Addendum

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DATE: 10/11/2024

PROJECT: City of Springfield, Fire Station No. 5

PROJECT ADDRESS: 50 N. Thompson Avenue
Springfield, Ohio 45504

ADDENDUM NO. 4

RECEIPT OF THIS ADDENDUM MUST BE NOTED ON THE FORM OF PROPOSAL

TO ALL BIDDERS:

This addendum supplements and amends the original Plans and Specifications and shall be taken into account in preparing proposals and shall become part of the Contract Documents.

GENERAL ITEMS:

ITEM G1 Questions & Answers

Q1: Details D1 and D4 on sheet A5.01 show blocking and framing at the bay eave. Please provide details showing how these materials install to the PEMB structure

A1: D1/A5.01 is the eave detail at the conventional metal stud and truss condition at the living quarters. D4/A5.01 is the eave detail at the PEMB structure for the apparatus bays. The PEMB structure is delegated design. The final eave details will need to be coordinated with the PEMB manufacturer. D4/A5.01 shows the intent.

Q2: Acceptable Manufacturer A. Manufacturer: The equipment and service described in this specification are those supplied and supported by Notifier, whose catalog numbers are used herein for establishing equipment criteria. Other acceptable manufacturers are Cerberus Pyrotronics, Mircom, Simplex Grinnell or Honeywell/Silent Knight - Will Potter be an acceptable manufacturer for the fire alarm system?

A2: Please bid from manufacturers listed.

Q3: Spec calls out smoke/co alarms. These are 120vac. - Do they need to be monitored by the fire alarm control panel? Can these be substituted with smoke/co detectors with low frequency sounder bases? These would be connected and powered directly from the fire alarm control panel

A3: The Contractor may provide system smoke/CO detectors with low frequency sounder bases in lieu of standalone smoke/CO alarms monitored by F.A. System.

Q4: Regarding the PEMB insulation - Page A 4.0 says R38 roof – should we assume you want a filled cavity liner system? ---- walls show R19 with studs plus rigid board insulation, which

would you like us to include?

A4: Roof and wall cavities should be filled with batt insulation as noted, rigid at the CMU. Insulated Metal Panels are not required but can be provided at contractor's option with no additional cost to the owner.

Q5: I need to know if the Vinyl Wall Covering is mounted from the top of the base to the heights required on the interior elevations.

A5: All heights of vinyl wall covering (and wall protection) called out on the room finish schedule and on elevations are measured from the finished floor. Although the wall protection can extend down past 1/8" below the top of the base instead of starting at the floor.

Q6: Does the attic space require fire suppression per NFPA 22 edition, or can we use the specs provided on F0.1 utilizing NFPA 16 edition?

A6: Per NFPA 13 (2022) section 9.2.1.1and in NFPA 13 (2016) section 8.15.1.2, the attic is a concealed space of non-combustible construction and does not require sprinklers.

Q7: I believe it stated that all utilities were brought in by others, but the 4" backflow would be furnished and installed per the fire contractor, correct? -Also on the backflow, is there a hotbox these items are going into or a pit, or inside? -remote Storz FDC or Siamese on the exterior of the building?

A7: The division of labor is typical based on installer licensing but is subject to change if applicable licenses are obtained by installer. The site utility contractor will be required to be certified to install the underground fire service and line to the Storz connection.

The backflow preventer is in the vertical riser on the inside of the building as shown on the first-floor plan note 1 (the note is misplaced on the plan) and fire service detail on sheet F1.1 and is by the fire suppression contractor. The fire service detail is an interior elevation. The site utility contractor will bring the service into the building and turn it up. There is no pit or "hot box".

The site utility contractor will also run the underground piping from the remote Storz connection into the building as detailed on the remote fire department connection detail on sheet F1.1. They will again turn it up and provide a flanged connection. The Fire Suppression Contractor will connect to that and provide the check valve.

Q8: Are we to provide Category cabling to the Data outlet locations depicted on the drawings?

A8: Provide pathways only.

Q9: If we are to provide Category cabling to the outlet locations, would these category cables be owner terminated or should we provide wall plates, modules, and patch panes at the rack side?

A9: Provide pathways only.

Q10: Does any wiring need to be provided by for the card reader locations?

A10: Provide pathways only.

Q11: TV locations state to provide RG6 cabling. Is this correct? Termination by others?

A11: This is correct, just the coax to TV locations as a part of the electrical.

Q12: Wi-Fi Access points & cameras state to provide Category cabling. Is this correct? Termination by others?
A12: Provide pathways only.

Q13: On the utility page some of the proposed storm piping is marked with a **, what pipe material is needed for those lines?
A13: Pipes to meet the City of Springfield Specification 803 since they are within the right-of-way as stated in #3 of the Notes.

Q14: Based on the Geotech report we will be hitting fat clay and unsuitable fill materials how would you like to handle this existing soil?
A14: Per the Geotech report included in the Project Manual:

Section 3.1 - Bullet Point 4 - (for the whole building pad)
Option 1: Remove and replace the fat clays in the upper 2-feet of the finished subgrade.
Option 2: Chemically stabilize the upper 14-inches of the finished subgrade.

Section 3.1 - Bullet Point 7 - (at footings)
Where the bottom of the footing is within the fat clays: Overexcavate the footing an additional 2-feet and fill with CLSM or lean concrete.
Where the bottom of the footing is within the bedrock: Overexcavate the footing an additional 1-foot (into the rock) and fill with CLSM or lean concrete.

Any additional questions related to the Geotechnical Report should be directed to the Geotechnical Engineer.

Q15: The unit pricing gives specific quantities. Are these unit price quantities to be included in the base bid? If so, what is the expectation for No. 2, mass rock excavation? CY Price only?
A15: Unit price quantities are not included in the base bid. These will be used to calculate additional work if required. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

Q16: The S0.1 General Notes show a Seismic Importance Factor of 1.5. Do we need to account for Seismic-Grade Materials because this is an Essential Facility?
A16: Not sure what Seismic-Grade Materials you are referencing. If this is regarding structural steel, than the answer is "No, we do not need any special seismic steel materials for the superstructure." If this is regarding MEP, then the answer is "Yes, MEP systems must be braced accordingly."

Q17: Substitution Request to add Ellet Sign Company and Gemini Fabricated Aluminum Channel Letters to list of acceptable sign manufacturers.
A17: Yes, this is acceptable. See updates to specifications included in this addendum.

Q18: What is the amount per day for liquidated damages?
A18: Refer to general provisions provided with the bid documents:

103.34 Failure to Complete on Time. It is understood and mutually agreed by and between the CONTRACTOR and the CITY that time is of the essence of each and every portion of the contract, and that it is impossible to anticipate or calculate with any reasonable degree of certainty the actual monetary value of the damages which will be sustained by the CITY in the event that the Work is not completed within the time required by the Contract. It is, therefore, agreed that the CONTRACTOR shall pay to the CITY for each and every Calendar Day that any Work shall remain uncompleted beyond the time fixed in this Agreement for completion, or any authorized extension thereof, the sum as specified in the schedule of Liquidated Damages, not as a penalty but as liquidated damages; provided however, that due account shall be taken of any adjustment of the completion date granted under the provisions of Extension of Time.

103.341 to continue and finish the Work or any part of it after the day fixed for its completion, or after the date to which completion may have been extended, will in no way operate as a waiver on the part of the CITY or any of its rights under the Contract. The CITY may waive such portions of the liquidated damages as may accrue after the Work has reached substantial completion, as determined by the CITY and is in condition for safe and convenient use, but not before such time as substantial completion has been determined by the CITY.

SCHEDULE OF LIQUDATED DAMAGES

SCHEDULE OF LIQUDATED DAMAGES

Original Contract Amount		Amount of Liquidated Damages for Each Calendar Day of Overrun in Time
More than	but not exceeding	Daily Liquidated Damages
$0.00	$500,000	$500.00
500,000	2,000,000	700.00
2,000,000	10,000,000	1,250.00
over 10,000,000		2,000.00

103.342 The CITY shall have the right to deduct any and all liquidated damages from any funds due or to become due to the CONTRACTOR, or to sue for compensation for damages for non-performance of this Contract within the time stipulated and provided for.

Q19: Will Potter be an acceptable manufacturer for the fire alarm system?
A19: Please bid from manufacturer's listed

Q20: The Structural plan notes section (S0.1 Engineered Wood Trusses) indicate the trusses do NOT require FRT lumber. The actual plans (example - S3.1) indicate that they are to be built using FRT lumber. Clarify which to use? The only way to properly treat engineered wood trusses is to apply the FRT post-installation since the process of cutting/fabricating metal plate connected trusses can compromise the FRT lumber.
A20: S0.1 does not say anything about FRT trusses. Yes, all wood roof structures, including engineered trusses, are to be fire-retardant treated as noted on S0.3. It is our experience that truss suppliers use FRT lumber, not post-installation installed FRT.

Q21: The specifications include Section 09 7200 for a Vinyl Wall Covering Mural (VWM-1), locations are not provided on the drawings, provide the location, size and an image for pricing. Does this project include a Vinyl Wall Covering Mural? Provide the location, size and an image for pricing.
A21: Delete Specification 09 7200 Wall Coverings from project manual.

Q22: Are the wood doors and wood ceilings coming Prefinished?
A22: Yes, these items are prefinished, per specifications 08 1416 Flush Wood Doors paragraph 2.7 and 09 5426 Suspended Wood Ceilings paragraph 2.1.A.9.

Q23: Do the garage door frames need painted?
A23: Rails are not painted, all exposed steel in Apparatus Bay is painted per specifications.

Q24: Do we need to paint anything on the patio area?
A24: Split face block has integral color as selected from manufacturer's full range of colors. Any exposed steel should be painted per Exterior Painting specifications.

Q25: Trash enclosure- Gates paint metal and stain wood, But does the fence require staining?
A25: Yes. Refer to notes on A5.02.

Q26: Bollards - page A3.01 #10. Plastic covers. Do any of them paint?
A26: All bollards receive plastic covers. Plastic covers do not require paint.

Q27: Page A1.30, all penetrations through roof shall be painted?
A27: All penetrations through roof that are not prefinished to match roof shall be painted to match the roof, per manufacturer's recommendations.

Q28: Define exterior painting requirements.
A28: Refer to Specification 09 9113 Exterior Painting.

Q29: Are there any tap/capacity/inspection fees related to the new storm, sanitary and water systems in this area? If so, who is responsible for these fees? If these are to be provided by the contractor we suggest adding an allowance to cover these fees.
A29: City of Springfield is waiving the tapping/inspection fees.

Q30: Are there any electrical aid to construction fees? If so, who is responsible for these fees? If these are to be provided by the contractor we suggest adding an allowance to cover these fees.
A30: City of Springfield is paying for the electrical aid to construction costs.

Q31: We are required to submit a paper version of the bid form in addition to entering values in Bid Express. On the paper bid form, there are 5 unit prices required. It is unclear if we are to include the dollar amounts for these unit prices in our base bid or not. As an example, I just bid a job last week that had similar unit prices required based on the quantities provided (example: remove and replace 200 CY of unsuitable soils). We had to INCLUDE the price of those 200 CY of unsuitable soils at our submitted unit cost ($82 x 200 = $16,400) in our base bid proposal. With that one and the two for rock excavation, it added $90k to our base bid. I don't want to misunderstand the intent of the unit prices for this proposal. Please

advise.

A31: Unit price quantities are not included in the base bid. These will be used to calculate additional work if required. Quantities indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements of actual Work will determine the payment amount.

Q32: As mentioned in one of our earlier RFI's, we have multiple subcontractors telling us that they need more time to bid this project. The market is very busy right now. Please extend the bid date (and RFI date) one week so we can ensure the best value for the City.

A32: Due to review and approval time, dates cannot be extended.

ARCHITECTURAL SPECIFICATIONS:

ITEM AS1 SECTION 10 1419 – DIMENSIONAL LETTER SIGNAGE

1. Part 2, 2.2 Manufacturers – add manufacturer – Gemini Incorporated.

ITEM AS2 SECTION 10 1423 – PANEL SIGNAGE

1. Part 2, 2.2 Manufacturers – add manufacturer – Gemini Incorporated.

ITEM AS3 SECTION 10 1423.06 – ROOM-IDENTIFICATION PANEL SIGNAGE

1. Part 2, 2.2 Manufacturers – add manufacturer – Ellet Sign Company.

FIRE SUPPRESSION SPECIFICATIONS:

ITEM FS1 SECTION 21 0004 – FIRESTOPPING FOR FIRE SUPPRESSION SYSTEMS

1. Replace the specification section.

PLUMBING SPECIFICATIONS:

ITEM PS1 SECTION 22 0004 – FIRESTOPPING FOR PLUMBING SYSTEMS

1. Replace the specification section.

HVAC SPECIFICATIONS:

ITEM HS1 SECTION 23 0004 – FIRESTOPPING FOR HVAC SYSTEMS

1. Replace the specification section.

ITEM HS2 SECTION 23 7413 – PACKAGED DOAS SYSTEMS

1. Replace the specification section.

ITEM HS3 SECTION 23 8126 – VARIABLE REFRIGERANT VOLUME HEAT RECOVERY SYSTEM

1. Replace the specification section.

ELECTRICAL SPECIFICATIONS:

ITEM ES1 SECTION 26 0004 – FIRESTOPPING FOR ELECTRICAL SYSTEMS

1. Replace the specification section.

ARCHITECTURAL DRAWINGS:

ITEM A1 SHEET A1.11 – FLOOR PLAN ANNOTATED

1. Update Construction Note 9 to read "…refer to enlarged plans on sheet A5.02 and civil drawings…"
2. Update Construction Note 12 to read "…refer to A5.03 for details."
3. Update Construction Note 14 to read "…provide Type K fire extinguisher and associated cabinet at Kitchen location."
4. Sheet not reissued.

