Response

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- 19 Question: What is the dimension of the donor plaque?  
Response: See drawing A7.11 and note A55 on A2.01.
- 20 Question: The specs calls for bulletin boards and directories. I don't see any specs for those. Please provide.  
Response: There are no bulletin boards or directories on the project.
- 21 Question: On A7.10, there is graphics. Can you please clarify what I am bidding? "THINK TANK" (Interior elevation design studio #3) What substrate is the letters going on (Glass etc.) and the height of the letters. Please confirm this is vinyl.  
Response: The material is answered in A49 on A2.01. The substrate is glass. The lettering is 12" high; final graphics to be provided by owner.
- 22 Question: A7.10 "PROTOTYPING STUDIO" What is substrate to be applied?  
Response: All graphics indicated by note A35 shall be installed over gypsum wall board. Final graphics are to be provided by the owner.
- 23 Question: A7.11 graphic letters. "MHS CO LAB" Same question as #3.  
Response: Material is indicated in note A56 on drawing A2.01. The substrate is gypsum wall board. The lettering is 12" high; final graphics to be provided by owner.
- 24 Question: Room signs have no sizes or schedule. Please provide.  
Response: Room signage details can be found on Drawing A6.20.

5.0 Clarifications:

No.

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N/A

6.0 Substitution Requests:

Specification  
Section No.

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N/A

END OF ADDENDUM NO. 2

Attachment: #1 – Revised Table of Contents  
#2 – Added Specification Section 233113  
#3 – Revised Drawings A 2.10, A2.11, P1.12, P1.13, M1.81, M2.81  
#4 – Added Drawing P2.81

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## SECTION 23 31 13 - METAL DUCTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes metal ducts for supply, return, outside, and exhaust air-distribution systems in pressure classes from minus 2- to plus 10-inch wg (minus 500 to plus 2500 Pa). Metal ducts include the following:
  - 1. Rectangular ducts and fittings.
  - 2. Single-wall round spiral-seam ducts and formed fittings.
  - 3. Double-wall, round spiral-seam ducts and formed fittings.
- B. Related Sections include the following:
  - 1. Division 23 Section "Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

#### 1.3 DEFINITIONS

- A. NUSIG: National Uniform Seismic Installation Guidelines.

#### 1.4 SYSTEM DESCRIPTION

- A. Duct system design, as indicated, has been used to select size and type of air-moving and -distribution equipment and other air system components.
- B. Changes to layout or configuration of duct system must be specifically approved in writing by Architect.
- C. Accompany requests for layout modifications with calculations showing that proposed layout will provide original design results without increasing system total pressure.

#### 1.5 SUBMITTALS

- A. Shop Drawings: CAD-generated and drawn to 1/4 inch equals 1 foot. Show fabrication and installation details for metal ducts.
  - 1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
  - 2. Duct layout indicating sizes and pressure classes.

3. Elevations of top and bottom of ducts.
  4. Dimensions of main duct runs from building grid lines.
  5. Fittings.
  6. Reinforcement and spacing.
  7. Seam and joint construction.
  8. Penetrations through fire-rated and other partitions.
  9. Equipment installation based on equipment being used on Project.
  10. Duct accessories, including access doors and panels.
  11. Hangers and supports, including methods for duct and building attachment, vibration isolation, and seismic restraints.
- B. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
1. Ceiling suspension assembly members.
  2. Other systems installed in same space as ducts.
  3. Ceiling- and wall-mounting access doors and panels required to provide access to dampers and other operating devices.
  4. Ceiling-mounting items, including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
- C. Welding certificates.
- D. Field quality-control test reports.

## 1.6 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to AWS D1.1, "Structural Welding Code-Steel," for hangers and supports and AWS D9.1, "Sheet Metal Welding Code," for duct joint and seam welding.
- B. NFPA Compliance:
1. NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."
  2. NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."
- C. Comply with NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," Ch. 3, "Duct System," for range hood ducts, unless otherwise indicated.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.

2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

## 2.2 SHEET METAL MATERIALS

- A. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods, unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
- B. Galvanized Sheet Steel: Lock-forming quality; complying with ASTM A 653/A 653M and having G90 (Z275) coating designation; ducts shall have mill-phosphatized finish for surfaces exposed to view.
- C. Carbon-Steel Sheets: ASTM A 366/A 366M, cold-rolled sheets; commercial quality; with oiled, matte finish for exposed ducts.
- D. Aluminum Sheets: ASTM B 209 (ASTM B 209M), alloy 3003, temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.
- E. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts.
- F. Tie Rods: Galvanized steel, 1/4-inch (6-mm) minimum diameter for lengths 36 inches (900 mm) or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

## 2.3 DUCT LINER

- A. Fibrous-Glass Liner: Comply with NFPA 90A or NFPA 90B and with NAIMA AH124.
  1. Manufacturers:
    - a. CertainTeed Corp.; Insulation Group.
    - b. Johns Manville International, Inc.
    - c. Knauf Fiber Glass GmbH.
    - d. Owens Corning.
    - e. Or approved equal.
  2. Materials: ASTM C 1071; surfaces exposed to air stream shall be coated to prevent erosion of glass fibers.
    - a. Thickness: 1 inch.
    - b. Thermal Conductivity (k-Value): 0.26 at 75 deg F (0.037 at 24 deg C) mean temperature.
    - c. Fire-Hazard Classification: Maximum flame-spread index of 25 and smoke-developed index of 50 when tested according to ASTM E 84.
    - d. Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.
    - e. Mechanical Fasteners: Galvanized steel suitable for adhesive attachment, mechanical attachment, or welding attachment to duct without damaging liner when applied as recommended by manufacturer and without causing leakage in duct.
      - 1) Tensile Strength: Indefinitely sustain a 50-lb- (23-kg-) tensile, dead-load test perpendicular to duct wall.

- 2) Fastener Pin Length: As required for thickness of insulation and without projecting more than 1/8 inch (3 mm) into air stream.
- 3) Adhesive for Attaching Mechanical Fasteners: Comply with fire-hazard classification of duct liner system.

## 2.4 SEALANT MATERIALS

- A. Joint and Seam Sealants, General: The term "sealant" is not limited to materials of adhesive or mastic nature but includes tapes and combinations of open-weave fabric strips and mastics.
- B. Joint and Seam Tape: 2 inches (50 mm) wide; glass-fiber-reinforced fabric.
- C. Tape Sealing System: Woven-fiber tape impregnated with gypsum mineral compound and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
- D. Water-Based Joint and Seam Sealant: Flexible, adhesive sealant, resistant to UV light when cured, UL 723 listed, and complying with NFPA requirements for Class 1 ducts.
- E. Solvent-Based Joint and Seam Sealant: One-part, nonsag, solvent-release-curing, polymerized butyl sealant formulated with a minimum of 75 percent solids.
- F. Flanged Joint Mastic: One-part, acid-curing, silicone, elastomeric joint sealant complying with ASTM C 920, Type S, Grade NS, Class 25, Use O.
- G. Flange Gaskets: Butyl rubber or EPDM polymer with polyisobutylene plasticizer.

## 2.5 HANGERS AND SUPPORTS

- A. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.
  1. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
  2. Exception: Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.
- B. Hanger Materials: Galvanized sheet steel or threaded steel rod.
  1. Hangers Installed in Corrosive Atmospheres: Electro-galvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.
  2. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for steel sheet width and thickness and for steel rod diameters.
  3. Galvanized-steel straps attached to aluminum ducts shall have contact surfaces painted with zinc-chromate primer.
- C. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.
- D. Trapeze and Riser Supports: Steel shapes complying with ASTM A 36/A 36M.

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel support materials.
3. Supports for Aluminum Ducts: Aluminum support materials unless materials are electrolytically separated from ducts.

## 2.6 RECTANGULAR DUCT FABRICATION

- A. Fabricate ducts, elbows, transitions, offsets, branch connections, and other construction according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" and complying with requirements for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.
  1. Lengths: Fabricate rectangular ducts in lengths appropriate to reinforcement and rigidity class required for pressure class.
  2. Deflection: Duct systems shall not exceed deflection limits according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
- B. Transverse Joints: Prefabricated slide-on joints and components constructed using manufacturer's guidelines for material thickness, reinforcement size and spacing, and joint reinforcement.
  1. Manufacturers:
    - a. Ductmate Industries, Inc.
    - b. Nexus Inc.
    - c. Ward Industries, Inc.
- C. Formed-On Flanges: Construct according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," Figure 1-4, using corner, bolt, cleat, and gasket details.
  1. Manufacturers:
    - a. Ductmate Industries, Inc.
    - b. Lockformer.
  2. Duct Size: Maximum 30 inches (750 mm) wide and up to 2-inch wg (500-Pa) pressure class.
  3. Longitudinal Seams: Pittsburgh lock sealed with noncuring polymer sealant.
- D. Cross Breaking or Cross Beading: Cross break or cross bead duct sides 19 inches (480 mm) and larger and 0.0359 inch (0.9 mm) thick or less, with more than 10 sq. ft. (0.93 sq. m) of non-braced panel area unless ducts are lined.

## 2.7 APPLICATION OF LINER IN RECTANGULAR DUCTS

- A. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
- B. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
- C. Butt transverse joints without gaps and coat joint with adhesive.

- D. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.
- E. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and standard liner product dimensions make longitudinal joints necessary.
- F. Apply adhesive coating on longitudinal seams in ducts with air velocity of 2500 fpm (12.7 m/s).
- G. Secure liner with mechanical fasteners 4 inches (100 mm) from corners and at intervals not exceeding 12 inches (300 mm) transversely; at 3 inches (75 mm) from transverse joints and at intervals not exceeding 18 inches (450 mm) longitudinally.
- H. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the following locations:
  - 1. Fan discharges.
  - 2. Intervals of lined duct preceding unlined duct.
  - 3. Upstream edges of transverse joints in ducts where air velocities are greater than 2500 fpm (12.7 m/s) or where indicated.
- I. Terminate inner ducts with build outs attached to fire-damper sleeves, dampers, turning vane assemblies, or other devices. Fabricated build outs (metal hat sections) or other build out means are optional; when used, secure build outs to duct walls with bolts, screws, rivets, or welds.

## 2.8 ROUND DUCT AND FITTING FABRICATION (WHERE INDICATED ON DRAWINGS)

- A. Round, Longitudinal- and Spiral Lock-Seam Ducts: Fabricate exhaust air ducts of aluminum according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible."
  - 1. Manufacturers:
    - a. McGill AirFlow Corporation.
    - b. SEMCO Incorporated.
- B. Duct Joints:
  - 1. Ducts up to 20 Inches (500 mm) in Diameter: Interior, center-beaded slip coupling, sealed before and after fastening, attached with sheet metal screws.
  - 2. Ducts 21 to 72 Inches (535 to 1830 mm) in Diameter: Three-piece, gasketed, flanged joint consisting of two internal flanges with sealant and one external closure band with gasket.
  - 3. Round Ducts: Prefabricated connection system consisting of double-lipped, EPDM rubber gasket. Manufacture ducts according to connection system manufacturer's tolerances.
    - a. Manufacturers:
      - 1) Ductmate Industries, Inc.
      - 2) Lindab Inc.
- C. 90-Degree Tees and Laterals and Conical Tees: Fabricate to comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," with metal thicknesses specified for longitudinal-seam straight ducts.

- D. Diverging-Flow Fittings: Fabricate with reduced entrance to branch taps and with no excess material projecting from fitting onto branch tap entrance.
- E. Fabricate elbows using die-formed, gored, pleated, or mitered construction. Bend radius of die-formed, gored, and pleated elbows shall be 1-1/2 times duct diameter. Unless elbow construction type is indicated, fabricate elbows as follows:
  - 1. Mitered-Elbow Radius and Number of Pieces: Welded construction complying with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," unless otherwise indicated.
  - 2. Round Mitered Elbows: Welded construction with the following metal thickness for pressure classes from minus 2- to plus 2-inch wg (minus 500 to plus 500 Pa):
    - a. Ducts 3 to 36 Inches (75 to 915 mm) in Diameter: 0.034 inch (0.85 mm).
    - b. Ducts 37 to 50 Inches (940 to 1270 mm) in Diameter: 0.040 inch (1.0 mm).
  - 3. Round Mitered Elbows: Welded construction with the following metal thickness for pressure classes from 2- to 10-inch wg (500 to 2500 Pa):
    - a. Ducts 3 to 26 Inches (75 to 660 mm) in Diameter: 0.034 inch (0.85 mm).
    - b. Ducts 27 to 50 Inches (685 to 1270 mm) in Diameter: 0.040 inch (1.0 mm).
  - 4. Round Elbows 8 Inches (200 mm) and Less in Diameter: Fabricate die-formed elbows for 45- and 90-degree elbows and pleated elbows for 30, 45, 60, and 90 degrees only. Fabricate nonstandard bend-angle configurations or nonstandard diameter elbows with gored construction.
  - 5. Round Elbows 9 through 14 Inches (225 through 355 mm) in Diameter: Fabricate gored or pleated elbows for 30, 45, 60, and 90 degrees unless space restrictions require mitered elbows. Fabricate nonstandard bend-angle configurations or nonstandard diameter elbows with gored construction.
  - 6. Die-Formed Elbows for Sizes through 8 Inches (200 mm) in Diameter and All Pressures 0.040 inch (1.0 mm) thick with 2-piece welded construction.
  - 7. Round Gored-Elbow Metal Thickness: Same as non-elbow fittings specified above.
  - 8. Pleated Elbows for Sizes through 14 Inches (355 mm) in Diameter and Pressures through 10-Inch wg (2500 Pa): 0.022 inch (0.55 mm).

