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New Construction for:

Belmont College - Construction Trades Building

Addendum No. 05 – 21.162

January 24, 2025

This Addendum shall hereby be and become a part of the Contract Documents the same as if originally bound thereto. The following clarifications, amendments, revisions, changes and modifications change the original Contract Documents only in the amount and to the extent hereinafter specified in this Addendum. Each bidder shall acknowledge receipt of this Addendum in his bid proposal. Bidders shall be responsible for becoming familiar with every item of this Addendum.

General:

1. Question: Ref. Sheet C-105. What size pipe should be turned up for downspout collectors (6" / 8" / 10")? We presume this should be SDR or PVC pipe, as no downspout termination details are provided.

   Response: Gutters and downspouts will be provided by the PEMB manufacturer. Coordination will need to occur once shop drawings are produced for the PEMB.

2. Question: Ref. Sheet 3.00 – "Building Pad Preparation" and "Pyritic Shale", and Geotechnical Report. Is the intent that the entire building footprint plus 5' outside is to be undercut by 5' below foundation bearing, or only at foundation locations?

   Response: The entire building footprint plus 5 feet outside limits.

3. Question: Is the GC required to provide Builder's Risk Insurance or will the Owner be providing it?

   Response: Contractor is to provide the Builder's Risk Insurance. See 00 72 13 – General Conditions Article 10.4.

4. Question: Ref. Appendix D – Davis Bacon Wage Rates. The first 2.5 pages list rates for numerous trades. On the bottom half of the third page, there is a group of rates with the heading labeled "SUOH2012-071 08/29/2014", which has lower rates for Operators than those listed previously in the document. Which rates are to be used for Operators?

   Response: Contractor is responsible for adhering to the federal Davis Bacon Wage Rates. If these is a question regarding a specific wage rate, the contractor will need to reach out to the US Department of Labor.

5. Question: Please reference Dwg 3.00 Pyritic Shale. Item 1 states the structure shall be protected from damage from expansive shales per recommendations in the geotechnical report. Item 3 states The shale shall be undercut a minimum of one foot below the planned floor slab subgrade elevations. The Geotech Report states in section Undercut and Replacement, a minimum of five (5) feet of the existing soils should be over-excavated beneath the design foundation bearing elevation and should

be replaced with newly compacted inert fill for the entire building footprint and five (5) feet beyond its perimeter. It also states about 14 feet of undercut will be required in the vicinity of the northern building corner. For clarification, this is presented based upon the following elevations. Based upon projecting the FFE value of 1,202 feet, and a design shallow foundation bearing level of 1,199 feet, this means the target elevation for the undercut would be 1,194 feet. Please advise which recommendation is to be utilized.

Response: Follow any/all recommendations of the geotechnical report. The 5 ft and all recommendations noted in the geotechnical report take precedence over the 1 ft noted in structural general notes.

6. Question: Can we provide a VE option to remove the conduit and run communication cabling open air in j hooks?

Response: The J hooks are acceptable. Provided that the hooks and cabling are installed per Div. 27 requirements. There is a lot of high structure that the J hooks will be mounted to, this may cause an increase in the length of the cable runs and make new runs of cabling a more complex installation procedure.

7. Question: I was wanting to know if OFCC needs to be the obligee for the bond or Belmont College or both?

Response: Both the OFCC and Belmont College will be named. Refer to 00 72 13 General Conditions. See Article 10.1.1.5.

8. Question: Spec section 083613 calls out Overhead Door Moderl 595. THis model is no longer available. With the project referencing dark bronze finish, we offer for consideration Overhead Door Model 521 for review. This aluminum full view comes in a dark bronze finish. Please advise if this is acceptable.

Response: Yes, this is acceptable.

9. Question: Could you please advise on the Stairs? The specs. mention vinyl stair nosing's for carpet, but there is nothing identified in the drawings.

Response: Stair nosing is metal pan nosing; an abrasive strip is to be inset within the concrete tread. The nosing is per the manufacturer's details.

10. Question: Refer to Drawing 10.1, RCP What is the edge detail of the ceilings in Rooms 102, 106 & 107.

Response: See spec section 095100 page 5 for acoustic ceiling trim.

11. Question: Wall Detail C1/7.3 Shows 6" Metal Framing @ 16" o.c. on a sill by PEMB. This 6" Framing is PEMB not structural stud, correct? If this is 6" structural stud, to what length along this roof/eave detail are we to figure? Need more information if so.

Response: This detail is for the clerestory wall panel. All clerestory wall panels and framing are part of the PEMB scope. Note for 6" Metal Framing removed from sheet 7.3.

12. Question: I do not see a louver spec section.

    Response: See spec section 23 30 00

13. Question: Reference 101400 (Exterior Illuminated Signage): Please confirm if this section is applicable, we did not see an exterior illuminated sign cabinet on the drawings.

    Response: There is no exterior illuminated signage.

14. Question: Reference 101400 (Exterior Signage Illuminated Letters): Please confirm if this section is applicable, we did not see an exterior illuminated letters on the drawings.

    Response: There is no exterior signage illuminated letters.

15. Question: Reference D1/9.3 (Interior acrylic letters & logo): We did not see a spec for these pleases confirm they are not illuminated.

    Response: No, interior acrylic letters & logo are not illuminated.

16. Question: Which prevailing wage rates apply to this project? General Conditions 1.2.3 has the link to the State of Ohio prevailing wage rates, but page 1504 after appendix D has the federal Davis Bacon wages.

    Response: Federal Davis Bacon wages.

17. Question: Ref. Sheets C-102 and C-502. Railings indicated at concrete steps on C-102 appear to be approx. 11'-12' long. Detail 6/C502 indicates that the railing is to be 5' long. Please clarify the detail / confirm which is correct.

    Response: The railing displayed on the plan drawings C-102 is for graphical representation only. The plan (C-102) directs the contractor to the detail on 6/C-502 for information pertaining to the stairs and railing.

18. Question: Ref. Addendum 3 – General Item 13, and Sheet 11.2. Addendum 3 stated that no fencing or gates are proposed for the project. On Sheet 11.2, it appears that chain link fence is indicated at the "Locked Tool Storage" area, but no details or heights are provided. If fencing is required, please provide details, fence height, gate details, etc.

    Response: At the current time, no exterior site gates or fences are proposed for this project. There will be (2) interior chain link fences, (1) for the Woodshop and (1) for the HVAC Shop. See revised sheets 11.1, 11.2, and 11.3 for fence dimensions and elevation details. Floor mounting shall be based on manufacturer's detail.

19. Question: Ref. Addendum 4 – Sheet 9.1. "Drawing Updates" list in title block indicates that Sheet 9.1 was revised in Addendum 3 (1/10/2025), but it was not included in Addendum 4. Where any previous revisions made that are not clouded in the Addendum 4 revision?

Response: Sheet 9.1 did not have any revisions previous to the issuance of Addendum 4

20. Question: Drawings P10 & P11 – there appears to be a floor drain in room 124A, but it is not labeled as such and there is no keynote for the pipe size. What is to be provided?

Response: Floor drain note added. See sheet P11.

21. Question: Drawings P10 & P11 – the sanitary line at column M2 turning up south of column line MD is not labeled and there is no keynote for the pipe size. What does this line serve?

Response: Floor clean out – see Addendum 5 revision.

22. Question: Drawings P10 & P11 – the end of line sanitary midway between column lines 1 & 2 turns up and appears to be for a clean out, but it is not labeled. What is to be provided?

Response: Floor clean out – see Addendum 5 revision.

23. Question: Drawing P11 – vent lines for North side of building do not appear to have a VTR, where should it be located?

Response: Vent to VTR shall be indicated on revised P11 and P50 drawings – see addendum 5 revision.

24. Question: Drawing P02 & P11 – is there a specification for TD-1?

Response: Will be issues with revised specification section 22 10 00.

25. Question: Drawing P02 – plumbing fixture schedule "basin fixtures" - Are there specifications for the oil and solids interceptors? Where are they to be located?

Response: Specification section 22 13 25 – Fixtures remarks revised.

26. Question: Drawing P11 – what is the floor drain type in room 124a.

Response: See response to #25

27. Question: Drawing P11 – keynote #1 states to have a 3" water service, but the main cold water trunk line is 1-1/2". At what point does the water line size transition from 3" to 1-1/2"?

Response: Drawings revised in addendum 5.

28. Question: Drawing P11 – is there a specification for FPWH-RB wall hydrant?

Response: Specification section 22 10 00.2.1.B.2.b

29. Question: Drawing P11 – room 124a – are both S-2 sinks to have a trap primer and line run to the same assumed floor drain in the room?

    Response: Drawings revised in addendum 5.

30. Question: Drawings P11 & P50 – drawing P11 shows the main cold water trunk line to be 1-1/2", but keynote 1 on drawing P50 says the line is 3" cold water. What size water line is to be installed?

    Response: Drawings revised in addendum 5.

31. Question: Drawing P11 – room 108A & 108C – sink S-1 calls out to install trap primer to floor drain. There is no floor drain in the room, where should the trap primer line extend to?

    Response: Drawings revised in addendum 3.

32. Question: Can pressed fittings be used for 2-1/2" to 4" gas lines?

    Response: Specification section 22 03 00.2.3.B – Viega MegaPress G.

33. Question: Drawings P50, H64 & H65 – drawing P50 keynote 14 states to refer to HVAC plans for continuation. Is the BFP sown on drawing H64 the same BFP shown on P50? I see a ¾" connection on drawing H65, but I do not see a 1" connection, is this the intended connection for the make-up water?

    Response: Drawings revised in addendum 5.

34. Question: Drawing P50 – what do the vent lines shown in room 108E connect to?

    Response: Drawings revised in addendum 5.

35. Question: Drawing P50 – the unmarked lines in 2nd floor plumbing plan appear to be duplicates of lines already shown on first floor plumbing plan, is this correct?

    Response: Drawings revised in addendum 5.

36. Question: Drawing P50 – first floor enlarged plumbing plan - what size are the cold, hot and hot water return water lines feeding the lavatories and water closets in the piping chase?

    Response: Drawings revised in addendum 5.

37. Question: Drawing P50 – room 102 fixture S-2, room 108C - fixture S-1, room 124 fixture S-2 has a ½" hot water line supply and a ¾" hot water return line. Should the return line also be ½"?

    Response: Drawings revised in addendum 5.

38. Question: Drawing C-105 – Typically, in Ohio, the gas utility is responsible for supplying and installing the service side gas line and meter. Will this be the case on this project?

Response: Contractor shall complete gas service application and coordinate with the utility.

39. Question: Drawing P11 – what size is the air compressor relief valve piping?

Response: Relief valve shall be sized per manufacturer requirements.

40. Question: Drawing P61 - Is there a specification for the BAS pressure and dewpoint monitoring sensors referenced in the utility air system piping diagram?

Response: Removed from scope.

41. Question: In discussing PEMB production schedules with PEMB suppliers, the current lead time for design and production of PEMB packages is in the in 4-5 month timeframe, not including submittal review durations. We are requesting that the duration of the project be extended by five months, as no building work other than foundations can occur until the PEMB is on site.

Response: We are not willing to extend the construction schedule at this time. Once we have bids and hand and proposed lead times from the award PEMB manufacturer we will evaluate.

Specifications:

1. Specification 08 80 00 – Glazing

   A. Substitution granted.

2. Specification 10 51 13 – Metal Lockers

   A. Substitution granted.

3. Specification 22 10 00 – Plumbing System Components and Devices

   A. Revised specification.

Drawings:

4. Drawing 7.3 – WALL SECTIONS & DETAILS

A. Removed 6" metal framing note from detail C1.

5. Drawing 11.1 – FIRST FLOOR EQUIPMENT PLAN

   A. Added elevation markers for chain fences in Woodshop and HVAC Shop.

   B. Added 15 lockers in HVAC Shop.

6. Drawing 11.2 – ENLARGED EQUIPMENT PLAN – WOODSHOP

   A. Added elevation markers for chain fences.

   B. Added elevation detail D1

7. Drawing 11.3 – ENLARGED EQUIPMENT PLAN – HVAC SHOP

   A. Added elevation markers for chain fences.

   B. Added elevation detail D1

8. Drawing P02 – PLUMBING SCHEDULES

   A. Revised schedule remarks

9. Drawing P10 – UNDERGROUND PLUMBING PLAN

   A. Revised piping.

10. Drawing P11 – FIRST FLOOR PLUMBING PLAN

    A. Revised piping.

11. Drawing P50 – ENLARGED PLUMBING PLANS

    A. Revised piping.

12. Drawing P61 – PLUMBING DETAILS AND DIAGRAMS

    A. Revised detail.

13. Drawing H11 – FIRST FLOOR HVAC PLAN

    A. Revised duct routing.

14. Drawing H 12 – SECOND FLOOR HVAC PLAN

A. Revised duct routing.

15. Drawing H65 – HVAC PIPING DIAGRAMS

A. Revised detail.

- - - END OF ADDENDUM NO. 05 - - -

Attachments:

Specification 08 80 00 – Glazing

Specification 10 51 13 – Metal Lockers

Specification 22 10 00 – Plumbing System Components and Devices

Drawing 7.3 – Wall Sections & Details

Drawing 11.1 – First Floor Equipment Plan

Drawing 11.2 – Enlarged Equipment Plan – Woodshop

Drawing 11.3 – Enlarged Equipment Plan – HVAC Shop

Drawing P02 – Plumbing Schedules

Drawing P10 – Underground Plumbing Plan

Drawing P11 – First Floor Plumbing Plan

Drawing P50 – Enlarged Plumbing Plans

Drawing P61 – Plumbing Details and Diagrams

Drawing H11 – First Floor HVAC Plan

Drawing H12 – Second Floor HVAC Plan

Drawing H65 – HVAC Piping Diagrams

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Sections included under Division 0 & Division 1 are included as a part of this Section as though bound herein.

B. If AIA Document 201 is included in this contract (refer to Section 01 11 00 Summary of Work to verify), it is part of this Section as though bound herein.

C. Related Sections:
1. Section 01 74 19 – Construction Waste Management
2. Section 10 28 13 – Toilet Accessories (mirror units generally in restrooms)

1.2 SUMMARY

A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:
1. Doors; interior and exterior (less All-Glass Entrances).
2. Interior hollow metal frames.
3. Aluminum Windows
4. Curtain wall framing.
5. Storefront framing; interior and exterior.
6. Mirror glass.

1.3 DEFINITIONS

A. Manufacturers of Glass Products: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thickness: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. Interspace: Space between lites of an insulating-glass unit that contains dehydrated air or a specified gas.

D. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications or deterioration in metallic coating.

E. Deterioration of Insulating Glass: Failure of hermetic seal under normal use that is attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning insulating glass contrary to manufacturer's written

instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surface of glass.

F. Specific Hazardous Locations: The following shall be considered specific hazardous locations for purposes of glazing.
   1. Glazing in ingress and means of egress doors.
   2. Glazing adjacent to a door and within the same wall plane as the door whose nearest vertical edge is within 24 inches of the door in a closed position and whose bottom edge is less than 60 inches above the floor or walking surface, unless an intervening interior permanent wall is between the door and the glazing.
   3. Glazing in fixed panels having a glazed area in excess of 9 square feet with the lowest edge less than 18 inches above the finish floor level or walking surface within 36 inches of such glazing, unless a horizontal member not less than 1-1/2 inches in width is located between 24 inches and 36 inches above the walking surface.

1.4 BID REQUIREMENTS

A. If Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents, the Contractor shall include in their bid the most stringent and demanding, or highest cost requirement.

B. Pre-Bid Exceptions: If, for any reason, you deem the designed system is not appropriate or feasible, submit this concern, proposed modification, qualification and / or exception to the drawings and specifications with your bid proposal.

1.5 SUBMITTALS

A. In accordance with Section 01 33 00 – Submittal Procedures.

B. Product Data: Submit manufacturer's technical data for each glass type and glazing materials required, including installation and maintenance instructions.

C. Samples:
   1. 12-inch square, for each type of glass product indicated, other than monolithic clear float glass.
   2. 12-inch long samples of each color required for each type of sealant or gasket exposed to view.

D. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

E. Manufacturer's Certificates:
   1. Certificate on shading coefficient.
   2. Certificate on "R" value when value is specified.

F. Sample Warranty: Sample copy of manufacturer's warranty, as specified in this section.

G. Close-Out Document Submittals
   1. Warranty: Signed warranty.
   2. Operations & Maintenance Data: Operation & maintenance instructions. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service performance.

B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances and regulations of Federal, State and Municipal authorities having jurisdiction. Obtain necessary approvals from all such authorities.

C. Source Limitations for Glass: Obtain the following through on source from a single manufacturer for each glass type: clear float glass, coated float glass, laminated glass and insulated glass.

D. Source Limitations for Glass Sputter-Coated with Solar-Control Low-E Coating: Where solar-control low-E coatings of a primary glass manufacturer that has established a certified fabricator program is specified, obtain sputter-coated solar-control low-E-coated glass in fabricated units from a manufacturer that is certified by coated-glass manufacturer.

E. Source Limitations for Glazing Accessories: Obtain glazing accessories through one source from a single manufacturer for each product and installation method indicated.

F. Safety Glazing Products: Comply with testing requirements in Consumer Product Safety Commission CPSC 16 CFR 1201.
   1. Subject to compliance with requirements, obtain safety glazing products permanently marked with certification label of the Safety Certification Council or another certification agency acceptable to authorities having jurisdiction.
   2. Where glazing units, including Kind FT glass and laminated glass, are specified in Part 2 articles for glazing lites more than 9 sq. ft. in exposed surface area of one side, provide glazing products that comply with Category II materials, for lites 9 sq. ft. or less in exposed surface area of one side, provide glazing products that comply with Category I or II materials, except for hazardous locations where Category II materials are required by 16 CFR 1201 and regulations of authorties having jurisdiction.

G. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.
   1. GANA Publications: GANA Laminated Division's "Laminated Glass Design Guide" and GANA's "Glazing Manual".
   2. AAMA Publications: AAMA GDSG-1, "Glass Design for Sloped Glazing," and AAMA TIR-A7, "Sloped Glazing Guidelines."

3. IGMA Publication for Sloped Glazing: IGMA TB-3001, "Sloped Glazing Guidelines."
4. IGMA Publication for Insulating Glass: SIGMA TM-3000, "Glazing Guidelines for Sealed Insulating Glass Units."

H. Thermal Movement: Provide glazing that allows for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures acting on glass framing members and glazing components. Base engineering calculation on materials' actual surfaces temperatures due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

I. Insulating-Glass Certification Program: Permanently marked on either spacers or on at least one component lite of units with appropriate certification label of the following testing and inspection agency:
1. Insulating Glass Certification Council.

1.7 DELIVERY, STORAGE & HANDLING

A. Deliver glass to site in suitable containers that will protect glass from the weather and from breakage. Carefully store material, as directed, in a safe place where breakage can be reduced to a minimum. Deliver sufficient glass to allow for normal breakage. Glazing compounds shall arrive at the project site in labeled containers which have not been opened.

1.8 PROJECT CONDITIONS

A. Environmental Conditions: Do not proceed with glazing when ambient and substrate temperature conditions are outside the limits permitted by glazing materials manufacturer or when glazing channel substrates are wet from rain, frost, condensation, or other causes.
1. Install liquid sealants at ambient and substrate temperatures above 40 degrees F.

1.9 PERFORMACE REQUIREMENTS

A. General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacturer, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.

B. Glass Design: Glass thicknesses as indicated are for detailing only. Confirm glass thicknesses by analyzing Project loads and in service conditions. Provide glass lites for the various size openings in the thicknesses and strengths (annealed or heat-treated) to meet or exceed the following criteria:
a. Select glass thickness to withstand dead loads, winds loads and snow loads acting normal to plane of glass at design pressures calculated in accordance with ASCE 7.
b. Limit glass deflection to 1/200 or flexure limit of glass, whichever is less, with full recovery of glazing materials.
c. Minimum glass thickness, nominally, of lites in exterior walls is 6.0 mm.

C. Mirror Glass:

1. Safety Glazing Standard: Where safety glass mirrors are indicated or required by authorities having jurisdiction, provide types or products indicated which comply with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for category II materials.

1.10 WARRANTY

A. See Section 01 77 00 – Closeout Procedures, for additional close out submittal information.

B. See Section 01 78 36 – Warranties, for additional warranty requirements.

C. General: Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

D. Manufacturer's Warranty on Insulating Glass: Submit written warranty signed by manufacturer of insulating glass agreeing to furnish replacements for insulating glass units that deteriorate, f.o.b. point of manufacturer, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, protecting, and maintaining practices contrary to glass manufacturer's published instructions.
   1. Warranty Period: Manufacturer's standard but not less than 10 years after date of Substantial Completion.

E. Manufacturer's Warranty on Laminated Glass: Submit written warranty signed by laminated glass manufacturer agreeing to furnish replacements for laminated glass units that deteriorate, f.o.b. point of manufacturer, freight allowed project site within specified warranty period indicated below. Warranty shall cover deterioration due to normal conditions of use and not to handling, installing, protecting, and maintaining practices contrary to glass manufacturer's published instructions.
   1. Warranty Period: 5 years from date of Substantial Completion.

F. Manufacturer's Warranty on Coated Glass: Submit written warranty signed by coated glass manufacturer agreeing to furnish replacements for coated glass units that deteriorate, f.o.b. point of manufacturer, freight allowed project site within specified warranty period indicated below. Warranty shall cover deterioration due to normal conditions of use and not to handling, installing, protecting, and maintaining practices contrary to glass manufacturer's published instructions.
   1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Primary Glass; provide products from one of the following:
   1. Guardian Industries Corp.
   2. LOF / Pilkington
   3. PPG Industries, Inc.

4. AFG Industries, Inc.
5. Visteon Float Glass Operations

B. Laminated Glass: Provide laminated glass from one of the following:
1. Laminated Glass Corp.
2. Guardian Industries Corp.
3. Northwestern Industries, Inc.
4. AFG Industries, Inc.

C. Fabricators: Subject to compliance with requirements, provide glass from one of the following:
1. Guardian Industries Corp.
2. Interpane Glass Company
3. Pilkington
4. PPG Industries, Inc.
5. AFG Industries, Inc.
6. Viracon
7. Vitro

2.2 GLASS PRODUCTS

A. Primary Glass Products:
1. Primary Glass Standard: Provide primary glass which complies with ASTM C 1036 requirements, including those indicated by reference to type, class, quality, and, if applicable, form, finish, mesh and pattern.
2. Clear Float Glass: Type I (transparent flat glass), Class 1 (clear), Quality q3 (glazing select).