ITEM A2 SHEET A1.12 – FLOOR PLAN DIMENSIONED

1. Provide A2 wall at wing wall extension next to cabinets at Kitchen 110 to accommodate depth of fire extinguisher cabinet required to accommodate Type K fire extinguisher.
2. Sheet not reissued.

ITEM A3 SHEET A2.11 – REFLECTED CEILING PLAN

1. Construction Note 1 revised to indicate liner panels attached to the underside of the girts at the roof of the apparatus bays.

ITEM A4 SHEET A3.02 – BUILDING SECTIONS

1. Construction Notes 7 & 8 added to the sheets to call out liner panels in the apparatus bays.

ITEMS A5 SHEET A3.03 – BUILDING SECTIONS

1. Construction Notes 7 & 8 added to the sheets to call out liner panels in the apparatus bays.

ITEM A6 SHEET A4.02 – WALL SECTIONS

1. Wall Section F4 revised to show liner panels.

ITEM A7 SHEET A5.01 – EXTERIOR DETAILS ROOF

1. Detail D4 revised to show liner panels.

ITEM A8 SHEET A7.03 – INTERIOR ELEVATIONS

1. Added elevation C6 at 118 Decompression room.

FIRE SUPPRESSION DRAWINGS:

ITEM F1 SHEET F1.1 – FIRST FLOOR PLAN

1. Corrected locations of construction notes 1 and 2 on plan.
2. Clarified scope of work for site utility and fire suppression contractors on detail 1, F1.1.l.

END OF ADDENDUM NO. 4

ATTACHMENTS: Specifications: 21 0004, 22 0004, 23 0004, 23 7413, 23 8126, 26 0004
Drawings: A2.11, A3.02, A3.03, A4.02, A5.01 A7.03, F1.1

SECTION 21 0004 – FIRESTOPPING FOR FIRE SUPPRESSION SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.2 PERFORMANCE REQUIREMENTS

A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

B. Rated Systems: Firestopping assemblies shall be tested and rated in accordance with ASTM E814 (ANSI/UL 1479) Fire Tests of Through-Penetration Fire Stops (minimum positive pressure of .01 inches of water column) and E119 (ANSI/UL 263) Fire Tests of Building Construction and Materials Time-Temperature Curve. Firestopping shall provide an “F” fire rating equal to that of the construction being penetrated. Firestop systems shall meet all requirements of the Ohio Building Code.

C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

D. For through-penetration firestop systems exposed to view or above ceilings in air return plenums, provide products with flame-spread and smoke-developed indexes of less than 25 and 50, respectively, as determined per ASTM E 84.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Firestopping materials shall be manufactured and/or supplied by:

1. Hilti, Inc.
2. Johns Manville.
3. Nelson Firestop Products.
4. Specified Technologies Inc.
5. 3M; Fire Protection Products Division.
6. Tremco; Sealant/Weatherproofing Division.

2.2 FIRESTOPPING

A. Materials shall be in the form of caulk, putty, sealant, intumescent material, wrap strip, fire blocking, ceramic wool and other materials required for the UL listed assemblies. These shall be installed in conjunction with sleeves and materials for fill and damming.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Installation of all materials and assemblies shall be in accordance with UL assembly drawings and the manufacturer's instructions.

B. Installation shall be done by an experienced installer who is certified, licensed or otherwise qualified by the firestopping manufacturer as having the necessary training and experience.

C. Provide firestop system for every pipe at penetration of all fire resistance rated walls and horizontal assemblies.

D. Provide rigid supports for pipes on both sides of the fire resistance rated wall or assembly where required as part of the fire stop assembly.

E. Coordinate opening size and additional framing requirement with the General Contractor for each opening to meet the firestop installation requirements.

F. Annular space of penetrations of nonfire-resistant-rated floor, floor/ceiling assemblies, or the ceiling membrane of a nonfire-resistant rated roof/ceiling assembly shall be filled with an approved firestopping material to resist the free passage of flame and products of combustion.

G. Smoke Barriers:
1. Penetrations shall be sealed with a firestopping system to prevent the passage of smoke.

H. Smoke Partitions:
1. Penetrations shall be sealed with a caulking material to prevent the passage of smoke. Non-rated smoke partitions do not require a fire stopping system.

END OF SECTION 21 0004

SECTION 22 0004 – FIRESTOPPING FOR PLUMBING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes through-penetration firestoping systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.2 PERFORMANCE REQUIREMENTS

A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

B. Rated Systems: Firestopping assemblies shall be tested and rated in accordance with ASTM E814 (ANSI/UL 1479) Fire Tests of Through-Penetration Fire Stops (minimum positive pressure of .01 inches of water column) and E119 (ANSI/UL 263) Fire Tests of Building Construction and Materials Time-Temperature Curve. Firestopping shall provide an "F" fire rating equal to that of the construction being penetrated. Firestop systems shall meet all requirements of the Ohio Building Code.

C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

1. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

D. For through-penetration firestop systems exposed to view or above ceilings in air return plenums, provide products with flame-spread and smoke-developed indexes of less than 25 and 50, respectively, as determined per ASTM E 84.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of

construction condition penetrated, relationships to adjoining construction, and type of penetrating item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Firestopping materials shall be manufactured and/or supplied by:

1. Hilti, Inc.
2. Johns Manville.
3. Nelson Firestop Products.
4. Specified Technologies Inc.
5. 3M; Fire Protection Products Division.
6. Tremco; Sealant/Weatherproofing Division.

2.2 FIRESTOPPING

A. Materials shall be in the form of caulk, putty, sealant, intumescent material, wrap strip, fire blocking, ceramic wool and other materials required for the UL listed assemblies. These shall be installed in conjunction with sleeves and materials for fill and damming.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Installation of all materials and assemblies shall be in accordance with UL assembly drawings and the manufacturer's instructions.

B. Installation shall be done by an experienced installer who is certified, licensed or otherwise qualified by the firestopping manufacturer as having the necessary training and experience.

C. Provide firestop system for every pipe at penetration of all fire resistance rated walls and horizontal assemblies.

D. Coordinate opening size and additional framing requirement with the General Contractor for each opening to meet the firestop installation requirements.

E. Annular space of penetrations of nonfire-resistant-rated floor, floor/ceiling assemblies, or the ceiling membrane of a nonfire-resistant rated roof/ceiling assembly shall be filled with an approved firestopping material to resist the free passage of flame and products of combustion.

F. Smoke Barriers:
1. Penetrations shall be sealed with a firestopping system to prevent the passage of smoke.

G. Smoke Partitions:

1. Penetrations shall be sealed with a caulking material to prevent the passage of smoke. Non-rated smoke partitions do not require a fire stopping system.

END OF SECTION 22 0004

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SECTION 23 0004 – FIRESTOPPING FOR HVAC SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.2 PERFORMANCE REQUIREMENTS

A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

B. Rated Systems: Firestopping assemblies shall be tested and rated in accordance with ASTM E814 (ANSI/UL 1479) Fire Tests of Through-Penetration Fire Stops (minimum positive pressure of .01 inches of water column) and E119 (ANSI/UL 263) Fire Tests of Building Construction and Materials Time-Temperature Curve. Firestopping shall provide an "F" fire rating equal to that of the construction being penetrated. Firestop systems shall meet all requirements of the Ohio Building Code.

C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

1. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

D. For through-penetration firestop systems exposed to view or above ceilings in air return plenums, provide products with flame-spread and smoke-developed indexes of less than 25 and 50, respectively, as determined per ASTM E 84.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Firestopping materials shall be manufactured and/or supplied by:

1. Hilti, Inc.
2. Johns Manville.
3. Nelson Firestop Products.
4. Specified Technologies Inc.
5. 3M; Fire Protection Products Division.
6. Tremco; Sealant/Weatherproofing Division.

2.2 FIRESTOPPING

A. Materials shall be in the form of caulk, putty, sealant, intumescent material, wrap strip, fire blocking, ceramic wool and other materials required for the UL listed assemblies. Where required, these shall be installed in conjunction with sleeves and materials for fill and damming.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Installation of all materials and assemblies shall be in accordance with UL assembly drawings and the manufacturer's instructions.

B. Installation shall be done by an experienced installer who is certified, licensed or otherwise qualified by the firestopping manufacturer as having the necessary training and experience.

C. Provide firestop system for every pipe or duct at penetration of all fire resistance rated walls and horizontal assemblies.

D. Provide rigid supports for ducts or pipes on both sides of the fire resistance rated wall or assembly where required as part of the fire stop assembly.

E. Coordinate opening size and additional framing requirement with the General Contractor for each opening to meet the firestop installation requirements.

F. Annular space of penetrations of nonfire-resistant-rated floor, floor/ceiling assemblies, or the ceiling membrane of a nonfire-resistant rated roof/ceiling assembly shall be sealed with a firestopping system to resist the free passage of flame and products of combustion.

G. Where ducts penetrate fire rated assemblies and fire dampers are not indicated, the penetration shall be protected by an approved penetration firestop system installed as tested in accordance with ASTM E814 or UL 1479.

H. Smoke Barriers:
1. Penetrations shall be sealed with a firestopping system to prevent the passage of smoke.

I. Smoke Partitions:
   1. Penetrations shall be sealed with a caulking material to prevent the passage of smoke. Non-rated smoke partitions do not require a fire stopping system.

END OF SECTION 23 0004

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SECTION 23 7413 – PACKAGED DEDICATED OUTSIDE AIR SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes packaged, dedicated outside air units with the following components and accessories:

1. Direct-expansion cooling.
2. Gas furnace.
3. Hot Gas Reheat Coils
4. Roof curbs.

1.2 SUBMITTALS

A. Product Data: Include manufacturer's technical data for each DOAS unit, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories.

B. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

1. Wiring Diagrams: Power, signal, and control wiring.

C. Operation and maintenance data.

D. Warranty.

1.3 QUALITY ASSURANCE

A. ARI Compliance:

1. Comply with ARI 210/240 and ARI 340/360 for testing and rating energy efficiencies.
2. Comply with ARI 270 for testing and rating sound performance.
3. Comply with ARI 1060 for testing and rating of energy recovery module.

B. ASHRAE Compliance:

1. Comply with ASHRAE 15 for refrigerant system safety.
2. Comply with ASHRAE 33 for methods of testing cooling and heating coils.
3. Comply with applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IESNA 90.1 Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

D. NFPA Compliance: Comply with NFPA 90A and NFPA 90B.

E. UL Compliance: Comply with UL 1995.

F. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

G. Motors 1 HP and larger shall be “premium efficiency” series motor.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to replace components of units that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Compressors: Manufacturer's standard, but not less than five (5) years from date of Substantial Completion.
2. Warranty Period for Gas Furnace Heat Exchangers: Manufacturer's standard, but not less than ten (10) years from date of Substantial Completion.
3. Warranty Period for Solid-State Ignition Modules: Manufacturer's standard, but not less than three (3) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Daikin
2. Mitsubishi
3. Greenheck
4. CaptiveAire

2.2 CASING

A. Exterior Casing Material: Galvanized steel with factory-painted finish, with pitched roof panels and knockouts with grommet seals for electrical and piping connections and lifting lugs. Panels shall be easily removable for servicing all components.

B. Unit casing construction shall be double wall, 2” thick with minimum R-13 foam insulation.

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

2.3 FANS

A. Air circulating fans shall be either ECM or direct drive plenum type with backwards curved fan blades. Direct drive plenum fans shall be provided with a VFD capable of full fan modulation.

B. Condenser fans shall be either ECM or direct driven propeller type with wire guards.

2.4 COILS

A. Supply-Air Refrigerant Coil:

1. Aluminum plate fin and seamless copper tube in steel casing with equalizing-type vertical distributor.
2. Polymer strip shall prevent all copper coil from contacting steel coil frame or condensate pan.
3. Coil Split: Interlaced.
4. Condensate Drain Pan: Stainless steel formed with pitch and drain connections complying with ASHRAE 62.1-2019.

B. Hot Gas Refrigerant Reheat Coil

1. Aluminum tube micro-channel coil.

C. Outdoor-Air Refrigerant Coil:

1. Aluminum -plate fin and seamless copper tube in steel casing with equalizing-type vertical distributor.
2. Polymer strip shall prevent all copper coil from contacting steel coil frame or condensate pan.

