

ADDENDUM No. 02

Issued: 01/09/2025

**Cherry Hill Village Phase 1
Charter Township of Canton
OHM Job No.: 0133-24-0020**

The following changes, additions, and/or clarifications to the Contract Documents shall be incorporated in said documents and shall be allowed for in the unit prices bid by the Contractor such that the unit prices indicated in the Proposal shall represent the conditions as set forth in the Contract Documents and this addendum. The bidder shall acknowledge their receipt of this addendum on page P-1 of their Proposal submittal. This addendum will be included in its entirety in the final, executed version of the Contract Book.

The Bidder shall acknowledge receipt of this addendum on page P-1 of their submitted offer.

This Addendum contains 30 pages.

The following items comprise this Addendum:

Addendum No. 2 – 2 pages

Specification Sections 010500, 042200, 042113.13 – 25 pages

Drawing Sheets S-501, S-502, A-301 – 3 pages

ADDITIONS AND CHANGES TO THE SPECIFICATIONS:

1. 010500 – Design Selections
 - a. Replace Section 010500 in its entirety with the enclosed version. Addition of BMV-1 Brick Veneer Masonry Selection for use as dumpster enclosure face brick.
2. 042113.13 Brick Veneer Masonry
 - a. Section added for dumpster enclosure masonry.
3. 042200 – Concrete Unit Masonry
 - a. Replace Section 042200 in its entirety with the enclosed version.
 - b. Addition of Water-repellant Admixture for CMU
 - c. Compressible Filler, Preformed Control-Joint Gaskets and Single Wythe CMU Flashing System requirements added to Miscellaneous Masonry Accessories
 - d. Flashing and Weep Holes added to Part 3 Execution

ADDITIONS AND CHANGES TO THE DRAWINGS:

1. Replace Plan Sheets S-501, S-502, and A-301 with the enclosed versions.
 - a. Detail 9/S-501 Revised bond beam detail.
 - b. Detail 2/S-502 Revised top plate attachment and coordinated bond beam to eliminate discrepancies with architectural details.
 - c. Flashing Profile Types on Sheet A-301: increase height of base flashing type F-1 to 6”

QUESTIONS AND ANSWERS:

Question 1: What is the expected quantity of excavated spoils from the Phase 0 project referenced in the scope of work?

Answer 1: The expected quantity is 3,500 cyd.

Question 2: Will Type SL1 – Hydrel part# SAF7-LED-P2-90CRI-30K-MVOLT-40DEG-CWL-KM-GS-BL + Ground spike PS18-12C + photo eye DSW124 be approved as an equal product?

Answer 2: This substitution for the floodlight is acceptable as long as the P1,90cri,30k,CWL option is selected.

Question 3: Will Type WP1 – Sistemalux part# S2141-W-SU-UNV-09 be approved as an equal product?

Answer 3: This is not an acceptable substitution. The bollard is bulkier than the bollard specified in the RFP and would not be considered an equal.

Question 4: Is additional information available for the sanitary extension design?

Answer 4: The sanitary extension details are not yet known. They will be included at a later time as a bulletin if this alternate is chosen. The extension would connect to existing structure #7186 and the existing pipe connection is currently 17.51 feet in depth. Please assume depth to match existing depth, 10” PVC Truss Pipe, and manhole details to meet the Township standard detail requirements on Sheet C-515. Should final design differ from these assumptions, a sanitary design contingency allowance included in the alternate may be utilized.

Question 5: The scope of work indicates that the stockpiled soil from the previous Phase 0 work may be used for Phase 1 earthwork. Should there be excess soil, is the excess soil required to be hauled off site as a part of this scope of work?

Answer 5: Given the nature of Phase 1 and using the stockpiled soils in the construction and grading of the rest of the site we are not anticipating any stockpiled soils to be left behind for removal. However, the earthwork spec states that surplus excavated material shall be removed from the site by the contractor. This is indicated in the Earthwork specification Section 31 23 00 include on Plan Sheet C-001 of the Construction Plans.

End of Addendum No. 02

SECTION 01 05 00 - DESIGN SELECTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. A schedule summary of Design Selections for materials and finishes technically specified in various technical Sections of this Project Manual.

1.2 PROCEDURES

- A. References in this Section to specific manufacturer, model name and model number, are to establish preferred design selection standard only. Other "Acceptable Manufacturers" listed in the technical section, if qualified, are allowed to submit in accordance with Division 01 Section "Product Requirements".

PART 2 - PRODUCTS

2.1 GENERAL SELECTIONS

- A. Following materials may be included in a number of technical specification sections and are scheduled together to avoid duplication.

2.2 DIVISION 3 SELECTIONS BY SECTION

- A. 033500 - Concrete Finishing.
 - 1. CONCS: Penetrating Liquid Floor Hardener and Sealer
 - a. Manufacturer: W.R. Meadows, Inc.
 - b. Product: Liqui-Hard

2.3 DIVISION 4 SELECTIONS BY SECTION

- A. **042113.13 – Brick Veneer Masonry**
 - 1. **BMV-1:**
 - a. **Manufacturer: Belden Brick Sales Inc.**
 - 1) **Color / Pattern: Modular Lakeshore Blend A**
 - 2) **Unit Sizes: 3-5/8 in (92 mm) thick by 2-1/4 in (57 mm) high by 7-5/8 in (194 mm) long.**
 - 3) **Corner Unit and End Units: Manufacturer's standard units.**
 - 4) **Mortar Color: As selected by Architect from Manufactures full range.**
- B. 042300 - Glass Unit Masonry
 - 1. GMU-1:
 - a. Manufacturer: Seves Glass Block Inc.
 - 1) Model / Pattern: Nubio
 - 2) Glass Color: Clear
 - 3) Edge-Coating Color: White.
 - 4) Unit Sizes: 7-3/4 in (194 mm) square by 3-7/8 in (96 mm) thick.
 - 5) Corner Unit and End Units: Manufacturer's standard units.
 - 6) Mortar Color: As selected by Architect from Manufactures full range.
- C. 047500 - Adhered Masonry Veneer
 - 1. AMV-1:

- a. Manufacturer: Casi di Sassi
 - 1) Product Series: Country Rubble
 - 2) Color Name and Number: Turin
 - 3) Face Style: Natural
 - 4) Size:
 - a) Width: Variable within manufacturers standard range.
 - b) Height: Variable within manufacturers standard range.
 - c) Thickness: 1-2 inches
 - d) Vertical Coursing: Coursed Rubble
 - 5) Accessories: Color to be selected by architect from manufacturers standard range.

2.4 DIVISION 7 SELECTIONS BY SECTION

A. 073113 - Asphalt Shingles

- 1. Manufacturer: GAF
 - a. Style: Timberline HDZ
 - b. Color: Pewter Gray

B. 074646 - Fiber Cement Siding

- 1. FC-1
 - a. Manufacturer: James Hardie Building Products Inc.
 - b. Series: Hardie Panel
 - c. Collection: Statement
 - d. Texture: Select Cedarmill
 - e. Color: Arctic White
 - f. Batten Boards
 - 1) Texture: Smooth
 - 2) Thickness: 4/4
 - 3) Width 2.5"
 - 4) Spacing: 16 inches on center.
 - g. Trim
 - 1) Texture: Smooth
 - 2) Thickness: 4/4 (0.75 inch)
 - 3) Width: As indicated on drawings.
- 2. FC-2
 - a. Manufacturer: James Hardie Building Products Inc.
 - b. Series: Hardie Panel
 - c. Collection: Statement
 - d. Texture: Smooth
 - e. Color: Iron Gray
 - f. Trim
 - 1) Texture: Smooth
 - 2) Thickness: 4/4 (0.75 inch)
 - 3) Width: As indicated on drawings.

C. 076200 - Flashing and Sheet Metal

- 1. Material Type: Stainless Steel
 - a. Mechanical Polish: Directional Satin Finish: No. 4 .