B. Heat-Treated Float Glass: ASTM C 1048; Type I (transparent flat glass), Quality q3, of class, kind, and condition indicated.
1. Fabrication process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.
2. Provide Kind HS (heat-strengthened) float glass in place of annealed float glass where needed to resist thermal stresses induced by differential shading of individual glass lites and to comply with glass design requirements specified in Part 1 "Performance Requirements" Article.
3. For uncoated glass, comply with requirements for Condition A.
4. For coated vision glass, comply with requirements for Condition C (other uncoated glass).
5. Provide Kind FT (fully tempered) float glass in place of annealed or Kind HS (heat-strengthened) float glass where safety glass is required or indicated.

C. Pyrolytic-Coated Float Glass: ASTM C 1376, float glass with metallic-oxide coating applied by pyrolytic deposition process during initial manufacture, and complying with other requirements specified.

D. Laminated Glass Products:
1. General:

a. Laminated Glass Products: Comply with ASTM C 1172; Refer to primary and heat-treated glass requirements relating to glass products comprising laminated glass products.
b. Provide clear polyvinyl butyral (PVB) plasticized resin sheeting for laminating panes of glass showing no tendency to bubble, discolor or lose physical or mechanical properties after laminating and installation, clear, unless otherwise indicated, one piece, no seams.
c. Use 0.060 inch thick PVB for Acoustical Glazing.
d. Laminating Process: Fabricate by laminating lites with interlayer in autoclave with heat plus pressure.

E. Mirror Glass:
1. Safety Glass Mirrors
a. Tapeback: Provide annealed float glass mirrors with manufacturer applied safety tape applied to the back surface and complying with FS DD-G-1403, ANSIZ97.1-1984 CPSC 16 CFR 1201 Category II.
2. Mirror Glass Production and Fabrication
a. Glass coating: coat second surface of glass, unless otherwise indicated, with glass coating system complying with FS DD-M-00411 requirements and consisting of successive layers of chemically deposited silver, electrically or chemically deposited copper, and manufacturer's standard protective organic coating.
3. Mirror Sizes: After application of glass coating, cut mirror glass to sizes as shown on Drawings and in ¼ inch glass thickness.
4. Edges: Seal edges after treatment to prevent chemical or atmospheric penetration of backing. Preform edge treatment and sealing in factory immediately after cutting to final size.
5. Mastic: Mirro-Mastic, Palmer Products Corp., Louisville, Kentucky.

F. Interior Glazing:
1. Glass for Vestibule Doors, Sidelights, Interior Windows and Transoms: ¼ inch thick clear safety glass.

G. Low-E Insulating Glass:
1. Overall thickness: 1" insulated glass
2. Outboard Lite: 1/4" VE1-2M Low E #2 Surface Heat-Strengthened
3. Air Space: 1/2" with black silicone seal
4. Inboard Lite: 1/4" Clear Heat-Strengthened
5. ~~See Drawings for Triple Pane Glazing Units: 1" insulated glass, integral blinds and 1/4" Clear Heat-Strengthened~~
6. Performance Requirements:
a. Visible Lite Transmittance: 70%
b. Solar Engery Transmittance: 33%
c. U-V Transmittance: 10%
d. Visible Light Reflectance Exterior: 11%
e. Visible Light Reflectance Interior: 12%
f. Solar Energy Reflectance: 31%
g. Winter Nightime U-Value: 0.29
h. Summer Daytime U-Value: 0.26
i. Shading Coefficient: 0.44

j. Solar Heat Gain Coefficient: 0.38

2.3 GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements.
1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.

B. Elastomeric Glazing Sealants: As recommended in writing by sealant and gasket manufacturers. Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrate. Refer to Division 7 – Section "Joint Sealants".

2.4 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based elastomeric tape with solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
1. AAMA 804.3 tape, where indicated.
2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

2.5 GLAZING GASKETS

A. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:
1. Neoprene, ASTM C 864.
2. EPDM, ASTM C 864.
3. Thermoplastic polyolefin rubber, ASTM C 1115.
4. Any material indicated above.

B. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:
1. Neoprene.
2. EPDM.
3. Thermoplastic polyolefin rubber.

4. Any material indicated above.

2.6 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore, Type A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Compressible Filler Rod: Shall be closed-cell or waterproof jacketed rodstock of synthetic rubber or plastic foam with proven compatibility with sealants used. Rod shall be flexible and resilient with 5-10 PSI compression strength for 25 percent deflection.

2.7 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine glass framing, with glazier present, for compliance with the following:
   1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
   2. Presence and functioning of weep system.
   3. Minimum required face or edge clearances.
   4. Effective sealing between joints of glass framing members.

3.2 PREPARATION FOR GLAZING

A. Clean the glazing channel or other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to the substrate. Remove lacquer from metal surfaces wherever elastomeric sealants are used.

B. Apply primer or sealer to joint surfaces wherever recommended by sealant manufacturer.

3.3 INSTALLATION

A. Watertight and airtight installation of each piece of glass is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, impact loading (for operating sash and doors) without failure, including loss or breakage of glass, failure of sealants or gaskets to remain watertight and air tight, deterioration of glazing materials, and other defects in the Work.

B. Protect glass from edge damage at all times during handling, installation, and operation of the building.

C. Glazing channel dimensions as shown are intended to provide for necessary minimum bite on the glass, minimum edge clearance, and adequate sealant thicknesses with reasonable tolerances. The glazier is responsible for correct glass size for each opening within the tolerances and necessary dimensions established.

D. Comply with combined recommendations of glass manufacturer and manufacturer of sealants and other materials used in glazing and their technical representatives except where more stringent requirements are shown or specified.

E. Comply with "Glazing Manual" by Flat Glass Marketing Association and the manufacturers of the glass and glazing materials except as shown and specified otherwise.

F. Inspect each piece of glass immediately before installation and eliminate those which have observable edge damage or face imperfections.

G. Unify appearance of each series of lights by setting each piece to match others as nearly as possible. Inspect each piece and set with pattern, draw, and bow oriented in the same direction as other pieces.

3.4 GLAZING

A. Install setting blocks of proper size at quarter points of sill rabbet. Set blocks in thin course of the heel bead compound.

B. Provide spacers insides and out and of proper size and spacing for glass sizes larger than 50 united inches, except where gaskets are used for glazing. Provides 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width; except with sealant tape, use thickness slightly less than final compressed thickness of tape.

C. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in the channel at the heel of jambs and head (do not leave voids in the sill channels) except as otherwise indicated, depending on light size, thickness and type of glass, and complying with manufacturer's recommendations.

D. Do not attempt to cut, seam, nip, or abrade glass which is tempered, heat strengthened or coated.

E. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces.

F. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from the glass. Install pressurized tapes and gaskets to protrude slightly out of the channel, so as to eliminate dirt and moisture pockets.

G. Clean and trim excess glazing materials from the glass and stops or frames promptly after installation and eliminate stains and discoloration.

H. Where wedge shaped gaskets are driven into one side of the channel to pressurize the sealant or gasket on the opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs or by proven adhesives including embedment of gasket tail in cured heel bead.

3.5 MIRROR INSTALLATION

A. Mirrors shall be butt mounted to unpainted wall with Mastic and mechanically fastened to comply with manufacturer's recommendations.

3.6 CURE, PROTECTION, AND CLEANING

A. Cure glazing sealants and compounds in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength, and surface durability.

B. Protect exterior glass from breakage immediately upon installation by attachment of crossed streamers to framing held away from glass. Do not apply markers to surfaces of glass.

C. Remove and replace glass which is broken, chipped, cracked, abraded, or damaged in other ways during the construction period including natural causes, accidents, and vandalism.

D. Maintain glass in a reasonably clean condition during construction, so that it will not be damaged by corrosive action and will not contribute (by wash-off) to the deterioration of glazing materials and other work.

E. Wash and polish glass on both faces not more than 4 days prior to Owner's acceptance of the work in each area. Comply with glass manufacturer's recommendations.

3.7 GLASS SCHEDULE

A. Exterior - Curtain Wall & "FG' Aluminum Doors:
   1. Solarscreen Radiant Low-E Insulating Glass:
   2. Insulating Spandrel Glass:

B. Interior:
   1. Glass for Vestibule Doors, Sidelights, and Transoms: ¼ inch thick clear safety glass.
   2. Glass for Interior Aluminum Storefront: ¼ inch clear safety glass.
   3. Glass for Interior Fire-Rated Frame Assemblies rated 60 minutes or more: See Section 08 81 01 – Fire-Rated Glass and Framing.
   4. Glass for Interior Non-Fire Rated Doors and Windows: ¼ inch clear safety glass.
   5. Large Mirrors: Where indicated.

6. Interior 1/4 inch thick Spandrel Glass: Where indicated. Custom color as selected by A/E.

END OF SECTION

SECTION 10 51 13

LOCKERS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Sections included under Division 0 & Division 1 are included as a part of this Section as though bound herein.

B. If AIA Document 201 is included in this contract (refer to Section 01 11 00 Summary of Work to verify), it is part of this Section as though bound herein.

C. Related Sections:
1. Section 01 74 19 – Construction Waste Management

1.2 SUMMARY

A. System Description:
1. Furnish and install new steel lockers, accessories and finish metal trim as shown or indicated on drawings. Concrete or masonry bases, wood furring, blocking or trim as may be required by drawings are included in other sections of this specification.
2. Refer to floor plan for locations and quantities.

1.3 REFERENCES

A. ASTM International:
1. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2.

1.4 BID REQUIREMENTS

A. If Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents, the Contractor shall include in their bid the most stringent and demanding, or highest cost requirement.

B. Pre-Bid Exceptions: If, for any reason, you deem the designed system is not appropriate or feasible, submit this concern, proposed modification, qualification and / or exception to the drawings and specifications with your bid proposal.

1.5 SUBMITTALS

A. In accordance with Section 01 33 00 – Submittal Procedures.

B. Product Data: Furnish product data sheets, including installation instructions, locker type, size and accessories, for review.

C. Shop Drawings: Submit drawings showing locker types, sizes and quantities, including all necessary details relating to anchoring, trim installation and relationship to adjacent surfaces.
   1. Numbering: The locker numbering sequence shall be provided by the approving authority and noted on approved drawings returned to the locker contractor.

D. Color Charts: Provide color charts showing manufacturer's available colors. Minimum 20 color selection.

E. Samples: Submit two 3 x 6 inches in size, of each color selected applied to specified base metal.

F. Lock Combination Listings and Master Keys: Use only when combination locks are specified. Delivered directly to the owner's representative.

G. Upon Architect's Request:
   1. Sample Warranty: Sample copy of manufacturer's warranty.

H. Close-Out Document Submittals
   1. Warranty: Signed warranty.
   2. Operations & Maintenance Data: Operation & maintenance instructions. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.

1.6 QUALITY ASSURANCE

A. Single Source Responsibility: Provide each type of locker as produced by a single manufacturer, including necessary accessories, fittings and fasteners.

1.7 PROJECT CONDITIONS

A. Do not deliver metal lockers until building is enclosed and ready for locker installation. Protect from damage during delivery, handling, storage and installation.

B. Protect locker finish and adjacent surfaces from damage.

1.8 EXTRA STOCK

A. Provide one (1) can of touch-up paint for each color.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacturers:
   1. Art Metal Products.
   2. Interior Medart
   3. Superior
   4. Lyon Metal Products, Inc.
   5. Penco Products, Inc.

6. Republic Storage Systems Co., Inc.
7. List Industries, Inc.
8. Hadrian, Inc.
9. Scranton Products
10. Products of other manufacturers may be approved, provided they meet the detailed specifications written below.

2.2 LOCKER TYPES

A. Refer to the drawings for the quantity and location of each locker type.

B. Typical HVAC Locker Unit:
1. Width: 12 inches.
2. Depth: 12 inches.
3. Height: 39 inches.
4. Configuration: single tier.
5. Mounting: Surface mounted.
6. Base: 16 gauge metal Zee base with end closures.
7. Base Height: 4 inch.
8. Top: Sloped metal with closures.
9. Locking: Equipped for padlock hasps.
10. Ventilation Method: Door louvers.
11. Type: Conventional.

C. Lockers for the physically challenged.
1. Lockers shall be 30 to 36 inches high, not less than 12 inches wide.
2. Shelf shall be located approximately 12 inches above the bottom of locker.
3. Zinc, die cast chrome plated handle shall be easy grip and turn with rotation of 30 degrees or less.
   a. Handle shall return to locked position when released.
   b. Turning handle will also cause locker door to pop open, ajar.
4. Provide decal of the ADA symbol to the face of the locker door
5. Quantity:
   a. For each different locker type, provide five percent (5%) accessible units.
   b. Coordinate location of accessible units with architect prior to installation.

D. Accessories:
1. For lockers 20" high or less provide:
   a. No hooks or shelves
2. For lockers between 21" to 41" high provide:
   a. One (1) double prong hook on the back wall
   b. Two (2) single prong hooks on the side walls.
3. For lockers between 42" and 59" provide:
   a. One (1) double prong hook on the back wall
   b. Two (2) single prong hooks on the side walls
   c. One (1) hat shelf.
4. For lockers 60" higher, provide:
   a. One (1) double prong hook on the back wall
   b. Two (2) single prong hooks on the side walls
   c. One (1) hat shelf.

d. One (1) boot shelf.

5. All hooks shall be made of steel, formed with ball points, zinc-plated and attached with two bolts or rivets.
6. See "Lockers for the Physically Challenged" portion of this specification for additional accessory requirements.

2.3 MATERIALS

A. Lockers shall be constructed of Galvannealed steel.

B. Provide and install end finishing panels, corner fillers, corner angle ties and vertical fillers where required. This Contractor shall provide and install all blocking required for filler panels.

C. Provide standard recessed lifting handle with padlock attachment.

D. Recycled Content of Steel Products: Provide products with an average recycled content of steel products so the minimum post-consumer recycled content plus one-half of pre-consumer recycled content is as follows:
1. Post-Consumer – 37%
2. Pre-Consumer – 18%

2.4 FABRICATION

A. Material: All major steel parts shall be made of mild cold rolled steel, free from imperfections and capable of taking a high-grade enamel finish.

B. Construction: Assembled units shall be rigid and square. Bolts or rivet heads shall not be exposed on faces of door or frames. Lockers shall be built on the unit principle - each locker shall have an individual door and frame, an individual top, bottom, back and shelves with common intermediate uprights separating units. Assembly of all locker components shall be accomplished by the use of zinc plated, low round head, slotless, fin neck machine screws with hex nuts, producing a strong mechanical connection.
1. Furnish end panels and filler strips.

C. Body: The body of the locker shall consist of 24 gauge upright sheets, backs, tops, bottoms and shelves. Tops, bottoms and shelves shall be flanged on all four sides; backs are flanged on two sides. Uprights shall be offset at the front and flanged at the rear to provide a double lapped rear corner. All bolts and nuts shall be zinc plated.

D. Door Frames: Shall be 16 gauge formed into deep, 1" face channel shapes with a continuous vertical door strike integral with the frame on both sides of the door opening. Frames shall be welded and ground flush, welded to body and latching for quiet operation.
1. Double, triple or four tier locker cross frame members shall be 16 gauge channel shaped securely welded to vertical framing members to ensure a square and rigid assembly. Intermediate cross frame members are not required on box lockers.

E. Doors: Doors shall be 16 gauge or 18 gauge steel for short or narrow doors as required by manufacturer's design, formed with a full channel shape on lock side to fully conceal the lock bar, channel formation on the hinge side and right angle formation across the top and

bottom. Channel shall be reinforced top and bottom with intermediate stiffener ribs, grind and finish edges smooth.

1. Single tier doors 60'' and 72'' in height and 18'' and wider shall have a diagonal reinforcing angle welded to the inner surface.
2. Fabricate lockers for quiet operation with manufacturer's standard rattle free latching mechanism and moving components isolated to prevent metal to metal contact.

F. Door Silencers: The impact caused by the door closing shall be absorbed by a soft rubber silencer, which is to be securely installed on each frame hook.

G. Hinges: Hinges shall be 2'' high, 5-knuckle, full loop, tight pin style, securely welded to frame and double riveted to the inside of the door flange. Locker doors 42'' high and less shall have two hinges. Doors over 42'' high shall have three hinges.

H. Pre-Locking Device: All "tiered" lockers shall be equipped with a positive automatic pre-locking type, whereby the locker may be locked while door is open and then closed without unlocking and without damaging locking mechanism.

I. Latching: Latching shall be one-piece, pre-lubricated, spring steel latch completely contained within the lock bar under tension to provide rattle-free operation. The lock bar shall be securely contained in the door channel by self-lubricating polyethylene guides that isolate the lock bar from metal-to-metal contact with the door. There shall be three latching points for lockers over 42" in height and two latching points for all tiered lockers 42" and under in height. The lock bar travel is limited by contacting resilient elastomeric cushioning devices located inside the lock bar. Frame hooks to accept latching shall be of heavy gauge steel, set close in and welded to the frame. Continuous vertical door strike shall protect frame hooks from door slam damage.

J. Handles: A non-protruding 14 gauge, lifting trigger and slide plate shall transfer the lifting force for actuating the lock bar when opening the door. The exposed portion of the lifting trigger shall be encased in a molded ABS thermoplastic cover that provides isolation from metal-to-metal contact and be contained in a formed 20 gauge stainless steel recessed pocket. This stainless steel pocket shall contain a mounting area for the number plate.

1. See "Locker Types" for locking requirements.
    a. For combination locks: Provide built-in combination locks with a minimum of 5 change settings, equal to Master Lock Company Model #1630.
    b. For padlocks: This stainless steel pocket shall contain a recessed area for the various lock types available (locks by Owner)

K. Number Plates: Each locker shall have a polished aluminum number plate with black numerals not less than 1/2'' high. Plates shall be attached with rivets to the lower surface within the recessed handle pocket.

L. Color: Doors and exposed body parts shall be finished in colors selected from Manufacturers collection of standard colors. Non-exposed body parts shall be finished in a neutral color.

1. Paint locker units of 1 color throughout.
2. Note: architect may select numerous locker colors for different banks of lockers

M. Finish: Surfaces of the steel shall be thoroughly cleaned and phosphatized in a seven-stage process. All parts shall then be finished with a heavy coat of enamel baked on at 300 degrees for 30 minutes.

2.5 FACTORY FINISHING

A. Clean, degrease, and neutralize metal; prime and finish with one coat of baked enamel.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify prepared bases are in correct position and configuration.

B. Verify bases and embedded anchors are properly sized.

3.2 INSTALLATION

A. Lockers must be installed in accordance with manufacturer's approved drawings and assembly instructions.

B. Install lockers plumb and square.

C. Secure lockers with anchor devices to suit substrate materials.
1. Minimum Pullout Force: 100 lb.
2. Space fasteners at 36" O.C. or less, as recommended by manufacturer.

D. Use reinforcing plates wherever fasteners could distort metal.

E. Bolt adjoining locker units together to provide rigid installation.

F. Various trim accessories where shown, such as sloping tops, fillers, bases, recessed trim, end panels, etc., shall be installed using concealed fasteners.

G. Flush, hairline joints are provided at all abutting trim parts and at adjoining surfaces.

3.3 INSPECTION

A. Repair all surfaces and finishes damaged during shipment or in installation of locker units.

B. Upon completion of installation, inspect lockers and adjust as necessary for proper door and locking mechanism operation.

C. Touch up scratches and abrasions with factory-supplied paint to match original finish.

D. Replace components not operating smoothly.

3.4 CLEANING

A. Clean locker interiors and exterior surfaces.

END OF SECTION

SECTION 221000 - PLUMBING SYSTEM COMPONENTS AND DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDES

A. Water Supply Specialties

1. Interior Hose Bibbs
2. Exterior Hydrants
3. Water Hammer Arrestors
4. Thermometers
5. Pressure Gauges
6. Vacuum Breakers
7. Backflow Preventers
8. Water Service Meter
9. Trap Priming
10. Water Pressure Regulators
11. Water Temperature Regulating Valves
12. Water Filters
13. Expansion Tank
14. In-line Circulator Pump

B. Natural Gas Specialties

1. Gas Service Meter
2. Gas Pressure Regulators
3. Gas Pressure Relief Valves

C. Utility Wall Boxes

1. Water and Waste Wall Boxes

D. Drainage Specialties

1. Cleanouts
2. Floor Drains
3. Floor Sinks

1.2 SUBMITTALS

A. Refer to Sections 22 01 00 and 22 01 01 for additional requirements.

B. Submit product data for all manufactured items listed in paragraph 1.1 WORK INCLUDES.

PART 2 - PRODUCTS

2.1 Water SUPPLY SPECIALTIES

A. Interior Hose Bibbs:

1. Manufacturer: Hose Bibbs indicated are Chicago Faucet and Woodford. Other acceptable manufacturers are: T&S Brass and Zurn.
2. Hose Connections: Furnish with garden hose thread outlets conforming to ASME B1.20.7.
3. HB-1: Single temperature supply surface mounted. Brass body with polished chrome finish, 3/4 inch flanged female inlet, 3/4 inch hose thread outlet, removable tee handle, and vacuum breaker. Chicago Faucet No. 952.
4. HB-2: Single temperature supply recessed box mounted. Two piece wall box design with rough-in box assembly suitable for 3-5/8" stud wall or masonry block and a finish fascia assembly of 14 gauge stainless steel complete with frame with lockable door. Rough-in box complete with integral supply stop, brass body rough finish hose bibb, 3/4 inch female inlet, 3/4 inch hose thread outlet, wheel handle, and vacuum breaker. Woodford No. MB224.
5. HB-3: Dual temperature supply with spout outlet 5-7/8" off wall. Brass body (3-3/8" wide) with adjustable arms for rough-in, polished chrome finish. Spout with vacuum breaker, 3/4 inch hose thread outlet, pail hook. Metal lever handles, integral stop arms. Chicago Faucet No. 305-VB-R.
6. HB-4: Dual temperature supply service faucet style with spout outlet 7-7/8" off wall. Brass body (8" wide) with rough chrome finish, threaded spout with bucket hook, vacuum breaker, hose outlet spout end, wall brace, cast brass indexed lever handles and stops in shanks. Chicago Faucet No. 897.

B. Exterior Hydrants

1. Manufacturers:

a. Wall, ground, and post hydrants indicated are Jay.R. Smith. Other acceptable manufacturers are: Josam, Murdock, Wade, Woodford and Zurn
b. Roof hydrants are Mapa Products. Other acceptable manufacturers are: Hoeptner, or Murdock.
c. Hose Connections: Furnish with garden hose thread outlets conforming to ASME B1.20.7.