2.5 REFRIGERANT CIRCUIT COMPONENTS

A. Compressor:
1. Hermetic, scroll, inverter duty, mounted on vibration isolators; with internal overcurrent and high-temperature protection, internal pressure relief, and crankcase heater.

B. Refrigeration Specialties:

1. Refrigerant: R-32, R-454b.
2. Expansion valve with replaceable thermostatic element.
3. Refrigerant filter/dryer.
4. Manual-reset high-pressure safety switch.
5. Automatic-reset low-pressure safety switch.
6. Minimum off-time relay.
7. Automatic-reset compressor motor thermal overload.
8. Brass service valves installed in compressor suction and liquid lines.

C. Refrigerant systems with an A2L or higher flammability classification, as defined in ASHRAE Standard 15 and 34, shall be equipped with a refrigerant leak detection system. The leak detection system shall provide the following mitigation controls to ensure there is never a build up of refrigerant greater than the lower flammability of the respective refrigerant. The following shall occur:
   a. Activate refrigerant system safety shut-off valves to reduce releasable refrigerant charge.
   b. Energize the air circulation fan(s).
   c. De-energize potential ignition sources, including open flames (direct and indirect gas furnaces) and unclassified electrical sources of ignition with apparent power rating greater than 1kVa, where the apparent power is the product of the circuit voltage and current rating.

2.6 AIR FILTRATION

1. Pre and Final filters as indicated on unit schedule.

2.7 GAS FURNACE

A. Description: Factory assembled, piped, and wired; complying with ANSI Z21.47 and NFPA 54.

1. CSA Approval: Designed and certified by and bearing label of CSA.

B. Burners: Stainless steel

1. Fuel: Natural gas.
2. Ignition: Electronically controlled electric spark or hot-surface igniter with flame sensor.

C. Heat-Exchanger and Drain Pan: Stainless steel.

D. Power Vent: Integral, motorized centrifugal fan interlocked with gas valve.

E. Safety Controls:

1. Gas Control Valve: Modulating type, 10-1 turndown.
2. Gas Train: Single-body, regulated, redundant, 24-V ac gas valve assembly containing pilot solenoid valve, pilot filter, pressure regulator, pilot shutoff, and manual shutoff.

2.8 ELECTRICAL POWER CONNECTION

A. Provide for single connection of power to unit with unit-mounted disconnect switch accessible from outside unit and control-circuit transformer with built-in overcurrent protection.

2.9 CONTROLS

A. Provide a factory mounted DDC controller capable of providing the sequence of operation described on the contract drawings. Controller shall have a BACnet MS/TP communication module. Provide control components as shown in control diagram.

B. Units shall be provided with the following external control components, for field installation:
   1. Supply duct static pressure sensor.

C. Control Accessories:
   1. Filter differential pressure switch with sensor tubing on either side of filter. Set for final filter pressure loss.
   2. Leaving Coil / Entering Fan Temperature Sensor
   3. Duct High Limit Switch
   4. Discharge Air Temperature Sensor
   5. Outside Air Temperature Sensor
   6. Supply Air Fan Proving
   7. Coil guards of painted, galvanized-steel wire.

2.10 ACCESSORIES

A. Coil guards of painted, galvanized-steel wire.

2.11 UNIT MOUNTING AND AIR DISCHARGE

A. Unit shall be mounted on grade. Secure to concrete equipment pad. Provide neoprene isolators below unit to facilitate rain water drainage from underneath unit.

B. Unit shall be provided with a side discharge for supply air. If the unit is not capable of being provided with a side discharge, a 24” curb shall be provided to facilitate installation of ductwork and an elbow with turning vanes below the unit.

   1. Curb shall be anchored to the concrete equipment pad.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The unit shall be set in place, shimmed level, and secured.

B. Provide condensate drainage piping from the drain pan per the contract documents. Provide a concrete splash block at the outlet of the condensate drain.

C. The Electrical Contractor will provide power wiring thru a fused disconnect switch to one set of power terminals in each unit. All other power and control wiring required for the completion of the systems shall be furnished and installed by the HVAC Contractor. All wiring shall be

furnished and installed by the HVAC Contractor. All wiring shall be run in ½" and larger conduit in accordance with applicable provisions of the Electrical Specifications.

END OF SECTION 23 7415

SECTION 23 8126 – VARIABLE REFRIGERANT VOLUME HEAT RECOVERY SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes split-system variable capacity heat recovery air-conditioning units consisting of separate evaporator-fan and compressor-condenser components. System shall be variable refrigerant volumes series heat and cool model.

B. Operation of the system shall permit either individual cooling or heating of each fan coil simultaneously or all of all the fan coil units associated with one branch cool/heat selector box. Each fan coil or group of fan coils shall be able to provide set temperature independently via a local remote controller, an Intelligent Controller, and System Graphical User Interface.

1.2 SUBMITTALS

A. Product Data: For each unit indicated. Include performance data in terms of capacities, outlet velocities, static pressures, sound power characteristics, motor requirements, and electrical characteristics.

B. Operation and maintenance data.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

C. ASHRAE/IESNA 90.1 Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

1.4 WARRANTY

A. The units shall have a manufacturer’s warranty for a period of 12 months from date of startup or 18 months from date of shipment, whichever comes first. The units shall have a limited labor warranty for a period of 12 months from date of startup or 18 months from date of shipment, whichever comes first. The compressors shall have a warranty of six (6) years from date of startup or six and ½ years from date of shipment, whichever comes first. During the stated period, should any part fail due to defects in material and workmanship, it shall be repaired or replaced at the discretion of equipment manufacturer according to manufacturer’s terms and conditions. All warranty service work shall be performed by a factory trained service professional.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Daikin – "VRV Emerion"
2. Trane/Mitsubishi - "Hyper Heat"
3. Carrier / Toshiba – "U-Series"

2.2 EVAPORATOR-FAN UNIT

A. 2'X2' Ceiling Cassette

1. Indoor unit shall be a wall mounted fan coil unit, operable with specified refrigerant, equipped with an electronic expansion valve. Includes wall mounting bracket. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature. A mildew-proof, polystyrene condensate drain pan and resin net mold resistant filter shall be included as standard equipment. The indoor unit's sound pressure shall range from 31 dB(A) to 41 dB(A) at low speed measured at 3.3 feet below and from the unit.

2. The unit shall be ceiling mounted in the lay-in grid.

3. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.

4. The unit shall be provided with either a built-in or factory supplied condensate pump.

B. Multi-Position Air Handling Unit

1. Indoor unit shall be a floor mounted vertical or horizontal right air handling unit, operable with the provided refrigerant, equipped with an electronic expansion valve and direct-drive ECM type fan with auto CFM adjustment, for installation within a conditioned space. When installed in a vertical configuration it shall have top discharge air and bottom return air. It shall be connected to the outdoor heat recovery unit. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature. Included as standard equipment, a condensate drain pan and drain pump kit that pumps to 18-3/8" from the drain pipe opening. The indoor units sound pressure shall range from 29 dB(A) to 40 dB(A) at low speed measured 5 feet below the ducted unit.

2. Unit shall be capable of 0.8" fan external static pressure.

C. Refrigerant Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 3 row cross fin copper evaporator coil with 13 fpi design completely factory tested.
4. The refrigerant connections shall be flare connections and the condensate will be 1-1/4" outside diameter PVC.
5. A condensate pan shall be located under the coil.
6. A condensate pump with a 18-3/8" lift shall be located below the coil in the condensate pan with a built in safety alarm.
7. A thermistor will be located on the liquid and gas line.

D. Evaporator Fan:

1. The fan shall be direct-drive DC (ECM) type fan, statically and dynamically balanced impeller with three fan speeds available.
2. The unit shall be equipment with an automatically adjusting external static pressure logic selectable during commissioning.
3. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range of 0.12 to 0.47 HP respectively.
4. The airflow rate shall be available in three settings.
5. The fan motor shall be thermally protected.
6. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings.
7. Fan motor external static pressure range for nominal airflow:

A. Filters:

1. Wall Mounted & Ceiling Cassette's
   a. Filters shall be reusable type, integral with the unit.

2. Multi-Position Air Handling Units
   a. Unit shall have a 1" filter slot. Provide a MERV 8 filter with unit.

2.3 AIR-COOLED, COMPRESSOR-CONDENSER UNIT

A. General:

1. The outdoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. The refrigeration circuit of the condensing unit shall consist of scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports and refrigerant regulator. High/low pressure gas line, liquid and suction lines must be individually insulated by the installing contractor between the outdoor and indoor units.
2. The outdoor unit can be wired and piped with outdoor unit access from the left, right, rear or bottom.
3. For future expansion each outdoor system shall be able to support the connection of up to 41 indoor units dependant on the model of the outdoor unit.

4. The system will automatically restart operation after a power failure and will not cause any settings to be lost.
5. The unit shall incorporate an auto-charging feature and a refrigerant charge check function.
6. The outdoor unit shall be modular in design and should allow for side-by-side installation with minimum spacing.
7. The following safety devices shall be included on the condensing unit; high pressure switch, control circuit fuses, crankcase heaters, fusible plug, high pressure switch, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
8. To ensure the liquid refrigerant does not flash when supplying to the various fan coil units, the circuit shall be provided with a sub-cooling feature.
9. Oil recovery cycle shall be automatic occurring 2 hours after start of operation and then every 8 hours of operation.
10. The outdoor unit shall be capable of heating operation at 0°F dry bulb ambient temperature without additional low ambient controls.
11. The system shall continue to provide heat to the indoor units in heating operation while in the defrost mode.

B. Casing steel, finished with baked enamel, with removable panels for access to controls, weep holes for water drainage, and mounting holes in base. Provide brass service valves, fittings, and gage ports on exterior of casing.

C. Compressor:

1. The inverter scroll compressors shall be variable speed (PAM inverter) controlled which is capable of changing the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures shall be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity (INV frequency or STD ON/OFF) shall be controlled to eliminate deviation from target value.
2. The inverter driven compressor in each condensing unit shall be of highly efficient reluctance DC (digitally commutating), hermetically sealed scroll “G-type” with a maximum speed of 7,980 rpm.
3. Neodymium magnets shall be adopted in the rotor construction to yield a higher torque and efficiency in the compressor. At complete stop of the compressor, the neodymium magnets will position the rotor into the optimum position for a low torque start.
4. The capacity control range shall be 6% to 100%.
5. Each non-inverter compressor shall also be of the hermetically sealed scroll type.
6. Each compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
7. Oil separators shall be standard with the equipment together with an intelligent oil management system.
8. The compressor shall be spring mounted to avoid the transmission of vibration.
9. Units sized 20 nominal ton shall contain a minimum of 4 compressors. In the event of compressor failure the remaining compressors shall continue to operate and provide heating or cooling as required at a proportionally reduced capacity. The microprocessor and associated controls shall be designed to specifically address this condition.
10. In the case of multiple condenser modules, conjoined operation hours of the compressors shall be balanced by means of the Duty Cycling Function, ensuring sequential starting of

each module at each start/stop cycle, completion of oil return, completion of defrost or every 8 hours.

D. Refrigerant Coil:

1. The condenser coil shall be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The heat exchanger coil shall be of a waffle louver fin and rifled bore tube design to ensure high efficiency performance.
3. The heat exchanger on the condensing units shall be manufactured from Hi-X seamless copper tube with N-shape internal grooves mechanically bonded on to aluminum fins to an e-Pass Design.
4. The fins are to be covered with an anti- corrosion acrylic resin and hydrophilic film type E1.
5. The pipe plates shall be treated with powdered polyester resin for corrosion prevention. The thickness of the coating must be between 2.0 to 3.0 microns

E. Fan:

1. The condensing unit shall consist of one or more propeller type, direct-drive 750 W fan motors that have multiple speed operation via a DC (digitally commutating) inverter.
2. The condensing unit fan motor shall have multiple speed operation of the DC (digitally commutating) inverter type, and be of high external static pressure and shall be factory set as standard at 0.12 in. WG. A field setting switch to a maximum 0.32 in. WG pressure is available to accommodate field applied duct for indoor mounting of condensing units.
3. The fan shall be a vertical discharge configuration.
4. The fan motor shall have inherent protection and permanently lubricated bearings and be mounted.
5. The fan motor shall be provided with a fan guard to prevent contact with moving parts.
6. Night setback control of the fan motor for low noise operation by way of automatically limiting the maximum speed shall be a standard feature. Operation sound level shall be selectable from 3 steps.

2.4 BRANCH SELECTOR BOX

A. General: The branch selector box shall be specifically designed for use with variable refrigerant volume heat recovery systems.

1. The selector boxes shall be factory assembled, wired, and piped.
2. The selector boxes controllers must be run tested at the factory.
3. The selector boxes must be mounted indoors.
4. When simultaneously heating and cooling, the units in heating mode shall energize their subcooling solenoid valve.
5. The number of connectable indoor units shall be in accordance with the plan drawings. One branch selector box per fan coil to allow each fan coil individual heatingor cooling control.