## 2.9 DOUBLE-WALL DUCT AND FITTING FABRICATION (WHERE INDICATED ON DRAWINGS)

- A. Manufacturers:
  - 1. Lindab Inc.
  - 2. McGill AirFlow Corporation.
  - 3. SEMCO Incorporated.
  - 4. Or approved equal.
- B. Ducts: Fabricate double-wall (insulated) ducts with an outer shell and an inner duct. Dimensions indicated are for inner ducts.
  - 1. Outer Shell: Base metal thickness on outer-shell dimensions. Fabricate outer-shell lengths 2 inches (50 mm) longer than inner duct and insulation and in metal thickness specified for single-wall duct.
  - 2. Insulation: 1-inch- (25-mm-) thick fibrous glass, unless otherwise indicated. Terminate insulation where double-wall duct connects to single-wall duct or uninsulated components and reduce outer shell diameter to inner duct diameter.
    - a. Thermal Conductivity (k-Value): 0.26 at 75 deg F (0.037 at 24 deg C) mean temperature.

3. Solid Inner Ducts: Refer to drawings for areas with solid inner walls. Use the following sheet metal thicknesses and seam construction:
    - a. Ducts 3 to 8 Inches (75 to 200 mm) in Diameter: 0.019 inch (0.5 mm) with standard spiral-seam construction.
    - b. Ducts 9 to 42 Inches (225 to 1070 mm) in Diameter: 0.019 inch (0.5 mm) with single-rib spiral-seam construction.
  4. Perforated Inner Ducts: Refer to drawings for areas with perforated inner walls. Fabricate with 0.028-inch-0.7-mm- thick sheet metal having 3/32-inch- (2.4-mm-) diameter perforations, with overall open area of 23 percent.
  5. Maintain concentricity of inner duct to outer shell by mechanical means. Prevent dislocation of insulation by mechanical means.
- C. Fittings: Fabricate double-wall (insulated) fittings with an outer shell and an inner duct.
1. Solid Inner Ducts: Use the following sheet metal thicknesses:
    - a. Ducts 3 to 34 Inches (75 to 865 mm) in Diameter: 0.028 inch (0.7 mm).
    - b. Ducts 35 to 58 Inches (890 to 1475 mm) in Diameter: 0.034 inch (0.85 mm).
  2. Perforated Inner Ducts: Fabricate with 0.028-inch- (0.7-mm-) thick sheet metal having 3/32-inch- (2.4-mm-) diameter perforations, with overall open area of 23 percent.

## PART 3 - EXECUTION

### 3.1 DUCT APPLICATIONS

- A. Static-Pressure Classes: Unless otherwise indicated, construct ducts according to the following:
  1. Return Ducts (Negative Pressure): 2-inch wg.
  2. Exhaust Ducts (Negative Pressure): 2-inch wg.
- B. All ducts shall be galvanized steel except exhaust air duct for chemical fume hood shall be aluminum construction.

### 3.2 DUCT INSTALLATION

- A. Construct and install ducts according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible," unless otherwise indicated.
- B. Install round ducts in lengths not less than 12 feet (3.7 m) unless interrupted by fittings.
- C. Install ducts with fewest possible joints.
- D. Install fabricated fittings for changes in directions, size, and shape and for connections.
- E. Install couplings tight to duct wall surface with a minimum of projections into duct. Secure couplings with sheet metal screws. Install screws at intervals of 12 inches (300 mm), with a minimum of 3 screws in each coupling.

- F. Install ducts, unless otherwise indicated, vertically and horizontally and parallel and perpendicular to building lines; avoid diagonal runs.
- G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
- H. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness.
- I. Conceal ducts from view in finished spaces. Do not encase horizontal runs in solid partitions unless specifically indicated.
- J. Coordinate layout with suspended ceiling, fire- and smoke-control dampers, lighting layouts, and similar finished work.
- K. Seal all joints and seams. Apply sealant to male end connectors before insertion, and afterward to cover entire joint and sheet metal screws.
- L. Electrical Equipment Spaces: Route ducts to avoid passing through transformer vaults and electrical equipment spaces and enclosures.
- M. Non-Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls and are exposed to view, conceal spaces between construction openings and ducts or duct insulation with sheet metal flanges of same metal thickness as ducts. Overlap openings on 4 sides by at least 1-1/2 inches (38 mm).
- N. Fire-Rated Partition Penetrations: Where ducts pass through interior partitions and exterior walls, install appropriately rated fire dampers, sleeves, and firestopping sealant. Fire and smoke dampers are specified in Division 23 Section "Duct Accessories." Firestopping materials and installation methods are specified in Division 7 Section "Through-Penetration Firestop Systems."
- O. Install ducts with hangers and braces designed to withstand, without damage to equipment, seismic force required by applicable building codes. Refer to SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."
- P. Protect duct interiors from the elements and foreign materials until building is enclosed. Follow SMACNA's "Duct Cleanliness for New Construction."
- Q. Paint interiors of metal ducts, that do not have duct liner, for 24 inches (600 mm) upstream of registers and grilles. Apply one coat of flat, black, latex finish coat over a compatible galvanized-steel primer. Paint materials and application requirements are specified in Division 9 painting Sections.

### 3.3 SEAM AND JOINT SEALING

- A. Seal duct seams and joints according to SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for duct pressure class indicated.
  - 1. For pressure classes lower than 2-inch wg (500 Pa), seal transverse joints.
- B. Seal ducts before external insulation is applied.

### 3.4 HANGING AND SUPPORTING

- A. Support horizontal ducts within 24 inches (600 mm) of each elbow and within 48 inches (1200 mm) of each branch intersection.
- B. Support vertical ducts at maximum intervals of 16 feet (5 m) and at each floor.
- C. Install upper attachments to structures with an allowable load not exceeding one-fourth of failure (proof-test) load.
- D. Install concrete inserts before placing concrete.
- E. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
  - 1. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.

### 3.5 CONNECTIONS

- A. Make connections to equipment with flexible connectors according to Division 23 Section "Duct Accessories."
- B. Comply with SMACNA's "HVAC Duct Construction Standards--Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

### 3.6 FIELD QUALITY CONTROL

- A. Perform the following field tests and inspections according to SMACNA's "HVAC Air Duct Leakage Test Manual" and prepare test reports:
  - 1. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
  - 2. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If pressure classes are not indicated, test entire system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure. Give seven days' advance notice for testing.
  - 3. Maximum Allowable Leakage: Comply with requirements for Leakage Class 3 for round ducts, Leakage Class 12 for rectangular ducts in pressure classes lower than and equal to 2-inch wg (500 Pa) (both positive and negative pressures), and Leakage Class 6 for pressure classes from 2- to 10-inch wg (500 to 2500 Pa).
  - 4. Remake leaking joints and retest until leakage is equal to or less than maximum allowable.

### 3.7 CLEANING NEW SYSTEMS

- A. Mark position of dampers and air-directional mechanical devices before cleaning and perform cleaning before air balancing.
- B. Use service openings, as required, for physical and mechanical entry and for inspection.

1. Create other openings to comply with duct standards.
  2. Disconnect flexible ducts as needed for cleaning and inspection.
  3. Remove and reinstall ceiling sections to gain access during the cleaning process.
- C. Vent vacuuming system to the outside. Include filtration to contain debris removed from HVAC systems and locate exhaust down wind and away from air intakes and other points of entry into building.
- D. Clean the following metal duct systems by removing surface contaminants and deposits:
1. Air outlets and inlets (registers, grilles, and diffusers).
  2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
  3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
  4. Coils and related components.
  5. Return-air ducts, dampers, and actuators except in ceiling plenums and mechanical equipment rooms.
  6. Supply-air ducts, dampers, actuators, and turning vanes.
- E. Mechanical Cleaning Methodology:
1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
  2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
  3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts or duct accessories.
- F. Cleanliness Verification:
1. Visually inspect metal ducts for contaminants.
  2. Where contaminants are discovered, re-clean and reinspect ducts.

### 3.8 CLEANING EXISTING SYSTEMS

- A. Use service openings, as required, for physical and mechanical entry and for inspection.
1. Use existing service openings where possible.
  2. Create other openings to comply with duct standards.
  3. Disconnect flexible ducts as needed for cleaning and inspection.
  4. Remove and reinstall ceiling sections to gain access during the cleaning process.
- B. Mark position of dampers and air-directional mechanical devices before cleaning and restore to their marked position on completion.
- C. Particulate Collection and Odor Control:

1. When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron size (or larger) particles.
2. When venting vacuuming system to the outside, use filtration to contain debris removed from HVAC system, and locate exhaust down wind and away from air intakes and other points of entry into building.

D. Clean the following metal duct systems by removing surface contaminants and deposits:

1. Air outlets and inlets (registers, grilles, and diffusers).
2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
4. Coils and related components.
5. Return-air ducts, dampers, and actuators except in ceiling plenums and mechanical equipment rooms.
6. Supply-air ducts, dampers, actuators, and turning vanes.
7. Dedicated exhaust and ventilation components and makeup air systems.
8. Submit photo documentation indicating effectiveness of duct cleaning, before and after cleaning.

E. Mechanical Cleaning Methodology:

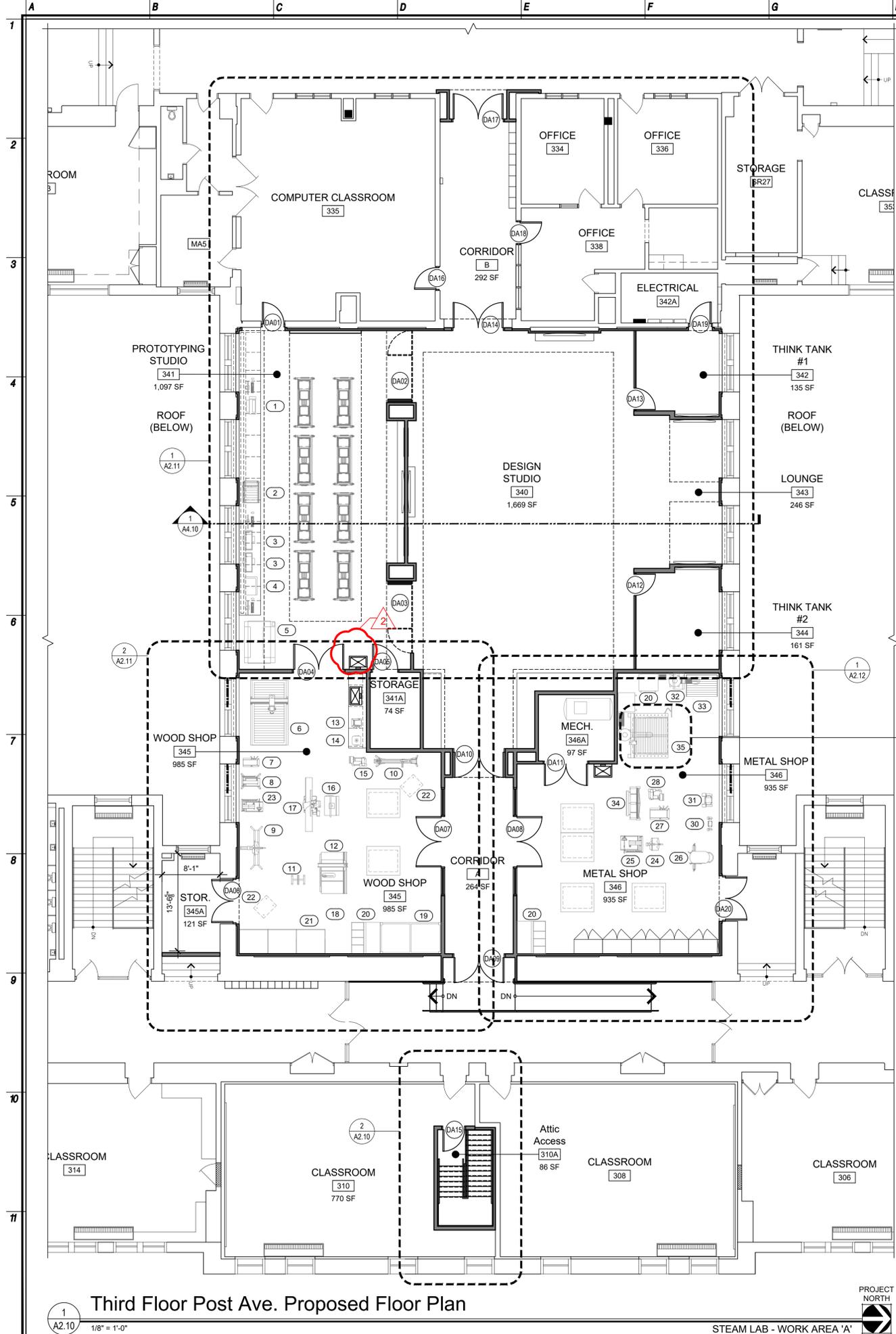
1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts or duct accessories.
4. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
5. Provide operative drainage system for wash down procedures.
6. Biocidal Agents and Coatings: Apply biocidal agents if fungus is present. Apply biocidal agents according to manufacturer's written instructions after removal of surface deposits and debris.