D. 079200 Joint Sealants

- 1. Exterior Pourable Urethane Sealant
 - a. Color: As selected from Manufacturer's standard and custom colors.
- 2. Exterior Non-sag Silicone Sealant
 - a. Color: As selected from Manufacturer's standard and custom colors.
- 3. Interior Non-sag Urethane Sealant

- a. Color: As selected from Manufacturer's standard and custom colors.
- 4. Interior Non-sag Silicone Sealant:
 - a. Color Selection: As selected from Manufacturer's standard and custom colors.
- 5. Silicone Mildew Resistant Sealant:
 - a. Color Selection: Transparent
- 6. Interior Non-sag Acrylic Latex Sealant
 - a. Color: As selected from Manufacturer's standard and custom colors.

2.5 DIVISION 8 SELECTIONS BY SECTION

- A. 085313 Vinyl Windows
 - 1. Construction: Single-Hung, Tilt Sash
 - 2. Interior Frame Color: White
 - 3. Exterior Frame Color: White
 - 4. Simulated Divided Lites: Grilles Between the Glass, Colonial (6-over-6), White
 - 5. Glazing: Refer to section 08 80 00 - Glazing
 - 6. Locking: Cam-Lock, White
- B. 08 80 00 – Glazing
 - 1. Exterior Glass Schedule:
 - a. GL-1: Insulating Coated Glass - Spandrel
 - 1) Overall Thickness: 1 in (25 mm) nominal.
 - 2) Outboard Lite: Clear HS; 1/4 in (6 mm) thick glass with low-e coating on No. 2 surface.
 - 3) Inboard Lite: Spandrel HS; 1/4 in (6 mm) thick glass with coating on No. 4 surface.
 - 4) Ceramic Enamel Frit: Solid Dark Grey
 - 5) Air Space: 1/2 in (12 mm); Argon filled, Black spacer; Black sealant.
- C. 089100 - Wall Louvers
 - 1. Material Type: Steel
 - a. Finish Type: Powder-Coat
 - b. Coating Color: As selected from Manufacturers standard colors.

2.6 DIVISION 9 SELECTIONS BY SECTION

- A. 096723 - Resinous Flooring
 - 1. RFS:
 - a. Manufacturer: Dur-A-Flex
 - b. Series: Dur-A-Quartz
 - c. Color: Q28-21
 - d. Texture: Standard (slip-resistant)
 - e. Thickness: 1/8"
- B. 099100 - Painting
 - 1. EPT-1:
 - a. Manufacturer: Sherwin Williams
 - b. Number: SW 7007
 - c. Color: Ceiling Bright White
 - d. Sheen: Flat
 - e. Notes: Typical ceilings.
 - 2. EPT-2:
 - a. Manufacturer: Sherwin Williams
 - b. Number: SW 7004
 - c. Color: Snowbound
 - d. Sheen: Semi-Gloss

- e. Notes: Typical walls and trim.
- 3. EPT-3
 - a. Manufacturer: Sherwin Williams
 - b. Number: SW 7068
 - c. Color: Grizzle Gray
 - d. Sheen: Semi-Gloss
 - e. Notes: Typical hollow metal doors and frames.

4. PNT-4:
 - a. Manufacturer: Sherwin Williams
 - b. Number: SW 7004
 - c. Color: Pure White
 - d. Sheen: Flat
 - e. Notes: Exposed Masonry Base

2.7 DIVISION 10 SELECTIONS BY SECTION

- A. 107423 - Cupolas
 1. Manufacturer: Weathervane Factory
 2. Model: Stonington, MMC-3028
 3. Roof: Natural Copper
 4. Venting: Louvered with concealed insect screen.
 5. Accessories
 - a. Weathervane
 - 1) Model: Banner Weathervane 737
 - 2) Finish: Natural Copper
 - 3) Rod Finish: Stainless Steel
 - 4) Stenciling: Upper case "C"
 - 5) Mounting: Hardware as required for application to be provided by factory.

PART 3 - EXECUTION – Not Used

END OF SECTION 01 05 00

SECTION 04 21 13.13 – BRICK VENEER MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:**
 - 1. Brick Veneer Masonry**
 - 2. Mortar and grout materials.**
 - 3. Ties and anchors.**
 - 4. Embedded flashing.**
 - 5. Accessories.**
 - 6. Cleaning**

- B. Products Installed but not Furnished under This Section:**
 - 1. Stone trim units in unit masonry.**

- C. Related Requirements:**
 - 1. Section 04 42 00 "Concrete Unit Masonry" for structural masonry.**

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site .**

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.**

- B. Samples for Initial Selection:**
 - 1. Clay face brick , in the form of straps of five or more bricks.**
 - 2. Colored mortar.**
 - 3. Weep/cavity vents.**

- C. Samples for Verification: For each type and color of the following:**
 - 1. Clay face brick , in the form of straps of five or more bricks.**
 - 2. Pigmented and colored-aggregate mortar. Make Samples using same sand and mortar ingredients to be used on Project.**
 - 3. Weep/cavity vents.**
 - 4. Cavity drainage material.**
 - 5. Accessories embedded in masonry.**

1.4 INFORMATIONAL SUBMITTALS

- A. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.**

1.5 QUALITY ASSURANCE

1.6 MOCKUPS

- A. Sample Panel Mockups: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 01 40 00 "Quality Requirements" for mockups.**

1. Build sample panels for typical exterior wall in sizes approximately 48 inches long by 48 inches high by full thickness.
2. Build sample panels facing south.
3. Clean one-half of exposed faces of panels with masonry cleaner indicated.
4. Protect approved sample panels from the elements with weather-resistant membrane.
5. Approval of sample panels is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless Architect specifically approves such deviations in writing.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.8 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.

4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. **Cold-Weather Requirements:** Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.
 1. **Cold-Weather Cleaning:** Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. **Hot-Weather Requirements:** Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain exposed masonry units cementitious mortar components and mortar aggregate from single source or manufacturer.
- B. For exposed masonry units and cementitious mortar components, obtain each color and grade from single source with resources to provide materials of consistent quality in appearance and physical properties.

2.2 UNIT MASONRY, GENERAL

- A. **Masonry Standard:** Comply with TMS 602, except as modified by requirements in the Contract Documents.
- B. **Defective Units:** Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.3 BRICK VENEER MASONRY

- A. **General:** Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
 1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
 2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
- B. **Clay Face Brick:** Facing brick complying with ASTM C216 , Grade SW , Type FBS .
 1. **Basis-of-Design Product:** Subject to compliance with requirements, provide Belden Brick or comparable product by one of the following:
 - a. Acme Brick Company.
 - b. Boral Bricks, Inc; Boral Limited.
 - c. Interstate Brick
 - d. General Shale, Inc.
 - e. Glen-Gery Corporation.
 2. **Initial Rate of Absorption:** Less than 30 g/30 sq. in. per minute when tested in accordance with ASTM C67/C67M.

3. Efflorescence: Provide brick that has been tested in accordance with ASTM C67/C67M and is rated "not effloresced."
4. Surface Coating: Brick with colors or textures produced by application of coatings withstand 50 cycles of freezing and thawing in accordance with ASTM C67/C67M with no observable difference in the applied finish when viewed from 10 ft..
5. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.
6. Color and Texture: As identified in section 010500 Design Selections.

2.4 MORTAR AND GROUT MATERIALS

A. Mortar:

1. Comply with ASTM C270, Type S.
2. Use any cementitious materials permitted by ASTM C270.
3. Color: As indicated in Division 01 "Design Selections."
4. Admixtures: Comply with ASTM C1384 to enhance following property(ies): water repellency. Provide water-repellent admixture manufactured by same manufacturer of water-repellent admixture used in concrete masonry units.
5. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce selected color. Do not add pigments to colored cement products. Comply with TMS 602 Article 2.6 A.2 for maximum permitted amount of pigments.

B. Grout:

1. Comply with ASTM C476 for specified 28-day compression strength indicated, but not less than 3000 psi.
2. Provide grout with a slump of 8 to 11 inches as measured in accordance with ASTM C143.
3. Admixtures:
 - a. Do not use admixtures other than those permitted by ASTM C476 or those permitted by Architect.
 - b. Do not use water-repellent materials or admixture or air-entraining admixture when grout will be in contact with reinforcement.