B. Unit Cabinet:

1. Units shall have a galvanized steel plate casing.
2. Each cabinet shall house multiple refrigeration control valves and a liquid gas separator.
3. The cabinet shall contain a tube in tube heat exchanger.
4. The unit shall have sound absorption thermal insulation material made of flame and heat resistant foamed polyethylene.

C. Refrigerant Valves

1. The unit shall be furnished with 5 electronic expansion valves to control the direction of refrigerant flow.
2. The refrigerant connections shall be of the braze type.

D. Drainage: The branch selector unit shall not require any condensate drainage connection.

2.5 CONTROLS

A. Each fan coil unit shall be provided with a room mounted zone controller that includes an integral room temperature sensor. The sensor shall have an LCD display and room temperature setpoint capability.

B. Control wiring between room sensor, fan coil unit, branch selector unit and outdoor unit shall be 16VDC non-shielded, stranded 2 conductor cable.

C. A graphical user interface control panel will be used to allow building operator to monitor all system fan coils and outdoor heat recovery unit. The user interface will include an LCD screen with graphical representation of each fan coil and outdoor unit. The Graphical User Interface will allow the building operator to view individual fan coil and outdoor unit diagnostics and set points. The Graphical User Interface will allow the building operator to set the operating schedule of the equipment through the scheduling function.

2.6 REFRIGERANT

A. Unit shall utilize one of the following refrigerants:
1. R-410a

2.7 DEFROST CYCLES

A. The condensing unit shall have the option of a continuous heating defrost cycle.

2.8 ACCESSORIES

A. Provide a 12” tall condensing unit stand from the unit manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install evaporator-fan components using manufacturer's standard mounting devices securely fastened to building structure.

B. Install ground-mounted, compressor-condenser components on concrete pad. If the manufacturer requires condensing units to be mounted on a stand for condensate runoff, the manufacturer shall provide the appropriate stand.

C. Provide vibration isolation for Ceiling Suspended Fan Coil Units.

D. Refer to VRF system detail on HVAC drawings for additional installation information.

E. Provide mounting stand for vertical Multi-Position Air Handling Unit type fan coil units.

F. Provide additional refrigerant charge as required for system to function properly.

G. Provide all required control wiring and power to control components.

H. Install and program wireless communication device and assist owner with set-up of phone application.

3.2 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect**,** test, and adjust field-assembled components and equipment installation, including connections.

B. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

C. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new components, and retest.

D. Startup and configuration of the Graphical User Interface shall be provided by the unit manufacturer. Training on use of the control system is to be part of 1 day owner training provided by the unit manufacturer

END OF SECTION 23 8126

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SECTION 26 0004 – FIRESTOPPING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.

1.2 PERFORMANCE REQUIREMENTS

A. General: For penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.

B. Rated Systems: Firestopping assemblies shall be tested and rated in accordance with ASTM E814 (ANSI/UL 1479) Fire Tests of Through-Penetration Fire Stops (minimum positive pressure of .01 inches of water column) and E119 (ANSI/UL 263) Fire Tests of Building Construction and Materials Time-Temperature Curve. Firestopping shall provide an "F" fire rating equal to that of the construction being penetrated. Firestop systems shall meet all requirements of the Ohio Building Code.

C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.

1. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

D. For through-penetration firestop systems exposed to view or above ceilings in air return plenums, provide products with flame-spread and smoke-developed indexes of less than 25 and 50, respectively, as determined per ASTM E 84.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For each through-penetration firestop system, submit documentation, including illustrations, from a qualified testing and inspecting agency, showing each type of

construction condition penetrated, relationships to adjoining construction, and type of penetrating item.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Firestopping materials shall be manufactured and/or supplied by:

1. Hilti, Inc.
2. Johns Manville.
3. Nelson Firestop Products.
4. Specified Technologies Inc.
5. 3M; Fire Protection Products Division.
6. Tremco; Sealant/Weatherproofing Division.

2.2 FIRESTOPPING

A. Materials shall be in the form of caulk, putty, sealant, intumescent material, wrap strip, fire blocking, ceramic wool and other materials required for the UL listed assemblies. These shall be installed in conjunction with sleeves and materials for fill and damming.

PART 3 - EXECUTION

3.1 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

A. General: Installation of all materials and assemblies shall be in accordance with UL assembly drawings and the manufacturer's instructions.

B. Installation shall be done by an experienced installer who is certified, licensed or otherwise qualified by the firestopping manufacturer as having the necessary training and experience.

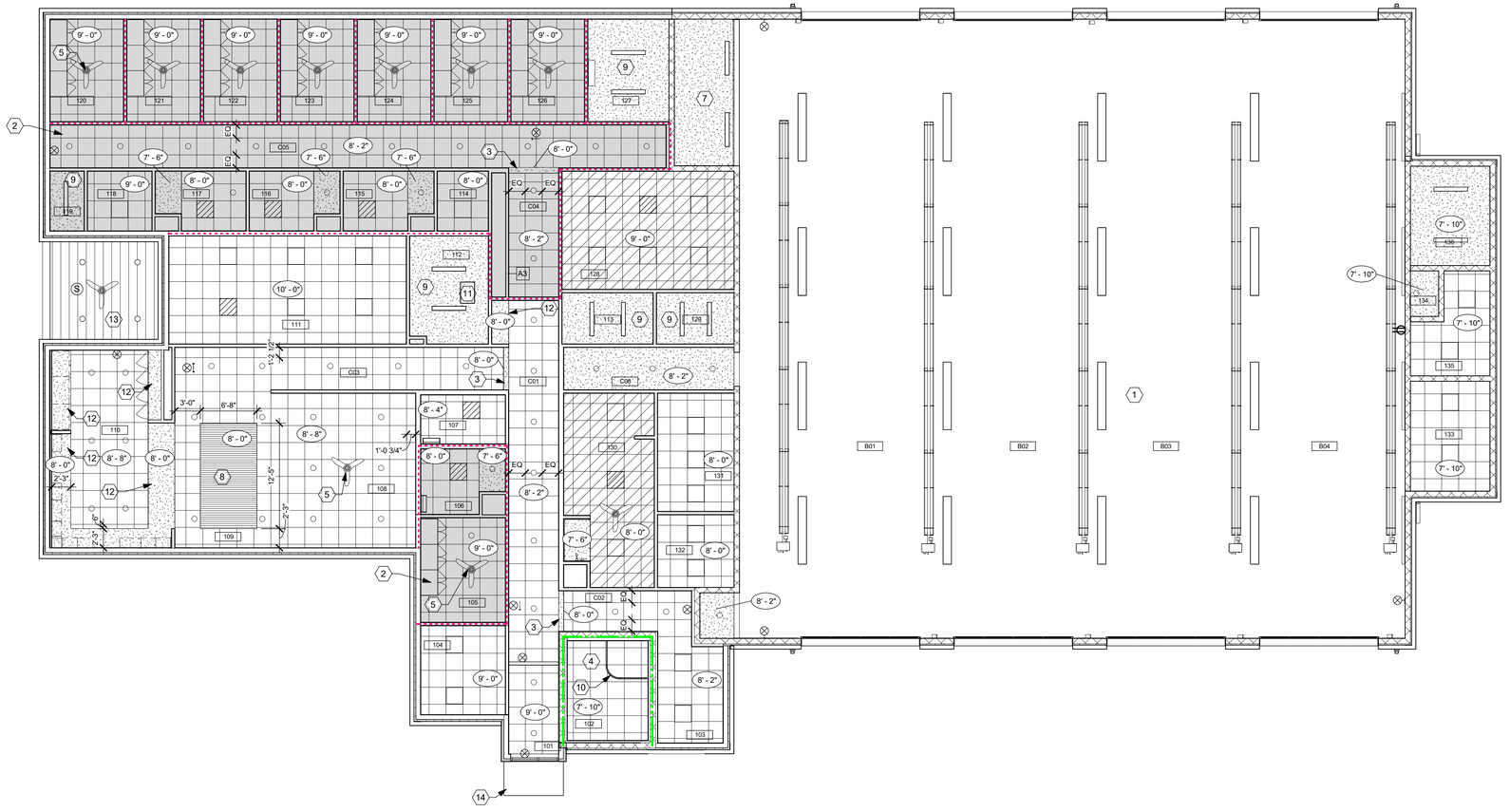
C. Provide firestop system for every conduit or opening at penetration of all fire resistance rated walls and horizontal assemblies.

D. Provide rigid supports for conduit on both sides of the fire resistance rated wall or assembly where required as part of the fire stop assembly.

E. Coordinate opening size and additional framing requirement with the General Contractor for each opening to meet the firestop installation requirements.

F. Refer to 26 0533 Raceway and Boxes for Electrical Systems for sleeve requirements and treatment of penetrations not requiring firestopping.

END OF SECTION 26 0004



E1 CEILING PLAN
1/8" = 1'-0"

CONSTUCTION NOTES

00 INDICATES CONSTRUCTION NOTE.

1 PRE-FINISHED R-PANEL, 26 GA., TBS LINER PANELS FASTENED TO THE UNDERSIDE OF ROOF GIRTS IN APPARATUS BAYS.

2 CEILING TYPE F5. U.L. P522 RATED CEILING MOUNTED TO UNDERSIDE OF TRUSSES (ABOVE APC CEILING) REQUIRED IN R-2 SLEEPING AREA. SHADED AREA IS DEMARCATION OF SLEEPING AREA.

3 FRAMED GYPSUM BULKHEAD. REFER TO SHEET A0.10 FOR DETAILS.

4 CEILING TYPE F6. UL NO. D219. 8" DEEP CONCRETE SLAB OVER TORNADO SHELTER, ABOVE APC CEILING (REFER TO STRUCTURAL DRAWINGS).

5 CEILING FAN TO BE CENTERED IN CEILING TILE WHEN IN APC CEILING. TYPICAL.

7 EXTERIOR GYPSUM BOARD CEILING OVER VAPOR BARRIER MOUNTED TO UNDERSIDE OF TRUSS.

8 SUSPENDED LINEAR WOOD CEILING. REFER TO MATERIAL LEGEND AND SPECIFICATIONSFOR DETAILS. PERIMETER TO MATCH SLATS WITH NO GAPS.

9 GYPSUM BOARD CEILING OVER VAPOR BARRIER MOUNTED TO BOTTOM OF TRUSS.

10 CUBICLE CURTAIN. REFER TO SHEET A0.10 FOR DETAILS. BASIS OF DESIGN: INPRO CORPORATION, FORMATRAC. PVC CURTAIN TRACK: NOT LESS THAN 1-1/4" WIDE X 15/16" HIGH. CURTAIN GROMMETS: TWO-PIECE, ROLLED EDGE, RUSTPROOF, NICKEL PLATED BRASS; SPACED NOT MORE THAN 6" O.C.; MACHINED INTO TOP HEM. MESH TOP: NOT LESS THAN 22" HIGH MESH TOP OF No. 50 NYLON MESH. CURTAIN TIEBACK: NICKEL-PLATED BRASS CHAIN; ONE AT WET WALL.

11 ATTIC ACCESS PANEL. COORDINATE EXACT LOCATION WITH STRUCTURE ABOVE. BASIS OF DESIGN: BEST ACCESS DOORS, 20" X 30" GENERAL PURPOSE PANEL WITH FLANGE, SKU# BA-AHD-22-30, OR ARCHITECT APPROVED EQUAL. COORDINATE EXACT MOUNTING LOCATION WITH STRUCTURE AND MEP EQUIPMENT.

12 FRAMED GYP. BOARD SOFFIT. REFER TO A0.10 FOR DETAILS. PAINT ALL SIDES P-3.

13 ALUMINUM SOFFIT PANEL CEILING TO UNDERSIDE OF TRUSS.

14 ALUMINUM AWNING. REFER TO A5.06 FOR DETAILS.

2X2 APC-1 CEILING

2X2 APC-2 CEILING

GYP. BD. CEILING GYP-1

LINEAR WOOD CEILING WD-1

ALUMINUM SOFFIT PANEL CEILING

GENERAL NOTES

A. REFER TO ROOM FINISH SCHEDULE, MATERIALS LEGEND, AND SPECIFICATIONS FOR CEILING TYPES AND FINISHES.

B. LAYOUT GRIDS TO BALANCE BORDER WIDTHS AT OPPOSITE EDGES. BORDER TILES TO BE 3" MINIMUM U.N.O. INSTALL EDGE MOLDING AT PERIMETER U.N.O.