2. Hydrant Types:

a. Standard Wall Hydrant - Nonfreeze (FPWH): Bronze nickel plated quarter turn hydrant with 3/4 inch hose connection and integral vacuum breaker with vandal resistant cap. Valve length to suite wall thickness. Jay R. Smith Figure 5609QT.
b. Recessed Box Wall Hydrant - Nonfreeze (FPWH-RB): Recessed, stainless steel box, with nickel bronze box face, hinged locking cover, quarter turn hydrant, integral vacuum breaker, tee handle key, 3/4 inch inlet, and hose outlet. Adjustable wall clamp. Valve length to suit wall thickness. "Water" on cover. Jay R. Smith Figure 5509QT.
c. Ground Hydrant, Nonfreeze (FPGH): Recessed, stainless steel box, with nickel bronze box face, hinged locking cover with "Water" on cover, removable tee handle key, 3/4 inch inlet, 3/4 inch hose outlet, 1/8 inch drain hole in box, and 1/8 inch drain hole in valve housing. Depth of bury to be below frost line. Jay R. Smith Figure 5810.
d. Post Hydrant, Nonfreeze (FPPH): Cast iron casing guard, straight inlet connection bronze casing, "T" handle key, 3/4 inch inlet, and hose outlet. Depth of bury to be below frost line. Jay R. Smith Figure 5910.
e. Roof Hydrants, Nonfreeze (FPRH): self-contained frost proof roof anchored post hydrant with ASSE and IAPMO approval, backflow prevention, 3/4 inch hose outlet, weatherproof construction, and venturi operated drain purging requiring no external gravity drain piping. Mapa Products model MPH-24FP.

C. Water Hammer Arrestors

1. Bellows type, with stainless steel casing and bellows, tested and certified in accordance with PDI Standard WH-201. Provide a pressure reducing valve on the inlet to the device where system pressures are above 80psi. Manufacturer: Jay R. Smith. Other acceptable manufacturers are: Josam, Wade, and Zurn.

D. Thermometers

1. Provide thermometers in piping at following locations:

a. Domestic hot water supply main.
b. Domestic hot water storage tank.
c. Where additionally indicated.

2. Thermometers: Blue color spirit filled glass type industrial thermometer with 9 inch Fahrenheit scale of proper range for service indicated, glass covered case with magnified liquid column, separable well, straight or angle mounted as required.

a. Bi-metal dial type thermometers may be supplied in lieu of spirit filled type.
b. Thermometers located below 6'-0" level: Spirit filled type with 9 inch scale, forward or straight type as required by project conditions. Thermometers serving locations above 6'-0" level to be dial type with remote bulb. Mount 4 inch diameter dials 5'-6" above floor on bracket at appropriate location.

3. Select scale ranges so temperature will fall approximately at mid-scale.
4. Manufacturers: Weiss Instruments, or equivalent by Trerice, Taylor or American.

E. Pressure Gauges

1. Provide a gauge after each water pressure reducing valve. Provide a gauge at the domestic water entry after the backflow preventer. Provide gauges on the suction and discharge of all pumps.
2. Provide gauges having proper ranges as required by conditions. Gauges to have 4-1/2 inch diameter dials, cocks, snubbers, and siphons.
3. Select scale ranges so pressure condition will fall approximately at mid-scale.
4. Manufacturer: Trerice or equivalent by American Consolidated, Marsh or Ashcroft.

F. Vacuum Breakers:

1. Hose Connected Type: Conform to American Society of Sanitary Engineering (ASSE) Standard 1011, with finish to match hose connection. Device must be continuous pressure or non-continuous pressure type depending upon position in the system.
2. Pipe Applied: Conform to American Society of Sanitary Engineering (ASSE) Standard 1020. Continuous pressure type:

a. WATTS Model 800 M4QT, bronze body, rough finish or equivalent by Conbraco, or Wilkins.

3. Pipe Applied: Conform to American Society of Sanitary Engineering (ASSE) Standard 1001. Non-continuous pressure (atmospheric) type:

a. Chicago No. 892G bronze body, chrome finish or equivalent by T & S Brass, Watts or Zurn.

4. Pipe Applied: Conform to American Society of Sanitary Engineering (ASSE) Standard 1056. Continuous pressure (spill proof type):

a. WATTS series 008PCQT, bronze body, rough finish or equivalent by Conbraco or Wilkins.

G. Backflow Preventers (BFP):

1. Reduced pressure principle type (2 inches and smaller). Conforming to American Society of Sanitary Engineering (ASSE) Standard 1013. Differential relief valve located between two positive seating check valves Bronze body construction with stainless steel internal parts. Supplied with manufacturer's standard strainer. Furnish with manufacturer's standard full port ball valves with resilient seats on inlet and outlet. Furnish with ball type test cocks. Maximum working pressure: 175 psi. Maximum water temperature: 140 degrees F. Watts Regulator Co. Series 909 or equivalent by Cla-Val, Conbraco/Apollo, Wilkins, Febco or Hersey.
2. Reduced pressure principle type (2-1/2 inches and larger). Conforming to American Society of Sanitary Engineering (ASSE) Standard 1013. Reduced pressure zone assembly with two independent torsion spring check modules, a differential relief valve, two shutoff valves, and required torsion spring check modules. Complete with a single housing constructed from 304 (Schedule 40) stainless steel pipe with groove end connections. Torsion spring checks shall have replaceable elastromer discs. Furnish with ball type test cocks. Maximum working pressure: 175 psi. Maximum water temperature: 110 degrees F. Provide indirect waste and pipe to drain. Watts Regulator Co. Series 957 or equivalent by Cla-Val, Conbraco/Apollo, Wilkins, Febco or Hersey.
3. Dual check valve type. Conforming to American Society of Sanitary Engineering (ASSE) Standard 1024. Bronze body, two check modules, stainless steel springs, union and "O" ring seals. Working Pressure 150 PSI. Watts Regulator Co. No. 7 or equivalent by Cla-Val, Conbraco/Apollo, Wilkins, Febco or Hersey.
4. Dual check with atmospheric port type. Conforming to American Society of Sanitary Engineering (ASSE) Standard 1022. 316 Stainless steel, two check modules, stainless steel springs. Male NPT flare ends, and upstream wye strainer. Working pressure 150 PSI. Watts Regulator Co. SD - 3 or equivalent by Cla-Val, Conbraco/Apollo, Wilkeins, Febco or Hersey.
5. Dual check Intermediate atmospheric vent type. Conforming to American Society of Sanitary Engineering (ASSE) Standard 1012. Includes two independent check valves with intermediate vacuum breaker and relief valve. Bronze body construction with stainless steel internal parts. Supplied with integral strainer. Union inlet or outlet connections. Working pressure 175 psi maximum; 25 psi minimum. Temperature 250 degrees F maximum. Threaded or solder end connections. Watts Regulator Co. No. 9D or equivalent by Cla-Val, Conbraco/Apollo, Wilkins, Febco or Hersey.

6. Double check valve type (2 inches and smaller). Conforming to American Society of Sanitary Engineering (ASSE) Standard 1015. Bronze body check valves with replaceable removable bronze seats. Interchangeable check modules. Furnished with manufacturer's standard full port ball valves with resilient seats on inlet and outlet. Maximum working pressure: 175 PSI. Maximum water temperature: 140 degrees F. Furnished with four ball type test cocks and integral strainer. Watts Regulator Co. Series 719 or equivalent by Cla-Val, Conbraco/Apollo, Wilkins, Febco or Hersey.

Backflow Prevention Device Application Schedule	
Equipment served	Device type to be installed
Building domestic potable water service	ASSE 1013 reduced pressure principle BFP
Building's irrigation provision	ASSE 1013 reduced pressure principle BFP
Building's exterior water feature	ASSE 1013 reduced pressure principle BFP
Building's interior water feature	ASSE 1013 reduced pressure principle BFP
Ground Hydrant Feed	ASSE 1013 reduced pressure principle BFP
Coffee maker	ASSE 1022 dual check BFP with atmospheric port
Domestic refrigerator's ice maker	ASSE 1024 dual check BFP
Countertop ice maker	ASSE 1024 dual check BFP
Floor mounted bin ice maker	ASSE 1024 dual check BFP
Food service equipment	Refer to Food Service Installation Schedule on drawings for required backflow devices
Shampoo Bowl Hose Spray	ASSE 1011 vacuum breaker
Can washers	ASSE 1056 continuous pressure spill proof vacuum breaker
HVAC hydronic systems make-up or humidifier with chemical injection	ASSE 1013 reduced pressure principle BFP
Humidifier connection to HVAC unit without chemical injection	ASSE 1024 dual check BFP
HVAC equipment drain cool-down connection	ASSE 1013 reduced pressure principle BFP
Healthcare sterilization and disinfection equipment	ASSE 1024 dual check BFP
Laboratory, autopsy dissecting, and grossing equipment	ASSE 1056 continuous pressure spill proof vacuum breaker
Infectious waste autoclave	ASSE 1013 reduced pressure principle BFP
MRI unit cooler emergency CW connection	ASSE 1013 reduced pressure principle BFP
Linear Accelerator unit cooler emergency CW connection	ASSE 1013 reduced pressure principle BFP
Hand held shower	ASSE 1001 non-continuous pressure vacuum breaker
Clinic sink foot operated hand spray	ASSE 1001 non-continuous pressure vacuum breaker

H. Water Service Meters

1. General Description: The Plumbing Contractor shall provide the building's water service meter. The meter manufacturer, model, calibration requirements, and its installation shall be governed by the local water provider. The meter size shall be similar size as water service as called for on the drawings.

I. Trap Priming

1. Trap Primer (Type L) - to be installed beneath a lavatory: Mechanically activated by way of cold water supply to lavatory faucet, Chrome plated body, integral check valve and vacuum breaker. Minimum 20 PSIG actuates 0.845 oz. discharge and maximum 80 PSIG actuates 1.65 oz. discharge. Precision Plumbing Products, Inc. Model "UnderLav", or acceptable equivalent.
2. Trap Primer (Type P) - permissible to be installed in ceiling return air plenums: Pressure differentially activated, single outlet brass construction with "O" ring seals. Maximum working pressure: 75 PSI. Temperature range of -40 degrees F to 450 degrees F. Male threaded inlet, female threaded outlet. Precision Plumbing Products, Inc. Model "Prime Rite" for up to (4) traps or acceptable equivalent.
3. Trap Primer (Type E) electronic - installed in mechanical spaces not above ceilings): Electronically activated UL listed trap primer device complete with NEMA-1 box with cover, circuit breaker, solenoid valve, air gap fitting, cycle timer with manual override, and distribution unit. Unit requires 115 Volt Power source. Precision Plumbing Products, Inc. Model; Mini-Prime "MP-500" for up to (4) traps within 20 feet distance, or acceptable equivalent.
4. Trap Primer (Type EP) electronic - installed in mechanical spaces not above ceilings): Electronically activated UL listed trap primer device complete with NEMA-1 box with cover, circuit breaker, solenoid valve, vacuum breaker, cycle timer with manual override, and distribution unit. Unit requires 115 Volt Power source. Precision Plumbing Products, Inc. Model; PTS 1320 or PTS 2130 for 13 to 30 traps, or acceptable equivalent.

J. Water Pressure Regulators

1. 2 inches and smaller: NSF lead free, bronze body construction, stainless steel integral strainer, renewable stainless steel seat, high temperature resistant diaphragm, threaded or soldered union inlet and threaded outlet. Maximum inlet pressure: 300 PSI. Maximum temperature: 160 degrees F. Adjustable reduced pressure range; 25 to 75 PSI. Watts Series LF25 AUB-Z3 or equivalent by CLA-VAL, Bermad, Fisher, Spence or Wilkins.

2. 2-1/2 inches and larger: NSF and FDA approved epoxy coated iron body construction, pilot actuated diaphragm, renewable stainless steel seat, high temperature resistant diaphragm, flanged connections. Maximum inlet pressure: 300 PSI. Maximum temperature: 160 degrees F. Provide equalizing piping between appropriate tappings. Adjustable reduced pressure range; 20 to 175 PSI Watts Series 115 or equivalent by CLA-VAL, Bermad, Fisher, Spence or Wilkins.
3. 2-1/2 inches and larger: NSF/FDA approved epoxy coated iron body construction, primary high flow pilot actuated diaphragm with factory piped secondary low flow spring diaphragm by-pass regulator, renewable stainless steel seat, high temperature inlet pressure; 300 PSI maximum temperature: 160 degrees F. Provide equalizing piping between appropriate tappings. Adjustable reduced pressure range: 20 to 175 PSI. WATTS Series 115-74 or equivalent by CLA-VAL, Bermad, Fisher, Spence, or Wilkins.

K. Water Temperature Regulating Valve (TMV)

TMV No.	Lawler Model No.	Min. GPM	Max. GPM	Max. Pressure Drop PSI	Minimum Inlet Sizes (in)	Minimum Outlet Size (in)	Service Duty
TMV-1	570	0.5	4.0	10	1/2	1/2	Point of use under counter ASSE 1070
TMV-2	Series 61	0.5	9	10	3/4	3/4	High-low Master Mixing ASSE 1017
TMV-3	801	1	25	10	3/4	1	High-low Master Mixing ASSE 1017
TMV-4	802	2	46	15	1	1 1/4	High-low Master Mixing ASSE 1017
TMV-5	804	4	100	20	1 ½	2	High-low Master Mixing ASSE 1017
TMV-6	805	5	149	25	2	2	High-low

							Master Mixing ASSE 1017

TMV No.	Lawler Model	Rated GPM	Max Pressure Drop PSI	Inlet Sizes (in)	Outlet Size (in)	Service Duty
TMV-E1	911 E/F	3	10	½	½	One EEW
TMV-E2	911 E	20	24	1 ¼	1 ¼	One ES, or ESE
TMV-E3	911	50	20	1 ¼	1 ¼	Two ES's or ESE's

L. Water Filters

1. In-Line Point of Use Water Filters

   a. Granular activated carbon based in-line point of use type filter with NSF 42 approval.
   b. Performance: 2500 gallon service life capacity, 5 micron minimum, 0.5 GPM flowrate,125 PSIG Max, 35˚F Min to 100˚F Max, with 1/4" or 3/8" connections.
   c. Filters shall be Omni-pure K5633JJ, or approved equivalent.

M. Expansion Tank:

1. Diaphragm or bladder type, UL, CSA, or NSF listed for potable water use, welded steel shell construction with heavy duty butyl diaphragm and rigid polypropylene liner, 40 degrees F to 240 degrees F operating temperature. Complete with charging valve and tank fittings to make all-gauge, fill, drain, and system connections.

   a. 100 PSIG working pressure - non ASME constructed
   b. 150 PSI working pressure- ASME constructed.

2. Capacity: As scheduled on drawings.
3. Manufacturer: Amtrol, Inc. Thermo-X-Trol, or equivalent by Bell & Gossett, ELBI, Wilkins, or Wessels.

N. In-line Circulator Pump:

1. In-line type, lead-free bronze body and brass impeller suitable for potable water with carbon steel shaft, bronze sleeve pump bearing, bronze motor bearing, permanently lubricated150 PSI maximum working pressure. Motor: open, drip-proof type with built-in thermal overload protectors. Stainless steel constructed circulators are acceptable.
2. Manufacturer: Bell & Gossett PL or NBF Booster Series or equivalent by Armstrong, Paco, Taco or Grundfos.
3. Pump control:

    a. Aquastat ON/OFF cycling controller; UL listed non-immersion type bimetal thermostatic sensor, pipe strap, On/Off operation at 100/120 degree F, and 115 voltage 60Hz. Bell & Gossett Model AQS, or equivalent by Honeywell, Penn or Powers.

2.2 NATURAL GAS SPECIALTIES

A. Natural Gas Service Meter:

1. General Description: The Plumbing Contractor shall provide the building natural gas service meter and service regulator as required. Such equipment's manufacturer, model, calibration requirements, and its installation shall be governed by the local natural gas provider. The meter size shall be based on the estimated CFH load indicated on Drawings.

B. Gas Pressure Regulator:

1. Spring loaded, general purpose, self-operating service regulator which includes an internal relief type diaphragm assembly and vent valve. Diaphragm case can be rotated 360 degrees in rotation to body. Conforms to ASA Code B31.8, for temperatures from -20 degrees F to 160 degrees F. Spring case vent with removable screen. Internal relief for exhaust of excessive outlet pressure out of spring case. Cast iron body, aluminum diaphragm and spring case, nitrile rubber o-rings disk and diaphragm, composition gaskets.
2. Manufacturer: Fisher Controls HSR (3/4" to 1") or CS400/CS800 (1 1/4" to 2") or acceptable equivalent by Maxitrol, or Sensus.

C. Natural Gas Pressure Relief Valves:

1. Spring loaded type relief valve constructed with aluminum body; nitrile diaphragm; aluminum, brass, or stainless steel orifice; maximum operating temperature: 150 degrees F; threaded inlet connections; outlet or vent connection same size as inlet connection.
2. Manufacturer: Fisher Controls Type 289H or acceptable equivalent.

2.3 Utility wall boxes

A. Wall Boxes:

1. Provide UPC, UL, or CSA listed wall box appropriately configured for applications noted on drawings. All boxes shall be recessed with integral mounting tabs and detachable finish frame. Valves shall comply with ASME A112.18.1.
2. Wall boxes installed in fire rated walls shall be UL listed non-metallic ASTM-E814 fire rated, or constructed of powder coated steel or stainless steel. All non-rated walls may be non-metallic.
3. Furnish wall boxes in the following variations of factory supplied components and configurations.

    a. WB-1: (1) quarter turn supply valve.
    b. WB-2: (1) quarter turn supply valve and 1 1/2" drain.
    c. WB-3: (2) ¾" hose connection quarter turn supply valves with (2) water hammer arresters and 2" drain suited for residential clothes washer.

4. Manufacturer: IPS/Guy Gray or equivalent by Oatey or Watts.

2.4 DRAINAGE SPECIALTIES

A. Cleanouts and Drains Manufacturers.

1. Cast Iron Roof drains, cleanouts, floor drains/sinks, area drains, and trench drains indicated are Jay R. Smith. Other acceptable manufacturers:

    a. Jonespec
    b. Josam
    c. Wade
    d. Watts Drainage
    e. Zurn
    f. MIFAB

2. Bifunctional roof drain manufacturers:

    a. Froet Industries
    b. Zurn
    c. Approved alternative.

3. PVC floor drains, floor sinks, and cleanouts manufacturers:

    a. Charlotte
    b. Jay R. Smith
    c. Mifab

d. Oatey
e. Spears
f. Zurn

B. Cleanouts:

1. General: All shall be capable of adjustment to match finish surface. Permanently label all cover plates or plugs to match the cleanout service.
2. Floor Cleanouts (CO)

   a. Finished Floors: Jay R. Smith Figure 4025, Duco cast iron body and frame with round adjustable scoriated satin bronze top.
   b. Unfinished Floor and Equipment Rooms: Jay R. Smith Figure 4240, Duco cast iron body and frame with round adjustable scoriated cast iron top.

3. Wall Cleanouts: Jay R. Smith Fig 4422, Duco cast iron caulk ferrule with bronze taper thread plug and stainless steel cover.
4. Cleanouts in base of stacks and interior storm downspouts: Jay R. Smith Fig 4510 series complete with tapped brass plug with stainless steel adjustable cover plate.

   a. Equivalent versions manufactured by the pipe manufacturer specified for service shall also be acceptable.

5. Cleanout Tees: Jay R. Smith Fig 4505 series in hub or no-hub with 1/2 inch tapped test port with raised plug.
6. Cleanouts in suspended sewers shall match the applicable specified piping in section 220300 with cast iron no-hub blind plug or PVC ferrule with PVC screw plug.
7. Outside cleanouts occurring in paved, slag or cinder areas: Jay R. Smith Series No. 4250 set in a concrete collar flush with grade.

   a. Install outside cleanouts occurring in other areas with a vitreous stopper flush with finished grade.

C. Floor Drains:

1. Traps: Where floor drains are specified without integral traps, provide deep seal pattern 'P' traps with trap primer connection. Furnish traps three (3) inches in diameter or less above grade with cleanout plugs.
2. FD-1 (Finished Floors): Jay R. Smith Fig 2005A. Duco cast iron body, flashing collar with protector cap, nickel bronze adjustable strainer with vandal proof secured square hole grate, nominal 6 inch round top, and trap primer connection.

3. FD-2 (Unfinished Floor and Equipment Rooms): Jay R. Smith Figure 2320. Duco cast iron body and flashing collar with nominal 8" ductile iron grate and slotted sediment bucket, trap primer connection.

D. Floor Sinks:

1. FS-1: Cast iron body with inside caulk or no-hub bottom (4 inch or less) outlet, acid resisting enamel interior, aluminum dome strainer, seepage flange, nominal dimensions: 8-1/2 inch square, 6 inch depth, with nickel bronze rim and nickel bronze grate. Jay R. Smith 3100.

a. Grate Applications:

1) Full Grate: traffic locations
2) Less Grate: receiving (3) or more indirect wastes and non-traffic locations.
3) Half Grate: receiving (2) or less indirect wastes and non-traffic locations.
4) Three Quarter Grate: combination emergency shower/eye-wash unit per detail.

2. FS-2: Cast iron body with inside caulk or no-hub bottom (4 inch or less) outlet, flat bottom strainer, seepage flange, nominal dimensions: 12 inch square, 6 inch depth, with heavy duty ductile iron grate. Jay R. Smith 2632.

a. Grate Applications:

1) Full Grate: traffic locations
2) Less Grate: receiving (3) or more indirect wastes and non-traffic locations.
3) Half Grate: receiving (2) or less indirect wastes and non-traffic locations.

E. Trench Drains

1. Polymer Concrete Modular Type (TD-1):

a. Precast interlocking modular units. Constructed of chemically resistant polyester or vinyl resins. Each unit designed with 0.6 percent slope. Furnish trench drain system with components to match configuration as indicated. Furnish the following components including but not be limited to: closing end cap, inlet end cap, outlet end caps, channel sections and catch basins.
b. Length: as indicated on drawings configured with nominal meter long sections.
c. Width:

1) 6 inch nominal.

d. Grate System:

1) Load Class:

a) Class C: heavy duty

2) Grate Pattern:

a) Slotted

3) Grate Materials:

a) Cast iron

e. Manufacturer: J.R. Smith 9800 Series or similar by Aco, or Polydrain.