F. Cleanliness Verification:

1. Verify cleanliness after mechanical cleaning and before application of treatment, including biocidal agents and protective coatings.
2. Visually inspect metal ducts for contaminants.
3. Where contaminants are discovered, re-clean and re-inspect ducts.

G. Verification of Coil Cleaning: Cleaning must restore coil pressure drop to within 10 percent of pressure drop measured when coil was first installed. If original pressure drop is not known, coil will be considered clean only if it is free of foreign matter and chemical residue, based on thorough visual inspection.

END OF SECTION 233113



Third Floor Post Ave. Proposed Floor Plan



Attic Access Stairwell Plan



STEAM EQUIPMENT SCHEDULE				
ITEM NO.	MANUFACTURER	MODEL NUMBER	DESCRIPTION	NOTES
PROTOTYPING STUDIO				
1	ROLAND	GS-24	24" DESKTOP VINYL CUTTER	
2	STEPRAFT	M700	DESKTOP CNC MACHINE	
3	LULZBOT	TAZ WORKHORSE	3D PRINTER	QTY: 2
4	FORMLABS	FORM 3L	3D PRINTER	
5	EPILOG	FUSION PRO 48	LASER CUTTER/ENGRAVER	
WOOD SHOP				
6	STEPRAFT	Q.408	4' X 8' CNC MACHINE	
7	JET	JDP-15F	15" DRILL PRESS	
8	JET	JWSS-22	22" SCROLL SAW WITH FOOT SWITCH & STAND	
9	DEWALT	DW717 & DWX723	10" SLIDING MITER SAW & HEAVY DUTY MITER SAW STAND	
10	JET	1640EVS	WOOD WORKING LATHE W/ FLOOR STAND	
11	ROCKLER	61639	HEAVY DUTY BALL BEARING STAND	
12	SAW STOP	CNS175-TGP36	10" CONTRACTOR TABLE SAW	
13	DELTA	14-651	BENCH TOP MORTISER	
14	DELTA	31-483	HEAVY DUTY BENCH TOP SPINDLE SANDER	
15	JET	JSG-96CS	FLOOR STANDING COMBINATION BELT & DISC SANDER	
16	KREG	M793482	PRECISION ROUTER TABLE	WILL NEED PLUG FOR ROUTER
17	JET	JJP-12	12" JOINTER	
18	RESERVED			
19	GREENE MFG. CO.	EL664	SIDE LOADING FLAT MATERIAL STORAGE RACK	
20	GREENE MFG. CO.	EL200	VERTICAL STORAGE RACK	QTY: 1 - (1) @ WOOD SHOP; (1) @ METAL SHOP
21	GREENE MFG. CO.	EL-2	FRAMED HORIZONTAL LUMBER STORAGE RACK	
22	JET	AFS-1000B	CEILING HUNG AIR FILTER	QTY: 2
23	JET	JWBS-14CS	BAND SAW	EXISTING TO BE RELOCATED
METAL SHOP				
24	DEWALT	DW872	14" MULTI CUTTER SAW	
25	JET	VBS-1610	16" METAL WOOD CUTTING BAND SAW	
26	JET	JMD-18	MILLING & DRILLING MACHINE	
27	JET	20EVC-PDF	20" ELECTRIC VARIABLE SPEED DRILL PRESS	
28	JET	J-4200A	COMBINATION BELT/DISC SANDER	
29	RESERVED			
30	JET	IBG-8VSB	8" VARIABLE SPEED BUFFER	
31	JET	IBG-10	10" INDUSTRIAL BENCH GRINDER	
32	LINCOLN ELECTRIC	K2400-1 CV305	POWER WAVE C300 MULTI-PROCESS WELDER (EDUCATIONAL READY PACK)	
33	FUMEX	TWG	WELDING AND GRINDING TABLE	REQUIRES MECHANICAL HOOKUP FOR FUME EXTRACTION. SEE MECH. DRAWINGS.
34	JET	SBR-40	COMBINATION SHEAR, BRAKE AND ROLL	
35	LINCOLN ELECTRIC	TORCHMATE 4400	4' X 4' PLASMA CUTTER	WORK ASSOCIATED WITH THIS ITEM TO BE ADD ALTERNATE #6a-1 SEE SPEC & BID FORM.

NOTE: STEAM EQUIPMENT TO BE PROVIDED AND INSTALLED BY DISTRICT VENDOR. EC, MC, AND PC TO PROVIDE ALL REQUIRED UTILITIES AND MAKE ALL FINAL CONNECTIONS TO EQUIPMENT AS OUTLINED IN THE MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. GC SHALL BE REQUIRED TO BRING NEW EQUIPMENT TO THE 3RD FLOOR AND INSTALL IN FINAL LOCATIONS ON THE PLANS. THIS MAY INCLUDE THE USE OF A HOIST OR A CRANE. GC SHALL COORDINATE WITH DISTRICT VENDOR FOR SCHEDULING, DELIVERY, AND INSTALLATION.

**STEAM EQUIPMENT ELECTRICAL NOTE:**  
NO ELECTRICAL WORK ASSOCIATED WITH NEW STEAM LAB EQUIPMENT SHALL BE PERFORMED UNTIL THE ELECTRICAL CONTRACTOR HAS VERIFIED THE EQUIPMENT POWER REQUIREMENTS AGAINST THE FINAL APPROVED EQUIPMENT LIST. A FINAL APPROVED LIST WILL BE PROVIDED DURING THE SHOP DRAWING PROCESS. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE WORK INDICATED ON DRAWINGS E2.10 & E2.11 SHALL BE THE BASIS OF THE BID PRICE. ANY WORK PERFORMED PRIOR TO THE ISSUING OF THE FINAL EQUIPMENT LIST WILL BE CONSIDERED "AT RISK."

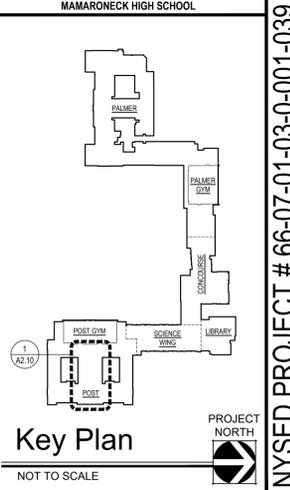
**AUDITORIUM CLEANING & REPAIR NOTE:**  
THE GC SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE CAUSED BY THE WORK COMPLETED ON THE THIRD FLOOR STEAM LAB. BY ANY PRIME CONTRACTOR. THE GC SHALL ALSO BE RESPONSIBLE FOR CLEANING THE AUDITORIUM AT SUBSTANTIAL COMPLETION. CLEANING SHALL INCLUDE VACUUMING ALL CARPETED SURFACES, CLEANING ALL AUDITORIUM SEATING, SWEEPING THE STAGE, AND GENERALLY REMOVING ALL DUST, DIRT & DEBRIS PRIOR TO TURNING THE SPACE OVER TO THE OWNER.

ALTHOUGH OUTSIDE THE GENERAL SCOPE OF WORK OF THE PROJECT, THE CONTRACTOR SHALL PHOTO & VIDEO DOCUMENT THE EXISTING CONDITIONS OF THE AUDITORIUM, STAGE, AND ANY OTHER SPACES UNDER THE SCOPE OF WORK ON THE THIRD FLOOR ASSOCIATED WITH THE STEAM LAB. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

**NOTE:**  
SEE ENLARGED PLANS ON DRAWINGS A2.11 & A2.12 FOR ADDITIONAL INFORMATION.

**WINDOW REMOVAL & REINSTALLATION NOTE:**  
GC TO CAREFULLY REMOVE EXISTING WINDOW UNIT IN FULL AND PROTECT WINDOW UNIT FOR RE-INSTALLATION. WINDOW TO BE REMOVED TO ALLOW EQUIPMENT TO BE BROUGHT INTO THE SPACE THROUGH THE MASONRY OPENING. GC TO PROTECT THE SILL AND ENTIRE MASONRY OPENING WHILE EQUIPMENT IS BEING MOVED. GC TO TEMPORARILY BLOCK UP OPENING AFTER WINDOW IS REMOVED TO REMAIN WATER TIGHT UNTIL WINDOW IS RE-INSTALLED BY THE GC.

REFER TO GENERAL NOTES ON SHEET A2.01  
# SYMBOL DENOTES WALL TYPES. REFER TO PARTITION TYPE SHEET A8.01  
X# SYMBOL INDICATES CONSTRUCTION KEY NOTE REFER TO CONSTRUCTION KEY NOTES ON SHEET A2.01



Key Plan



Date: 02/05/21  
Checked: DLF  
Drawn: TT

**Revisions:**  
# 1: BID ADDENDUM NO. 1 12/10/21  
# 2: BID ADDENDUM NO. 2 12/23/21

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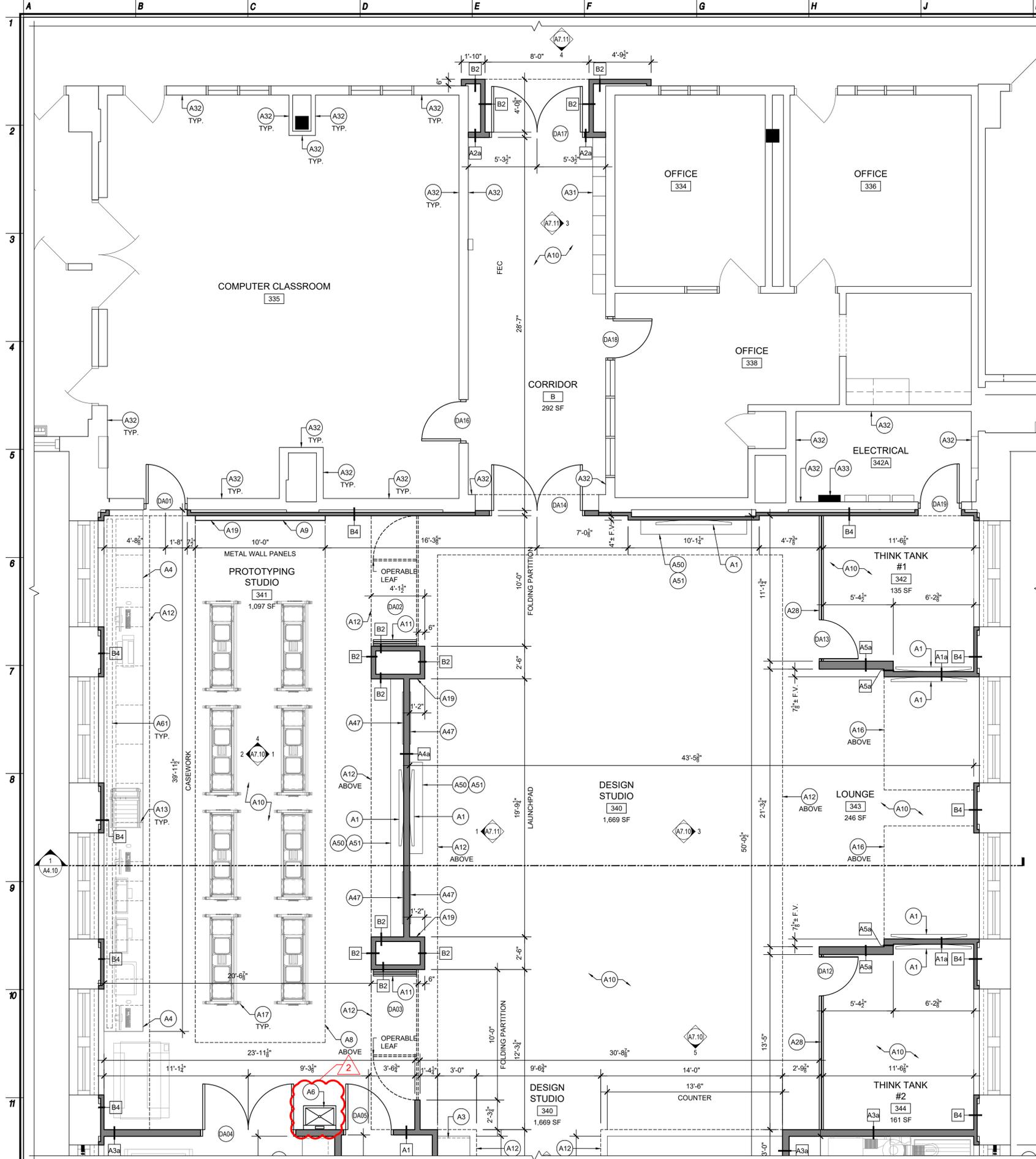
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REGISTERED ARCHITECT  
License No. 022257-1