C. Water: Potable.

2.5 TIES AND ANCHORS

A. General: Ties and anchors extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M, with ASTM A153/A153M, Class B-2 coating.
2. Galvanized-Steel Sheet: ASTM A653/A653M, Commercial Steel, G60 zinc coating.
3. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.
4. Steel Plates, Shapes, and Bars: ASTM A36/A36M.

C. Adjustable Masonry-Veneer Anchors:

1. Masonry-Veneer Anchors; Double-Pintle Plate: Rib-stiffened, sheet metal anchor section with screw holes at top and bottom, projecting horizontal leg with slots for vertical legs of double pintle wire tie.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1) Heckmann Building Products, Inc.
- 2) Hohmann & Barnard, Inc.

2.6 EMBEDDED FLASHING

- A. **Adhesives, Primers, and Seam Tapes for Flashings:** Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- B. **Termination Bars for Flexible Flashing:** Stainless steel bars 1/8 inch by 1-1/4 inch.

2.7 ACCESSORIES

- A. **Compressible Filler:** Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane or PVC.
- B. **Preformed Control-Joint Gaskets:** Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 or PVC, complying with ASTM D2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. **Bond-Breaker Strips:** Asphalt-saturated felt complying with ASTM D226/D226M, Type I (No. 15 asphalt felt).
- D. **Weep/Cavity Vents:** Use one of the following unless otherwise indicated:
 1. **Cellular Plastic Weep/Vent:** One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
 - a. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - 1) Advanced Building Products Inc.
 - 2) Hohmann & Barnard, Inc.
 - 3) Mortar Net Solutions.
 2. **Mesh Weep/Vent:** Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard.
 - a. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - 1) Advanced Building Products Inc.
 - 2) CavClear; a division of Archovations, Inc.
 - 3) Mortar Net Solutions.
- E. **Proprietary Acidic Masonry Cleaner:** Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 1. **Manufacturers:** Subject to compliance with requirements, provide products by one of the following:
 - a. Diedrich Technologies, Inc.; a Hohmann & Barnard company.
 - b. EaCo Chem, Inc.
 - c. PROSOCO, Inc.

2.8 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.**
 - 1. Do not use calcium chloride in mortar or grout.**
- B. Mortar for Brick Veneer Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.**
 - 1. For masonry below grade or in contact with earth, use Type S.**
 - 2. For mortar parge coats, use Type S .**
- C. Grout for Brick Veneer Masonry: Comply with ASTM C476.**
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602 for dimensions of grout spaces and pour height.**
 - 2. Proportion grout in accordance with ASTM C476, paragraph 4.2.1.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.**
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.**
 - 2. Verify that foundations are within tolerances specified.**
 - 3. Verify that reinforcing dowels are properly placed.**
 - 4. Verify that substrates are free of substances that impair mortar bond.**
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.**
- C. Proceed with installation only after unsatisfactory conditions have been corrected.**

3.2 INSTALLATION, GENERAL

- A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.**

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:**
 - 1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.**
 - 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.**
 - 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.**
- B. Lines and Levels:**

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 ft., or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 ft., 1/4 inch in 20 ft., or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 ft., 3/8 inch in 20 ft., or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 ft., 1/4 inch in 20 ft., or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 ft., 3/8 inch in 20 ft., or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 ft., or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond ; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay CMUs and hollow brick as follows:
 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 3. Bed webs in mortar in grouted masonry, including starting course on footings.

4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
 5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 2. Allow cleaned surfaces to dry before setting.
 3. Wet joint surfaces thoroughly before applying mortar.
 4. Rake out mortar joints for pointing with sealant.
- D. Rake out mortar joints at pre-faced CMUs to a uniform depth of 1/4 inch and point with epoxy mortar to comply with epoxy-mortar manufacturer's written instructions.
- E. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 COMPOSITE MASONRY

- A. Bond wythes of composite masonry together using one of the following methods :
1. Individual Metal Ties: Provide ties as indicated installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. of wall area spaced not to exceed 36 inches o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 36 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches o.c. vertically.
 - a. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) ties.
 2. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes .
 - b. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) reinforcement with continuous horizontal wire in facing wythe attached to ties.
 3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not more than 8 inches clear horizontally and 16 inches clear vertically.
- B. Collar Joints: Solidly fill collar joints by parging face of first wythe that is laid and shoving units of other wythe into place.
- C. Corners: Provide interlocking masonry unit bond in each wythe and course at corners unless otherwise indicated.
1. Provide continuity with masonry-joint reinforcement at corners by using prefabricated L-shaped units as well as masonry bonding.

3.7 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

- B. Install flashing as follows unless otherwise indicated:**
- 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.**
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches, and through inner wythe to within 1/2 inch of the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.**
 - 3. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 8 inches, and 1-1/2 inches into the inner wythe.**
 - 4. At masonry-veneer walls, extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under water-resistive barrier, lapping at least 4 inches.**
 - 5. Interlock end joints of sawtooth sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Section 07 92 00 "Joint Sealants" for application indicated.**
 - 6. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.**
 - 7. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal flashing termination.**
 - 8. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.**
- C. Install reglets and nailers for flashing and other related construction where they are indicated to be built into masonry.**
- D. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.**
- 1. Use specified weep/cavity vent products to form weep holes.**
 - 2. Use wicking material to form weep holes above flashing under brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.**
 - 3. Space weep holes 24 inches o.c. unless otherwise indicated.**
 - 4. Space weep holes formed from wicking material 16 inches o.c.**
 - 5. Cover cavity side of weep holes with plastic insect screening at cavities insulated with loose-fill insulation.**
 - 6. Trim wicking material flush with outside face of wall after mortar has set.**
- E. Place pea gravel in cavities as soon as practical to a height equal to height of first course above top of flashing, but not less than 2 inches, to maintain drainage.**
- 1. Fill cavities full height by placing pea gravel in cavities as masonry is laid, so that at any point, masonry does not extend more than 24 inches above top of pea gravel.**
- F. Install cavity vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form cavity vents.**
- 1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.**

3.8 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.**
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.**
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.**
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:**
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.**
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.**
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.**
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.**
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.**
 - 6. Clean masonry with a proprietary acidic masonry cleaner applied according to manufacturer's written instructions.**

3.9 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.**
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.**
 - 1. Crush masonry waste to less than 4 inches in each dimension.**
 - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 31 20 00 "Earth Moving."**
 - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.**
- C. Masonry Waste Recycling: Return broken masonry not used as fill to manufacturer for recycling.**
- D. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.**

END OF SECTION 04 21 13.13

SECTION 04 22 00 - CONCRETE UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Concrete masonry units.
 - 2. Masonry Lintels
 - 3. Mortar and grout.
 - 4. Steel reinforcing bars.
 - 5. Masonry-joint reinforcement.
 - 6. Miscellaneous masonry accessories.

1.2 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 PREINSTALLATION MEETINGS

- A. Masonry Pre-Construction Conference Requirements :
 - 1. Schedule a Masonry Pre-Construction Conference at jobsite at approximately 3 weeks prior to start of masonry work at site.
 - 2. Submit required submittals to Architect and verify acceptance prior to this conference.
 - 3. General Contractor will prepare and issue minutes of meeting to team members.
 - 4. Do not proceed with masonry work without Masonry Pre-Construction Conference.
 - 5. Required participants include representatives from:
 - a. Owner.
 - b. Architect/Engineer.
 - c. General Contractor.
 - d. Project Superintendent.
 - e. Mason Contractor Foreman.
 - f. Structural Masonry Special Inspector.
 - g. Testing Agency.
- B. Agenda for Masonry Pre-Construction Conference:
 - 1. Review Contract Documents for Mason's clarifications, design intent, and Structural Masonry Special Inspector responsibilities.
 - a. Verify use of up-to-date drawings/specifications.
 - b. Summary of Work for typical/atypical aspects of Project.
 - c. Contractor's concerns for missing/incomplete details.
 - d. Jobsite storage and staging areas.
 - e. Requirements for temporary facilities.
 - f. For each wall intersection, Engineer to identify one of following performance requirements:
 - 1) transfer no forces (expansion joint)
 - 2) transfer in-plane and out-of-plane forces (50 percent bonded units or strap anchors or reinforced bond beams)
 - 3) transfer out-of-plane forces from one wall to another only (mesh anchors or joint reinforcement)
 - g. Locations of concrete masonry control joints and clay brick masonry expansion joints, as required.