PART 3 - EXECUTION

3.1 GENERAL

A. Refer to section 220300 part 3 Execution in addition to the following.

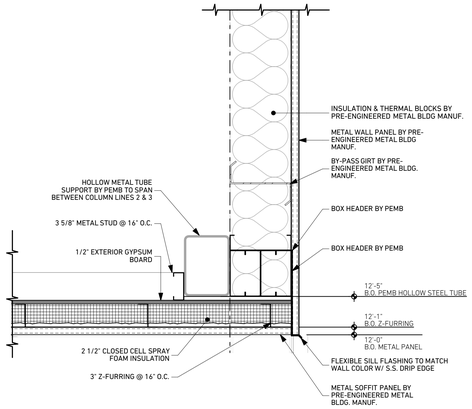
B. Drawings (floor plans, schematics, and diagrams) indicate the general location and arrangement of equipment. Location and arrangement of equipment takes into consideration pipe connections locations, panel clearance, replacement and service access, and other design considerations. So far as practical, install equipment as indicated or request deviations with supportive reasoning to the Engineer of record.

3.2 INSTALLATION

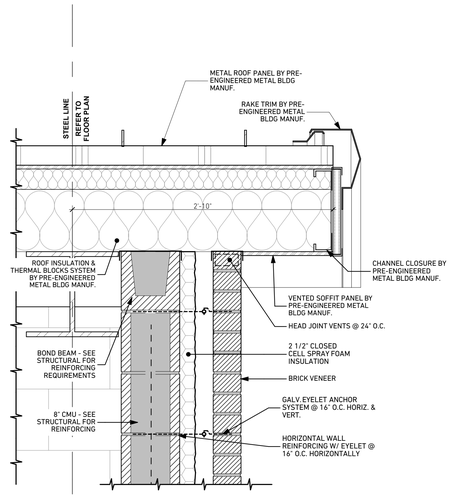
A. Provide all drains installed in waterproof slabs with a flashing ring and coordinate elevation with general trades.

B. Install all components per the manufacturer's recommendations and requirements.

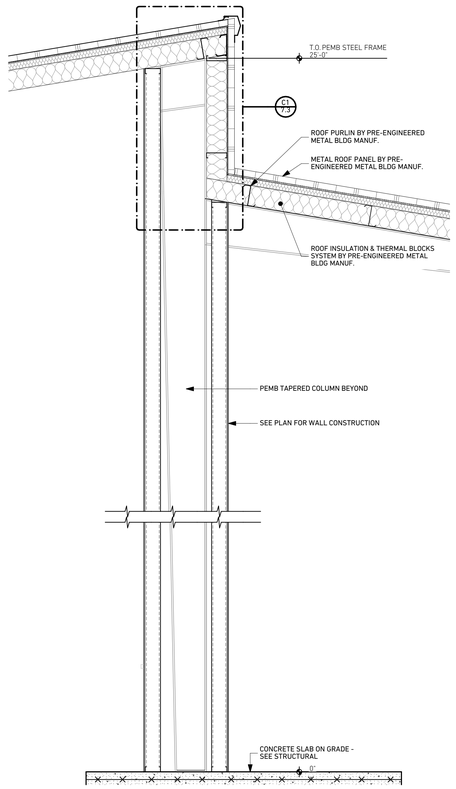
END OF SECTION



D5 WALL DETAIL
SCALE: 1 1/2" = 1'-0"



D3 WALL DETAIL
SCALE: 1 1/2" = 1'-0"



C2 WALL SECTION
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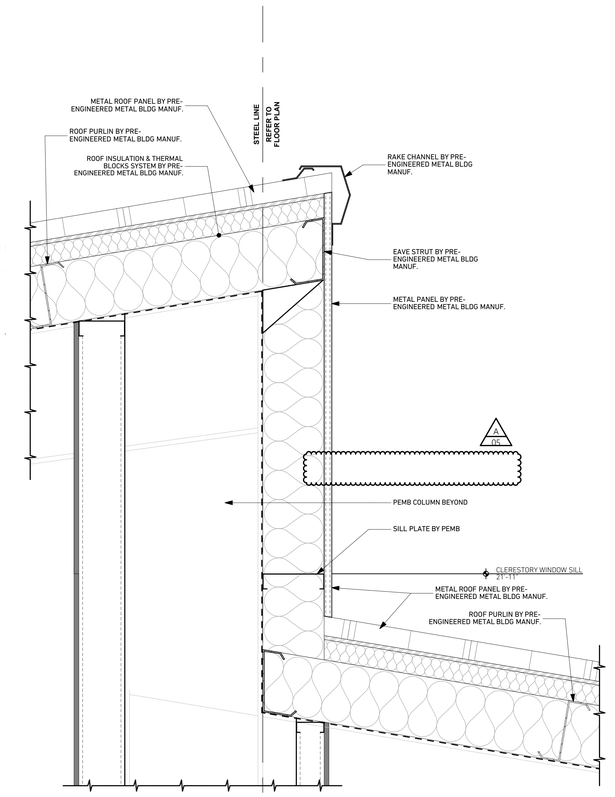
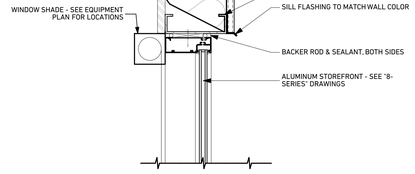
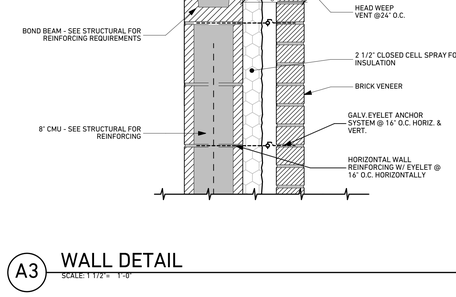


C1 WALL DETAIL
SCALE: 1 1/2" = 1'-0"



B5 WALL DETAIL
SCALE: 1 1/2" = 1'-0"



B3 WALL DETAIL
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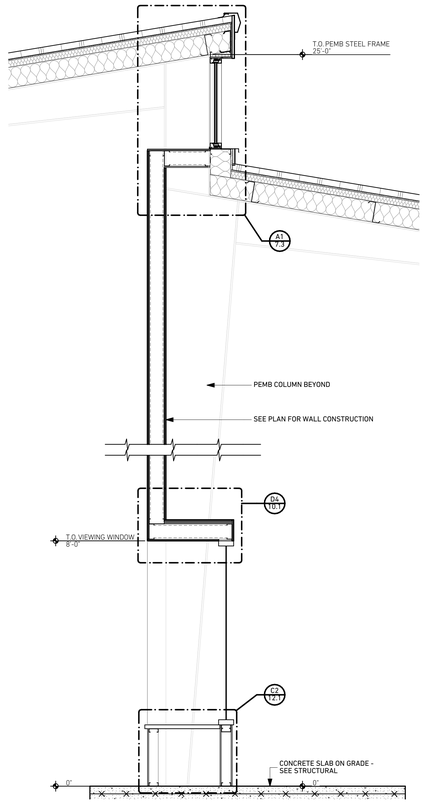
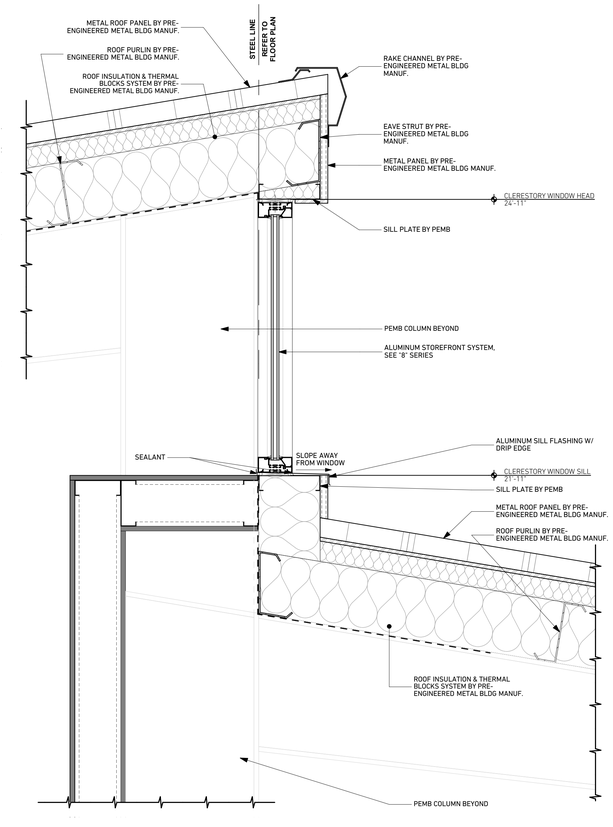


A2 WALL SECTION
SCALE: 1/2" = 1'-0"



A1 WALL DETAIL
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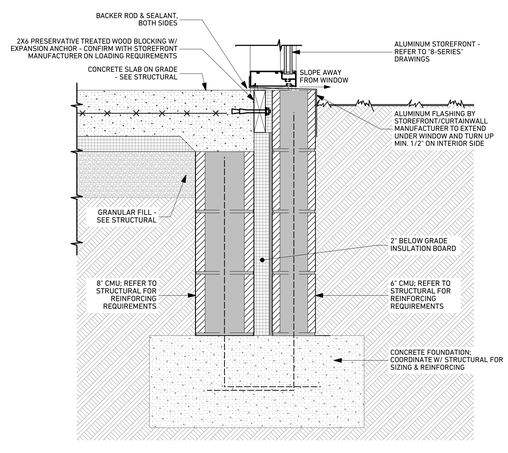


A5 WALL DETAIL
SCALE: 1 1/2" = 1'-0"

A3 WALL DETAIL
SCALE: 1 1/2" = 1'-0"

SóL Harris/Day Architecture

STATE OF OHIO
JUSTIN GANTZ
1616769
REGISTERED ARCHITECT
JUSTIN GANTZ, LICENSE #1616769
EXPIRATION DATE: 12/31/2025

Belmont College Construction Trades Building

45869 Hammond Rd Connector
St Clairsville, OH, 43950

EDA AWARD NUMBER: 06-01-06458

100% CONSTRUCTION DOCUMENTS: 07/08/2024

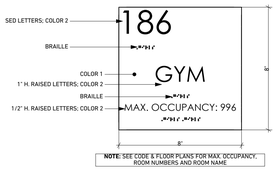
DRAWING UPDATES

3	ADDENDUM NO 3	1.10.2025
4	ADDENDUM NO 4	1.17.2025
5	ADDENDUM NO 5	1.24.2025

N

WALL SECTIONS & DETAILS

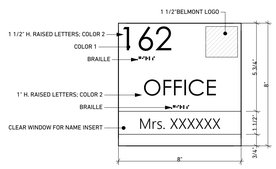
7.3



NOTE: SEE CODE & FLOOR PLANS FOR MAX. OCCUPANCY, ROOM NUMBERS AND ROOM NAME

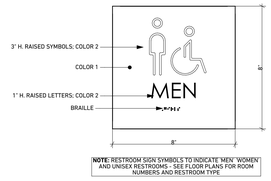
E6 ROOM SIGNAGE (RS)

SCALE: 3" = 1'-0"

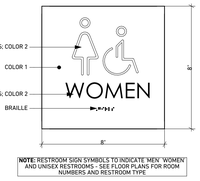


E5 OFFICE SIGNAGE (OS)

SCALE: 3" = 1'-0"



NOTE: RESTROOM SIGN SYMBOLS TO INDICATE 'MEN' 'WOMEN' AND UNISEX RESTROOMS - SEE FLOOR PLANS FOR ROOM NUMBERS AND RESTROOM TYPE



NOTE: RESTROOM SIGN SYMBOLS TO INDICATE 'MEN' 'WOMEN' AND UNISEX RESTROOMS - SEE FLOOR PLANS FOR ROOM NUMBERS AND RESTROOM TYPE

E3 RESTROOM SIGNAGE (RRS)

SCALE: 3" = 1'-0"

1. CONTRACTOR SHALL SUPPLY AND INSTALL ALL GRAB BARS, MIRRORS AND TOILET PARTITIONS.
2. SHADED CASEWORK TO BE INCLUDED IN PROJECT, UNLESS NOTED OTHERWISE.
3. LOOSE FURNISHINGS ARE SHOWN FOR REFERENCE ONLY. THEY ARE **NOT** TO BE INCLUDED IN CONTRACT, UNLESS NOTED OTHERWISE.
4. PROVIDE EXTENDED SIDES, FRONTS, BACKS AND TOPS AS REQUIRED TO ELIMINATE GAPS BETWEEN CASEWORK AND ADJACENT WALLS.
5. ALL EXPOSED ENDS AND BACKS OF CASEWORK SHALL BE FINISHED.
6. CASEWORK INSTALLER SHALL CUT CASEWORK UNITS AS REQUIRED FOR PLUMBING / ELECTRICAL SERVICES AND CASEWORK-INSTALLED EQUIPMENT.
7. CASEWORK CONTRACTOR SHALL CAULK BETWEEN COUNTERS, BACKSPLASHES, WORK SURFACES AND WALLS.
8. ALL WALL-MOUNTED CASEWORK SHALL BE 1'-4" DEEP UNLESS NOTED OTHERWISE ON ELEVATIONS.
9. VERIFY EXACT SIZE OF CASEWORK AND VISUAL DISPLAY BOARDS IN THE FIELD AND MODIFY ON THE SHOP DRAWINGS. CALL OUT ALL MODIFIED DIMENSIONS TO MEET FIELD CONDITIONS ON SHOP DRAWINGS.
10. ALL COUNTERTOPS AND WORK SURFACES TO ALIGN WITH THE FACE OF THE DRAWER/DOOR UNLESS NOTED OTHERWISE.
11. PROVIDE ADA TACTILE EXIT SIGNS AT ALL EXITS. REFER TO DRAWINGS 0.003 FOR EXIT SIGN DETAIL.
12. REFER TO SHEETS 0.003 AND 0.004 FOR MOUNTING HEIGHTS OF THE FOLLOWING: RS, HD, PT, SD, M1, M2, FE-1 AND FE-2.
13. SEE 9.0/10.0 SERIES DRAWINGS FOR ACOUSTICAL PANEL AND WAYFINDING SIGNAGE LOCATIONS.

F - REFRIGERATOR **

FE-1 - INDICATES FIRE EXTINGUISHER WITH CABINET

FE-2 - INDICATES FIRE EXTINGUISHER WITH BRACKET

MH - MOP HOLDER

MW - MICROWAVE **

OS - INDICATES OFFICE SIGNAGE. REFER TO SIGNAGE SCHEDULE / SPECIFICATION. WHERE ROOM SIGNS ARE SHOWN ON GLAZING, PROVIDE BLANK ROOM SIGN ON OPPOSITE SIDE OF GLAZING.

RRS/RRS2 - INDICATES RESTROOM SIGNAGE

RS - ROOM SIGN. REFER TO SIGNAGE SCHEDULE / SPECIFICATION. WHERE ROOM SIGNS ARE SHOWN ON GLAZING, PROVIDE BLANK ROOM SIGN ON OPPOSITE SIDE OF GLAZING.

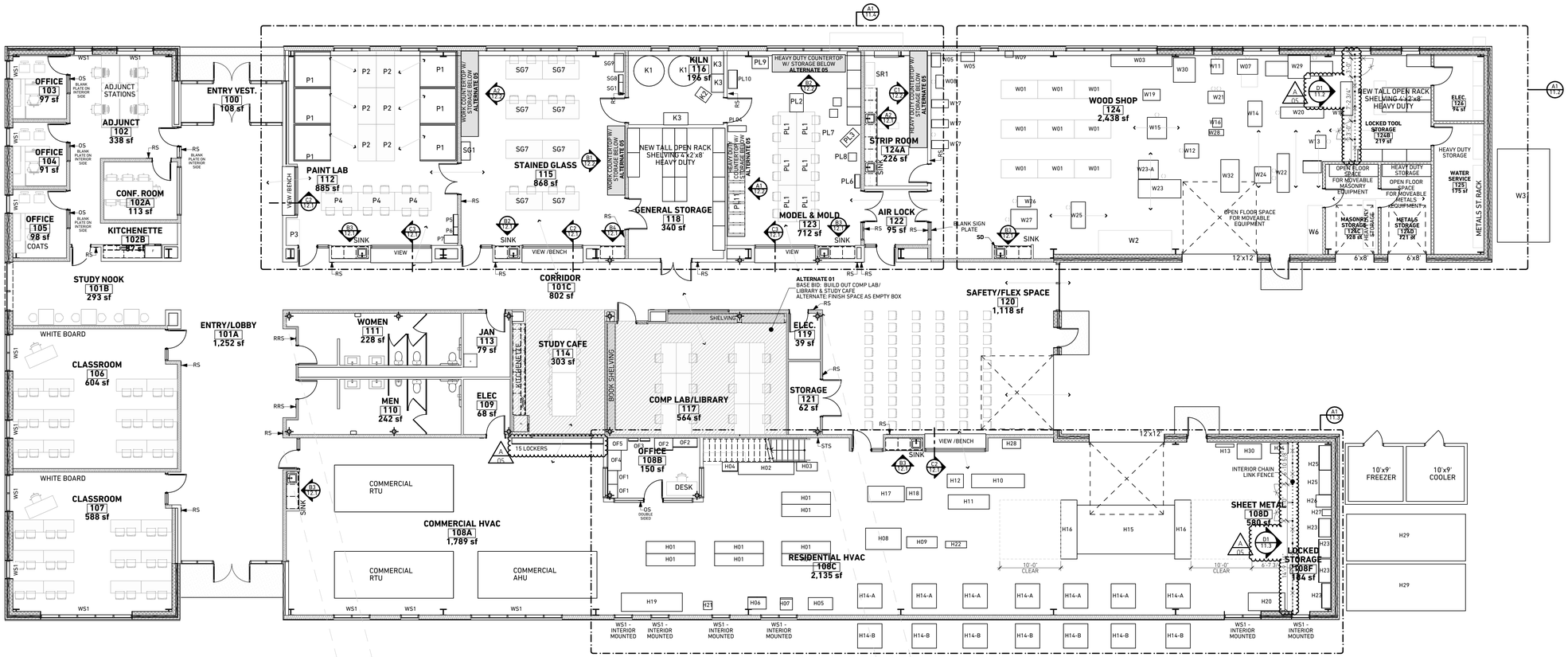
WS1 - WINDOW SHADE (MANUAL, MOUNTED WITHIN WINDOW FRAME) - REFER TO 8.0 SERIES DRAWINGS FOR HEIGHTS; MOUNTED ON INTERIOR SIDE OF WINDOW

*INDICATES OWNER-PROVIDED ACCESSORY TO BE INSTALLED BY CONTRACTOR. GENERAL TRADES CONTRACTOR TO PROVIDE NON-COMBUSTIBLE WOOD BLOCKING IN STUD WALLS AS REQUIRED FOR SECURE INSTALLATION.

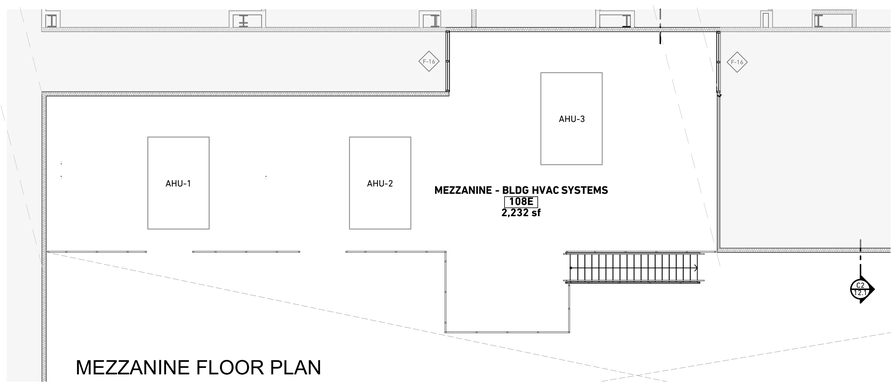
**INDICATES OWNER-PROVIDED ACCESSORY TO BE INSTALLED BY OWNER.