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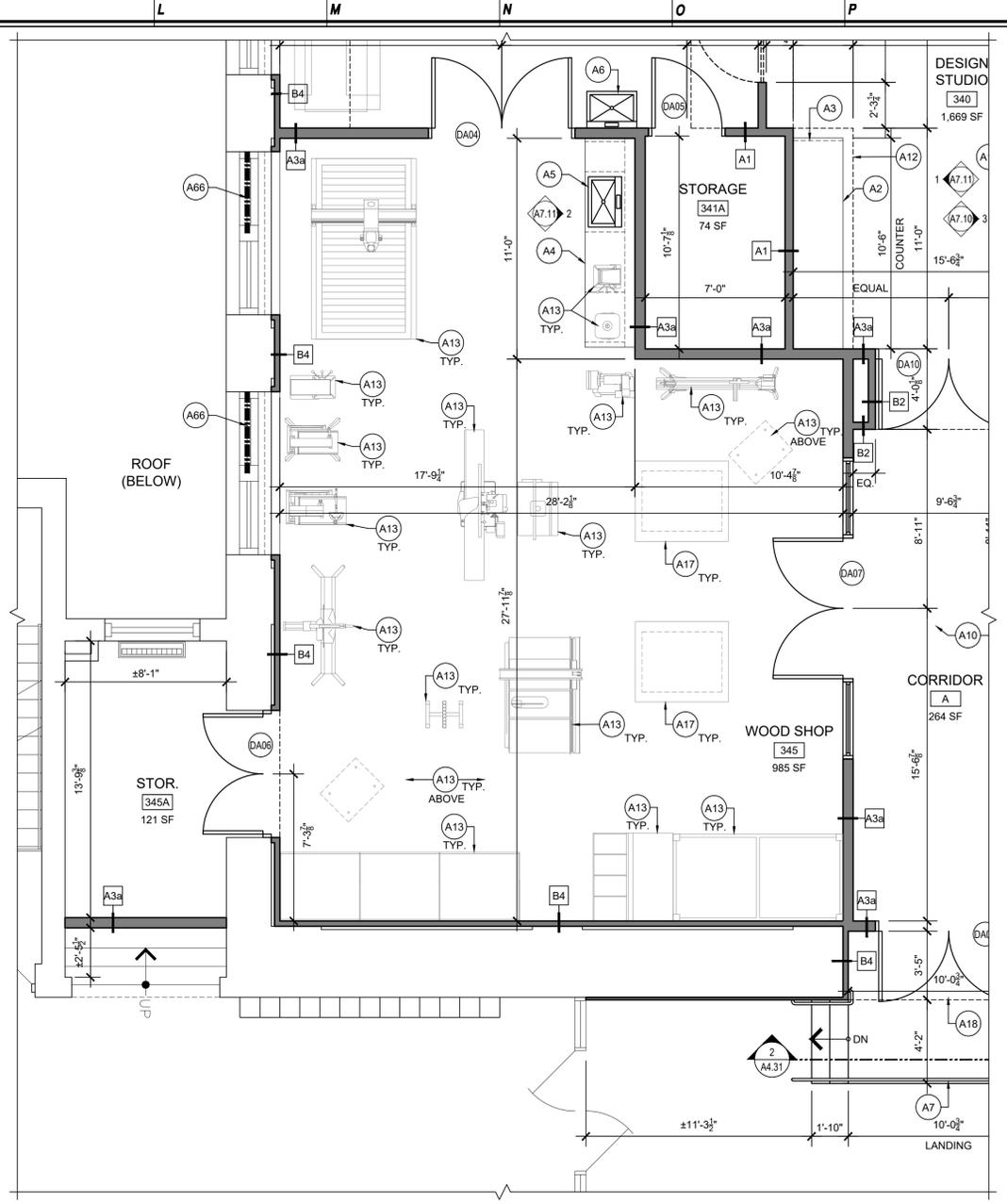
**3RD FLOOR POST AVE. PROPOSED PLAN**  
CAPITAL IMPROVEMENTS AT  
MAMARONECK HIGH SCHOOL  
MAMARONECK UNION FREE SCHOOL DISTRICT  
1000 BOSTON POST ROAD, MAMARONECK, NY 10543  
Job No. 4.1092.72.6  
File No. 10927206A210

**NYSED PROJECT # 66-07-01-03-0-001-039**

**A2.10**

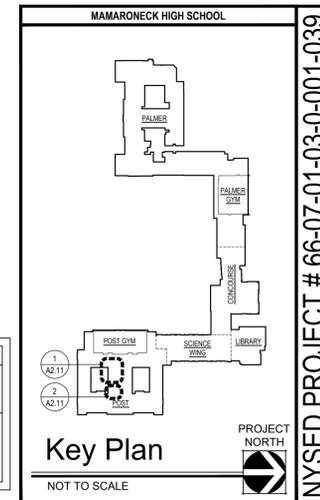


1  
A2.11 1/4" = 1'-0"



2  
A2.11 1/4" = 1'-0"

REFER TO GENERAL NOTES ON SHEET A2.01  
 # SYMBOL DENOTES WALL TYPES. REFER TO PARTITION TYPE SHEET A8.01  
 X# SYMBOL INDICATES CONSTRUCTION KEY NOTE. REFER TO CONSTRUCTION KEY NOTES ON SHEET A2.01



Key Plan  
NOT TO SCALE

Date: 02/05/21  
 Checked: DLF  
 Drawn: TT

**MICHAEL J. MCGOVERN, P.A.**  
 REGISTERED ARCHITECT  
 License No. 022257-1

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 2 BID ADDENDUM NO. 2 12/23/21

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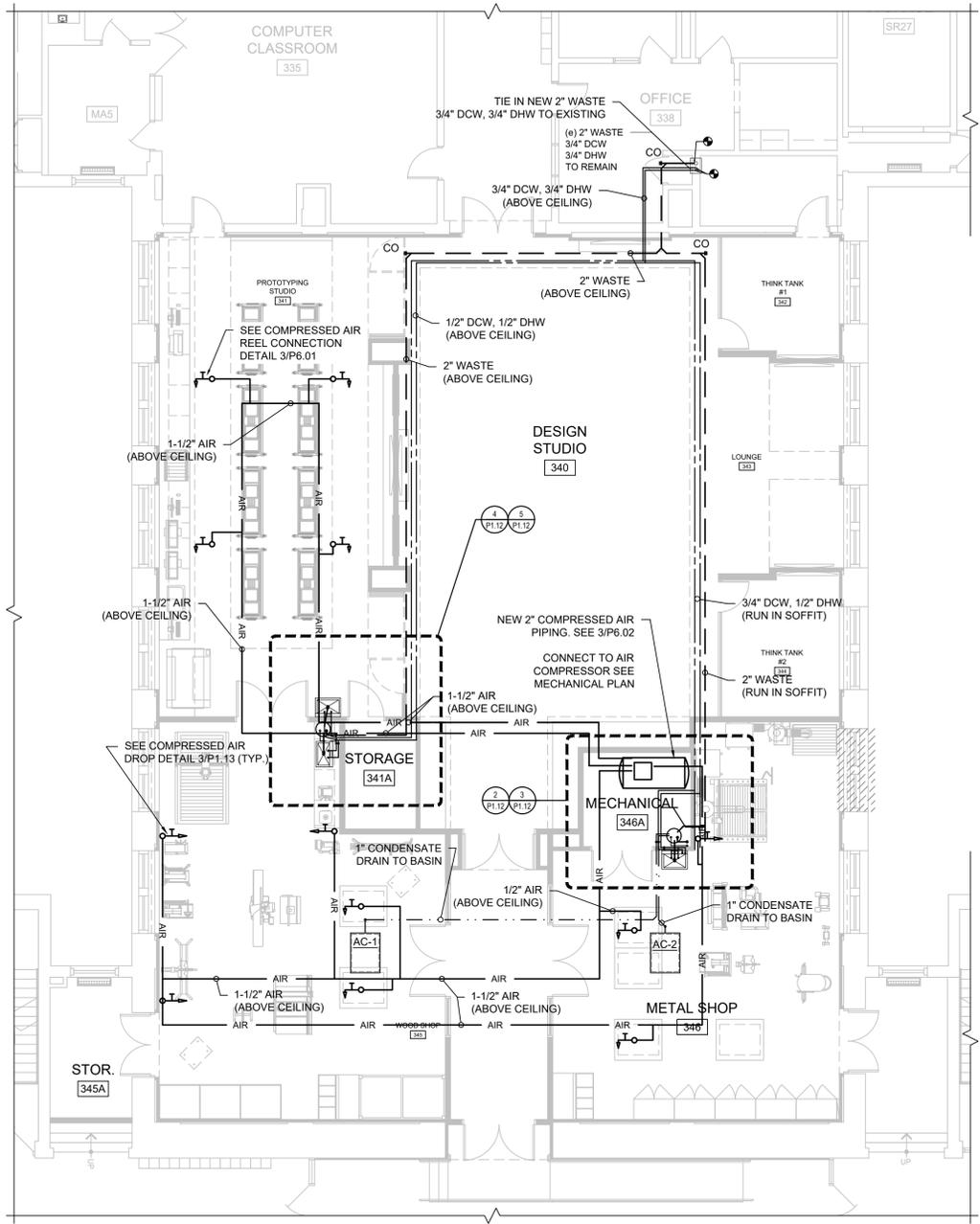
**ENLARGED FLOOR PLANS - WORK AREA 'A'**  
 CAPITAL IMPROVEMENTS AT MAMARONECK HIGH SCHOOL DISTRICT  
 MAMARONECK UNION FREE SCHOOL DISTRICT  
 1000 BOSTON POST ROAD, MAMARONECK, NY 10543

Job No. 4.1092.72.6  
 File No. 10927206A210

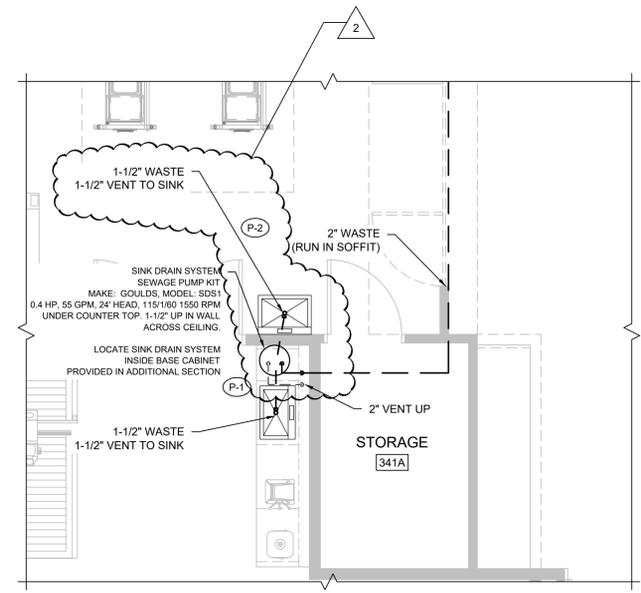
**A2.11**

Plumbing Legend	
Domestic Cold Water	—————
Domestic Hot Water 110°F	—————
Domestic Hot Water Return	—————
Domestic Hot Water 140°F	—————
Sanitary Waste	—————
Sanitary Vent	—————
Condensate Drain	—————
Compressed Air from Shop Compressor	————— AIR
Compressed Air Wall Mounted Quick Coupling	⊕
Compressed Air Ceiling Mounted Cord Reel	⊕
Natural Gas (GAS)	————— GAS
Point of Connection	⊕

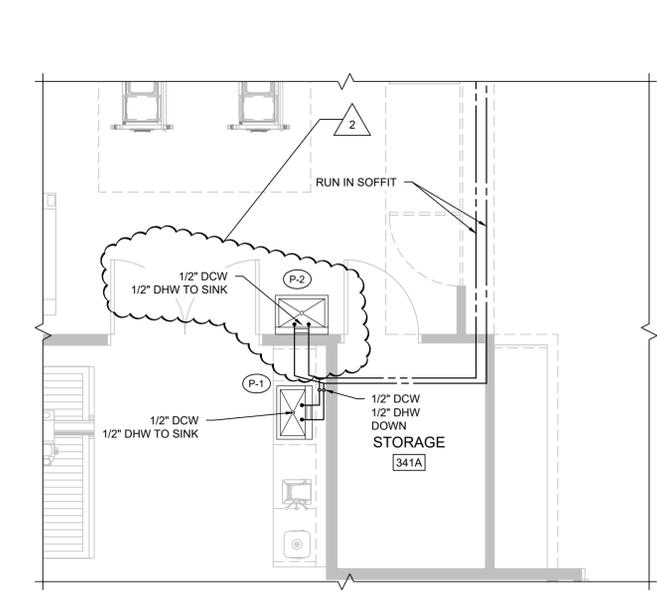
**NOTE:**  
RUN NEW PIPING IN HARD SOFFITS WHEN POSSIBLE. ANY PIPING THAT IS RUN OUTSIDE OF A SOFFIT NEEDS TO BE TIGHT TO THE HARD CEILING ABOVE AND PAINTED TO MATCH CEILING.