- h. Contractor's proposed methods for temporary wall bracing.
- i. Erection schedule.
- j. Coordination issues with other trades.
- k. Protection of non-masonry construction.
- l. Integral water repellants and compatibility of mortar additive.
- m. Mortar admixtures: water-repellent, set-retarding, set-accelerating, bond-enhancing, workability.
- n. Mock-up/sample panel erection and review.
- o. Cleaning and post-cleaning field-applied water repellants.
- p. Open issues/concerns.
- 2. Review submittal status.
 - a. Mortar type, proportions and mix design.
 - 1) Specific locations/applications for different mortars.
 - b. Grout type, proportions and mix design.
 - 1) Specific locations/applications for different grouts.
 - c. Manufacturer's literature for special requirements and conditions of use.
 - d. Joint reinforcement, including lap length and continuity at wall intersections.
 - e. Reinforcement shop drawings, including splice lengths, lateral ties, and stirrups.
 - f. Foundation dowel coordination drawing.
 - g. Temporary masonry wall bracing, (including lap splice lengths for internal wall bracing).
 - h. Lintels, door frames and other 'built-ins' materials status.
 - i. Details of flashing and weeps.
 - j. Certificates of compliance.
 - k. Each type and size of anchor, tie, and metal accessory.
 - l. If required for project, Workshop Certificate(s) for flashing, grouting and cleaning masonry.
 - m. Masonry material cleaning plan.
- 3. Review material samples.
 - a. Dimensions of masonry units.
- 4. Review results of specified pre-construction tests.
 - a. Mortar and grout tests.
 - b. Masonry unit testing.
- 5. Review contractor's proposed cold and hot weather construction procedures.
- 6. Review masonry inspection and testing requirements during construction.
- 7. Review masonry cleaning plan.
- 8. Review/critique Sample Panel.
 - a. Dimensions and adherence to tolerances.
 - b. Flashing and weep details.
 - c. Movement joint details.
 - d. Mortar joint finishing.
 - e. Bond pattern(s).
 - f. Mortar bedding.
 - g. Reinforcement and grouting.
 - h. Joint reinforcement and tie/anchor installation.
 - i. Lintel type and installation.
 - j. Workmanship.
 - k. Cleaning.

1.4 ACTION SUBMITTALS

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

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 FIELD CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6 except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide square-edged units for outside corners unless otherwise indicated.
- B. Integral Water Repellent: Provide units made with integral water repellent for exposed units .
 - 1. Integral Water Repellent: Liquid polymeric, integral water-repellent admixture that does not reduce flexural bond strength. Units made with integral water repellent, when tested in accordance with ASTM E514/E514M as a wall assembly made with mortar containing integral water-repellent manufacturer's mortar additive, with test period extended to 24 hours, show no visible water or leaks on the back of test specimen.
- C. CMUs: Conform to ASTM C90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2800 psi .
 - 2. Density Classification: Normal weight .
 - 3. Size (Width): Manufactured to dimensions 3/8 inch less-than-nominal dimensions.

2.3 MASONRY LINTELS

- A. General: Provide one of the following:
- B. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.4 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C150/C150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
 - 1. Alkali content is not more than 0.1 percent when tested in accordance with ASTM C114.
- B. Hydrated Lime: ASTM C207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
- D. Masonry Cement: ASTM C91/C91M.
- E. Mortar Cement: ASTM C1329/C1329M.
- F. Aggregate for Mortar: ASTM C144.
 - 1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
 - 2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.
 - 3. White-Mortar Aggregates: Natural white sand or crushed white stone.
 - 4. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.
- G. Aggregate for Grout: ASTM C404.

H. **Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMUs containing integral water repellent from same manufacturer.**

1. **Manufacturers: Subject to compliance with requirements, provide products by one of the following:**
 - a. **ACM Chemistries.**
 - b. **Euclid Chemical Company (The); an RPM company.**
 - c. **Master Builders Solutions.**

I. Water: Potable.

2.5 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A615/A615M or ASTM A996/A996M, Grade 60.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
- C. Masonry-Joint Reinforcement, General: Ladder type complying with ASTM A951/A951M.
 1. Interior Walls: Hot-dip galvanized carbon steel.
 2. Exterior Walls: Hot-dip galvanized carbon steel.
 3. Wire Size for Side Rods: 0.148-inch diameter.
 4. Wire Size for Cross Rods: 0.148-inch diameter.
 5. Spacing of Cross Rods: Not more than 16 inches o.c.
 6. Provide in lengths of not less than 10 feet.

2.6 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, ~~water-repellent agents~~, antifreeze compounds, or other admixtures unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
 2. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 1. For masonry below grade or in contact with earth, use Type S.
 2. For reinforced masonry, use Type S .
 3. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type S.
- C. Grout for Unit Masonry: Comply with ASTM C476.
 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
 2. Proportion grout in accordance with ASTM C476, Table 1 .
 3. Provide grout with a slump of 8 to 11 inches as measured in accordance with ASTM C143/C143M.

2.7 MISCELLANEOUS MASONRY ACCESSORIES

- A. **Compressible Filler:** Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene .
- B. **Preformed Control-Joint Gaskets:** Made from styrene-butadiene-rubber compound, complying with ASTM D2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. **Single Wythe CMU Flashing System:** Provide BlockFlash Single Wall Flashing System or approved equal, designed specifically for use in concrete masonry construction to direct water out of the wall system.
 - 1. **Flashing system shall include all components required to ensure proper installation and functionality, including base flashing, weep spouts, and any associated accessories.**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
 - 4. Verify that substrates are free of substances that would impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Build chases and recesses to accommodate items specified in this and other Sections.
- B. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- C. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

3.3 TOLERANCES

- A. Dimensions and Locations of Elements:
 - 1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
 - 2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
 - 3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

- B. Lines and Levels:
1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
 2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
 3. For vertical lines and surfaces do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
 4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
 5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
 6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
 7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch.
- C. Joints:
1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
 2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
 3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
 4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond ; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.

- H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

- A. Lay hollow CMUs as follows:
 - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.
 - 2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 - 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 - 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
- B. Lay solid CMUs with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Set cast-stone trim units in full bed of mortar with full vertical joints. Fill dowel, anchor, and similar holes.
 - 1. Clean soiled surfaces with fiber brush and soap powder and rinse thoroughly with clear water.
 - 2. Wet joint surfaces thoroughly before applying mortar.
 - 3. Rake out mortar joints for pointing with sealant.
- D. Rake out mortar joints at pre-faced CMUs to a uniform depth of 1/4 inch and point with epoxy mortar to comply with epoxy-mortar manufacturer's written instructions.
- E. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
- F. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint) unless otherwise indicated.
- G. Cut joints flush where indicated to receive waterproofing unless otherwise indicated.

3.6 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.

- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 CONTROL AND EXPANSION JOINTS

- A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry using one of the following methods:
 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with mortar, and rake out joints in exposed faces for application of sealant.
 2. Install preformed control-joint gaskets designed to fit standard sash block.
 3. Install interlocking units designed for control joints. Install bond-breaker strips at joint. Keep head joints free and clear of mortar, or rake out joint for application of sealant.
 4. Install temporary foam-plastic filler in head joints, and remove filler when unit masonry is complete for application of sealant.

3.8 LINTELS

- A. Provide masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- B. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.9 FLASHING AND WEEP HOLES

- A. **General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated**
- B. **Install single-wythe CMU flashing system in bed joints of CMU walls to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.**

3.10 REINFORCED UNIT MASONRY

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.