DC DUST COLLECTOR CONNECTION

EQUIPMENT PLAN NOTES



FIRST FLOOR EQUIPMENT PLAN



MEZZANINE FLOOR PLAN

Sõl Harris/Day Architecture

STATE OF OHIO
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1	ADDENDUM NO 3	1.10.2025
2	ADDENDUM NO 4	1.17.2025
3	ADDENDUM NO 5	1.24.2025

FIRST FLOOR EQUIPMENT PLAN

11.1

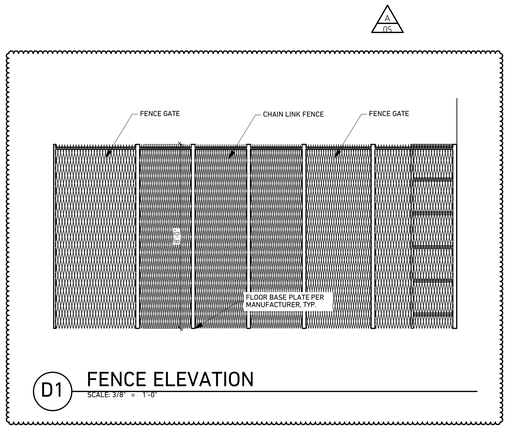
EQUIPMENT SCHEDULE																		
EQUIP. TAG	MANUF.	EQUIP. NAME / MODEL #	QTY.	ELECTRICAL REQUIREMENTS					PLUMBING REQUIREMENTS						EXHAUST	MOUNTING	ACCESSORIES	REMARKS
				VOLTS	AMPS	Hz	PHASE	HP	WATER	STEAM	DRAIN	AIR	GAS	VAC.				
W01		WORK TABLE	9			---									NO	---		
W03		CLAMP STORAGE	1			---									NO	---		
W05	CRAFTMAN	TOOL CART	2			---									NO	---		
W07	POWERMATIC	MOLDER	1	230/460	12/6	60	3	5							NO	---		DUST COLLECTOR CONNECTION
W08	DELTA	SANDER	1	120	6	60	1	1/3							NO	---		DUST COLLECTOR CONNECTION
W09	TORMEX	GRINDER	1	115		60									NO	---		
W10		STORAGE	1			---									NO	---		
W11	POWERMATIC	MORTISER	1	115/230	11/5.5	60	1	1							NO	---		DUST COLLECTOR CONNECTION
W12	MAX	DRUM SANDER	1	230	30	---	3								NO	---		DUST COLLECTOR CONNECTION
W13	POWERMATIC	DISC/BELT SANDER	1	115/230	14/7	60	1	1 1/2							NO	---		DUST COLLECTOR CONNECTION
W14	WOODTEK	OVERARM ROUTER	1			---									NO	---		
W15	POWERMATIC	SHEET SANDER	1	115	14	60	1	1 3/4							NO	---		DUST COLLECTOR CONNECTION
W16	DELTA	PEDESTAL GRINDER	1	120	2.5	60									NO	---		
W17	DEWALT	JIGSAW	3	120	1.3	60									NO	---		DUST COLLECTOR CONNECTION
W18	MYFOLD	MYSTRO LAITH	1	110		60	1								NO	---		DUST COLLECTOR CONNECTION
W19	W&H	MOLDING MACHINE	1	115/250	11.5/23	60		2							NO	---		
W20	DELTA	DL40 LAITH	1	90	122	---		1 1/4							NO	---		DUST COLLECTOR CONNECTION
W21	PROMAX	ROUTER	1			---									NO	---		2 DUST COLLECTOR LINES
W22	DELTA	JOINER	1	230		60	1								NO	---		DUST COLLECTOR CONNECTION
W23	DELTA	TABLE SAW	1	230	12.4	60	1								NO	---		DUST COLLECTOR CONNECTION
W23-A	DELTA	TABLE SAW SIDE TABLE	1			---									NO	---		
W24	WOODTEK	PLANER	1		12	---									NO	---		DUST COLLECTOR CONNECTION
W25	DELTA	CONTRACTOR TABLE SAW	1	1210	15	60	1								NO	---		DUST COLLECTOR CONNECTION
W26	DELTA	BAND SAW	1			---									NO	---		DUST COLLECTOR CONNECTION
W27	POWERMATIC	BAND SAW	1	230	15.5	60	1	3							NO	---		DUST COLLECTOR CONNECTION
W28	DELTA	DRILL PRESS	1	120	8	60	1	1/2							NO	---		
W29	WOODTEK	CUTOFF SAW	1	230	12	60	3								NO	---		DUST COLLECTOR CONNECTION
W30	JIFFY STEAMER	WOOD STEAM TABLE	1	120		60									NO	---		
W31	DONALDSON	DUST COLLECTOR	1			---									NO	---		
W32		SAW TRAX	1	120	15	---									NO	---		

(·) DUST COLLECTOR CONNECTION

* COORDINATE W/ OWNER FOR EQUIPMENT PLACEMENT

D3 WOODSHOP EQUIPMENT SCHEDULE

SCALE: 1" = 1'-0"



D1 FENCE ELEVATION

SCALE: 3/8" = 1'-0"

A1 ENLARGED EQUIPMENT PLAN

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

SóL Harris/Day Architecture

STATE OF OHIO
JUSTIN GANTZ
1616769
REGISTERED ARCHITECT
JUSTIN GANTZ, LICENSE #1616769
EXPIRATION DATE: 12/31/2025

Belmont College Construction Trades Building

45869 Hammond Rd Connector
St Clairsville, OH, 43950

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100% CONSTRUCTION DOCUMENTS: 07/08/2024

DRAWING UPDATES

3	ADDENDUM NO 3	1.10.2025
4	ADDENDUM NO 4	1.17.2025
5	ADDENDUM NO 5	1.24.2025

ENLARGED EQUIPMENT PLAN - WOODSHOP

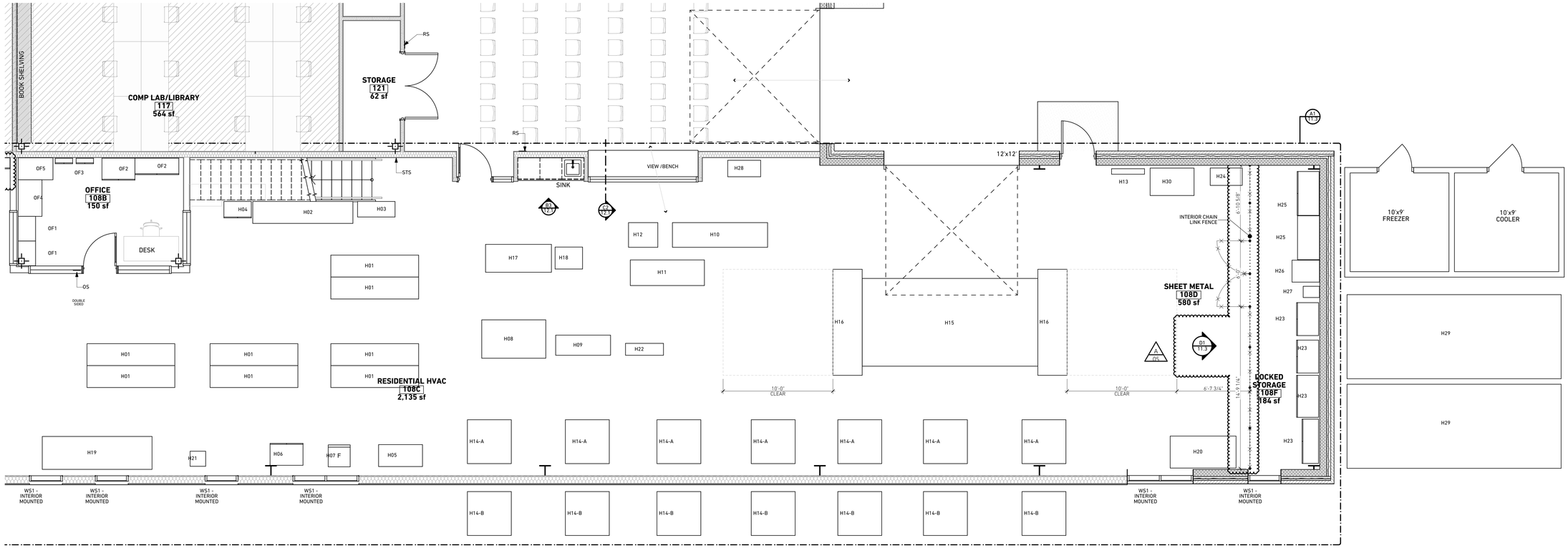
11.2

SHD HVAC EQUIPMENT SCHEDULE

EQUIP. TAG	MANUF.	EQUIP. NAME / MODEL #	QTY.	ELECTRICAL REQUIREMENTS					PLUMBING REQUIREMENTS						EXHAUST	MOUNTING	ACCESSORIES	REMARKS
				VOLTS	AMPS	Hz	PHASE	HP	WATER	STEAM	DRAIN	AIR	GAS	VAC.				
H01		WORKTABLE/TOOL CART	8			---									NO	---		PROVIDED BY OWNER
H02		SHELVING	1			---									NO	---		PROVIDED BY OWNER
H03		CRAFTMAN TOOL CART	1			---									NO	---		PROVIDED BY OWNER
H04		CABINET	1			---									NO	---		PROVIDED BY OWNER
H05		RACK	1			---									NO	---		PROVIDED BY OWNER
H06		CABINET	1			---									NO	---		PROVIDED BY OWNER
H07		REFRIGERATOR	1			---									NO	---		PROVIDED BY OWNER
H08	MCELROY	PITBULL	1	120		---									NO	---		PROVIDED BY OWNER
H09	HAMPDEN	BUILDING MANAGEMENT TRAINER	1	120	15	60	1								NO	---		PROVIDED BY OWNER
H10		BLUE TRAINER	1			---									NO	---		PROVIDED BY OWNER
H11	AMATROL	SOLAR BLUE TRAINER	1	120		60	1								NO	---		PROVIDED BY OWNER
H12	AMATROL	SMALL BLUE TRAINER	1			---									NO	---		PROVIDED BY OWNER
H13		KLEIN TOOLS	1			---									NO	---		PROVIDED BY OWNER
H14-A		HOUSE FURNACE	7			---									NO	---		
H14-B		RESIDENTIAL AIR HANDLER	7			---									NO	---		
H15		BREAK TABLE	1			---									NO	---		PROVIDED BY OWNER
H16		LEAF BREAK	2			---									NO	---		
H17	AMATROL	GEOTHERMAL LEARNING SYSTEM	1	115/230	50	---	3								NO	---		PLUG: NEMA 14-50P
H18	AMATROL	GEOTHERMAL FLUSH CART	1	115		60	1								NO	---		PROVIDED BY OWNER
H19		PIPE RACK	1			---									NO	---		PROVIDED BY OWNER
H20		WORK BENCH	1			---									NO	---		PROVIDED BY OWNER
H21		BOILER	1			---									NO	---		PROVIDED BY OWNER
H22	MITSUBISHI	INDOOR UNIT	1			---									NO	---		PROVIDED BY OWNER
H23		METAL STORAGE CABINET	4			---									NO	---		PROVIDED BY OWNER
H24		TIN KNOCKER	1			---									NO	---		PROVIDED BY OWNER
H25		CYLINDER STORAGE	2			---									NO	---		PROVIDED BY OWNER
H26		ACYTELYNE/O2 CART	1			---									NO	---		PROVIDED BY OWNER
H27		REFRIGERANT TANK STORAGE	1			---									NO	---		PROVIDED BY OWNER
H28		CLEANERS STRAGE CABINET	1			---									NO	---		PROVIDED BY OWNER
H29		CHILLER	2			---									NO	---		PROVIDED BY OWNER
H30		FORGE CART	1			---									NO	---		PROVIDED BY OWNER
OF1		TOOLBOX	2			---									NO	---		PROVIDED BY OWNER
OF2		METAL STORAGE CABINET	2			---									NO	---		PROVIDED BY OWNER
OF3		VR GOGGLES CABINET	2			---									NO	---		PROVIDED BY OWNER
OF4		LAPTOP CART	1			---									NO	---		PROVIDED BY OWNER
OF5		OFFICE COPIER	1			---									NO	---		PROVIDED BY OWNER

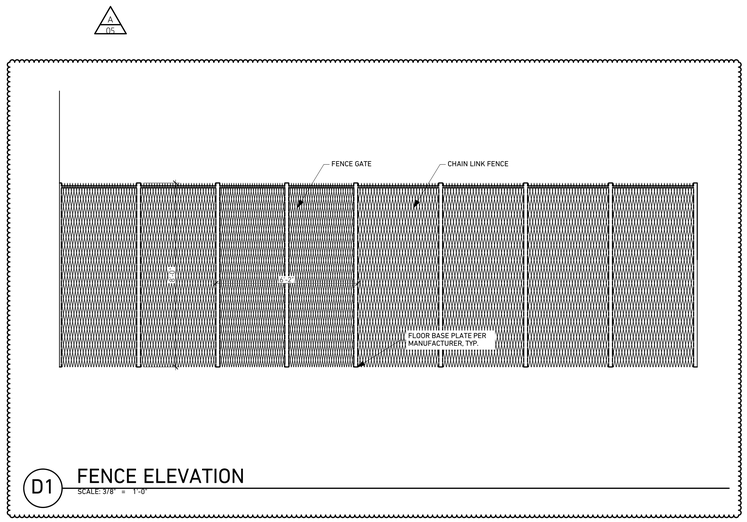
D3 HVAC EQUIPMENT SCHEDULE

SCALE: 1" = 1'-0"



A1 ENLARGED EQUIPMENT PLAN

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



D1 FENCE ELEVATION

SCALE: 3/8" = 1'-0"

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ENLARGED EQUIPMENT PLAN - HVAC SHOP

11.3

Karpinski
ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

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FRANKLIN A. EISENHOWER
E-65457
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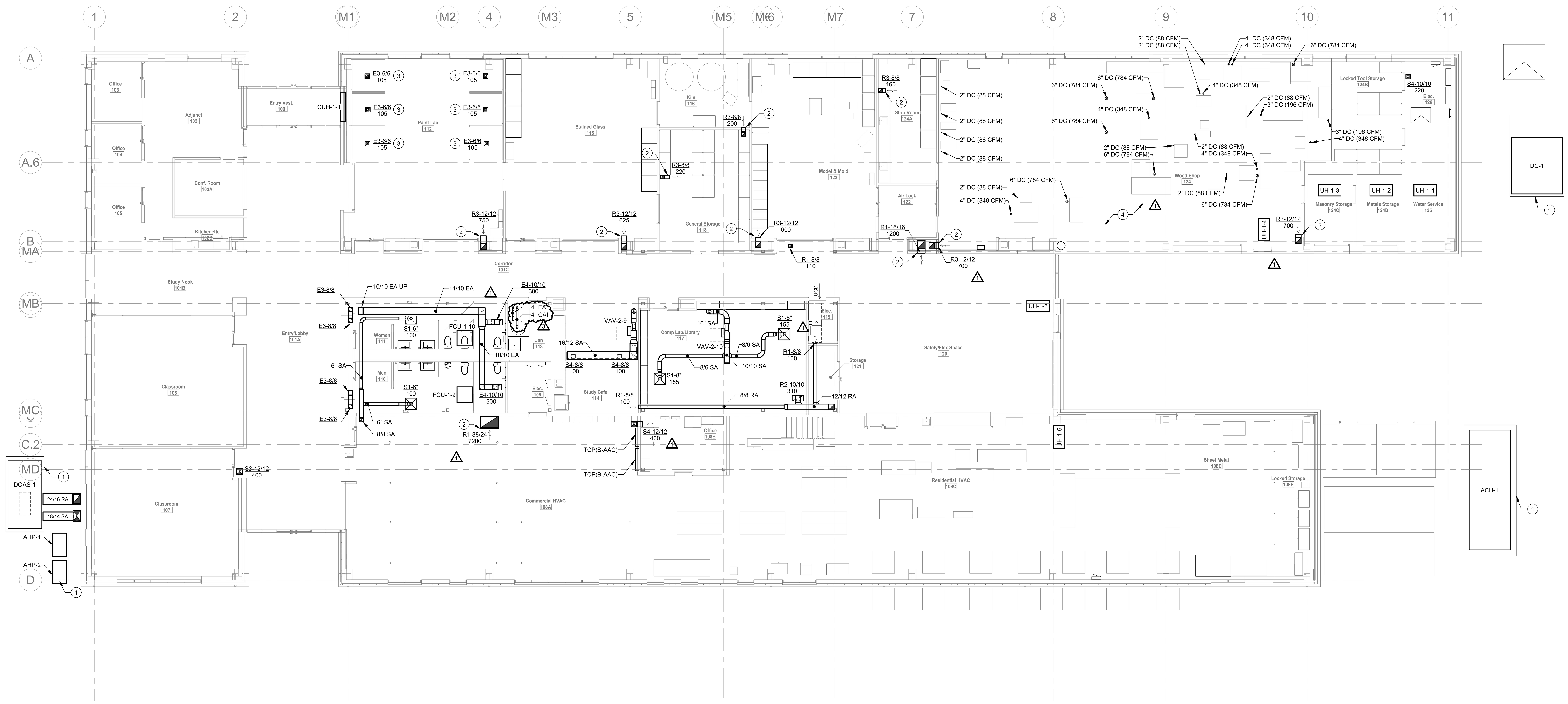

PLAN NOTES

#	
1	FROST PROOF CONCRETE EQUIPMENT PAD. PAD SHALL EXTEND 8" BEYOND THE FOOTPRINT OF THE ASSOCIATED EQUIPMENT IT SUPPORTS. PAD SHALL EXTEND 6" ABOVE SURROUND FINISH GRADE.
2	INSTALL RETURN GRILLE 12" AFF.
3	COORDINATE SPECIFIC GRILLE LOCATION WITH OWNER. GRILLE MAY MOVE OUT OF CEILING TO ADJACENT LOCATON NEAR PAINTING NOOK.
4	ALL DC DUCT OUTLETS SHALL EXTEND TO 6FT AFF. EACH DC OUTLET SHALL TERMINATE WITH A FULL BLAST GATE. OWNER SHALL MAKE FINAL CONNECTIONS TO SHOP EQUIPMENT WITH FLEXIBLE DUCT.

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1	Addendum No 3	01/10/25
3	Addendum No 5	01/23/25

KEY PLAN

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

FIRST FLOOR HVAC PLAN

H11

Karpinski
ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

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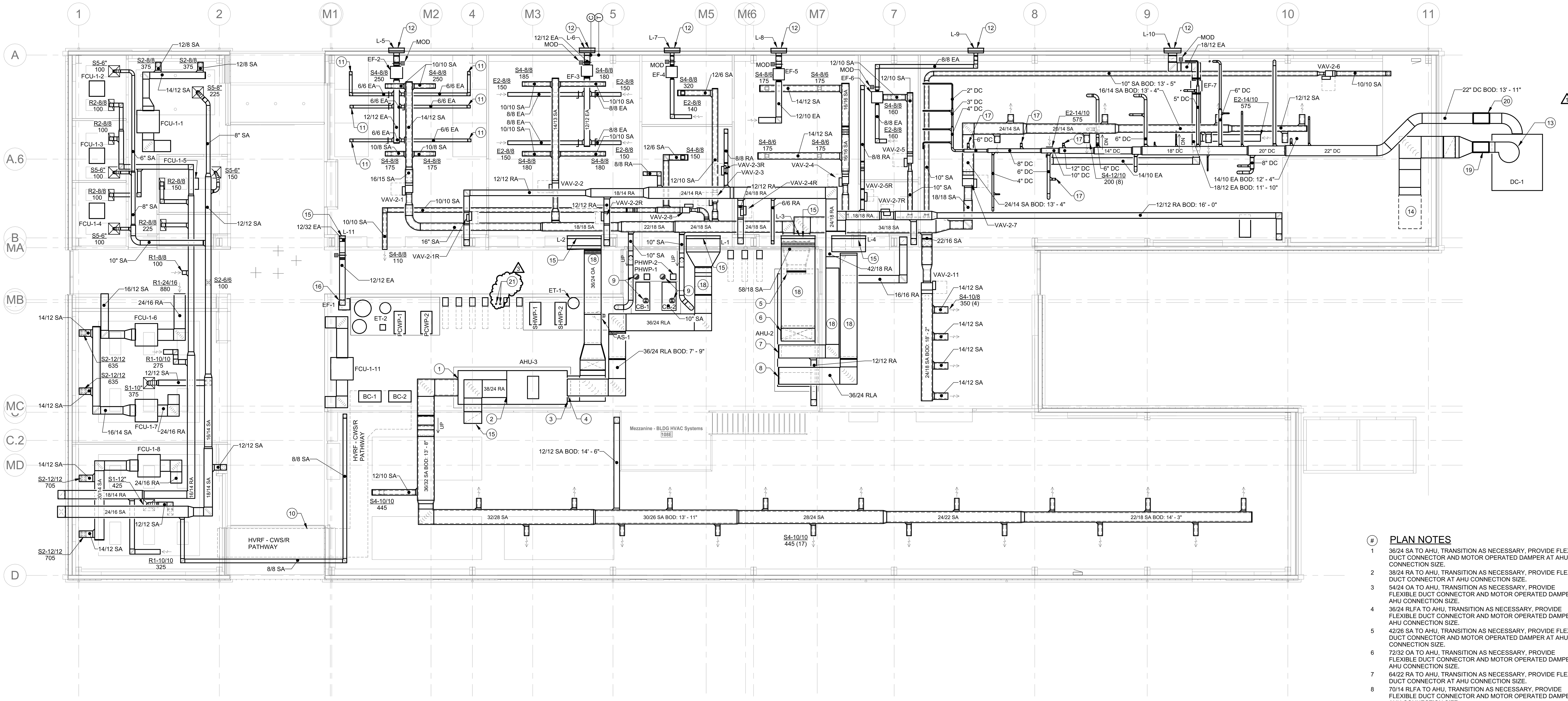

PLAN NOTES

1 36/24 SA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
2 38/24 RA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AT AHU CONNECTION SIZE.
3 54/24 OA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
4 36/24 RLFA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
5 42/26 SA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
6 72/32 OA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
7 64/22 RA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AT AHU CONNECTION SIZE.
8 70/14 RLFA TO AHU, TRANSITION AS NECESSARY, PROVIDE FLEXIBLE DUCT CONNECTOR AND MOTOR OPERATED DAMPER AT AHU CONNECTION SIZE.
9 8" FLUE & 8" CAI UP THROUGH ROOF, REFER TO DETAIL FOR TERMINATION REQUIREMENTS.
10 MAINTAIN CLEAR PATHWAY FOR HVRF CWS/R PIPING TO BE ROUTED FROM BC(S) TO FCU(S).
11 6/6 EA DN TO GRILLE AT DEMONSTRATION CEILING.
12 LOUVERS IN STOREFRONT. RUN DUCTWORK AS HIGH AS POSSIBLE AND ELBOW DOWN AT EXTERIOR WALL. EXTEND PLENUM 12" FROM BACK OF LOUVER. CONNECT DUCT TO PLENUM.
13 DUST COLLECTOR DC-1 FOR CONFIGURATION REFER TO DETAIL.
14 DUST COLLECTION RECIRCULATION OUTLET CONFIGURED PER MANUFACTURER REQUIREMENTS.
15 MOUNT LOUVER IN CLERESTORY PROVIDE MINIMUM 18" PLENUM WITH MOD. PLENUM SHALL BE INSULATED AS OUTSIDE AIR PLENUM. COORDINATE LOUVER & PLENUM CONSTRUCTION WITH WINDOW INSTALLER.
16 MOUNT EF-1 60" AFF, SUPPORT FROM WALL. EXTEND 14/10 EA DN FROM EF-1 THROUGH MEZANNINE FLOOR TO 1ST FLOOR CEILING CAVITY. EXTEND 12/12 EA UP FROM EF-1 TO L-11 PLENUM. ROUTE OVERHEAD EA DUCT TIGHT TO ROOF STRUCTURE.
17 4" DC, CAPPED FOR FUTURE USE. 348 CFM.
18 SLOPE DUCT PARALLEL TO ROOF, INSTALL DUCT TIGHT TO STRUCTURE.
19 HIGH SPEED ABORT VALVE
20 STINGER EXPLOSION ISOLATION VALVE
21 4" FLUE & 4" CAI DN & UP THROUGH ROOF, REFER TO DETAIL FOR TERMINATION REQUIREMENTS.