C. REFER TO PME DRAWINGS FOR DEVICE DESCRIPTIONS.

D. ALL EXPOSED GYPSUM PLASTER BOARD SURFACES SHALL BE PAINTED.

E. EXPOSED STRUCTURE SHALL BE PAINTED PER SPECIFICATIONS.

F. GENERAL CONTRACTOR TO COORDINATE THE LOCATION OF ALL ALERTING SYSTEM DEVICES WITH THE DEVICES SHOWN ON THIS PLAN.

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STATE OF OHIO · TIMOTHY J BEMENT · 12305 · REGISTERED ARCHITECT
Timothy J. Bement, License #12305
Expiration Date 12/31/2025

CITY OF SPRINGFIELD

FIRE STATION NO. 5

50 N. Thompson Avenue, Springfield, Ohio 45504

ISSUE

NO.	DATE	DESCRIPTION
	08/29/2024	FOR CONSTRUCTION
1	10/11/2024	ADDENDUM 4

DATE	08/29/2024
JOB NO.	4088.03
DRAWN	AEE/MSM
CHECKED	CMS

TITLE
REFLECTED CEILING PLAN

SHEET NO.
A2.11

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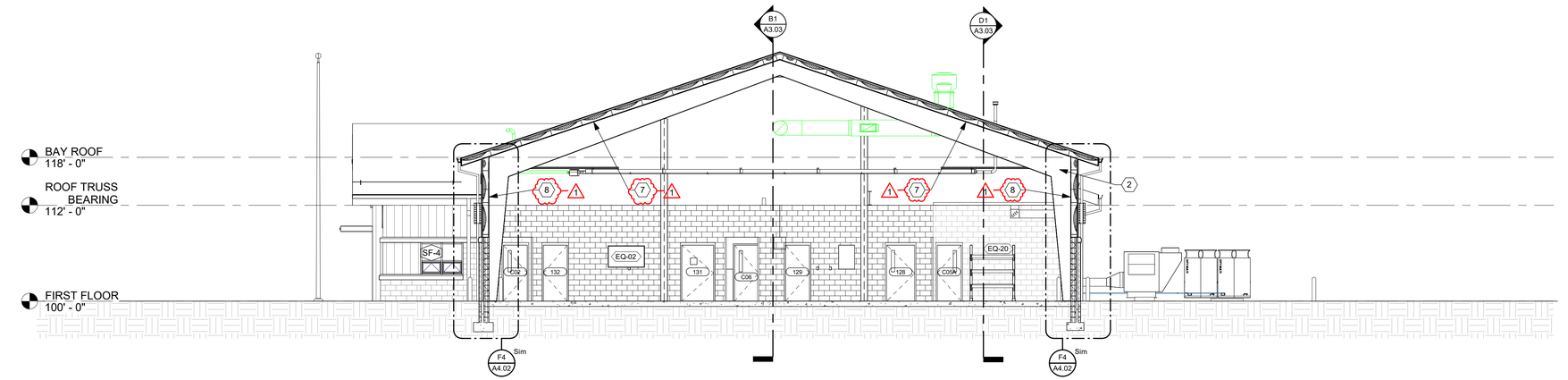
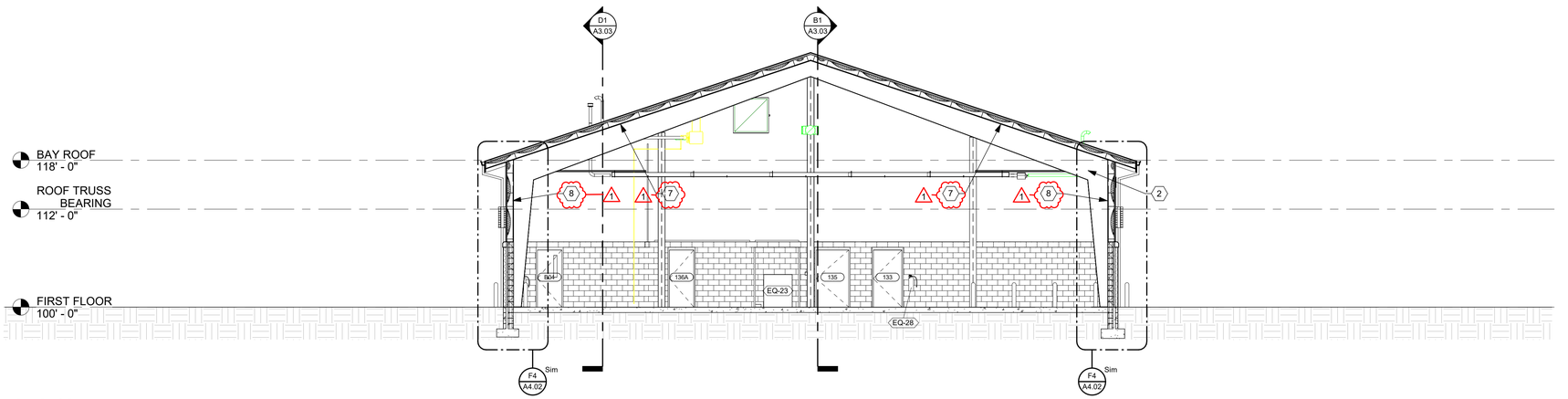
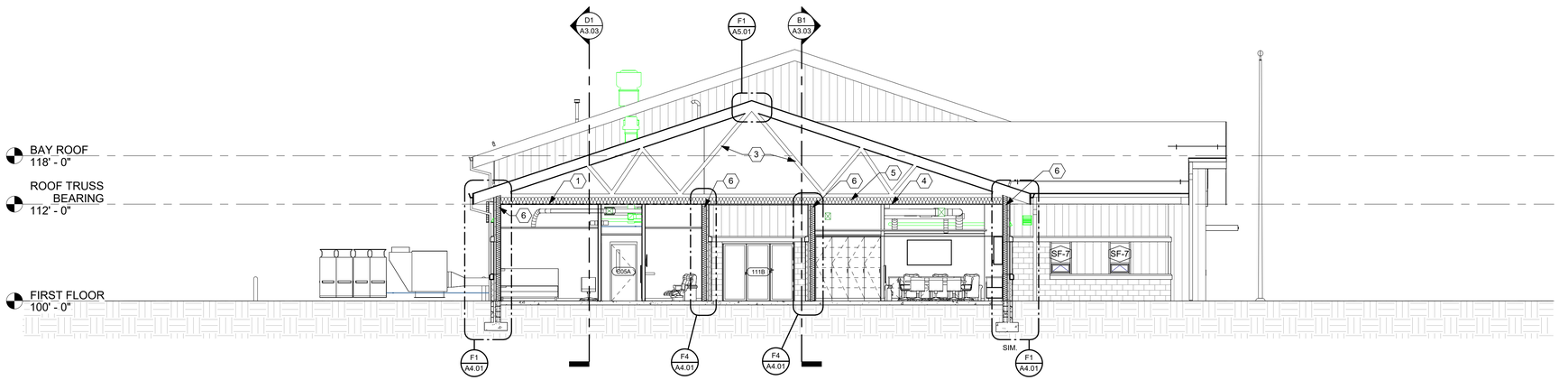


B1 SECTION A
1/8" = 1'-0"



D1 SECTION B
1/8" = 1'-0"



F1 SECTION C
1/8" = 1'-0"

CONSTRUCTION NOTES

00 INDICATES CONSTRUCTION NOTE.
*NOT ALL NOTES USED THIS SHEET

1 RATED ASSEMBLY F5 OVER DORM AREAS. REFER TO WALL TYPES SCHEDULE AND CEILING PLAN.

2 PRE-ENGINEERED STRUCTURE.

3 TRUSSES SHOWN FOR REFERENCE ONLY. REFER TO STRUCTURAL DRAWINGS.

4 GYP. BOARD OVER VAPOR BARRIER FASTENED TO THE BOTTOM OF TRUSS.

5 LOOSE FILL GLASS-FIBER INSULATION (R30) ALONG BOTTOM CHORD OF TRUSSES.

6 SOUND ATTENUATION BATT. IN METAL STUD WALL.

1 7 PRE-FINISHED R-PANEL, 26 GA., TBS LINER PANELS WITH MAJOR RIBS 12" ON CENTER & 36" COVERAGE FASTENED TO THE UNDERSIDE OF ROOF GIRTS IN APPARATUS BAYS.

1 8 PRE-FINISHED R-PANEL, 26 GA., TBS LINER PANELS WITH MAJOR RIBS 12" ON CENTER & 36" COVERAGE FASTENED TO THE INTERIOR SIDE OF GIRTS FROM TOP OF CMU UP TO THE CEILING. TYPICAL EVERYWHERE IN APPARATUS BAYS.

GENERAL NOTES

A. PME AND STRUCTURAL ITEMS SHOWN FOR REFENCE ONLY REFER TO PME AND STRUCTURAL SHEETS FOR FURTHER DETAILS.

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STATE OF OHIO TIMOTHY J BEMENT 12305 REGISTERED ARCHITECT
Timothy J. Bement, License #12305
Expiration Date 12/31/2025

CITY OF SPRINGFIELD

FIRE STATION NO. 5

50 N. Thompson Avenue, Springfield, Ohio 45504

ISSUE

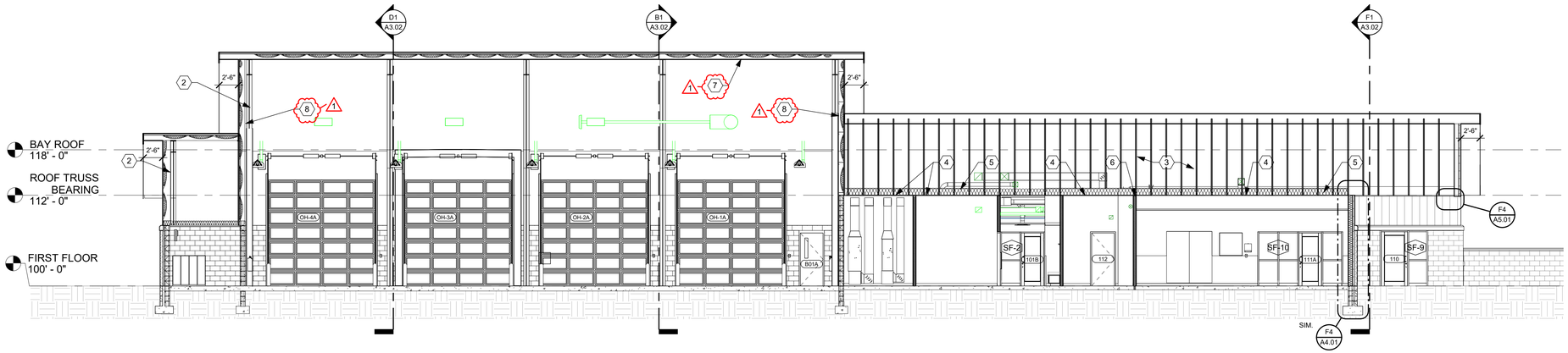
NO.	DATE	DESCRIPTION
	08/29/2024	FOR CONSTRUCTION
1	10/11/2024	ADDENDUM 4

DATE	08/29/2024
JOB NO.	4088.03
DRAWN	AEE/MSM
CHECKED	CMS

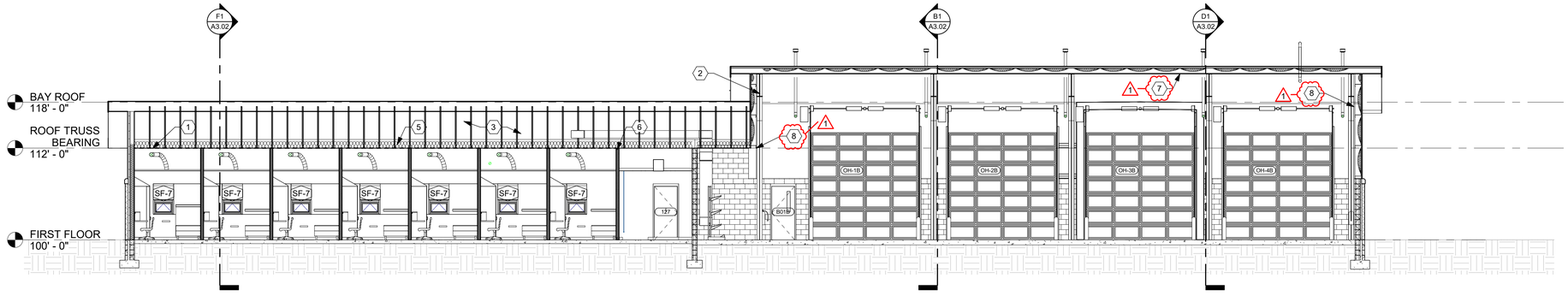
TITLE
BUILDING SECTIONS

SHEET NO.
A3.02

10/10/2024 3:38:58 PM



B1 SECTION D
1/8" = 1'-0"



D1 SECTION E
1/8" = 1'-0"

CONSTRUCTION NOTES

00 INDICATES CONSTRUCTION NOTE.

*NOT ALL NOTES USED THIS SHEET

1 RATED ASSEMBLY F5 OVER DORM AREAS. REFER TO WALL TYPES SCHEDULE AND CEILING PLAN.

2 PRE-ENGINEERED STRUCTURE.

3 TRUSSES SHOWN FOR REFERENCE ONLY. REFER TO STRUCTURAL DRAWINGS.

4 GYP. BOARD OVER VAPOR BARRIER FASTENED TO THE BOTTOM OF TRUSS.

5 LOOSE FILL GLASS-FIBER INSULATION (R30) ALONG BOTTOM CHORD OF TRUSSES.

6 SOUND ATTENUATION BATT. IN METAL STUD WALL.

1/7 PRE-FINISHED R-PANEL, 26 GA., TBS LINER PANELS WITH MAJOR RIBS 12" ON CENTER & 36" COVERAGE FASTENED TO THE UNDERSIDE OF ROOF GIRTS IN APPARATUS BAYS.