2. Limit height of vertical grout pours to not more than 60 inches .

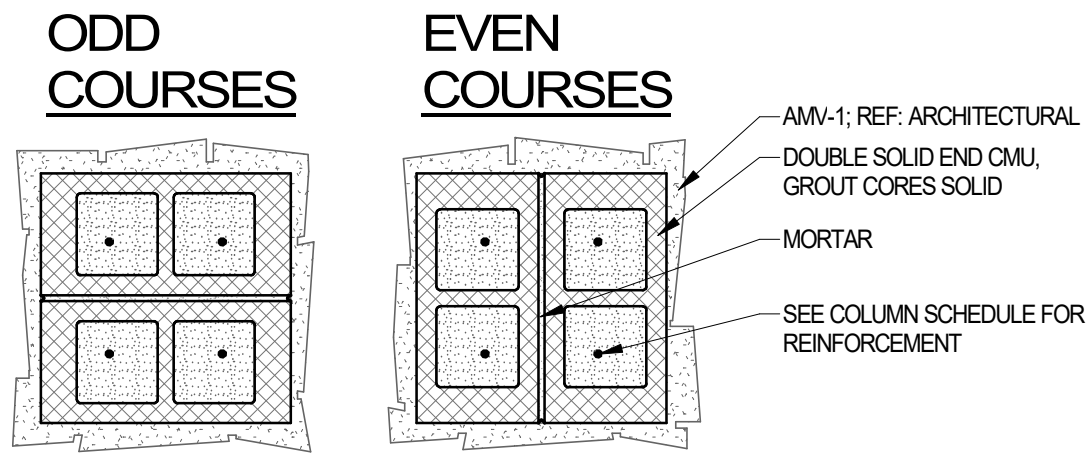
3.11 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 5. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.

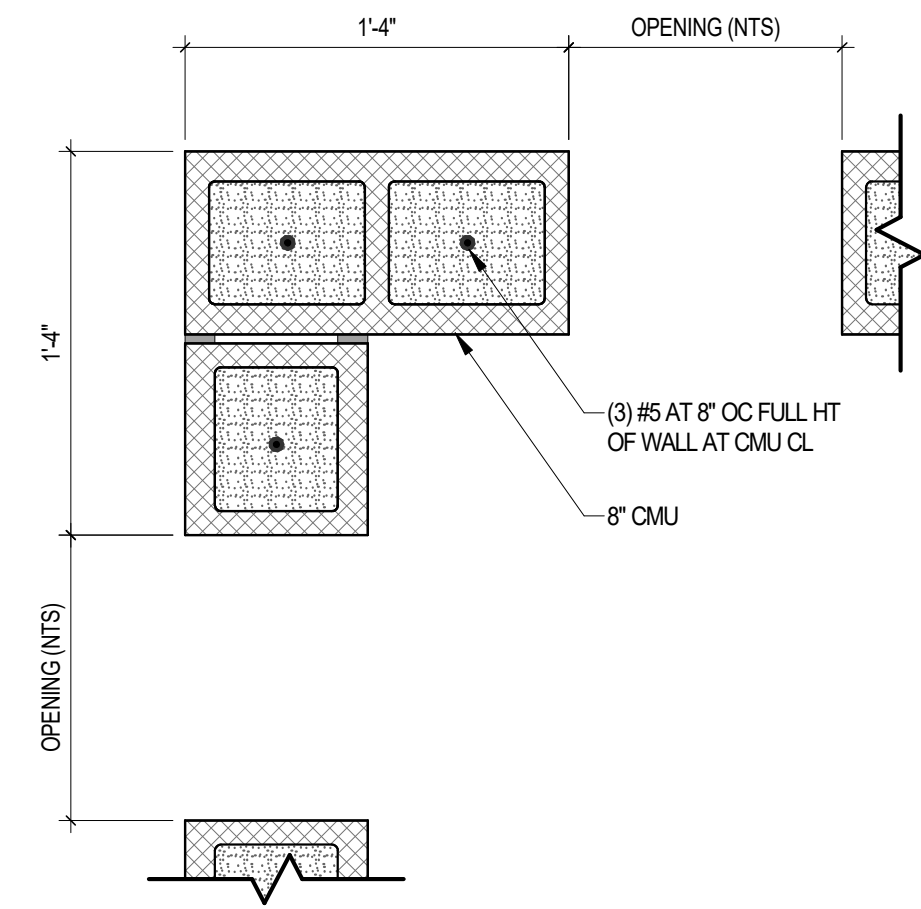
3.12 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 1. Crush masonry waste to less than 4 inches in each dimension.
 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Section 31 20 00 "Earth Moving."
 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.
- D. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

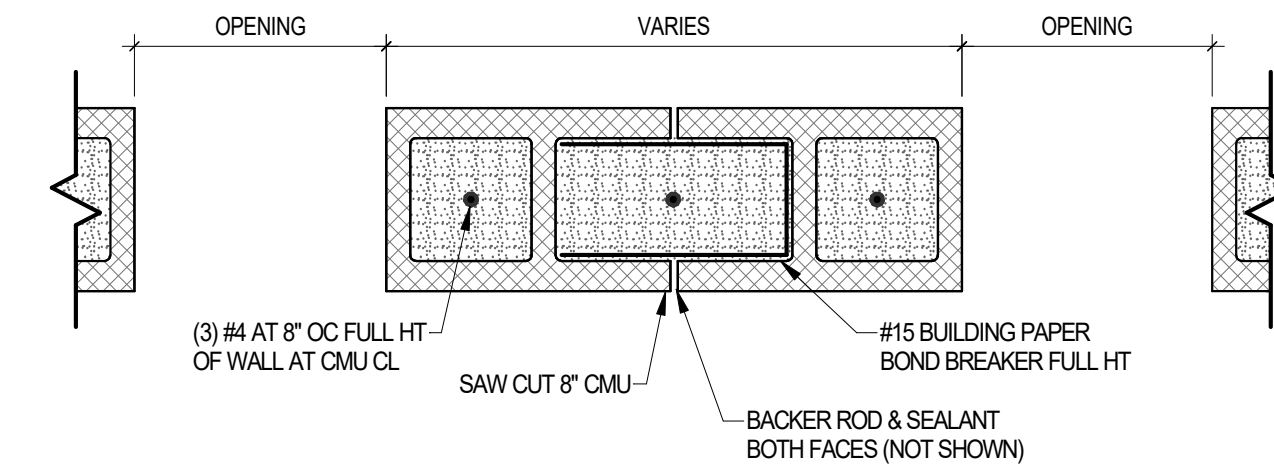
END OF SECTION 04 22 00



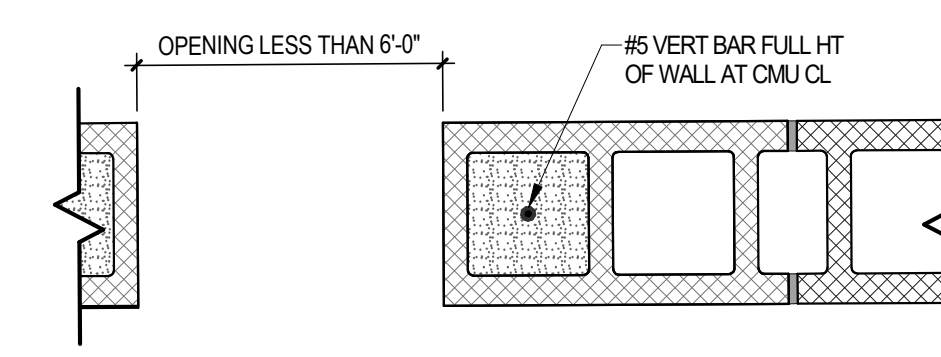
13 CM2 DETAIL
1" = 1'-0"