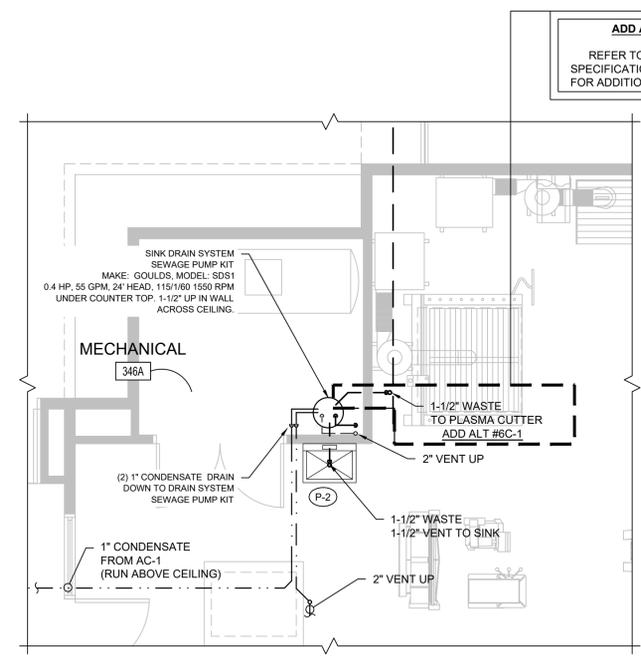
**1 PARTIAL THIRD FLOOR PROPOSED PLUMBING PLAN**  
1/8" = 1'-0"  
STEAM LAB - WORK AREA 'A'



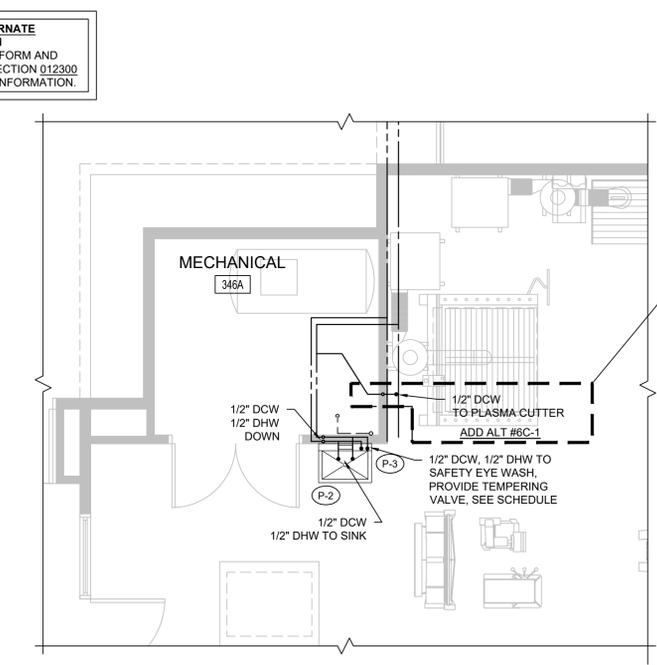
**4 ENLARGED PLUMBING PLAN**  
1/4" = 1'-0"  
WASTE/VENTING



**5 ENLARGED PLUMBING PLAN**  
1/4" = 1'-0"  
DOMESTIC WATER



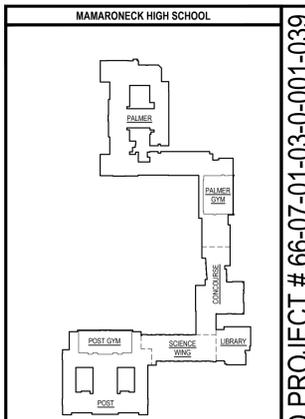
**2 ENLARGED PLUMBING PLAN**  
1/4" = 1'-0"  
WASTE/VENTING



**3 ENLARGED PLUMBING PLAN**  
1/4" = 1'-0"  
DOMESTIC WATER

**ADD ALTERNATE #6C-1**  
REFER TO BID FORM AND SPECIFICATION SECTION 012300 FOR ADDITIONAL INFORMATION.

**ADD ALTERNATE #6C-1**  
REFER TO BID FORM AND SPECIFICATION SECTION 012300 FOR ADDITIONAL INFORMATION.



**Key Plan**  
NOT TO SCALE

Date: 02/05/21  
Checked: MAM  
Drawn: RJS  
**MICHAEL J. MCGOVERN, P.E.**  
REGISTERED ARCHITECT  
License No. 022257-1

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1 BID ADDENDUM NO. 1 12/10/21  
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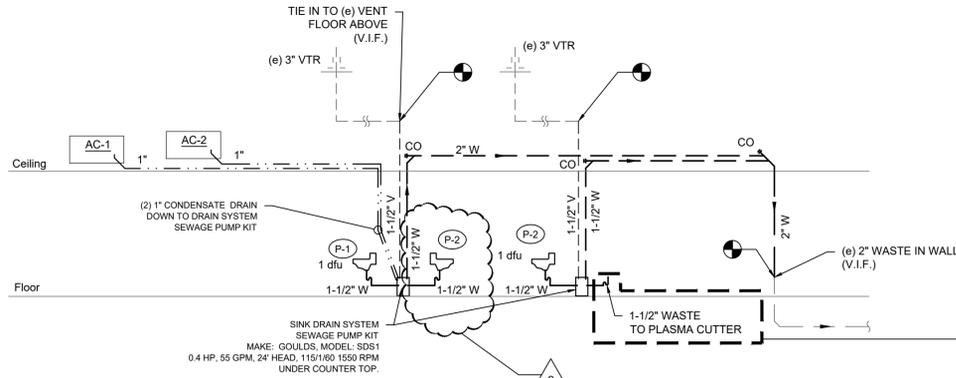
**WORK AREA 'A' STEAM LAB PROPOSED PLUMBING PLANS**  
CAPITAL IMPROVEMENTS AT MAMARONECK HIGH SCHOOL DISTRICT  
MAMARONECK UNION FREE SCHOOL DISTRICT  
1000 BOSTON POST ROAD, MAMARONECK, NY 10543  
Job No. 4.1092.72.6  
File No. 1092206P211-114

**P1.12**

NYSED PROJECT # 66-07-01-03-0-001-039

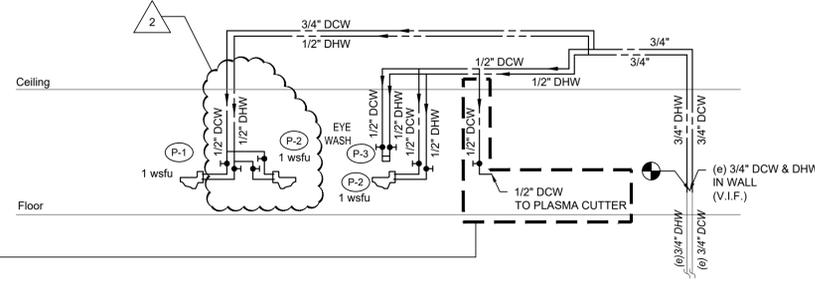
PLUMBING FIXTURE SCHEDULE - STEAM LAB

NUMBER	FIXTURE	MANUFACTURER	TYPE & MODEL No.	TRIM No.	SUPPLY PIPE No.	TRAP No.	SUPPORT No.	PIPE SIZES					DESCRIPTION
								TRAP	WASTE	VENT	DCW	DHW	
P-1	SINK (WOOD SHOP)	KOHLER	K-31466-1	KOHLER K-24982	McGUIRE LF158	McGUIRE 8902C	J.R. SMITH 0700-17M	1-1/4" x 1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	TOP MOUNT PROLOGUE K-31466-1, 33x16x9 STAINLESS STEEL. PROVIDE SINGLE HANDLE KOHLER PURIST K-24982-VS SINGLE HOLE STAINLESS. PROVIDE GRID STRAINER, TRAP ETC. PROVIDE WATTS TMV MODEL #LFMMV-US-M1.
P-2	SINK (METAL SHOP) (PROTO TYPING)	ADVANCED TABCO	4-41-24	AM STANDARD 7293-172H	McGUIRE LF158	McGUIRE 8902C	J.R. SMITH 0700-17M	1-1/4" x 1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"	FLOOR MOUNT SINK ADVANCE TABCO SINGLE BOWL 4-41-24 STAINLESS STEEL. PROVIDE AMERICAN STANDARD WALL MOUNT TWO HANDLE FAUCET 7293.172H. PROVIDE WATTS TMV MODEL #LFMMV-US-M1.
P-3	SAFETY EYE WASH (METAL SHOP)	GUARDIAN	G1848LH-L								1/2"	1/2"	EYEWASH, WALL MOUNTED, AUTOFLOW 90° SWING-DOWN. PROVIDE G3600LF THERMOSTATIC MIXING VALVE, TWO GS-PLUS SPRAY HEADS w/ FLIP TOP DUST COVER AND FILTER.



1 WASTE/VENT PIPING RISER DIAGRAM  
P1.13 N.T.S.

ADD ALTERNATE #6c-1  
REFER TO BID FORM AND SPECIFICATION SECTION 012300 FOR ADDITIONAL INFORMATION.



2 DOMESTIC WATER PIPING RISER DIAGRAM  
P1.13 N.T.S.

Plumbing Legend

Domestic Cold Water	---
Domestic Hot Water 110°F	---
Domestic Hot Water 140°F	---
Sanitary Waste	---
Sanitary Vent	---
Condensate Drain	---
Compressed Air from Shop Compressor	AIR
Compressed Air Wall Mounted Quick Coupling	○
Compressed Air Ceiling Mounted Cord Reel	○
Natural Gas (GAS)	---
Point of Connection	○

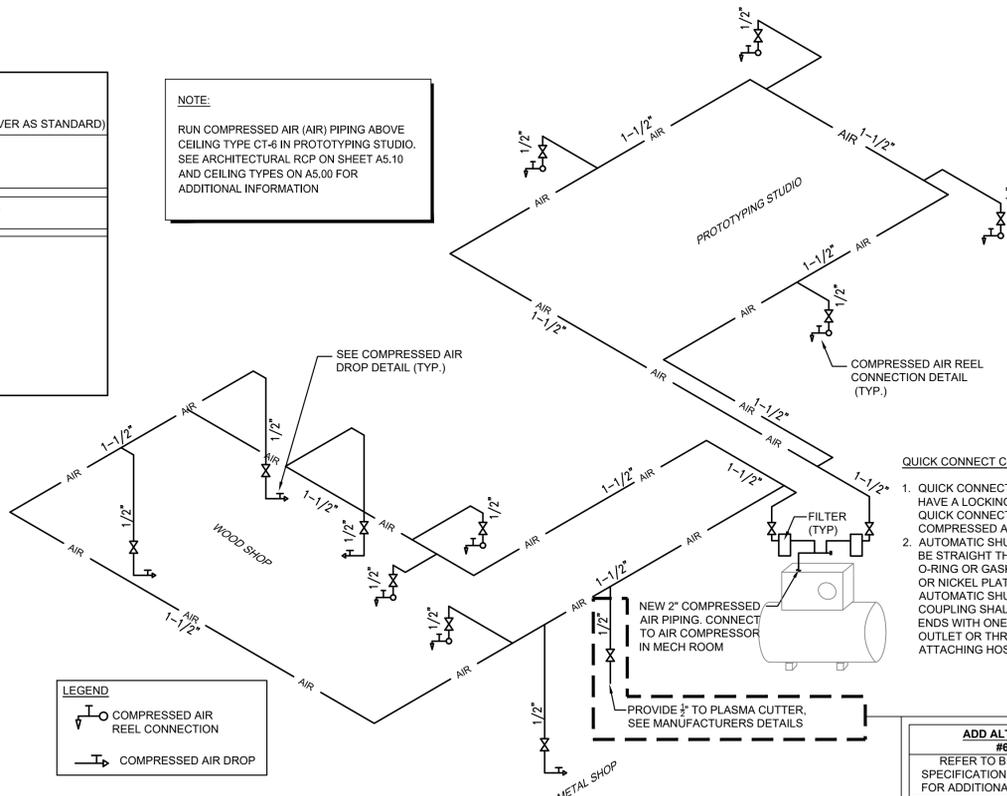
AIR COMPRESSOR SCHEDULE (GARDNER DENVER AS STANDARD)