1/8 PRE-FINISHED R-PANEL, 26 GA., TBS LINER PANELS WITH MAJOR RIBS 12" ON CENTER & 36" COVERAGE FASTENED TO THE INTERIOR SIDE OF GIRTS FROM TOP OF CMU UP TO THE CEILING. TYPICAL EVERYWHERE IN APPARATUS BAYS.

GENERAL NOTES

A. PME AND STRUCTURAL ITEMS SHOWN FOR REFENCE ONLY REFER TO PME AND STRUCTURAL SHEETS FOR FURTHER DETAILS.

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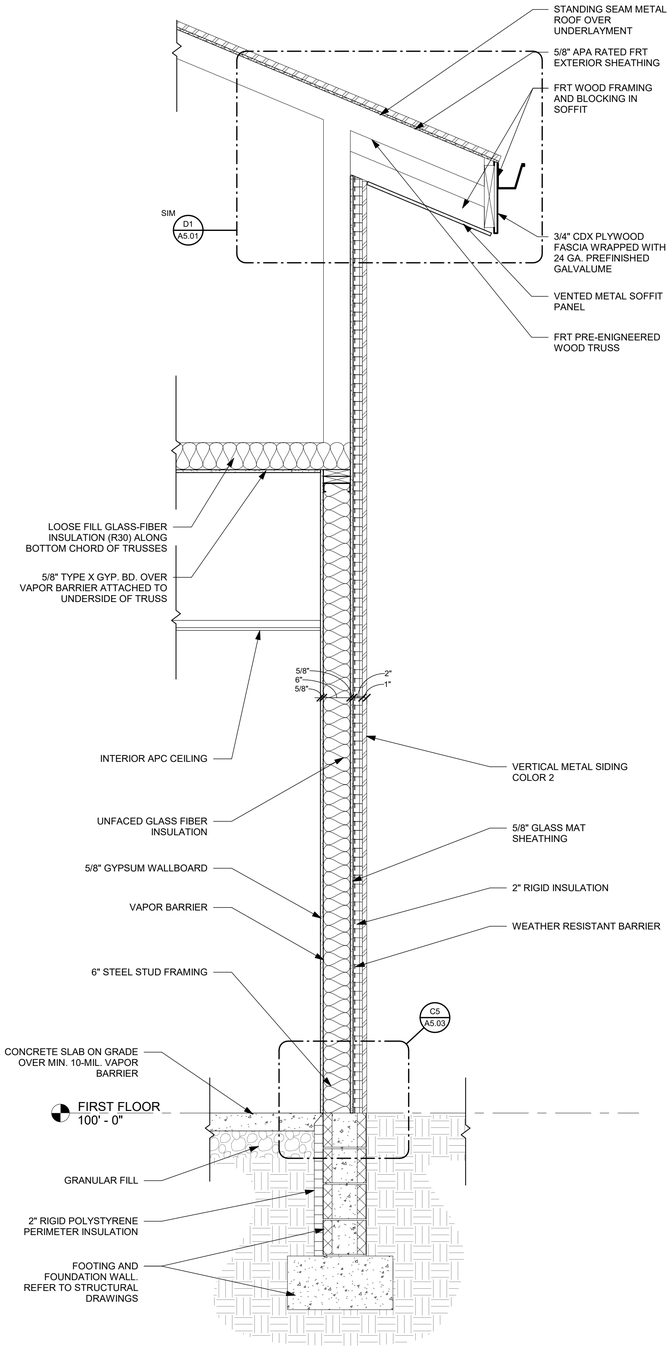
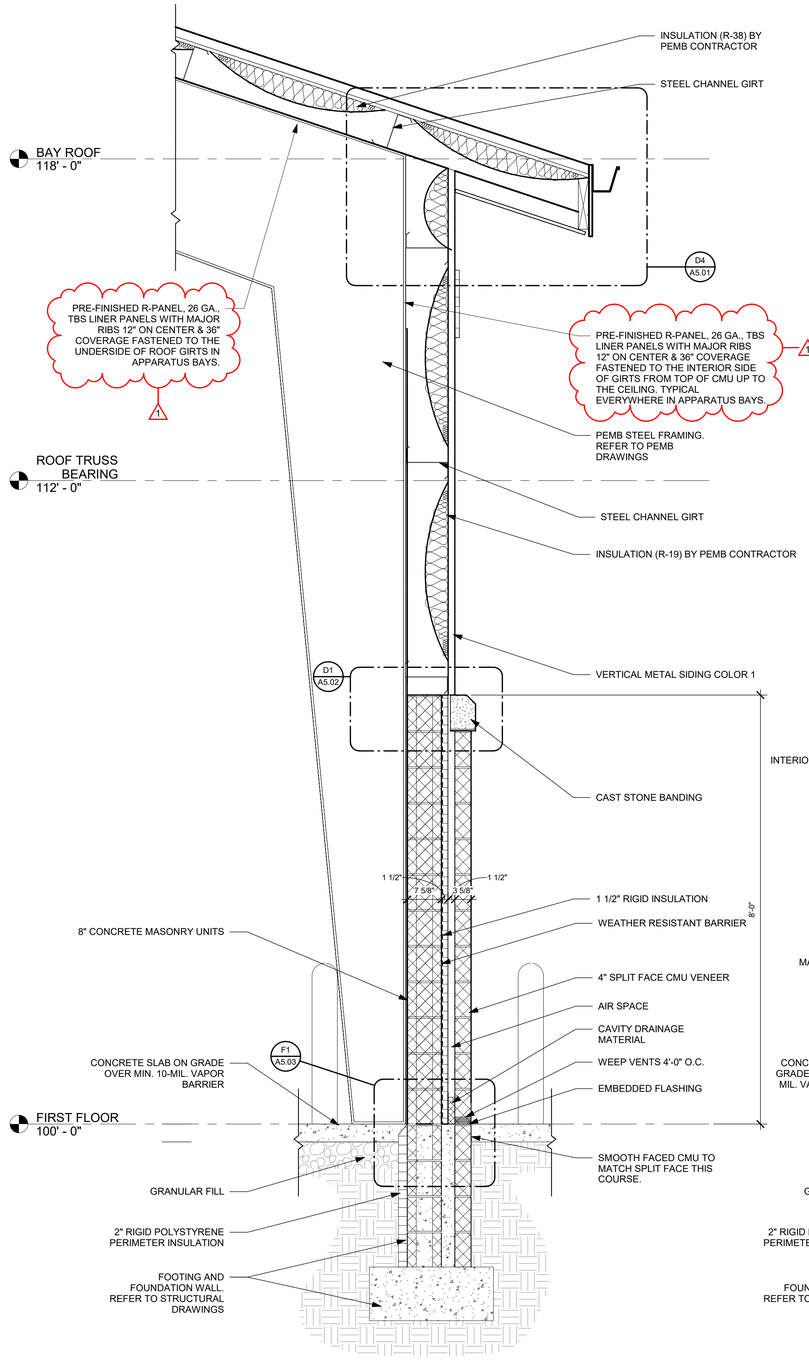
TITLE
BUILDING SECTIONS

SHEET NO.
A3.03

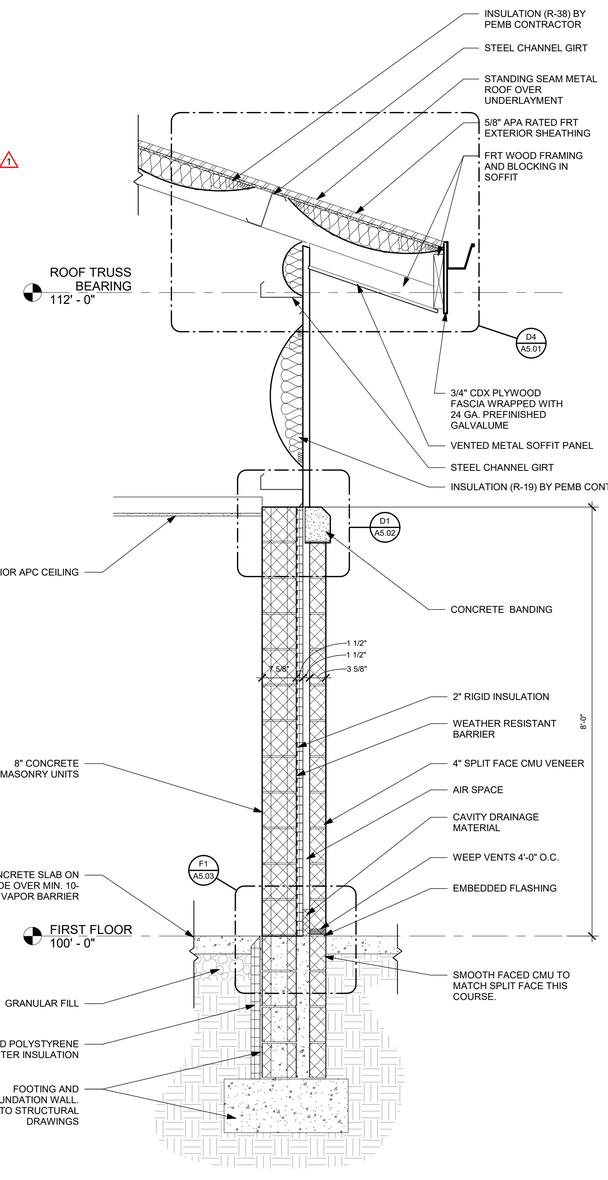
10/10/2024 3:39:01 PM



F1 TYP. METAL PANEL WALL
3/4" = 1'-0"



F4 TYP. PEMB APP. BAY WALL
3/4" = 1'-0"



F6 TYP. PEMB BUMP OUT WALL
3/4" = 1'-0"

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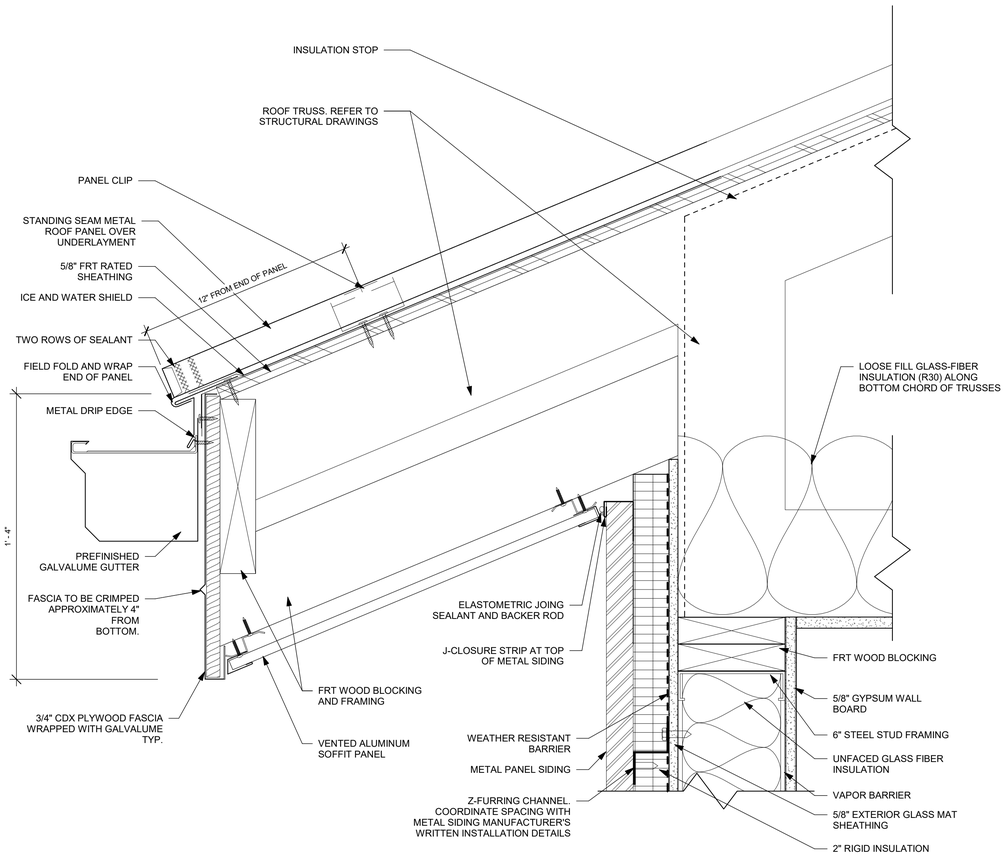
CHECKED	CMS