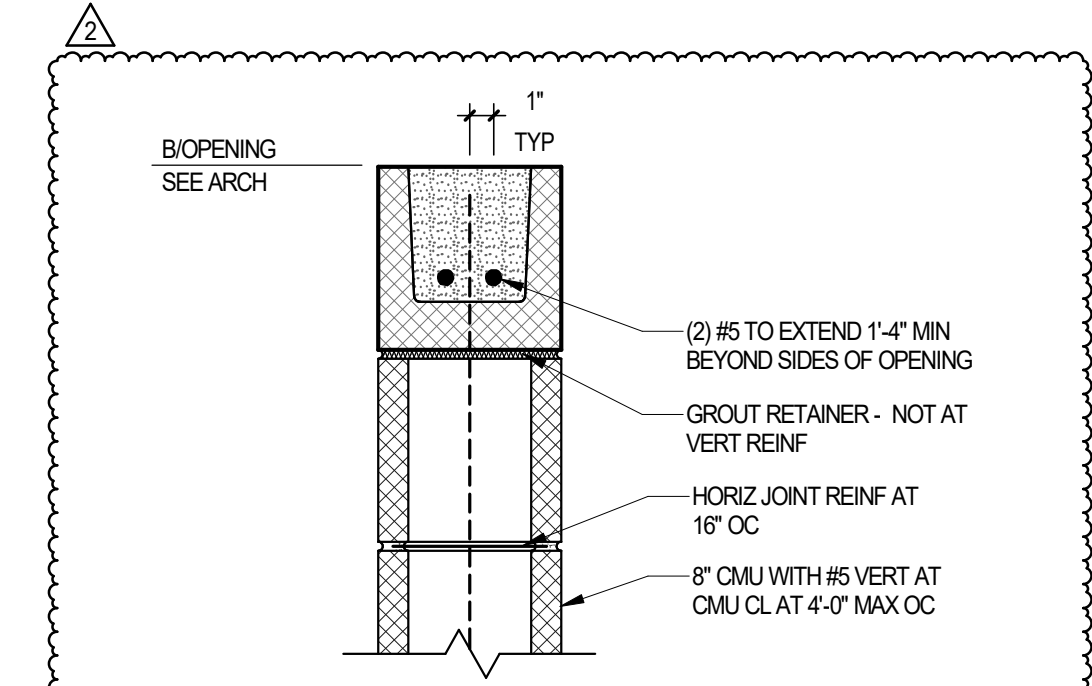
12 CORNER REINFORCEMENT
1 1/2" = 1'-0"



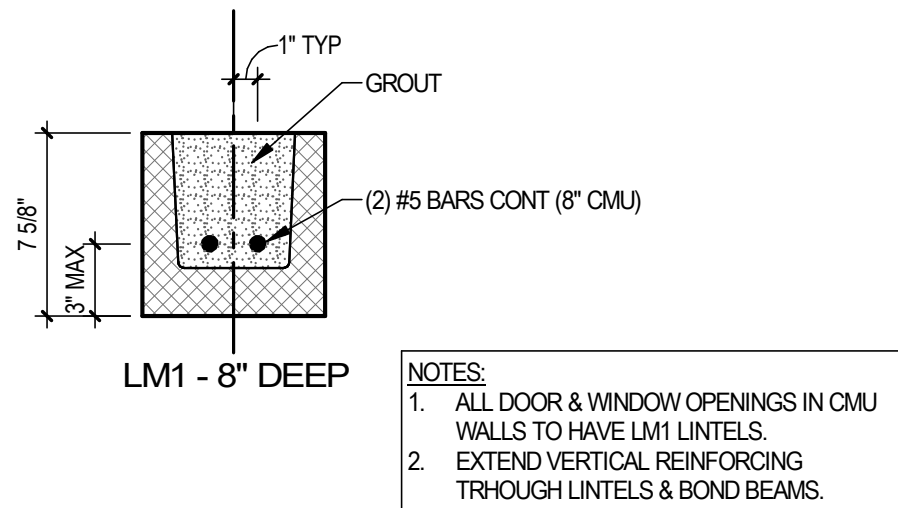
11 JAMB REINFORCEMENT BETWEEN DOORS
1 1/2" = 1'-0"



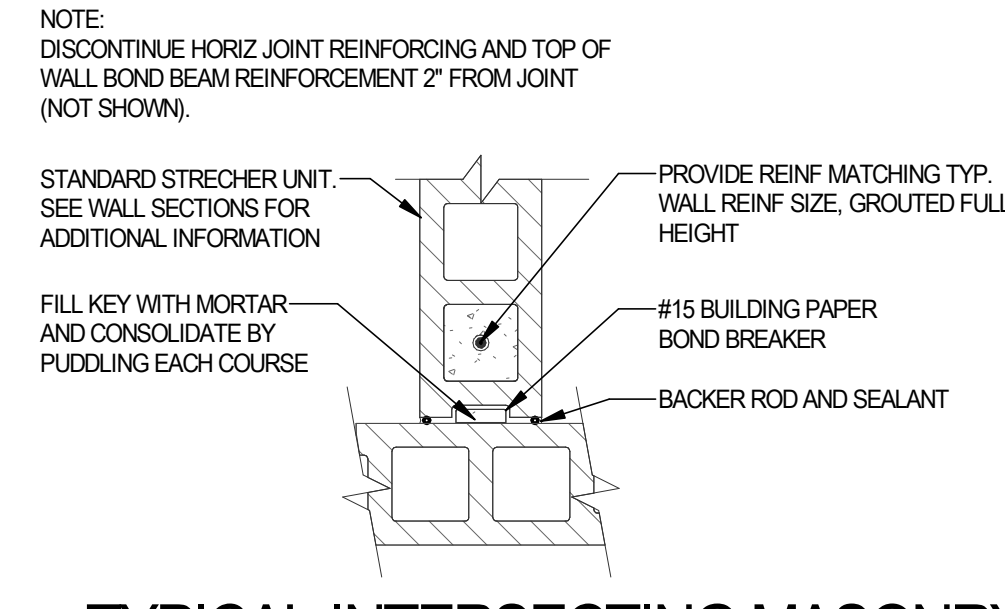
10 JAMB REINFORCEMENT AT SINGLE DOORS
1 1/2" = 1'-0"



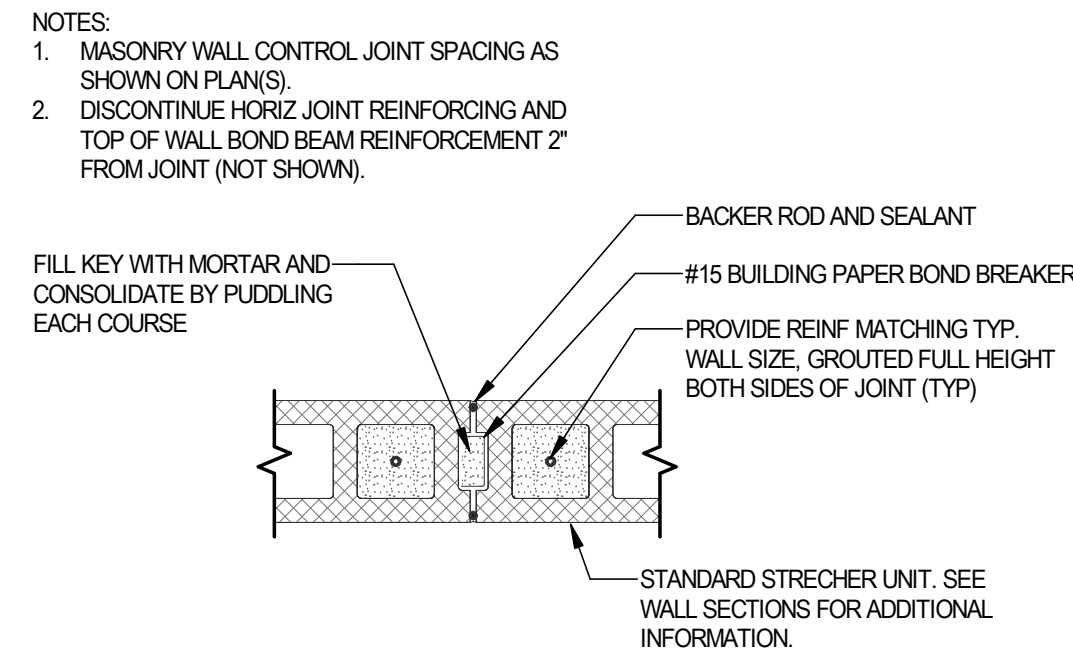
9 CMU BOND BEAM DETAIL
1 1/2" = 1'-0"