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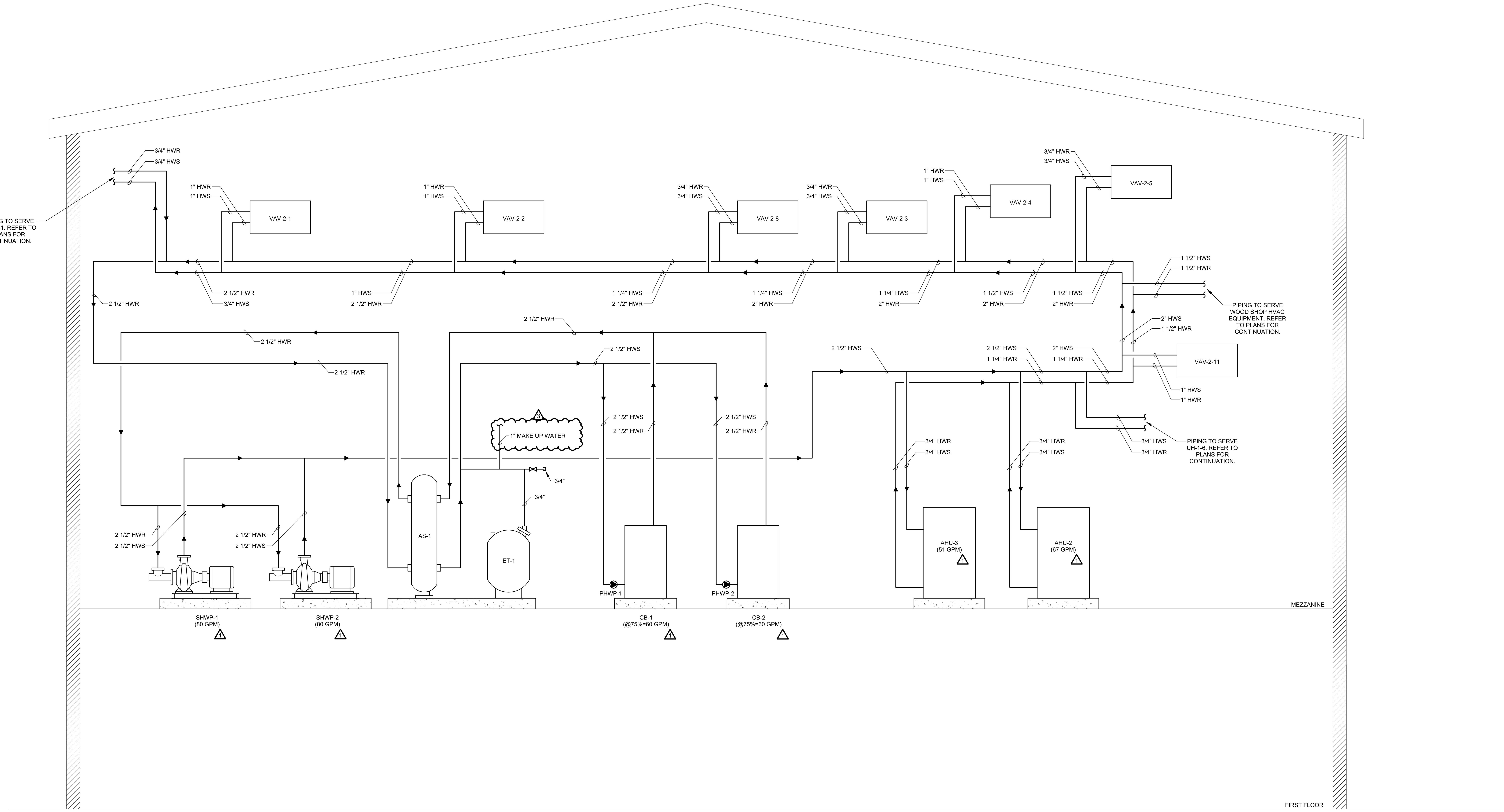
KEY PLAN

SECOND FLOOR HVAC PLAN

H12



HEATING HOT WATER SYSTEM DIAGRAM

SCALE: NONE

Karpinski ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

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KEY PLAN

HVAC PIPING DIAGRAMS

H65

PLUMBING FIXTURE SCHEDULE 'BASIN FIXTURES'																		
FIXTURE TAG	TYPE	FIXTURE OUTSIDE DIMENSIONS (IN.)	FIXTURE INSIDE DIMENSIONS (IN.)	BASIN DEPTH (IN.)	ADA COMPLIANT	MANUFACTURER	MODEL	FAUCET OPERATION	FAUCET SPREAD (IN.)	SPOUT TYPE	SPOUT LENGTH (IN.)	HANDLE TYPE	OUTLET TYPE	GALLONS PER MINUTE	DRAIN TYPE	FAUCET MANUFACTURER	FAUCET MODEL	REMARKS
L-1	WALL HUNG	20 X 18 1/4	13 15/16 X 12 13/16	5	YES	AMERICAN STANDARD	9024.001	AUTO SENSING	SINGLE HOLE	FIXED SPOUT	5 7/16	-	LAMINAR FLOW	0.5	FLAT GRID STRAINER	AMERICAN STANDARD	6055.105	1-3
MB-1	FLOOR MOUNTED	32 X 32	30 X 30	12	NO	FIAT	TSB300	MANUAL	8	FIXED SPOUT	8	LEVER HANDLES	HOSE THREAD	2.2	FLAT GRID STRAINER	CHICAGO	897	6-8
S-1	COUNTERTOP	17 X 16	14 X 10	6	YES	ELKAY	LRAD171660	MANUAL	8	GOOSENECK	5 1/4	WRIST BLADES	LAMINAR FLOW	1.5	CUP STRAINER	CHICAGO	786	-
S-2	COUNTERTOP	17 X 16	14 X 10	6	YES	ELKAY	LRAD171660	MANUAL	8	GOOSENECK	5 1/4	WRIST BLADES	LAMINAR FLOW	1.5	CUP STRAINER	CHICAGO	786	4
S-3	COUNTERTOP	17 X 16	14 X 10	6	YES	ELKAY	LRAD171660	MANUAL	8	GOOSENECK	5 1/4	WRIST BLADES	LAMINAR FLOW	1.5	CUP STRAINER	CHICAGO	786	4,5

REMARKS:

1. ADA PROTECTIVE COVERS ON SUPPLIES AND WASTE.
2. DC POWERED - BATTERIES.
3. FAUCET WITH SINGLE SUPPLY FOR TEMPERED WATER USED WITH ASSE 1070 MIXING VALVE.
4. SOLIDS INTERCEPTOR WASTE (STREIM SIDEKICK) - REFER TO SPECIFICATION 23 13 25.
5. OILS INTERCEPTOR (STREIM OS-25) INSTALLED IN FLOOR ADJACENT TO SINK - REFER TO SPECIFICATION 22 13 61.
6. SPOUT TO HAVE INTEGRAL VACUUM BREAKER.
7. MOP BRACKET.
8. HOSE AND BRACKET.

3

PLUMBING FIXTURE SCHEDULE 'FLUSHING FIXTURES'									
FIXTURE TAG	TYPE	ADA COMPLIANT	GALLONS PER FLUSH	FIXTURE MANUFACTURER	FIXTURE MODEL	FLUSH METHOD	FLUSH VALVE MANUFACTURER	FLUSH VALVE MODEL	REMARKS
U-1	WALL HUNG	YES		AMERICAN STANDARD	6590.001	AUTOMATIC FLUSH VALVE	SLOAN	ROYAL 111	3,4
WC-1	WALL HUNG	NO		AMERICAN STANDARD	2257.101	AUTOMATIC FLUSH VALVE	SLOAN	ROYAL 111	1,3,4
WC-2	WALL HUNG	YES		AMERICAN STANDARD	2257.101	AUTOMATIC FLUSH VALVE	SLOAN	ROYAL 111	1-4

REMARKS:

1. FURNISH COMPLETE WITH OPEN FRONT SEAT - CHURCH MODEL 9500SSCT.
2. SUPPLY TUBE TO CLEAR ADA GRAB BARS.
3. DC POWERED FLUSH VALVE - BATTERIES.
4. FLUSH VALVE WITH MANUAL OVER-RIDE BUTTON.

DOMESTIC HOT WATER SYSTEM EXPANSION TANK SCHEDULE													
MARK	DWH(S) SERVED	DOMESTIC HOT WATER SYSTEM VOLUME RANGE (GALLONS)	TYPE	INSTALLATION POSITION	ASME CONSTRUCTION	TANK GROSS VOLUME (GALLONS)	MAXIMUM ACCEPTABLE VOLUME (GALLONS)	CONNECTION SIZE (INCHES)	DIMENSIONS		SHIPPING WEIGHT (LBS)	AMTROL BASE MODEL	REMARKS
									DIAMETER (IN)	HEIGHT (IN)			
ET-1	DWH-1	54 - 135	DIAPHRAGM	PIPE MOUNTED	NO	6.4	3.2	3/4"	12	14	17	ST-12	1, 2, 3

REMARKS:
1. SUITABLE FOR POTABLE WATER USE.
2. FOR ASME CONSTRUCTION: INCLUDE AMTROL "C" SERIES SUFFIX.
3. ALTERNATIVE BLADDER TYPE INSTEAD OF DIAPHRAGM SHALL BE ACCEPTABLE PROVIDED THAT ALL CRITERIA IS MET.

DOMESTIC WATER HEATER SCHEDULE - GAS FIRED - STORAGE																				
EQUIPMENT TAG		CAPACITY		BURNER		MIN INPUT GAS PRESSURE (WC)	EFFICIENCY %	GAS CONNECTION SIZE (INCHES)	FLUE SIZE (INCHES)	COMBUSTION AIR SIZE (INCHES)	STORAGE (GALLONS)	MAX WORKING PRESSURE (PSIG)	WATER CONNECTIONS SIZE (INCHES)	ELECTRICAL		BAS INTERFACE	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
ABBREV.	MARK	GPH	ΔT °F	TYPE	INPUT (MBH)									VOLT	PH					
DWH	1	138	100	CONDENSING	120	3.5	95	3/4	4	4	60	160	1 1/2	120	1	NO	1000	AO SMITH	BTH-120	1,2,3

REMARKS:

1. BAS INTERFACE, COORDINATE WITH TCC.
2. CONDENSATE NEUTRALIZATION KIT.
3. DISCONNECT BY EC.

RHW CIRCULATION PUMP SCHEDULE													
EQUIPMENT TAG		SERVICE	TYPE	CONTROL	GPM	TH (FT)	MOTOR HP / WATTS	RPM	ELECTRICAL		MANUFACTURER	MODEL	REMARKS
ABBREV.	MARK								VOLT	PH			
RHWP	1	HW (120°)	INLINE	AQUASTAT	5	22	1/6	3300	120	1	BELL & GOSSETT	PL-36	1

REMARKS:

1. STAINLESS STEEL OR BRONZE COMPONENTS SUITABLE FOR POTABLE WATER USE.

PLUMBING FIXTURE CONNECTION SCHEDULE					
FIXTURE	WASTE	VENT	CW	HW	REMARKS
EWC	1 1/2"	1 1/2"	1/2"	--	
FD	4"	2"	1/2"	--	W/ TRAP PRIMER
FD	3"	1 1/2"	1/2"	--	W/ TRAP PRIMER
FPWH	--	--	3/4"	--	
HB	--	--	1/2"	--	
L	1 1/2"	1 1/2"	1/2"	1/2"	
LT	3"	1 1/2"	3/4"	3/4"	
MB	3"	1 1/2"	3/4"	3/4"	
S	1 1/2"	1 1/2"	1/2"	1/2"	
SS	3"	1 1/2"	3/4"	3/4"	
U	2"	1 1/2"	1"	--	BLOWOUT TYPE
U	2"	1 1/2"	1/2"	--	WASHOUT TYPE
WC	4"	2"	1 1/4"	--	W/ FLUSH VALVE
WC	4"	2"	1/2"	--	W/ FLUSH TANK

DOMESTIC WATER BRANCH PIPE SCHEDULE	
2 TO 4 FLUSH TANK WC, L, S, EWC, DF, BT OR SH	- 3/4" HW, CW
5 TO 6 FLUSH TANK WC, L, S, EWC, DF, BT OR SH	- 1" HW, CW
OVER 6 FLUSH TANK WC, L, S, EWC, DF, BT OR SH	- REFER TO PLAN
2 TO 3 FLUSH VALVE WC OR U	- 1 1/2" CW
4 TO 8 FLUSH VALVE WC OR U	- 2" CW
OVER 8 FLUSH VALVE WC OR U	- REFER TO PLAN

PLUMBING PIPE INSULATION SCHEDULE		
SERVICE	TYPE	THICKNESS TYPE
COLD WATER	FIBERGLASS	A
HOT WATER	FIBERGLASS	B
RECIRCULATING HOT WATER	FIBERGLASS	B
HORIZONTAL STORM	FIBERGLASS	A
HORIZONTAL AND VERTICAL OVERFLOW STORM	FIBERGLASS	A
ABOVE GROUND SANITARY CARRYING ONLY AC CONDENSATE DRAINAGE	FIBERGLASS	A
ABOVE GROUND SANITARY CARRYING ONLY ICE MACHINE DRAINAGE	FIBERGLASS	A
INDIRECT WASTE FROM ICE MACHINES	FIBERGLASS	A
COLD/HOT WATER BURIED BELOW FLOOR (1-1/4" OR LESS)	CLOSED-CELL	D
COLD/HOT WATER BURIED BELOW FLOOR (1-1/2" OR MORE)	CLOSED-CELL	E

THICKNESS SCHEDULE TYPE	PIPE SIZES (INCHES)				
	3/4 AND BELOW	1 TO 1-1/4	1-1/2 TO 3	4 TO 6	8 AND ABOVE
A	1/2	1/2	1	1	1
B	1	1	1-1/2	1-1/2	1-1/2
C	1-1/2	1-1/2	2	2	2
D	1/2	1/2	1/2	1/2	1/2
E	1	1	1	1	1

NOTES:
1. FOR ABOVE GROUND SANITARY CARRYING ONLY AC CONDENSATE OR ICE MACHINE DRAINAGE, PROVIDE INSULATION FROM FLOOR DRAIN OR INDIRECT WASTE RECEPTOR UNTIL PIPE IS TIED INTO SANITARY CARRYING WASTE FROM OTHER SOURCES.
2. PIPING WITH FREEZE PROTECTION OR TEMPERATURE MAINTENANCE CABLE SHALL HAVE INSULATION THICKNESS AS REQUIRED PER THE INSTALLED CABLE MANUFACTURER, BUT NOT LESS THAN SCHEDULED ABOVE. FOR PIPING 1-1/4 INCH AND BELOW, INSULATION PIPE SIZE SHALL BE 1/4 INCH LARGER THAN PIPE SIZE TO ALLOW ADEQUATE SPACE FOR THE CABLE.
3. EXTERIOR CANOPY STORM AND OVERFLOW STORM PIPING INSULATION CAN BE OMITTED IF NOT RUN THROUGH A HEATED SPACE.
4. WHERE PIPING, INSTALLED OUTDOORS IS INSULATED WITH FIBERGLASS, PROVIDE WEATHERPROOF COVER AS SPECIFIED IN 22 07 00.

Karpinski
ENGINEERING
8800 Lyra Dr., Suite 530
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3	Addendum No 5	01/23/25

KEY PLAN

PLUMBING SCHEDULES

P02

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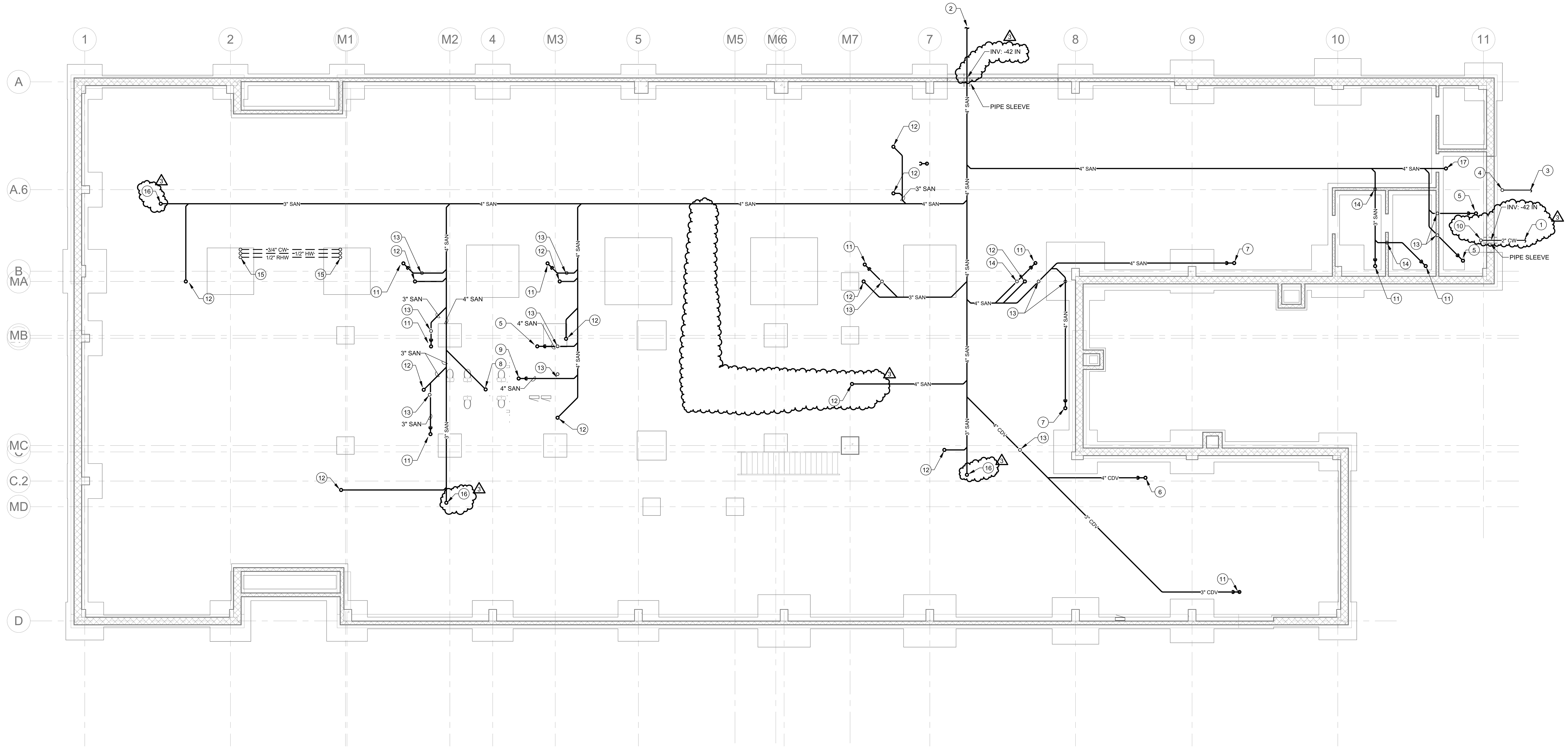
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com



GENERAL NOTES

A. TOP OF FIRST FLOOR SLAB ELEVATION: 1203.00 FT
B. PC SHALL COORDINATE ALL PIPE PENETRATIONS THROUGH FOUNDATION ELEMENTS WITH STRUCTURAL DRAWINGS. ALL PENETRATIONS SHALL BE SLEEVED.

PLAN NOTES

#	
1	EXTEND 2" CW 5' 0" BEYOND BUILDING FOUNDATION. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
2	EXTEND 4" SAN 5' 0" BEYOND BUILDING FOUNDATION. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
3	EXTEND 4" G 5' 0" BEYOND BUILDING FOUNDATION. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
4	4" G UP TO METER SET.
5	4" SAN UP TO FD/FS.
6	4" CDV UP TO TD.
7	4" SAN UP TO TD.
8	4" SAN UP.
9	4" SAN UP TO MB.
10	3" CW UP TO WATER SERVICE. REFER TO DETAIL.
11	3" SAN UP TO FD/FS.
12	3" SAN UP.
13	2" V UP.
14	1 1/2" V UP.
15	3/4" CW, 1/2" HW, & 1/2" RHW UP IN WALL ABOVE.
16	3" SAN UP TO CO.
17	4" SAN UP TO CO.

Belmont College Construction Trades Building

45869 Hammond Rd Connector
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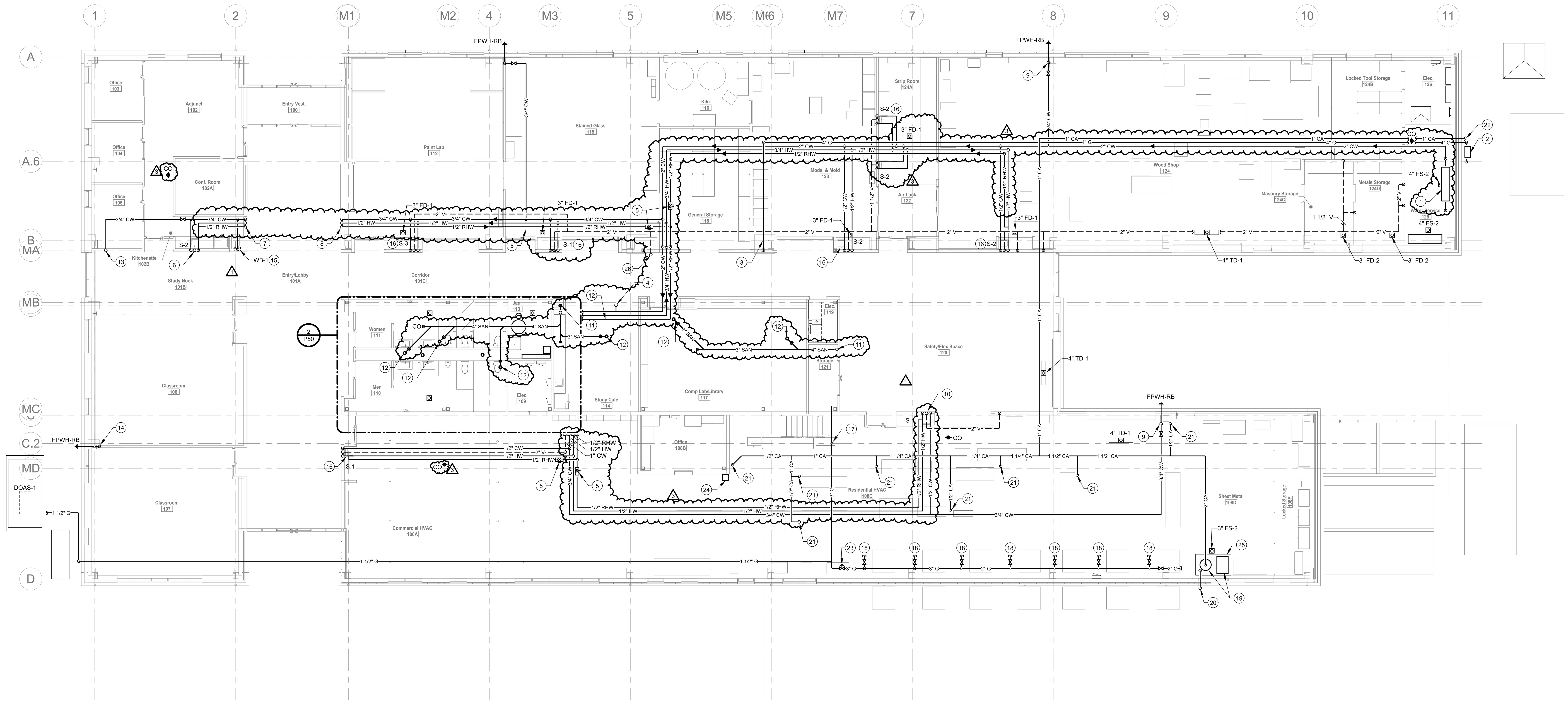
DRAWING UPDATES

3	Addendum No 5	01/23/25

KEY PLAN

UNDERGROUND PLUMBING PLAN

P10



Karpinski ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

STATE OF OHIO
FRANKLIN A. EISENHOWER
E-65457
REGISTERED
PROFESSIONAL ENGINEER

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1	Addendum No 3	01/10/25
3	Addendum No 5	01/23/25

GENERAL NOTES

A. TOP OF FIRST FLOOR SLAB ELEVATION: 1203.00 FT
B. ALL PIPING SHALL BE INSTALL MINIMUM OF 15 FT AFF. COORDINATION WITH ALL OTHER TRADES IS REQUIRED. FIXTURE BRANCHES AND OFFSETS BELOW THIS ELEVATION MAY BE REQUIRED.