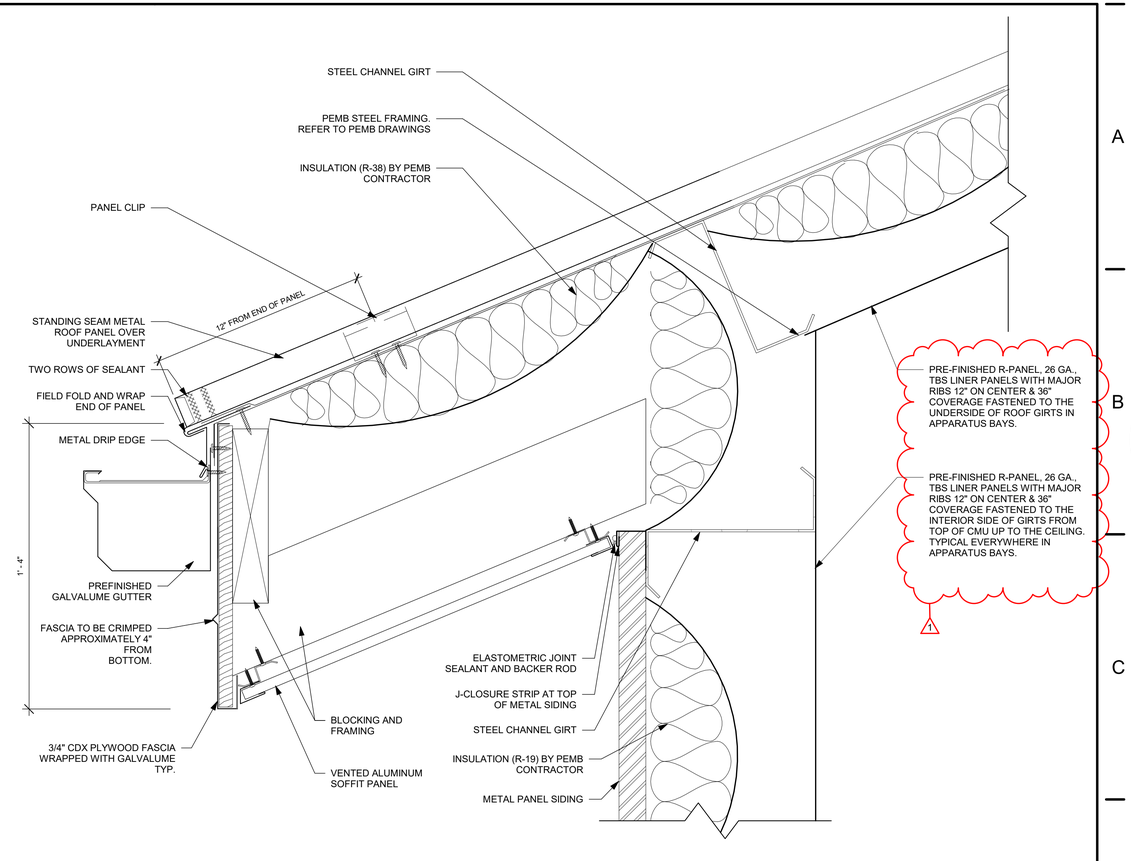
TITLE
WALL SECTIONS

SHEET NO.
A4.02

10/10/2024 3:39:02 PM

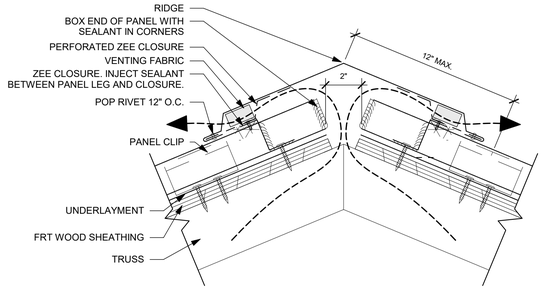


D1 EAVE DETAIL - 6" METAL STUD
3" = 1'-0"

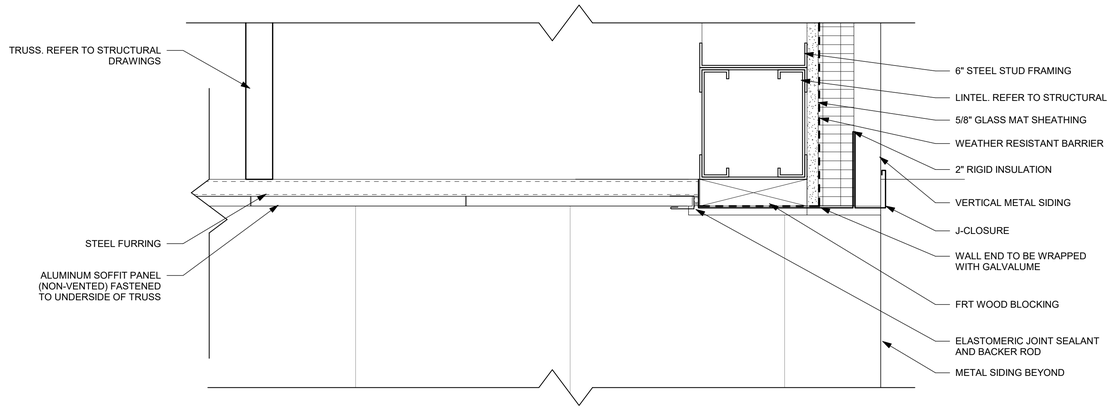


D4 BAY EAVE DETAIL
3" = 1'-0"

NOTE: ROOFING AND SOFFIT DETAILS AT PEMB TO BE COORDINATED WITH MANUFACTURER.



F1 LOW ROOF VENTED RIDGE DETAIL
3" = 1'-0"



F4 PATIO SOFFIT DETAIL
3" = 1'-0"

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STATE OF OHIO TIMOTHY J BEMENT 12365 REGISTERED ARCHITECT
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Expiration Date 12/31/2025

CITY OF SPRINGFIELD

FIRE STATION NO. 5

50 N. Thompson Avenue, Springfield, Ohio 45504

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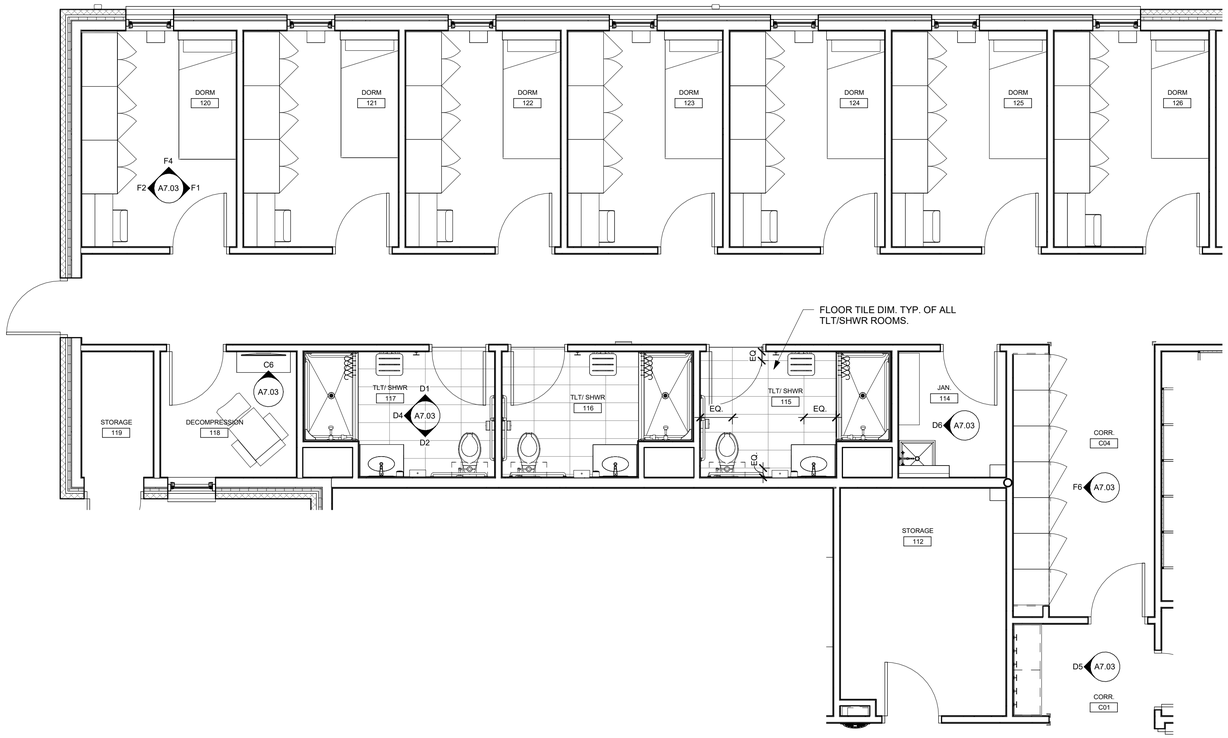
JOB NO.	4088.03
DRAWN	AEE/MSM
CHECKED	CMS

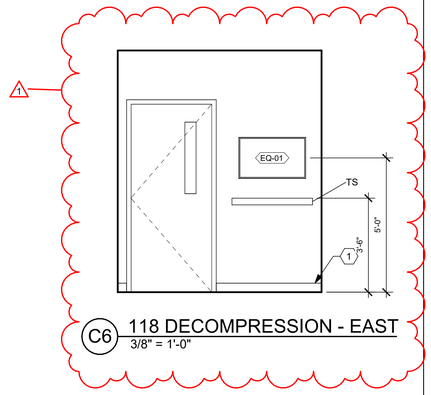
TITLE
EXTERIOR DETAILS - ROOF

SHEET NO.
A5.01

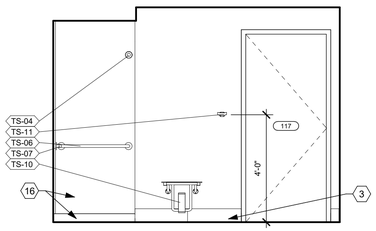
10/10/2024 3:39:03 PM



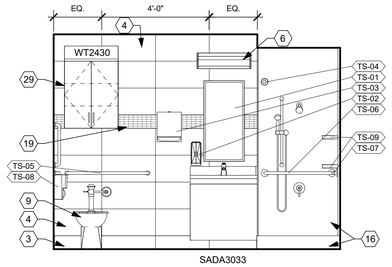
C1 ENLARGED FLOOR PLAN C
1/4" = 1'-0"



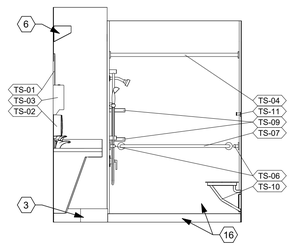
C6 118 DECOMPRESSION - EAST
3/8" = 1'-0"



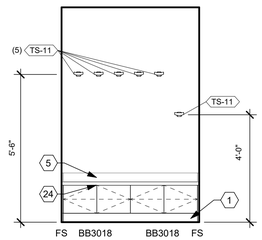
D1 117 TLT/ SHWR EAST
3/8" = 1'-0"



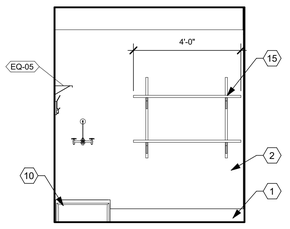
D2 117 TLT/ SHWR WEST
3/8" = 1'-0"



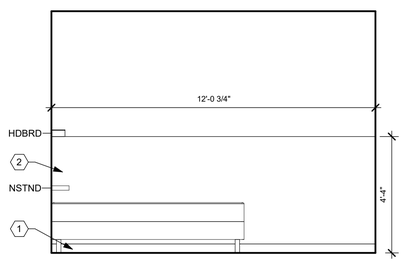
D4 117 TLT/ SHWR NORTH
3/8" = 1'-0"



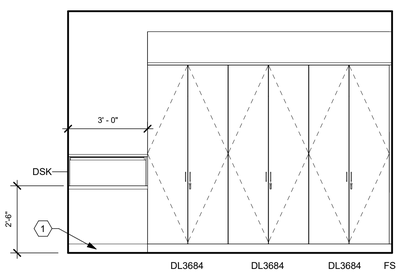
D5 C01 COAT ALCOVE
3/8" = 1'-0"



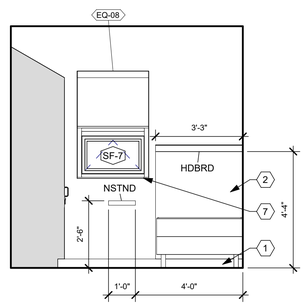
D6 114 JAN. NORTH
3/8" = 1'-0"



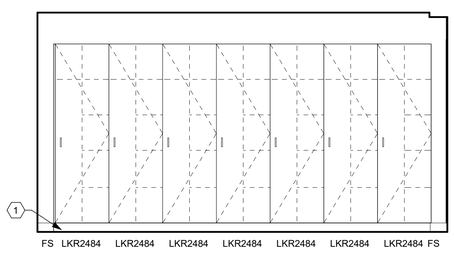
F1 119 DORM SOUTH
3/8" = 1'-0"