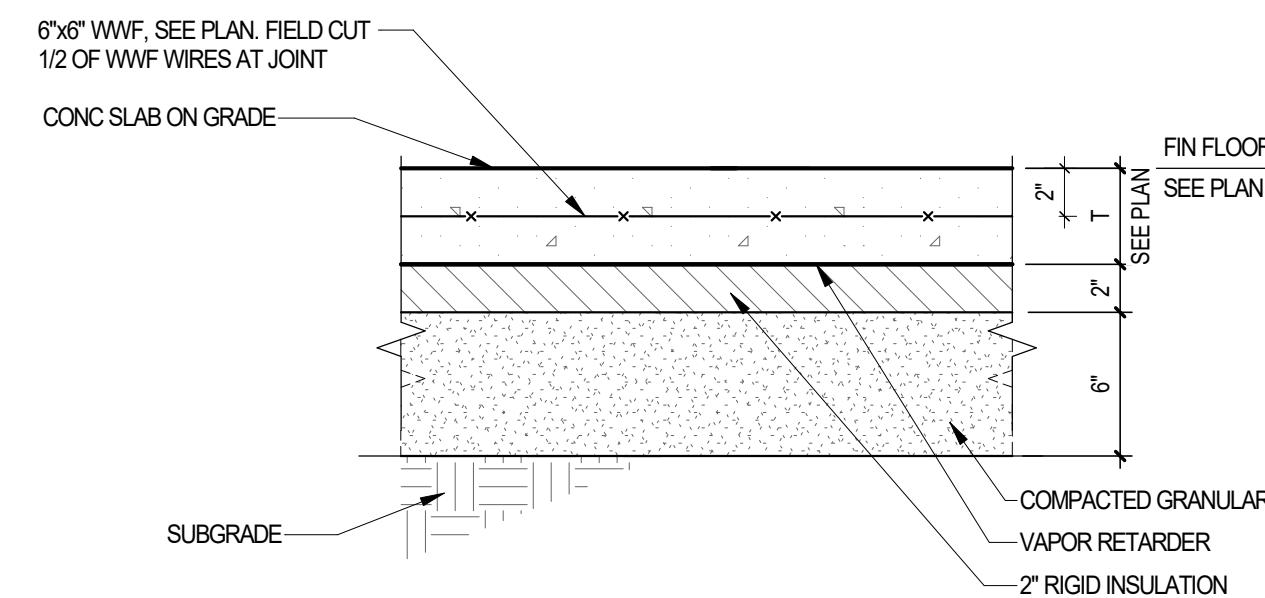
8 TYP CMU MASONRY LINTEL
1 1/2" = 1'-0"



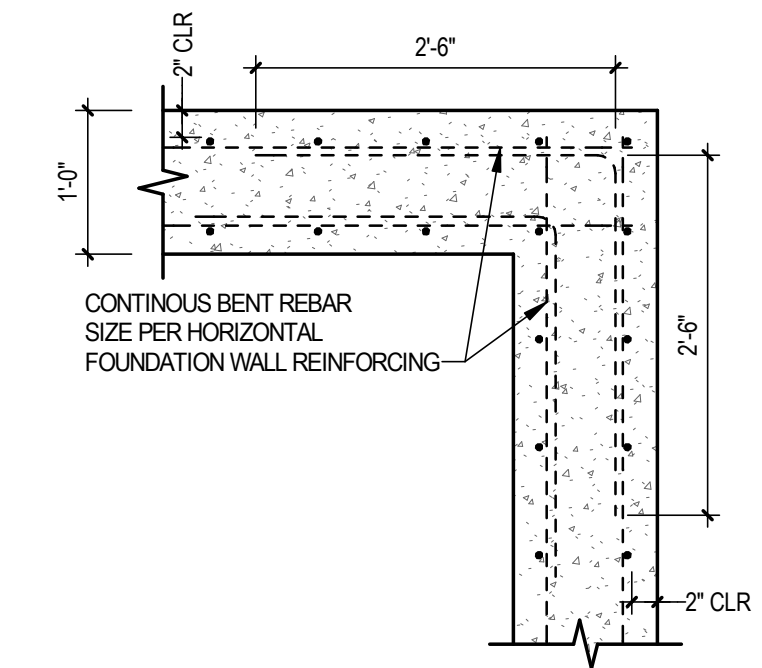
7 TYPICAL INTERSECTING MASONRY WALL CONTROL JOINT
1" = 1'-0"



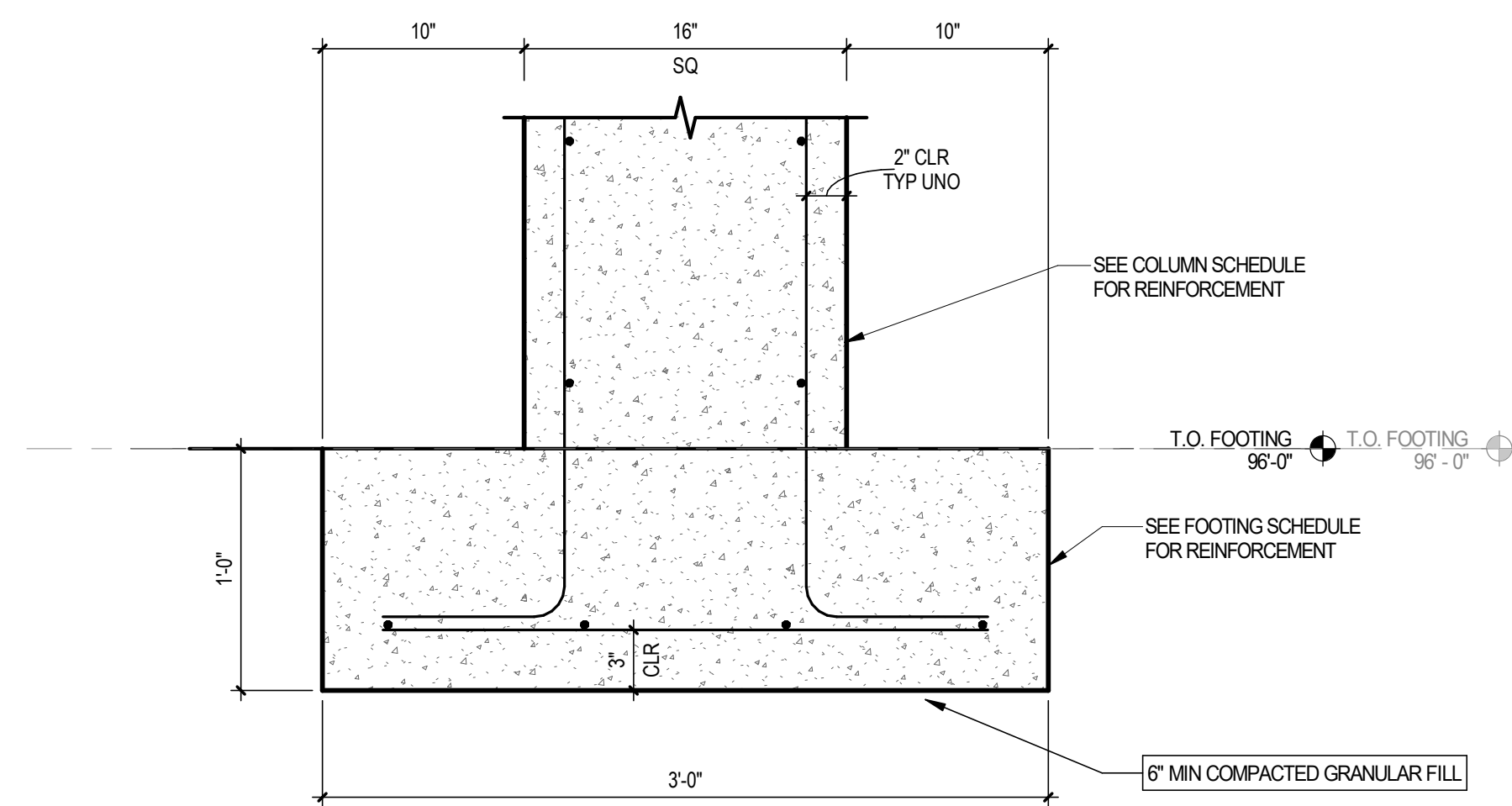
6 TYPICAL MASONRY WALL CONTROL JOINT
1" = 1'-0"