PLAN NOTES

#	
1	2" DOMESTIC WATER SERVICE BUILDING ENTRY. REFER TO DETAIL.
2	NATURAL GAS METER SET.
3	4" G UP TO MECHANICAL ROOM.
4	1 1/2" CW UP TO MECHANICAL ROOM.
5	RHW CIRCUIT VALVE ASSEMBLY. REFER TO DETAIL. CARTRIDGE FLOW RATE: 1.0 GPM.
6	1 1/2" V UP TO 3" VTR.
7	3/4" CW, 1/2" HW, & 1/2" RHW UP FROM BELOW SLAB.
8	3/4" CW, 1/2" HW, & 1/2" RHW DN TO BELOW SLAB.
9	3/4" CW DN EXPOSED ALONG COLUMN.
10	1 1/2" V DN TO S & 2" V UP TO 3" VTR.
11	<varies>
12	3" SAN UP TO FD/FS.
13	3/4" CW UP TO CEILING. RUN PIPING TIGHT TO CEILING TO SERVE HB OUTSIDE CLASSROOM 106.
14	3/4" CW UP TO CEILING. RUN PIPING TIGHT TO CEILING OVER TO OFFICE 105. REFER TO PLUMBING PLAN FOR CONTINUATION.
15	1/2" CW DN TO WB SERVING REFRIGERATOR. REFER TO DETAIL.
16	PROVIDE UNDER LAV TYPE TRAP PRIMER. EXTEND TRAP PRIMING FEED TO FLOOR DRAIN IN SPACE. REFER TO DETAIL.
17	3" G UP.
18	1" G DROP WITH VALVE AND CAP TERMINATION. END USER SHALL CONNECT EQUIPMENT AS REQUIRED.
19	AIR COMPRESSOR AND DRYER PROVIDED BY OWNER. REFER TO DETAIL FOR INSTALLATION.
20	EXTEND COMPRESSED AIR RELIEF VAVLVE DISCHARGE PIPE THROUGH EXTERIOR WALL & TERMINATE WITH ELBOW DN. SEAL WALL PENETRATION IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
21	1/2" CA DN TO COMPRESSED AIR OUTLET PROVIDED AND INSTALLED BY OWNER: 30 SCFM @ 90 PSIG.
22	EXTEND CA PIPING TO CONNECT TO 1" CA HEADER ON DUST COLLECTOR: 30CFM @ 90 PSI.
23	EMERGENCY GAS SHUT OFF VALVE (NORMALLY CLOSED), AMERICAN GAS SAFETY MODEL "MERLIN1080" OR APPROVED EQUAL.
24	EMERGENCY GAS SHUT OFF SWITCH/BUTTON, BY AMERICAN GAS SAFETY OR APPROVED EQUAL.
25	4" CONCRETE EQUIPMENT PAD.
26	3" V UP.

KEY PLAN

FIRST FLOOR PLUMBING PLAN

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

P11

Karpinski ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

STATE OF OHIO
FRANKLIN A. EISENHOWER
E-65457
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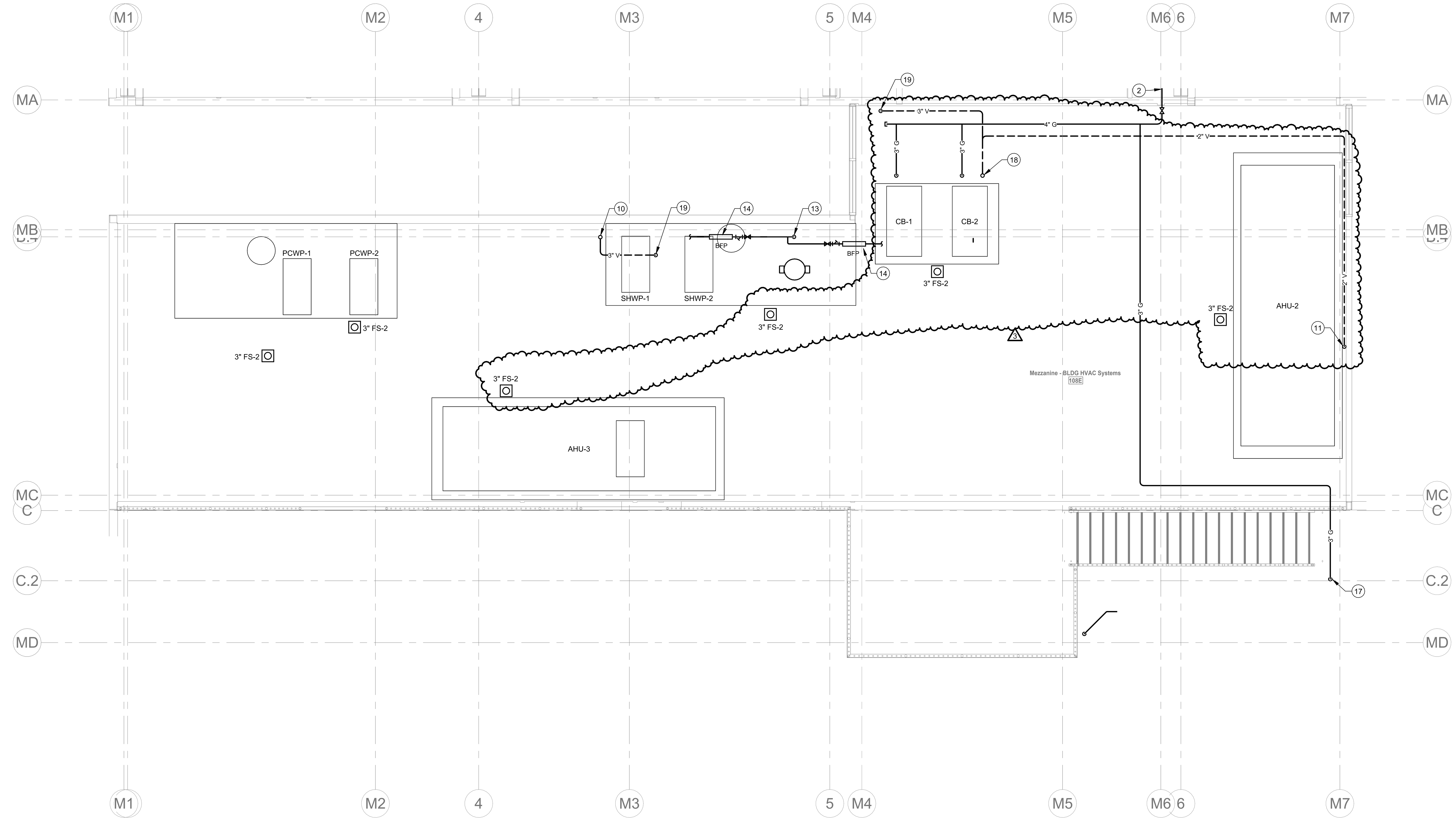
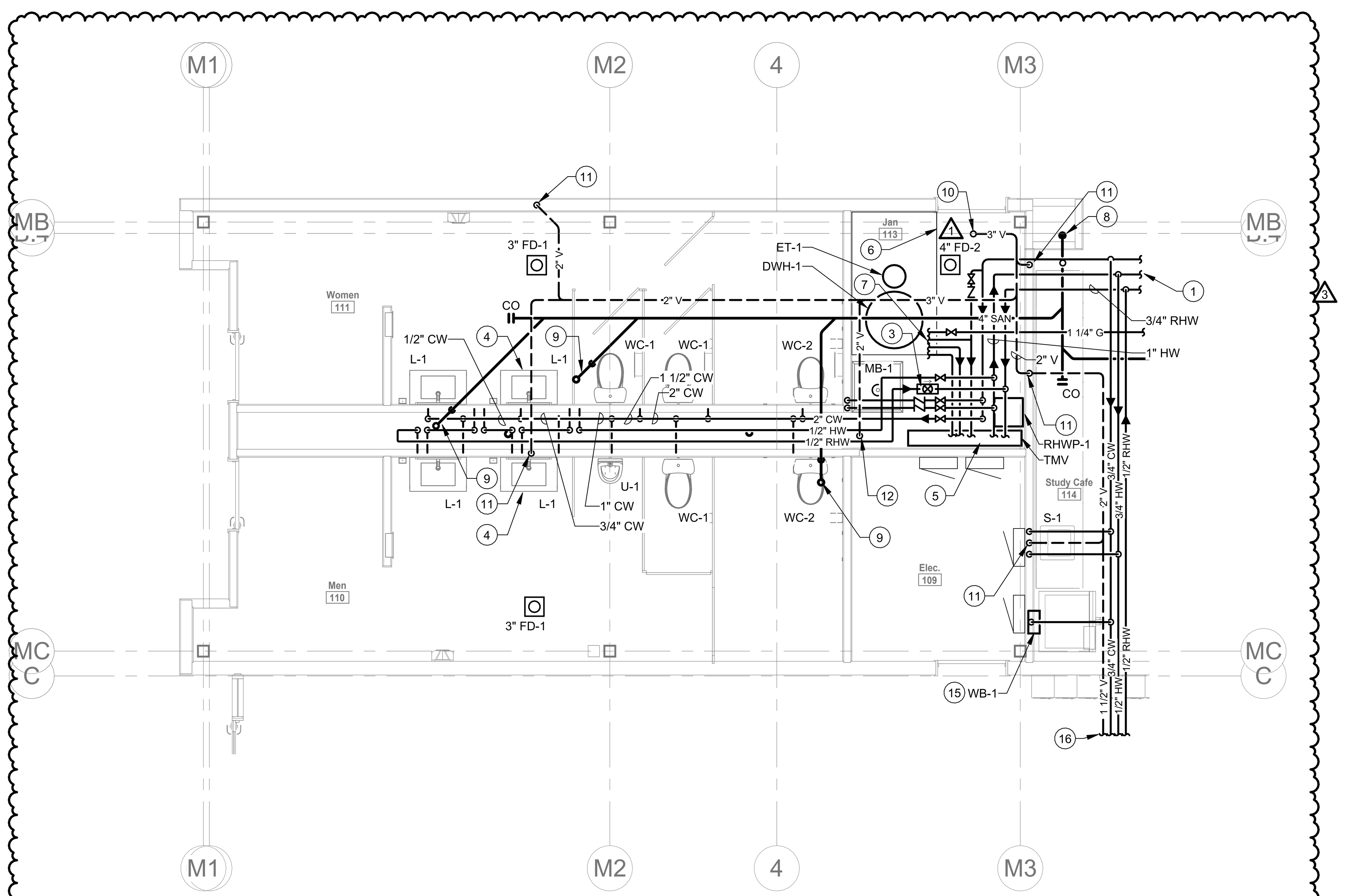
PROFESSIONAL ENGINEER



2. SECOND FLOOR PLUMBING PLAN

1/4" = 1'-0"



1. FIRST FLOOR ENLARGED PLUMBING PLAN

1/4" = 1'-0"

PLAN NOTES

#	
1	2" CW, 3/4" HW, 1/2" RHW PIPING. REFER TO P11 FOR CONTINUATION.
2	4" G DN TO FIRST FLOOR.
3	RHW CIRCUIT VALVE ASSEMBLY. REFER TO DETAIL. CARTRIDGE FLOW RATE: 1.0 GPM.
4	PROVIDE UNDER LAV TYPE TRAP PRIMER. EXTEND TRAP PRIMING FEED TO DRAIN IN SPACE. REFER TO DETAIL.
5	1 1/4" CW, 1 1/4" HW, 3/4" RHW, 1 1/4" 140° HW TO TMV & RHWP. REFER TO DIAGRAM FOR CONTINUATION.
6	4" CONCRETE EQUIPMENT PAD.
7	1 1/4" CW, 1 1/4" 140° HW, 3/4" RHW, 1 1/4" G TO DWH. REFER TO PIPING DIAGRAM FOR CONTINUATION.
8	3" SAN DN IN CHASE.
9	3" SAN UP TO FD/FS.
10	3" V UP TO 3" VTR.
11	2" V DN.
12	2" V DN IN CHASE TO SERVE (10) FIXTURES. REFER TO STACK DIAGRAM(S) AND PLUMBING FIXTURE CONNECTION SCHEDULE.
13	1 1/2" CW DN TO FIRST FLOOR.
14	1" CW WITH ASSE 1013 BACKFLOW PREVENTER FOR HVAC MAKE-UP WATER CONNECTION. REFER TO HVAC PLANS FOR CONTINUATION.
15	1/2" CW DN TO WB SERVING REFRIGERATOR. REFER TO DETAIL.
16	REFER TO P11 FOR CONTINUATION.
17	3" G DN TO FIRST FLOOR
18	3" V UP TO 3" VTR
19	3" V DN.

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KEY PLAN

ENLARGED PLUMBING PLANS

P50

Karpinski
ENGINEERING
8800 Lyra Dr., Suite 530
Columbus, OH 43240
614-430-9820
karpinskieng.com

STATE OF OHIO
FRANKLIN A. EISENHOWER
E-65457
REGISTERED
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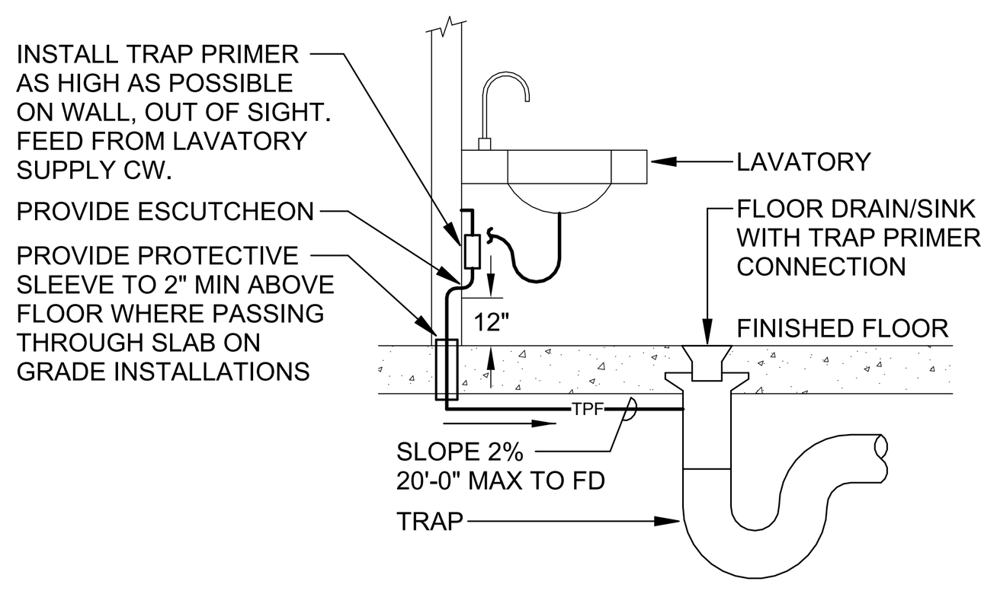
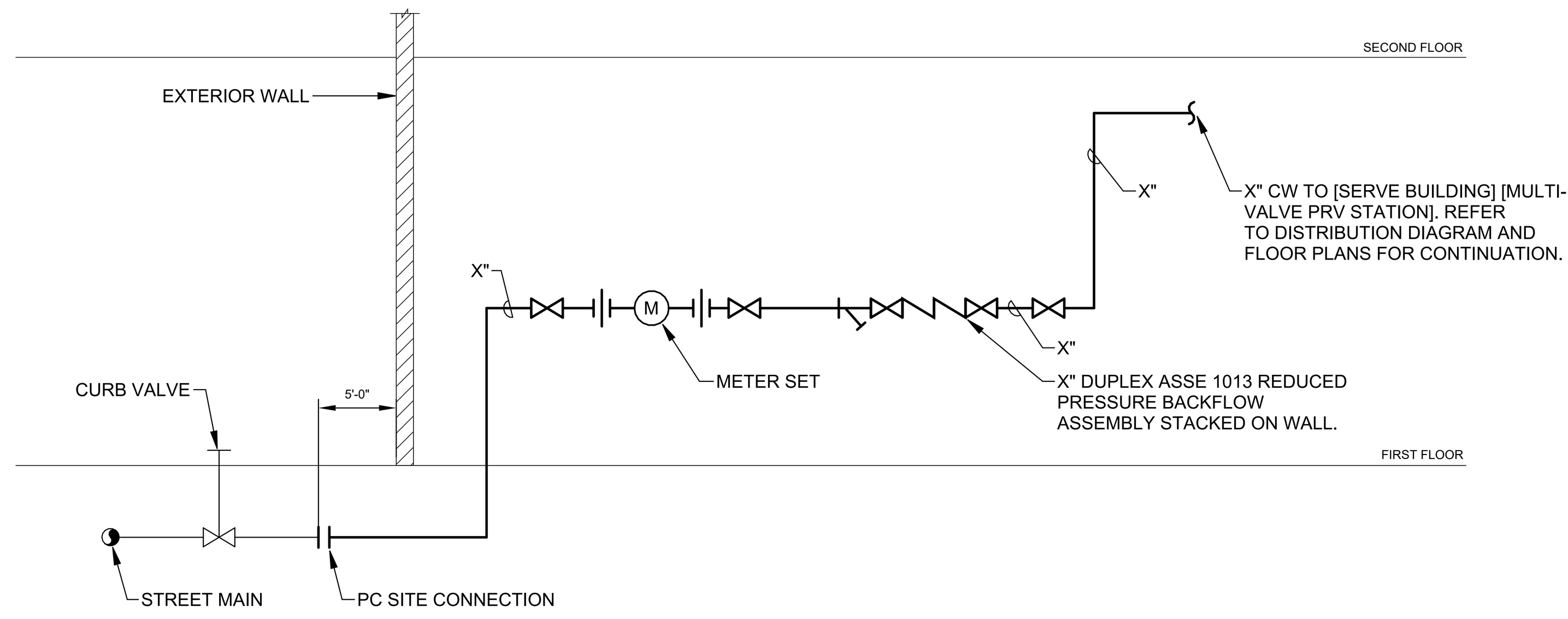


NOTE:
1. REFER TO PLANS FOR PRESCRIBED PLACEMENT.
2. PC SHALL MANUALLY PRIME ALL TRAPS AND FEED TUBING PRIOR TO COMPLETION OF PROJECT.
3. ALL FEED TUBING SHALL BE PITCHED 2% MIN TO FLOOR DRAINS AND RUN WITHOUT SAGGING.
4. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