F2 119 DORM NORTH
3/8" = 1'-0"



F4 119 DORM EAST
3/8" = 1'-0"



F6 C04 CREW LOCKERS
3/8" = 1'-0"

CONSTRUCTION NOTES

00 INDICATES CONSTRUCTION NOTE.
NOT ALL NOTES APPLICABLE THIS SHEET.

1 WALL BASE. REFER TO FINISH SCHEDULE FOR TYPE.
2 VINYL WALL PROTECTION. REFER TO FINISH SCHEDULE FOR HEIGHT AND TYPE.
3 PORCELAIN TILE WALL BASE (PTWB-1).
4 PTW-1 PORCELAIN TILE
5 SOLID SURFACE COUNTERTOP (SSM-1).
6 WALL MOUNTED LIGHT. REFER TO ELECTRICAL DRAWINGS.
7 1/2" SOLID SURFACE (SSM-1) WINDOW SILL WITH EASED EDGES.
8 PLASTIC LAMINATE (PL-2) COUNTERTOP WITH METAL SUPPORT BRACKETS @ 4' - 0" O.C. MAX..
9 TOILET FIXTURE. REFER TO PLUMBING DRAWINGS.
10 MOP SINK WITH MOP HANGER ABOVE. REFER TO PLUMBING DRAWINGS AND EQUIPMENT PLAN.
11 PORCELAIN TILE TO EXTEND TO FLOOR BEHIND STOVE.
12 SINK. REFER TO PLUMBING DRAWINGS.
13 PLASTIC LAMINATE (PL-1) DISPLAY CASE. REFER TO SHEET A8.01 FOR DETAILS.
14 GLASS DOORS. 3/8" TEMPERED. BASIS OF DESIGN: CRL - BLUMCRAFT SATIN ANODIZED 1301 SM SERIES DISPLAY CASE DOORS.
15 ADJUSTABLE SHELVING (ADJS). REFER TO A8.02 FOR DETAILS.
16 36" X 60" SHOWER PAN AND ENCLOSURE. REFER TO A0.10 FOR DETAILS.
17 EYE WASH STATION. REFER TO PLUMBING DRAWINGS.
18 ELECTRIC HEATER. REFER TO HVAC DRAWINGS.
19 (PMT-1) PORCELAIN MOSAIC TILE ACCENT BAND.
20 (PTW-2) PORCELAIN TILE.
21 STAINLESS STEEL COUNTERTOP WITH BACK AND SIDE SPLASHES AND INTEGRAL SINK.
22 PLUG STRIP. REFER TO ELECTRICAL DRAWINGS.
23 PLASTIC LAMINATE (PL-1) SLOPED TOP. REFER TO A8.01 FOR DETAILS.
24 DOOR PULL BASIS OF DESIGN; AMEROCK, EDGE PULL 5-13/16", SATIN NICKEL, MODEL #BP36575G10.
25 3" DEEP TOE KICK.
26 25" DEEP BUTCHER BLOCK WORK SURFACE.
27 ICE ALCOVE CASEWORK. REFER TO SHEET A8.03 FOR DETAILS.
28 SLATWALL PANELS.
29 CENTER CABINET ABOVE TOILET @ 4'-6" A.F.F.

GENERAL NOTES

A. REFER TO ROOM FINISH SCHEDULE, MATERIAL LEGEND, AND FINISHES PLAN FOR FINISH AND MATERIAL DETAILS.
B. PME INFORMATION SHOWN FOR REFERENCE ONLY. REFER TO PME PLANS FOR DETAILS.
C. PROVIDE FIRE RETARDANT WOOD BLOCKING BEHIND ALL WALL HUNG ACCESSORIES, CABINETS, FURNISHINGS, HANDRAILS U.N.O.
D. REFER TO ELEVATIONS ON SHEET A0.01 FOR TOILET ROOM ACCESSORY MOUNTING HEIGHTS AND CLEARANCES.
E. ALL COUNTERTOPS AND WORK SURFACES TO HAVE BACK AND SIDE SPLASHES WHEREVER THE SURFACE ABUTS A WALL.
F. MATCHING SCRIBE STRIPS TO BE PROVIDED TO FILL GAPS AND IRREGULARITIES WHERE THE EDGE OF CABINETS AND LOCKERS MEET WALLS. FILLER STRIPS ALSO TO BE PROVIDED AT CABINETRY AND LOCKER CORNERS TO FILL ANY GAPS LEFT TO ALLOW DOORS AND DRAWERS TO FUNCTION PROPERLY.
G. PROVIDE FINISHED END ON ALL EXPOSED SURFACES OF CASEWORK.
H. DIMENSIONS ARE FROM FINISHED FACE TO FINISHED FACE. U.N.O.
I. REFER TO THE DIMENSION PLAN ON SHEET A1.12 FOR WALL TYPES.

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Timothy J. Bement, License #12305
Expiration Date 12/31/2025

CITY OF SPRINGFIELD
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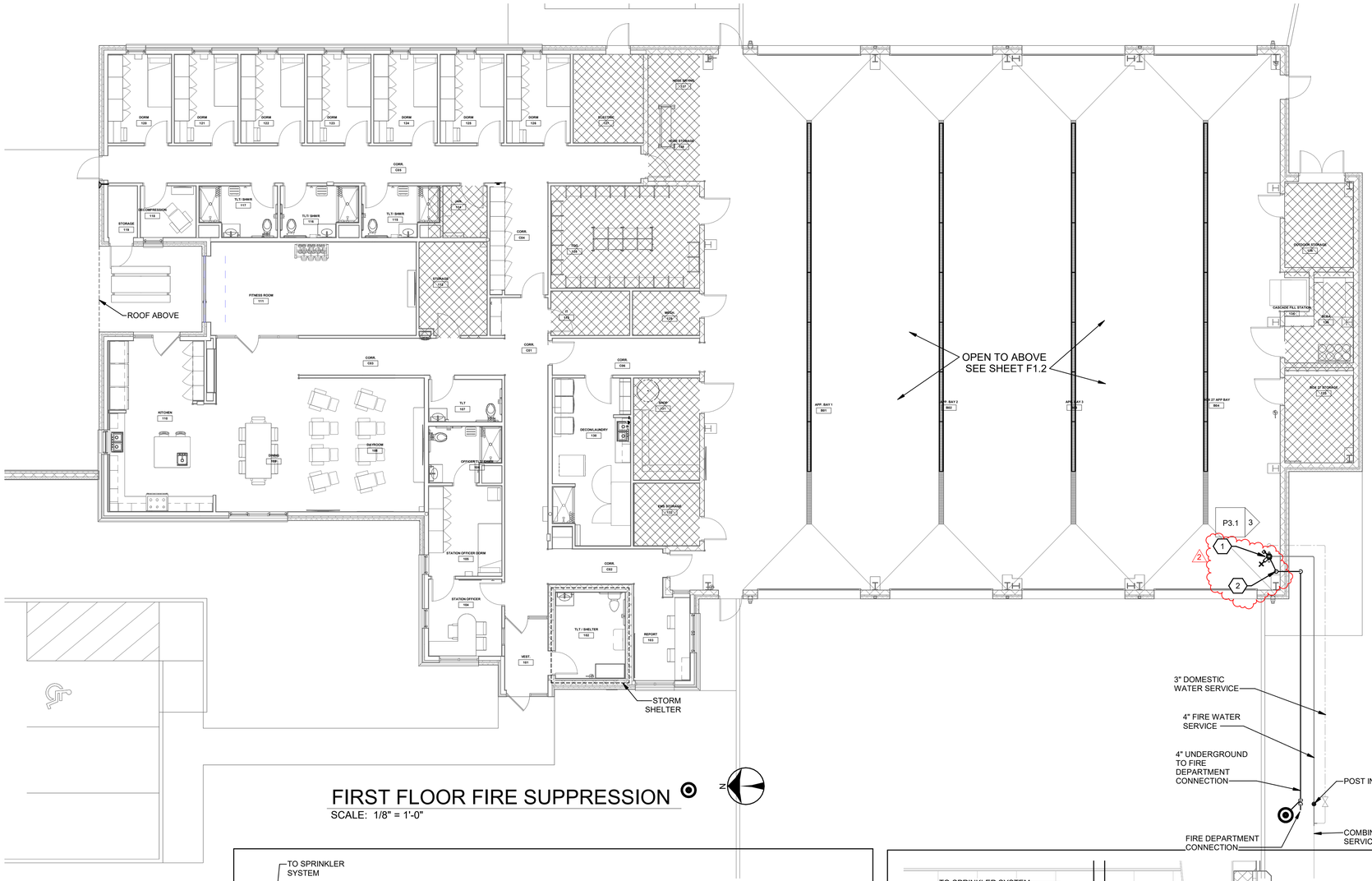
TITLE
INTERIOR ELEVATIONS

SHEET NO.
A7.03

10/10/2024 7:52:20 AM



FIRST FLOOR FIRE SUPPRESSION

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

CONSTRUCTION NOTES

1. FIRE SERVICE RISER. SEE DETAIL THIS SHEET.
2. 4" DOWN TO FIRE DEPARTMENT CONNECTION

STORM SHELTER NOTE

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE LARGER THAN 3 1/2 SQUARE INCHES IN AREA FOR RECTANGULAR OPENINGS OR 2 1/16" IN DIAMETER SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE. REFER TO STRUCTURAL DRAWINGS FOR DETAILS OF PROTECTIVE DEVICES.

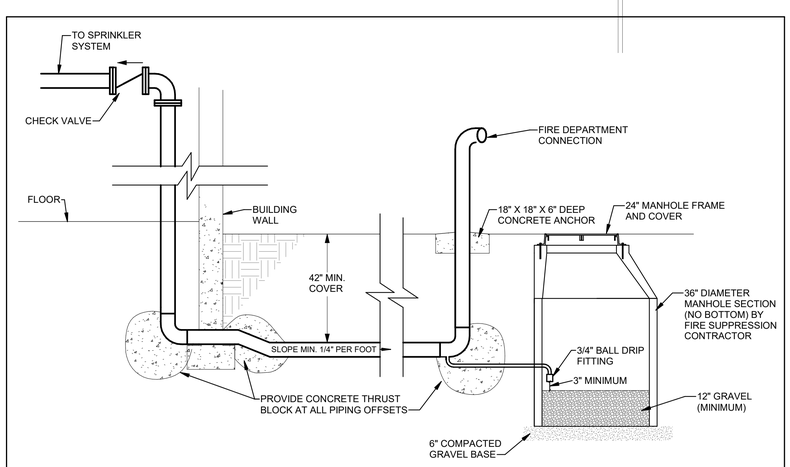
HAZARD CLASSIFICATIONS

NO HATCH

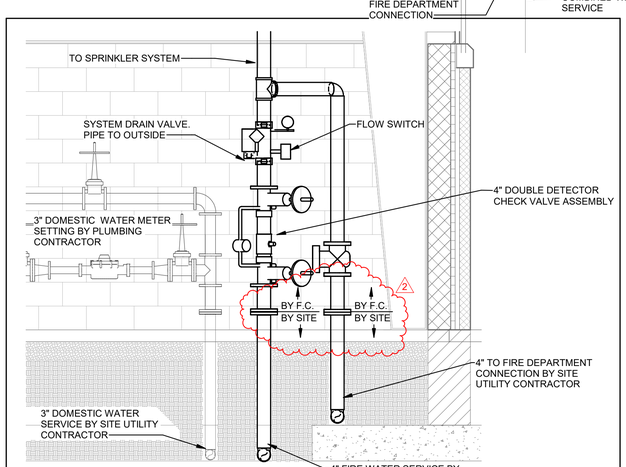
LIGHT HAZARD
DENSITY - 0.10GPM/SP
MAX AREA PER HEAD - 225 SF
HOSE ALLOWANCE - 100 GPM

ORDINARY HAZARD GROUP 1
DENSITY - 0.15GPM/SP
MAX AREA PER HEAD - 130 SF
HOSE ALLOWANCE - 250 GPM

ORDINARY HAZARD GROUP 2
DENSITY - 0.20GPM/SP
MAX AREA PER HEAD - 130 SF
HOSE ALLOWANCE - 250 GPM



2 **REMOTE FIRE DEPARTMENT CONNECTION**
N.T.S.



1 **FIRE SERVICE DETAIL**
N.T.S.

0 4 8 16 24 32 40

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

NAUMAN & ZELINSKI LLC.
204 S. Ludlow Street Suite 400 Dayton, Ohio 45402
Phone: (937) 223-3821 – Fax: (937) 223-3849

PROJECT # 24022

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STATE OF OHIO
JEFFREY D. ZELINSKI
63822
REGISTERED PROFESSIONAL ENGINEER

JEFFREY D. ZELINSKI, LICENSE #63822
EXPIRATION DATE 12/31/2025

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CHECKED	JDZ

TITLE
FIRST FLOOR PLAN

SHEET NO.
F1.1

10/10/2024 8:39:03 AM