MARK	DESCRIPTION	MANUFACTURER	MODEL NUMBER	175 PSI RATING		ELECTRICAL REQUIREMENTS	HP	GAL. CAPACITY	DIM LxWxH (INCHES)	NOTES
				RPM	CFM DELY					
RAC-1	RECIPROCATING AIR COMPRESSOR	GARDNER DENVER	HR15-12	776	54.1	208V 3PH	15	120	73 x 36 x 62	SEE BELOW

NOTES:

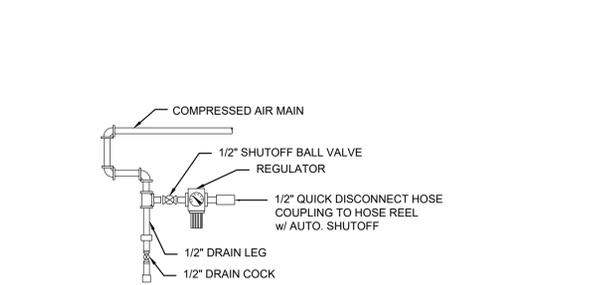
- HEAVY DUTY TWO-STAGE, SPLASH-LUBRICATED AIR COMPRESSOR PUMP
- RANGE 54.1 CFM @ 175 psi / 776 RPM
- VIBRATION ISOLATORS
- 0-300 PSIG AIR PRESSURE GAUGE
- CENTRIFUGAL UNLOADER FOR LOADLESS STARTING
- MOUNTED FULL VOLTAGE MOTOR STARTER
- SLOW SPEED COMPRESSOR
- CAST IRON PUMP WITH SINGLE PIECE CYLINDER/HEAD
- BELT GUARD
- AUTOMATIC TANK DRAIN
- TANK FEET VIBRATION ISOLATORS
- LOW OIL LEVEL SWITCH
- ON-OFF-AUTO SELECTOR SWITCH
- HOUR METER

NOTE:  
RUN COMPRESSED AIR (AIR) PIPING ABOVE CEILING TYPE CT-6 IN PROTOTYPING STUDIO. SEE ARCHITECTURAL RCP ON SHEET A5.10 AND CEILING TYPES ON A5.00 FOR ADDITIONAL INFORMATION

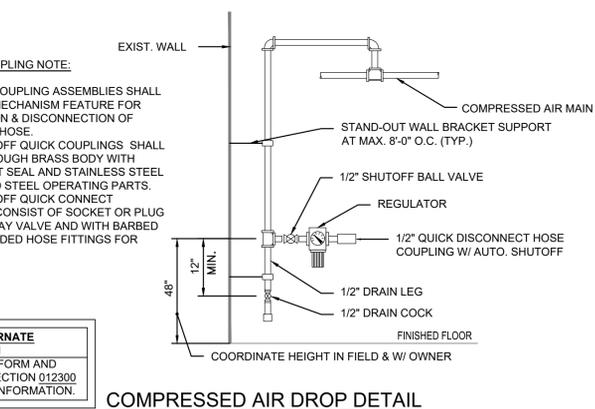


LEGEND  
○ COMPRESSED AIR REEL CONNECTION  
○ COMPRESSED AIR DROP

3 COMPRESSED AIR PIPING RISER DIAGRAM  
P1.13 N.T.S.



COMPRESSED AIR REEL CONNECTION DETAIL  
\*\*COORDINATE HEIGHT IN FIELD & w/ OWNER\*\*



COMPRESSED AIR DROP DETAIL  
COORDINATE HEIGHT IN FIELD & w/ OWNER

QUICK CONNECT COUPLING NOTE:

- QUICK CONNECT COUPLING ASSEMBLIES SHALL HAVE A LOCKING MECHANISM FEATURE FOR QUICK CONNECTION & DISCONNECTION OF COMPRESSED AIR HOSE.
- AUTOMATIC SHUTOFF QUICK COUPLINGS SHALL BE STRAIGHT THROUGH BRASS BODY WITH O-RING OR GASKET SEAL AND STAINLESS STEEL OR NICKEL PLATED STEEL OPERATING PARTS. AUTOMATIC SHUTOFF QUICK CONNECT COUPLING SHALL CONSIST OF SOCKET OR PLUG ENDS WITH ONE WAY VALVE AND WITH BARBED OUTLET OR THREADED HOSE FITTINGS FOR ATTACHING HOSE.

ADD ALTERNATE #6c-1  
REFER TO BID FORM AND SPECIFICATION SECTION 012300 FOR ADDITIONAL INFORMATION.

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LICENSE NO. 022257-1

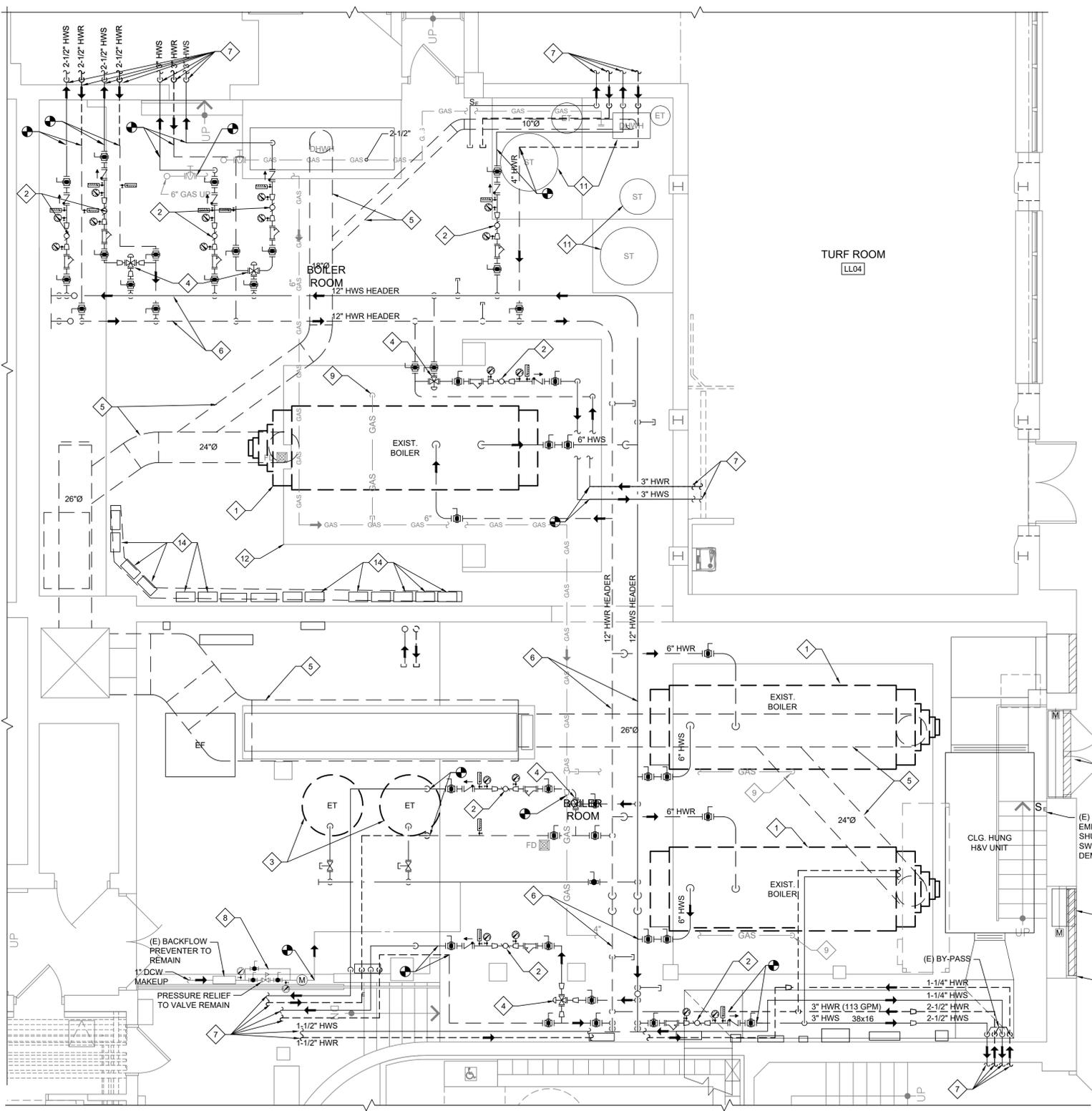
Revisions:  
# ISSUE FOR BID 11/22/2021  
1 BID ADDENDUM NO. 1 12/10/21  
2 BID ADDENDUM NO. 2 12/23/21

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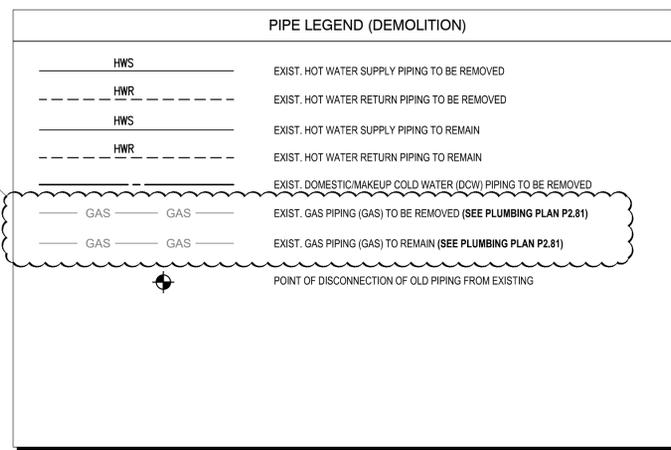
WORK AREA A: STEAM LAB  
PLUMBING RISERS AND DETAILS  
CAPITAL IMPROVEMENTS AT  
MAMARONECK HIGH SCHOOL  
MAMARONECK UNION FREE SCHOOL DISTRICT  
1000 BOSTON POST ROAD, MAMARONECK, NY 10543  
Job No. 4.1092.72.6  
File No. 10927206P111\_114

P1.13

NYS ED PROJECT # 66-07-01-03-0-001-039



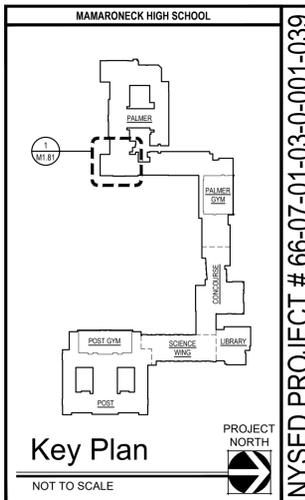
ITEM #	DEMOLITION KEY NOTES
1	EXIST. BOILER TO BE DEMOLISHED, MECH. CONTRACTOR TO DISCONNECT & REMOVE BURNER, GAS TRAIN, BURNER CONTROL PANEL, PIPING, VALVES, DRAIN PIPING, FITTINGS, CONTROLS, ELECTRICAL, BASE, SUPPORTS, ETC.
2	EXIST. CIRCULATING PUMPS TO BE REMOVED, COMPLETE W/ EXIST. PIPING (HWS/HWR, ETC.), VALVES, FITTINGS, STRAINERS, INSULATION, SUPPORTS, MOTOR STARTERS & DISCONNECTS, ELECTRICAL, CONTROLS, ETC.
3	EXIST. EXPANSION TANKS TO BE REMOVED, COMPLETE W/ ALL EXIST. PIPING, VALVES, FITTINGS, ETC.
4	EXIST. 3-WAY CONTROL VALVE (MODULATING) & ALL RELATED PIPING (HWS/HWR), VALVES, STRAINERS, SUPPORTS, CONTROLS, ETC TO BE REMOVED.
5	EXIST. BOILER AND WATER HEATER FLUES & BREECHING TO BE REMOVED, COMPLETE, INSULATION, SUPPORTS, ETC.
6	EXIST. PIPING HEADER (HWS/HWR) & ALL RELATED VALVES, INSULATION, SUPPORTS, ETC. TO BE REMOVED.
7	EXIST. PIPING (HWS/HWR) TO REMAIN.
8	EXIST. MAKEUP DCW ASSEMBLY TO REMAIN.
9	EXIST. GAS PIPING TO BE REMOVED, COMPLETE W/ EXIST. GAS TRAINS, REGULATORS, VALVES, SUPPORTS, ETC. (SEE PLUMBING PLAN P2.81)
10	EXIST. DHW SYSTEM (DHW HEATER HWH-1, STORAGE TANKS ST-1 & 2) & RELATED PIPING, VALVES, ETC. TO REMAIN.
11	EXIST. DHW SYSTEM (DHW HEATER HWH-1, STORAGE TANKS ST-1, 2, & 3) & RELATED PIPING, VALVES, ETC. TO REMAIN.
12	EXISTING HOUSEKEEPING PAD TO REMAIN. CONCRETE PAD SHALL BE PAINTED. REFER TO PAINT SPEC.
13	(E) 56x14 LOUVERS ABOVE WINDOW TO BE DEMOLISHED.
14	EXISTING CIRCULATING PUMPS ELECTRICAL PANELS TO BE DEMOLISHED PER LATEST N.E.C.