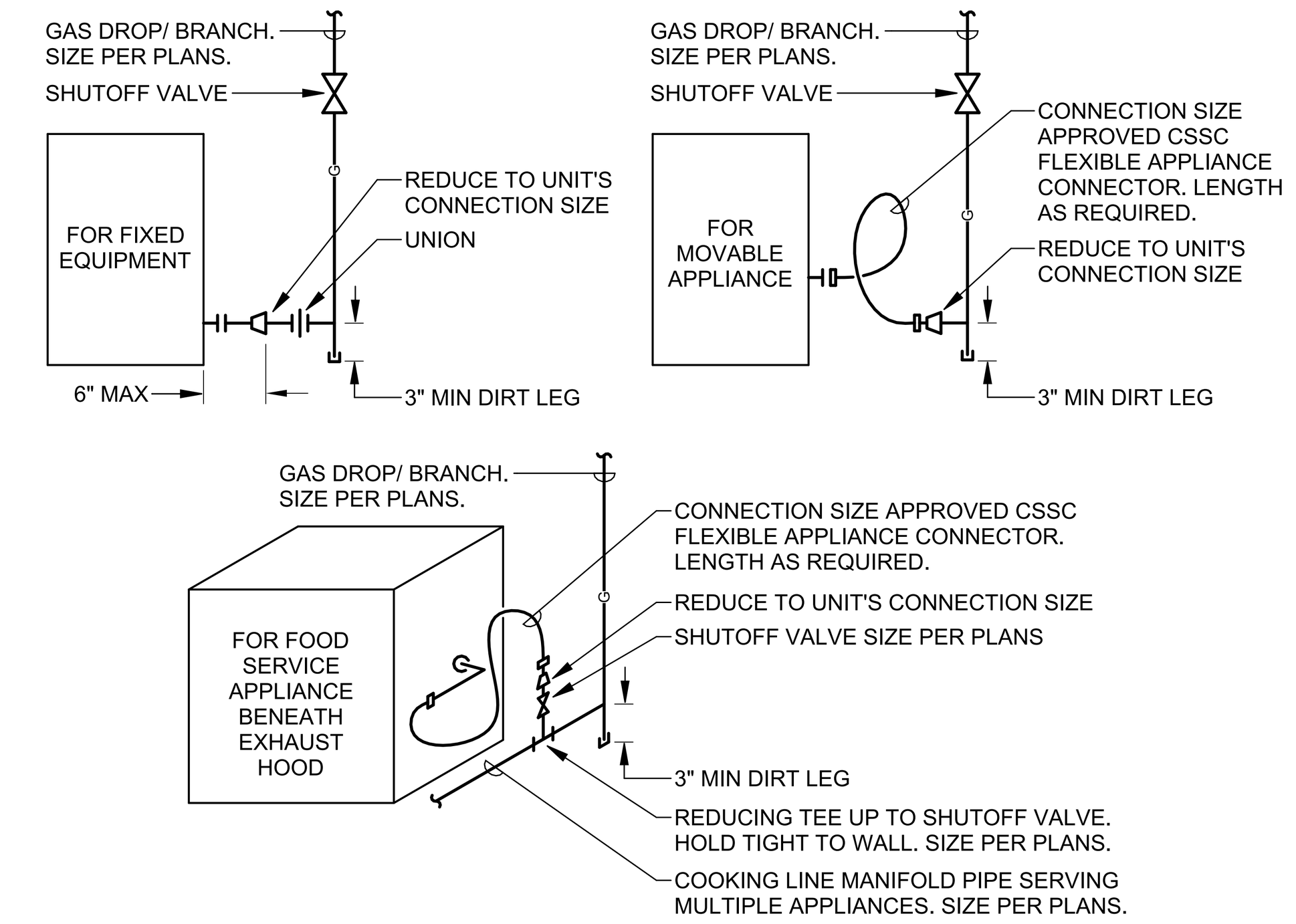
TRAP PRIMER DETAIL - UNDER LAV TYPE

SCALE: NONE



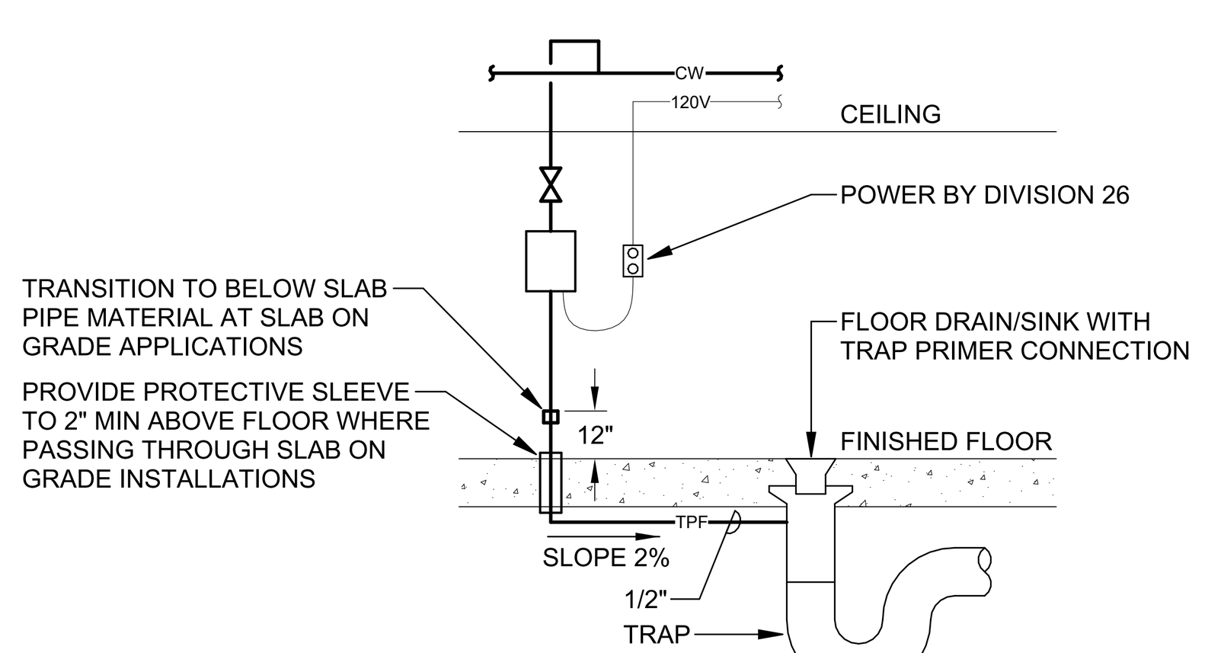
DOMESTIC WATER BUILDING ENTRY DIAGRAM

SCALE: NONE



GAS FIRED EQUIPMENT CONNECTION DETAILS

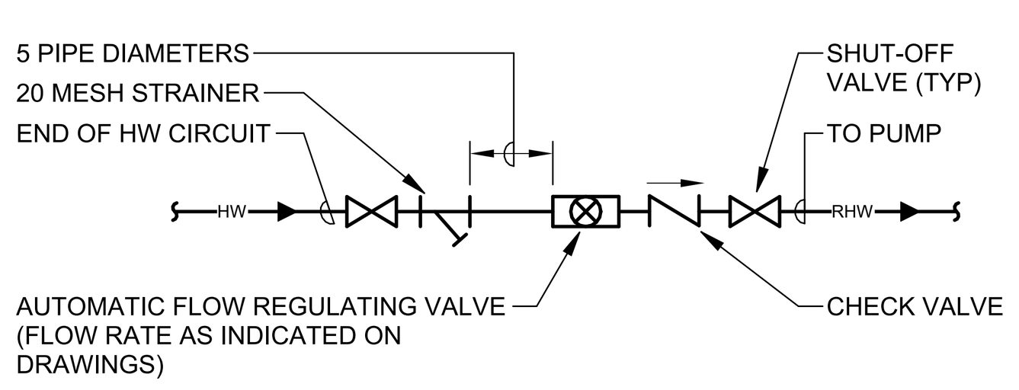
SCALE: NONE



NOTES:
1. REFER TO PLANS FOR PRESCRIBED PLACEMENT.
2. PC SHALL MANUALLY PRIME ALL TRAPS AND FEED TUBING PRIOR TO COMPLETION OF PROJECT.
3. ALL FEED TUBING SHALL BE PITCHED 2% MIN TO FLOOR DRAINS AND RUN WITHOUT SAGGING.
4. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
5. PROVIDE DISTRIBUTION UNIT(S) FOR SERVING MULTIPLE FLOOR DRAIN TRAPS OF SUITABLE MODELS.
6. FOR EXPOSED UNIT INSTALLATIONS IN ROOMS WITHOUT CEILINGS. INSTALL 66" AFF MINIMUM IN MECHANICAL ROOMS AND 84" AFF IN JANITOR'S CLOSETS.
7. PC TO COORDINATE ELECTRICAL ROUGH-IN WITH EC FOR ELECTRICALLY ACTIVATED UNITS.
8. ELECTRICAL UNITS TO BE INSTALLED EXPOSED WITHIN MECHANICAL SPACES

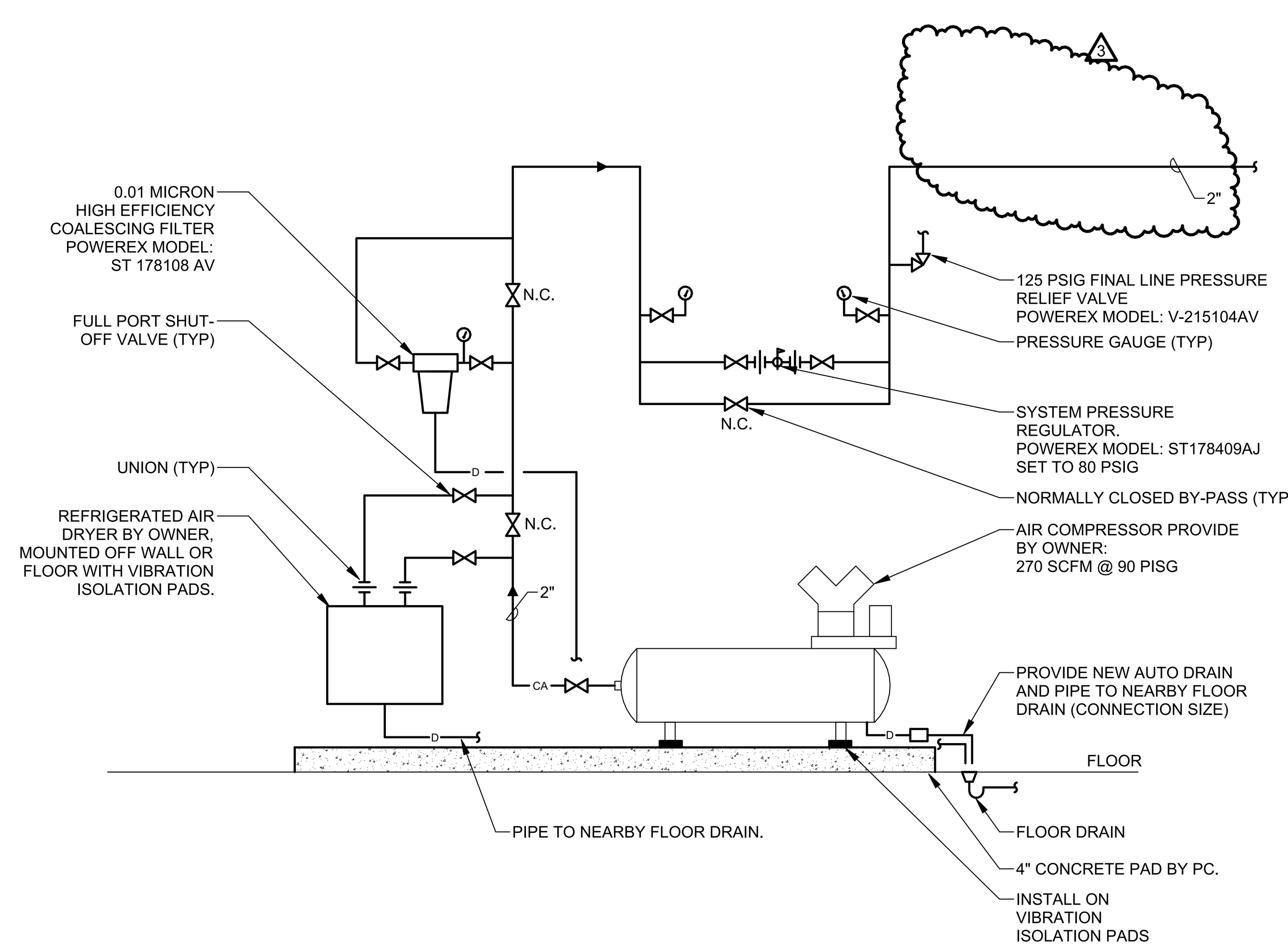
TRAP PRIMER DETAIL - ELECTRIC TYPE

SCALE: NONE



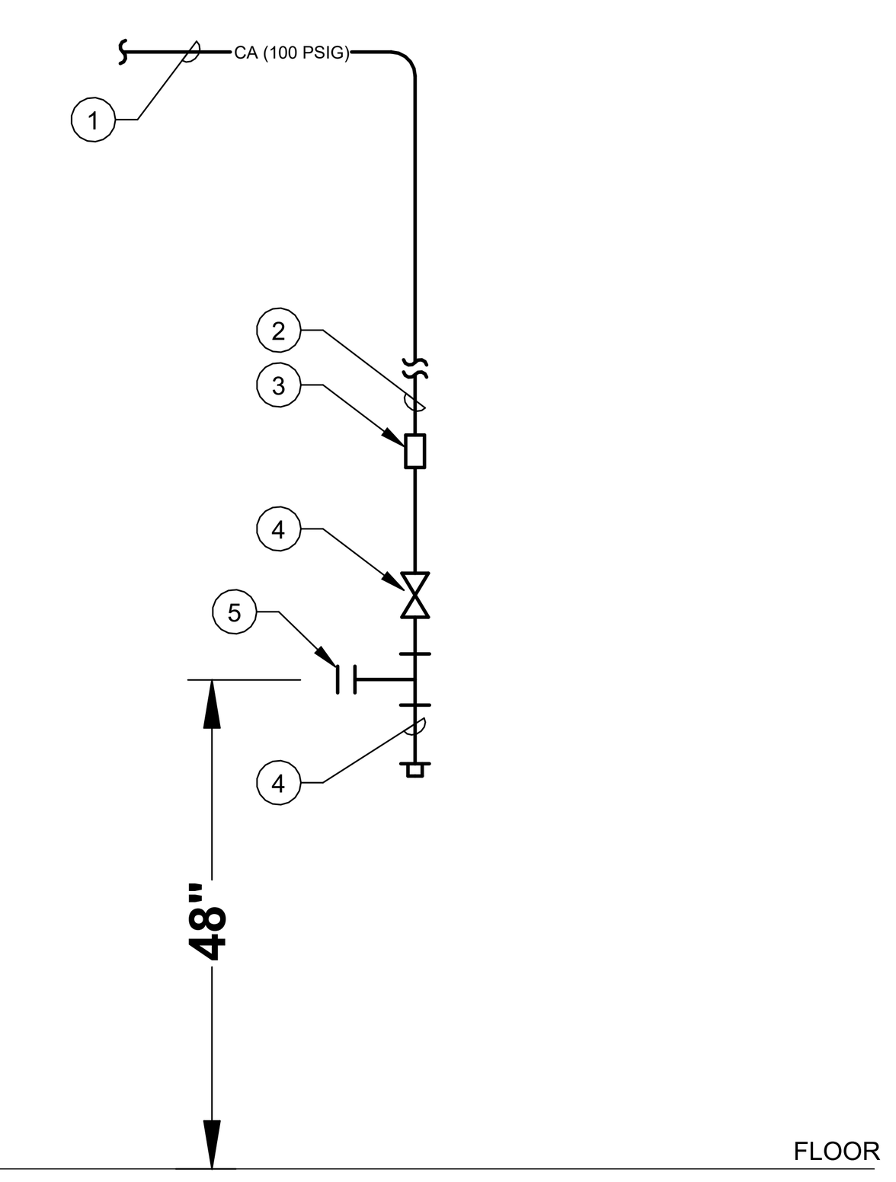
RECIRCULATING DOMESTIC HOT WATER CIRCUIT VALVING DETAIL

SCALE: NONE



UTILITY AIR SYSTEM PIPING DIAGRAM

SCALE: NONE

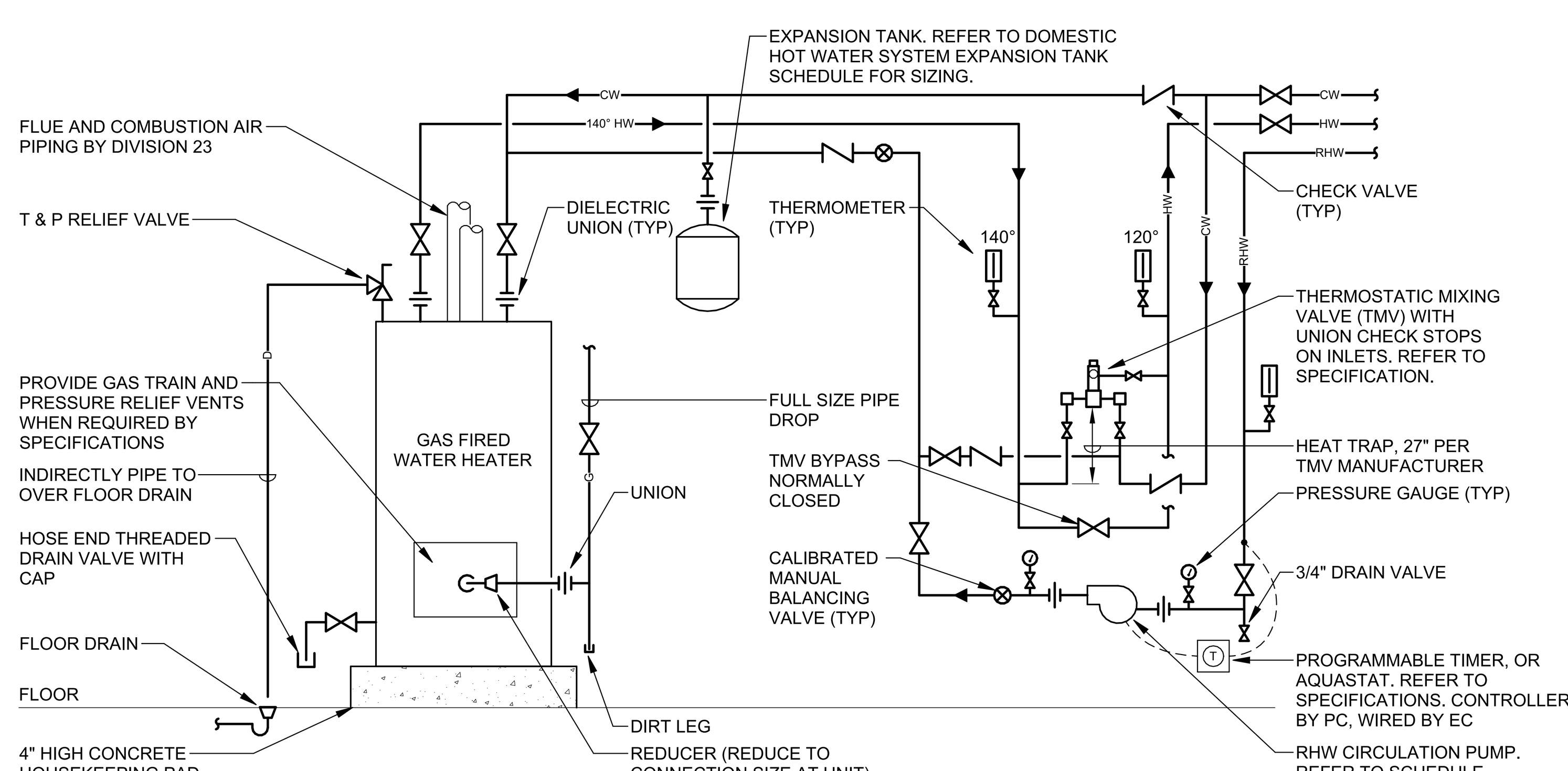


COMPRESSED AIR P.O.U. DROP DETAIL

SCALE: NONE

DETAIL NOTES:

1. BRANCH PIPING TIGHT TO UNDERSIDE OF EXISTING CEILING. DO NOT CREATE TRAPS FOR WATER.
2. 1/2" (TYPICAL FOR ALL DROPS).
3. PIPE LABEL.
4. FULL PORT BALL VALVE.
5. 1/2" THREADED TEE, CAPPED. OWNER TO SUPPLY FILTER REGULATOR ASSEMBLY TO MEET APPLICATION SPECIFIC NEEDS.
6. 4" NIPPLE WITH 1/2" DRAIN PLUG. DROPS AT END OF RUNS SHALL HAVE 1/2" BALL VALVE IN-LIEU OF CAP FOR BLOW DOWN.

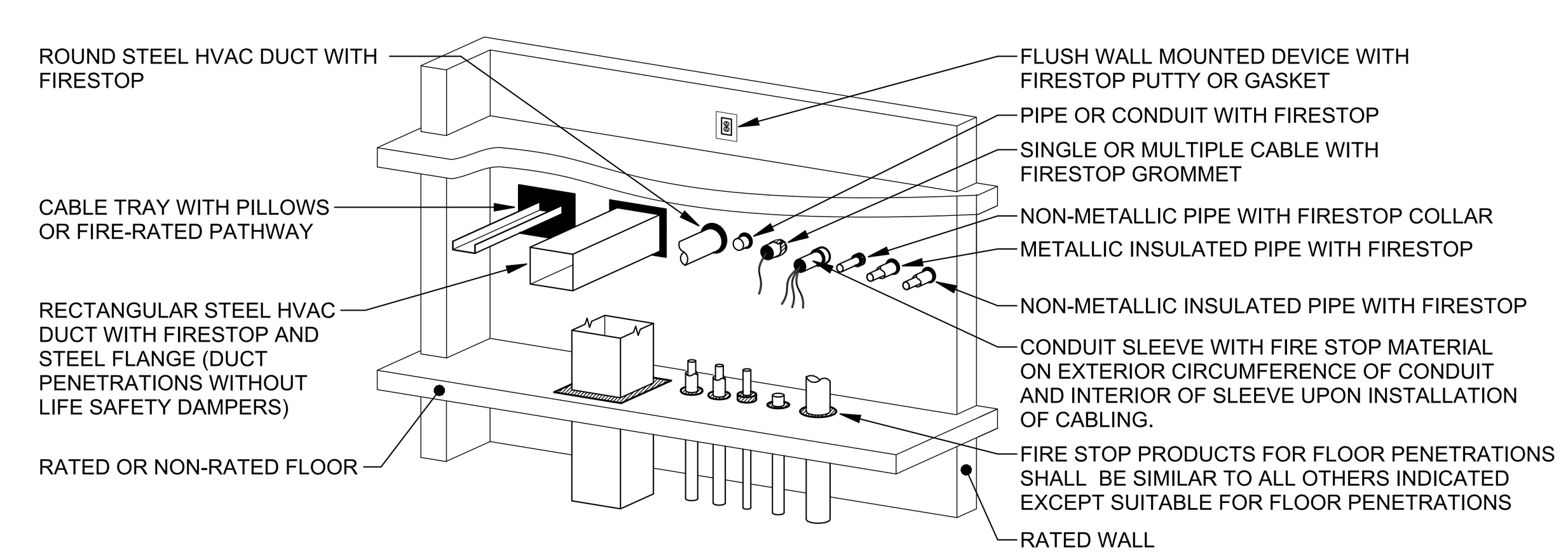


NOTES:
1. WATER HEATER CONNECTION LOCATIONS VARY PER MANUFACTURER.
2. BOTTOM FED TANK TYPE WATER HEATERS AND STORAGE TANKS SHALL BE PIPED WITH ANSI Z21.22 VACUUM RELIEF VALVE; WATTS NO. N36-M1 OR EQUIVALENT.

GAS FIRED WATER HEATER PIPING DIAGRAM - THERMOSTATIC MIXING VALVE

(ONE HEATER - ONE WATER TEMPERATURE)

SCALE: NONE



NOTES:
1. REFER TO UL FIRE RESISTANCE DIRECTORY FOR COMPLETE INSTALLATION REQUIREMENTS.
2. IN AN OCCUPIED BUILDING, PERMANENT FIRESTOPPING SHALL BE INSTALLED WITHIN 24 HOURS OF PENETRATING A FIRE-RATED ASSEMBLY. IF PERMANENT FIRESTOPPING CANNOT BE INSTALLED WITHIN THIS TIME PERIOD, TEMPORARY FIRESTOP PILLOWS/ BLOCKS ARE PERMITTED, WHERE INSTALLATION ALLOWS, UNTIL PERMANENT FIRESTOP MATERIALS CAN BE PROPERLY INSTALLED.
3. THIS DETAIL IS A GENERAL DEPICTION OF FIRESTOPPING CONDITIONS. SOME CONDITIONS MAY NOT APPLY TO THE PROJECT SCOPE. REFER TO APPLICABLE SPECIFICATIONS AND LIFE SAFETY DRAWINGS AND REFERENCES FOR ADDITIONAL INFORMATION.

FIRESTOPPING DETAIL

SCALE: NONE

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3	Addendum No 5	01/23/25

KEY PLAN

PLUMBING DETAILS AND DIAGRAMS

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