- DEMOLITION NOTES**
- DASHED LINES INDICATE ITEMS TO BE REMOVED, UNLESS OTHERWISE NOTED.
  - EXIST. HOT WATER SUPPLY & RETURN PIPING IN BOILER ROOM TO BE REMOVED AS SHOWN. CONTRACTOR TO NOTE THAT NOT ALL EXIST. PIPING IN BOILER ROOM ARE SHOWN ON THE PLANS, REMOVE ALL UNUSED OR ABANDONED PIPING INCLUDING BUT NOT LIMITED TO STEAM PIPING, DOMESTIC WATER PIPING, DRAIN PIPING, ETC. WHETHER OR NOT SHOWN ON THE PLANS. COORDINATE WITH THE OWNER/ENGINEER PRIOR TO REMOVAL.
  - EXIST. BOILERS & ALL RELATED CONTROLS & TRIMS INCLUDING LOW WATER CUTOFF DEVICES, SAFETY RELIEF VALVES, ETC. TO BE REMOVED, UNLESS OTHERWISE NOTED.
  - ALL ELECTRICAL RELATED TO EQUIPMENT BEING REMOVED SHALL BE PROPERLY TERMINATED IN ACCORDANCE WITH LATEST NEC CODES. REFER TO ELECTRICAL DRAWINGS.
  - ALL BURNER GAS VENT PIPING TO BE REMOVED IN ENTIRETY FROM BOILER ROOM TO TERMINATION. SEAL ALL WALL PENETRATIONS (IF NOT BEING REUSED) & CAULK WITH 2HR FIRE-STOPPING MATERIALS. PAINT TO MATCH EXISTING.
  - ALL EXIST. PILOT GAS LINES, REGULATORS, VALVES, ETC. (NOT SHOWN) ASSOCIATED WITH EXIST. BOILERS SHALL BE REMOVED IN BOILER ROOM. CHECK IN FIELD.
  - DURING DEMOLITION AND CONSTRUCTION, CONTRACTOR SHALL PROVIDE EXHAUST FANS AT STRATEGIC LOCATIONS IN BOILER ROOM TO DISCHARGE AIR OUTSIDE OF THE BUILDING & PREVENT ODORS OR FUME FROM MIGRATING INTO THE BUILDING.

- REFER TO ARCHITECTURAL, MECHANICAL & PLUMBING DRAWINGS FOR ADDITIONAL WORK REQUIREMENTS. MECHANICAL CONTRACTOR RESPONSIBLE FOR ALL WORK CALLED OUT TO BE PERFORMED BY "MC" OR "MECHANICAL CONTRACTOR", REGARDLESS OF THE DRAWING.**
- GENERAL CONSTRUCTION NOTES:**
- REFER TO "MULTIPLE PRIME CONTRACT NOTE" ON DWG A1.00 & SPECIFICATION SECTION 011200 - SPECIAL PROVISIONS FOR CONTRACTOR'S RESPONSIBILITIES.
  - CORE DRILLING SHALL BE PERFORMED BY EACH INDIVIDUAL PRIME CONTRACT. REFER TO SPECIFICATION SECTION 011200 - SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. SEE DRAWINGS FOR APPROXIMATE LOCATIONS OF PIPES, DUCT, ETC.

1 M1.81 1/4" = 1'-0" Palmer Lower Level Boiler Room Mechanical Demolition Plan BOILER ROOM - WORK AREA 'H'



Date: 02/05/21  
 Checked: AL  
 Drawn: IM

**MICHAEL J. MCGOVERN, P.E.**  
 THE REGISTERED ARCHITECT  
 License No. 022257-1

**Revisions:**

#	ISSUE FOR BID	DATE
1	BID ADDENDUM NO. 1	12/10/21
2	BID ADDENDUM NO. 2	12/23/21

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**BOILER ROOM DEMOLITION PLAN**  
 CAPITAL IMPROVEMENTS AT  
 MAMARONECK HIGH SCHOOL  
 MAMARONECK UNION FREE SCHOOL DISTRICT  
 1000 BOSTON POST ROAD, MAMARONECK, NY 10543

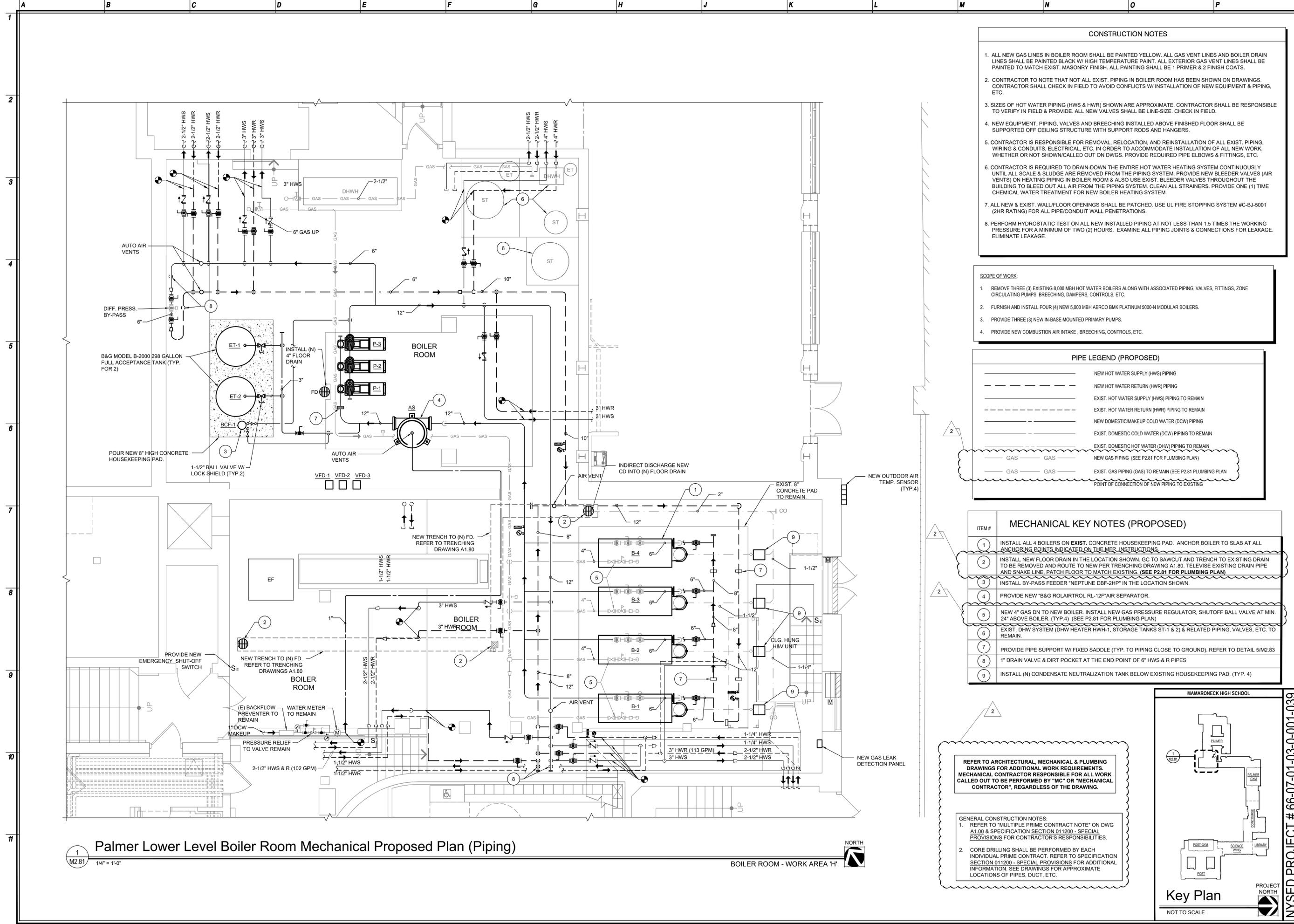
Job No. 4.1092.72.6  
 File No. 10927206M280

**M1.81**

**KEY PLAN**  
 NOT TO SCALE

**PROJECT NORTH**

**NYSED PROJECT # 66-07-01-03-0-001-039**



- ### CONSTRUCTION NOTES
- ALL NEW GAS LINES IN BOILER ROOM SHALL BE PAINTED YELLOW. ALL GAS VENT LINES AND BOILER DRAIN LINES SHALL BE PAINTED BLACK W/ HIGH TEMPERATURE PAINT. ALL EXTERIOR GAS VENT LINES SHALL BE PAINTED TO MATCH EXIST. MASONRY FINISH. ALL PAINTING SHALL BE 1 PRIMER & 2 FINISH COATS.
  - CONTRACTOR TO NOTE THAT NOT ALL EXIST. PIPING IN BOILER ROOM HAS BEEN SHOWN ON DRAWINGS. CONTRACTOR SHALL CHECK IN FIELD TO AVOID CONFLICTS W/ INSTALLATION OF NEW EQUIPMENT & PIPING, ETC.
  - SIZES OF HOT WATER PIPING (HWS & HWR) SHOWN ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY IN FIELD & PROVIDE. ALL NEW VALVES SHALL BE LINE-SIZE. CHECK IN FIELD.
  - NEW EQUIPMENT, PIPING, VALVES AND BREECHING INSTALLED ABOVE FINISHED FLOOR SHALL BE SUPPORTED OFF CEILING STRUCTURE WITH SUPPORT RODS AND HANGERS.
  - CONTRACTOR IS RESPONSIBLE FOR REMOVAL, RELOCATION, AND REINSTALLATION OF ALL EXIST. PIPING, WIRING & CONDUITS, ELECTRICAL, ETC. IN ORDER TO ACCOMMODATE INSTALLATION OF ALL NEW WORK, WHETHER OR NOT SHOWN/CALLED OUT ON DWGS. PROVIDE REQUIRED PIPE ELBOWS & FITTINGS, ETC.
  - CONTRACTOR IS REQUIRED TO DRAIN-DOWN THE ENTIRE HOT WATER HEATING SYSTEM CONTINUOUSLY UNTIL ALL SCALE & SLUDGE ARE REMOVED FROM THE PIPING SYSTEM. PROVIDE NEW BLEEDER VALVES (AIR VENTS) ON HEATING PIPING IN BOILER ROOM & ALSO USE EXIST. BLEEDER VALVES THROUGHOUT THE BUILDING TO BLEED OUT ALL AIR FROM THE PIPING SYSTEM. CLEAN ALL STRAINERS. PROVIDE ONE (1) TIME CHEMICAL WATER TREATMENT FOR NEW BOILER HEATING SYSTEM.
  - ALL NEW & EXIST. WALL/FLOOR OPENINGS SHALL BE PATCHED. USE UL FIRE STOPPING SYSTEM #C-BJ-5001 (2HR RATING) FOR ALL PIPE/CONDUIT WALL PENETRATIONS.
  - PERFORM HYDROSTATIC TEST ON ALL NEW INSTALLED PIPING AT NOT LESS THAN 1.5 TIMES THE WORKING PRESSURE FOR A MINIMUM OF TWO (2) HOURS. EXAMINE ALL PIPING JOINTS & CONNECTIONS FOR LEAKAGE. ELIMINATE LEAKAGE.

- ### SCOPE OF WORK:
- REMOVE THREE (3) EXISTING 8,000 MBH HOT WATER BOILERS ALONG WITH ASSOCIATED PIPING, VALVES, FITTINGS, ZONE CIRCULATING PUMPS' BREECHING, DAMPERS, CONTROLS, ETC.
  - FURNISH AND INSTALL FOUR (4) NEW 5,000 MBH AERCO BMK PLATINUM 5000-N MODULAR BOILERS.
  - PROVIDE THREE (3) NEW IN-BASE MOUNTED PRIMARY PUMPS.
  - PROVIDE NEW COMBUSTION AIR INTAKE, BREECHING, CONTROLS, ETC.

### PIPE LEGEND (PROPOSED)

	NEW HOT WATER SUPPLY (HWS) PIPING
	NEW HOT WATER RETURN (HWR) PIPING
	EXIST. HOT WATER SUPPLY (HWS) PIPING TO REMAIN
	EXIST. HOT WATER RETURN (HWR) PIPING TO REMAIN
	NEW DOMESTIC/MAKEUP COLD WATER (DCW) PIPING
	EXIST. DOMESTIC COLD WATER (DCW) PIPING TO REMAIN
	EXIST. DOMESTIC HOT WATER (DHW) PIPING TO REMAIN
	NEW GAS PIPING (SEE P2.81 FOR PLUMBING PLAN)
	EXIST. GAS PIPING (GAS) TO REMAIN (SEE P2.81 PLUMBING PLAN)
	POINT OF CONNECTION OF NEW PIPING TO EXISTING

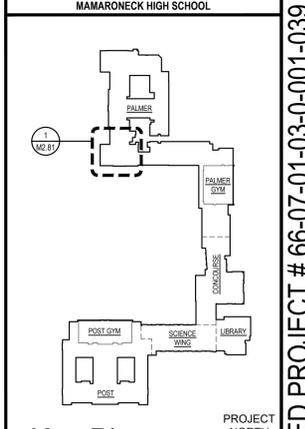
### MECHANICAL KEY NOTES (PROPOSED)

ITEM #	DESCRIPTION
1	INSTALL ALL 4 BOILERS ON EXIST. CONCRETE HOUSEKEEPING PAD. ANCHOR BOILER TO SLAB AT ALL ANCHORING POINTS INDICATED ON THE MFR. INSTRUCTIONS.
2	INSTALL NEW FLOOR DRAIN IN THE LOCATION SHOWN. GC TO SAWCUT AND TRENCH TO EXISTING DRAIN TO BE REMOVED AND ROUTE TO NEW PER TRENCHING DRAWING A1.80. TELEWISE EXISTING DRAIN PIPE AND SNAKE LINE. PATCH FLOOR TO MATCH EXISTING. (SEE P2.81 FOR PLUMBING PLAN)
3	INSTALL BY-PASS FEEDER 'NEPTUNE DBF-2HP' IN THE LOCATION SHOWN.
4	PROVIDE NEW 'B&G ROLAIRTROL RL-12F' AIR SEPARATOR.
5	NEW 4" GAS DN TO NEW BOILER. INSTALL NEW GAS PRESSURE REGULATOR, SHUTOFF BALL VALVE AT MIN. 24" ABOVE BOILER. (TYP. 4) (SEE P2.81 FOR PLUMBING PLAN)
6	EXIST. DHW SYSTEM (DHW HEATER HWH-1, STORAGE TANKS ST-1 & 2) & RELATED PIPING, VALVES, ETC. TO REMAIN.
7	PROVIDE PIPE SUPPORT W/ FIXED SADDLE (TYP. TO PIPING CLOSE TO GROUND). REFER TO DETAIL 5/M2.83
8	1" DRAIN VALVE & DIRT POCKET AT THE END POINT OF 6" HWS & R PIPES
9	INSTALL (N) CONDENSATE NEUTRALIZATION TANK BELOW EXISTING HOUSEKEEPING PAD. (TYP. 4)

REFER TO ARCHITECTURAL, MECHANICAL & PLUMBING DRAWINGS FOR ADDITIONAL WORK REQUIREMENTS. MECHANICAL CONTRACTOR RESPONSIBLE FOR ALL WORK CALLED OUT TO BE PERFORMED BY "MC" OR "MECHANICAL CONTRACTOR", REGARDLESS OF THE DRAWING.

GENERAL CONSTRUCTION NOTES:

- REFER TO "MULTIPLE PRIME CONTRACT NOTE" ON DWG A1.00 & SPECIFICATION SECTION 011200 - SPECIAL PROVISIONS FOR CONTRACTOR'S RESPONSIBILITIES.
- CORE DRILLING SHALL BE PERFORMED BY EACH INDIVIDUAL PRIME CONTRACT. REFER TO SPECIFICATION SECTION 011200 - SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION. SEE DRAWINGS FOR APPROXIMATE LOCATIONS OF PIPES, DUCT, ETC.

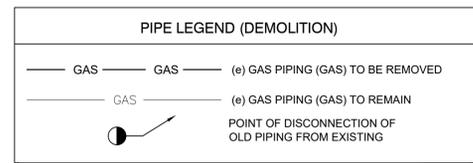
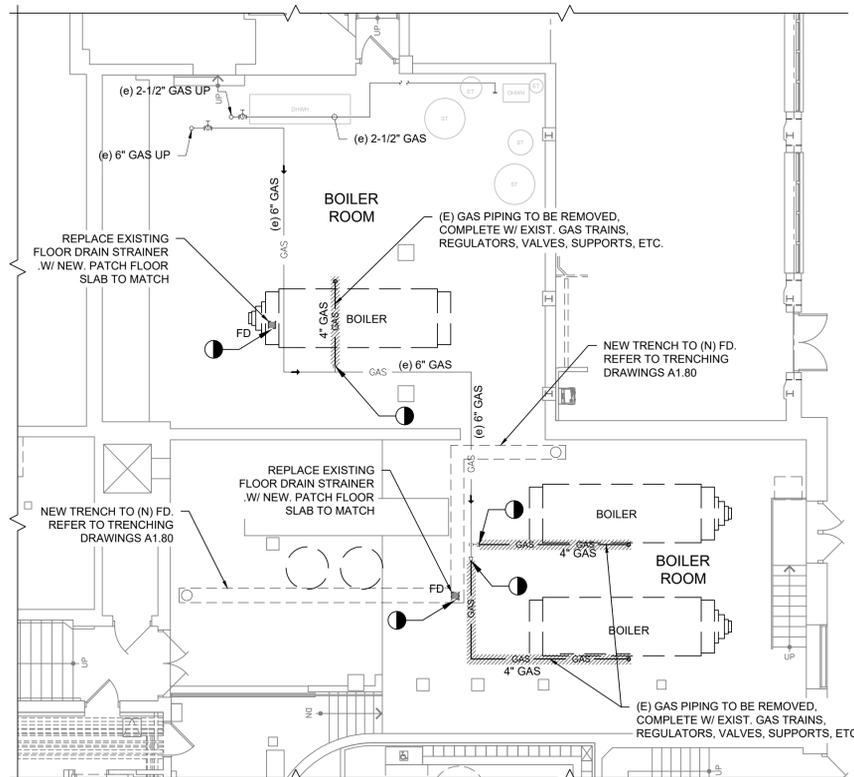


Palmer Lower Level Boiler Room Mechanical Proposed Plan (Piping) BOILER ROOM - WORK AREA 'H'

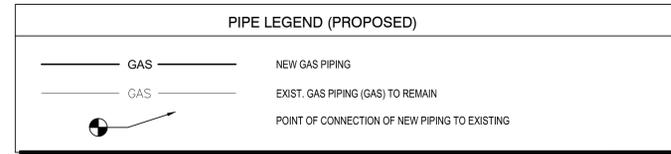
1 M2.81 1/4" = 1'-0"



<p>Date: 02/05/21</p> <p>Checked: AL</p> <p>Drawn: JM</p>	<p><b>MICHAEL J. MCGOVERN, P.E.</b></p> <p>REGISTERED ARCHITECT</p> <p>License No. 022217-1</p>									
<p><b>Revisions:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">#</td> <td style="width: 15%;">ISSUE FOR BID</td> <td style="width: 80%;">11/22/2021</td> </tr> <tr> <td>1</td> <td>BID ADDENDUM NO. 1</td> <td>12/10/21</td> </tr> <tr> <td>2</td> <td>BID ADDENDUM NO. 2</td> <td>12/23/21</td> </tr> </table>		#	ISSUE FOR BID	11/22/2021	1	BID ADDENDUM NO. 1	12/10/21	2	BID ADDENDUM NO. 2	12/23/21
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<p>Job No. 4.1092.72.6</p> <p>File No. 10927206M280</p>										
<p><b>M2.81</b></p>										



- DEMOLITION NOTES**
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  - ALL BURNER GAS VENT PIPING TO BE REMOVED IN ENTIRETY FROM BOILER ROOM TO TERMINATION. SEAL ALL WALL PENETRATIONS (IF NOT BEING REUSED) & CAULK WITH 2HR FIRE-STOPPING MATERIALS. PAINT TO MATCH EXISTING.
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  - CONTRACTOR TO NOTE THAT LOCATIONS & SIZES OF EXIST. PLUMBING PIPING SHOWN (GAS, WASTE, VENT, DCW, DHW, DHWR, ETC) ARE BASED ON FIELD OBSERVATIONS AND AVAILABLE BLUEPRINTS AND ARE APPROXIMATE. CONTRACTOR SHALL INVESTIGATE/TRACE (WITH CAMERA OR ELECTRONIC DEVICES) THE EXISTING SANITARY WASTE LINES TO BE REMOVED/REPLACED OR RESCHEDULED TO BE REUSED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES. EXISTING VENTING AND WATER LINES ARE SHOWN GRAPHICALLY TO GIVE AN HONEST REPRESENTATION OF THE EXISTING CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL SIZES & LOCATIONS IN FIELD.
  - ALL SANITARY LINES BEING DEMOLISHED SHALL BE REMOVED BACK TO THE MAINS. DEAD END SHALL NOT EXCEED THE MAXIMUM LENGTH PER LATEST PLUMBING

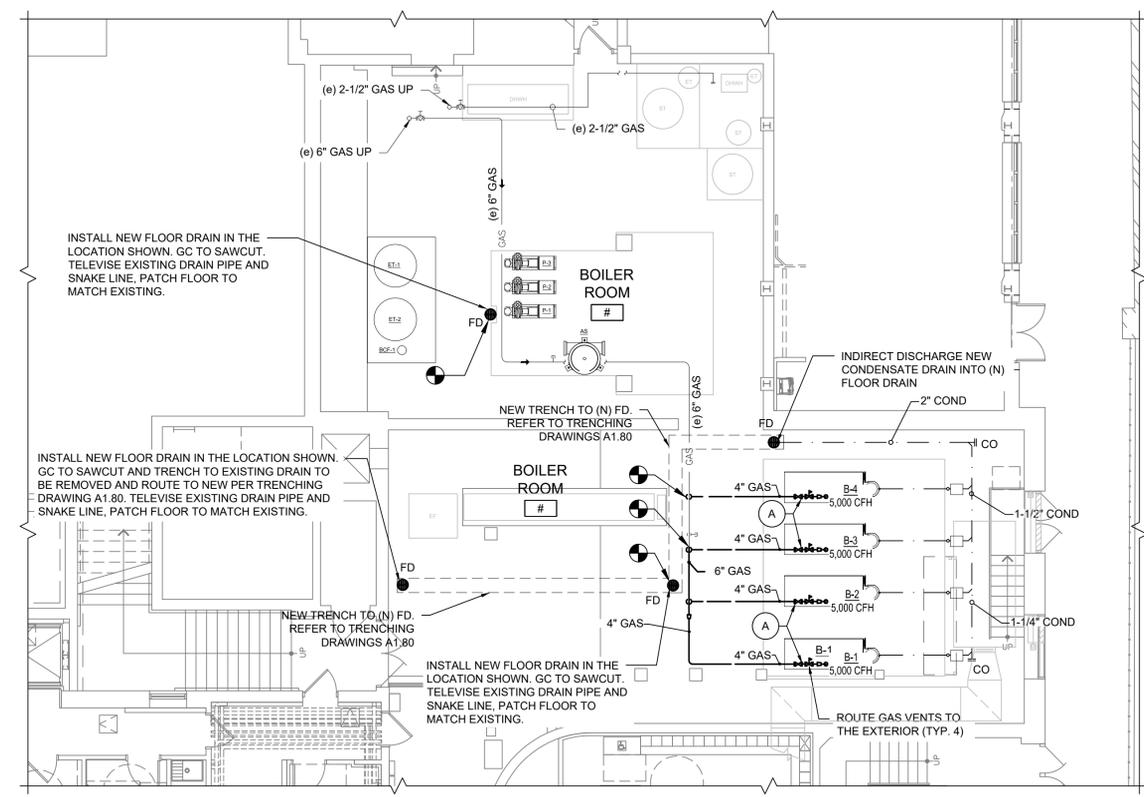


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**GAS KEY NOTES (PROPOSED)**

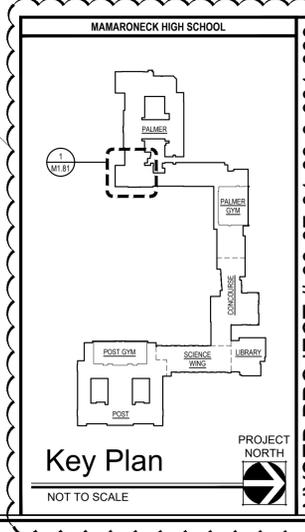
ITEM #	DESCRIPTION
(A)	NEW 4" GAS DN TO NEW BOILER. INSTALL NEW GAS PRESSURE REGULATOR, SHUTOFF BALL VALVE AT MIN. 24" ABOVE BOILER. (TYP.4)

**Palmer Lower Level Boiler Room Plumbing Demolition Plan**  
 1 M1.81 1/4" = 1'-0"  
 BOILER ROOM - WORK AREA 'H'



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**Palmer Lower Level Boiler Room Plumbing Proposed Plan (Piping)**  
 1 M2.81 1/4" = 1'-0"  
 BOILER ROOM - WORK AREA 'H'

NYS PROJECT # 66-07-01-03-0-001-039  
 BOILER ROOM PUMPING PLANS  
 CAPITAL IMPROVEMENTS AT MAMARONECK HIGH SCHOOL  
 MAMARONECK UNION FREE SCHOOL DISTRICT  
 1000 BOSTON POST ROAD, MAMARONECK, NY 10543