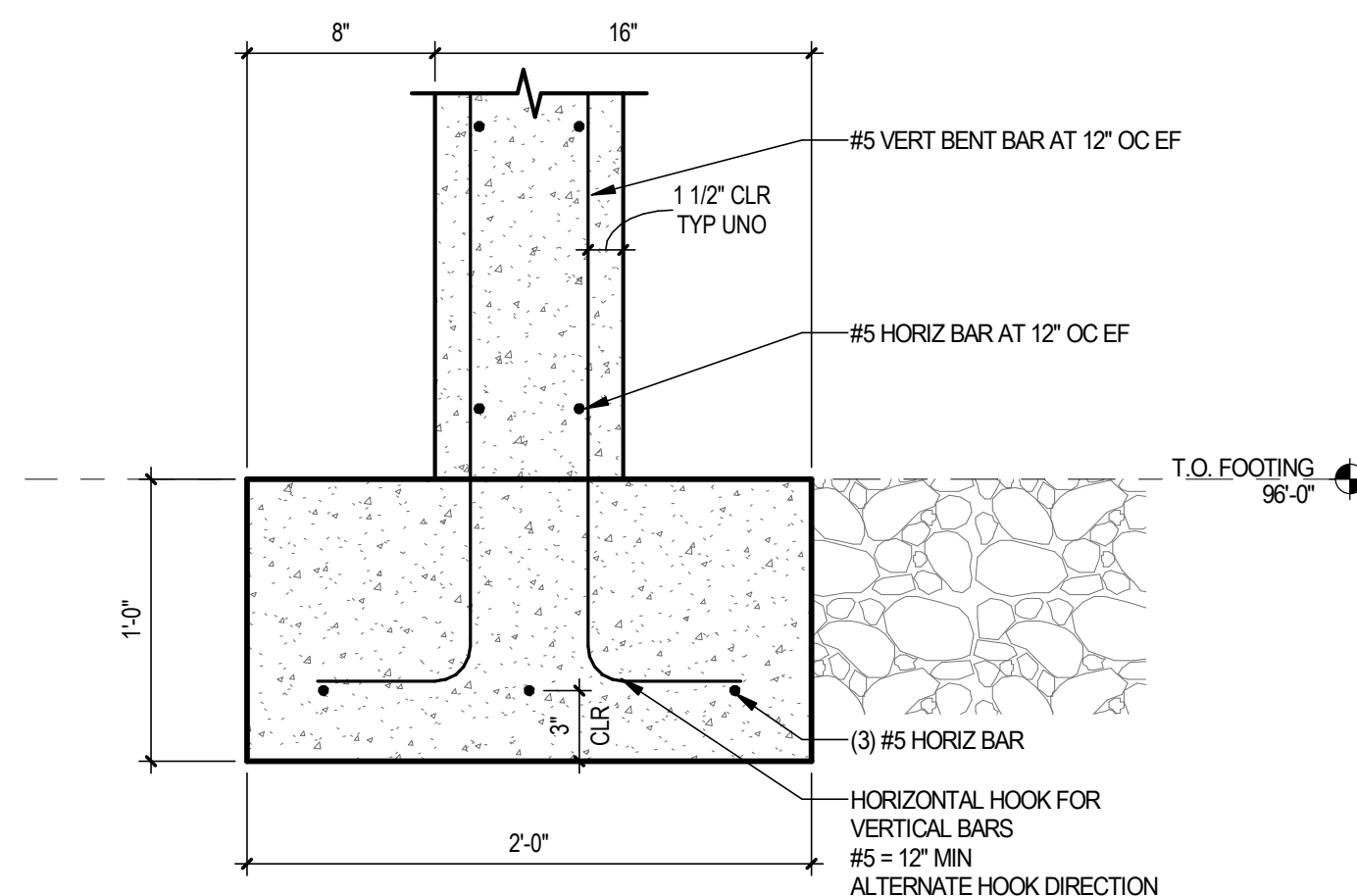
5 TYPICAL SLAB ON GRADE
1 1/2" = 1'-0"



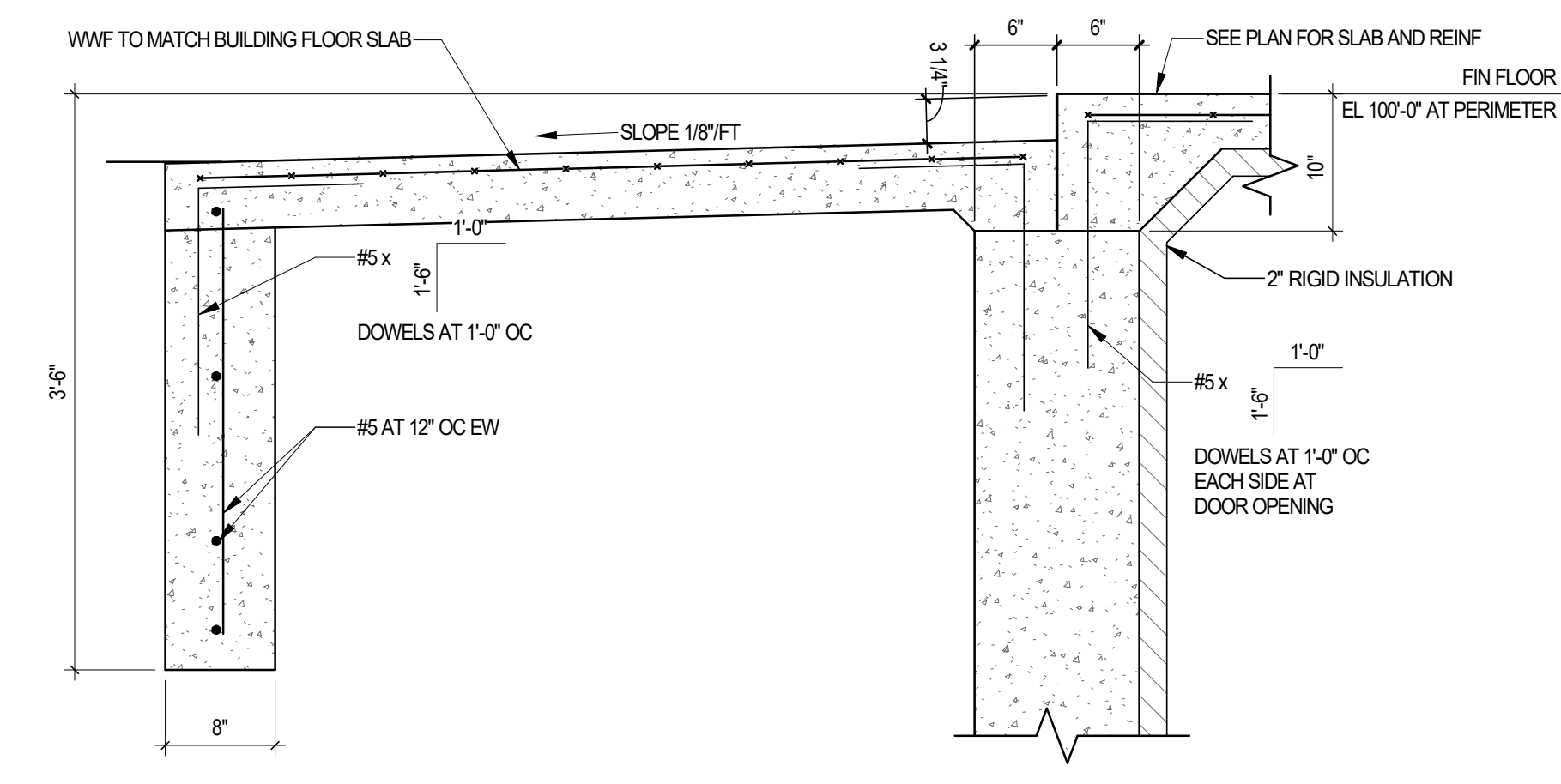
4 TYP WALL CORNER REINFORCING
3/4" = 1'-0"



3 F-2 FOOTING
1 1/2" = 1'-0"



2 F-1 STRIP FOOTING
1 1/2" = 1'-0"

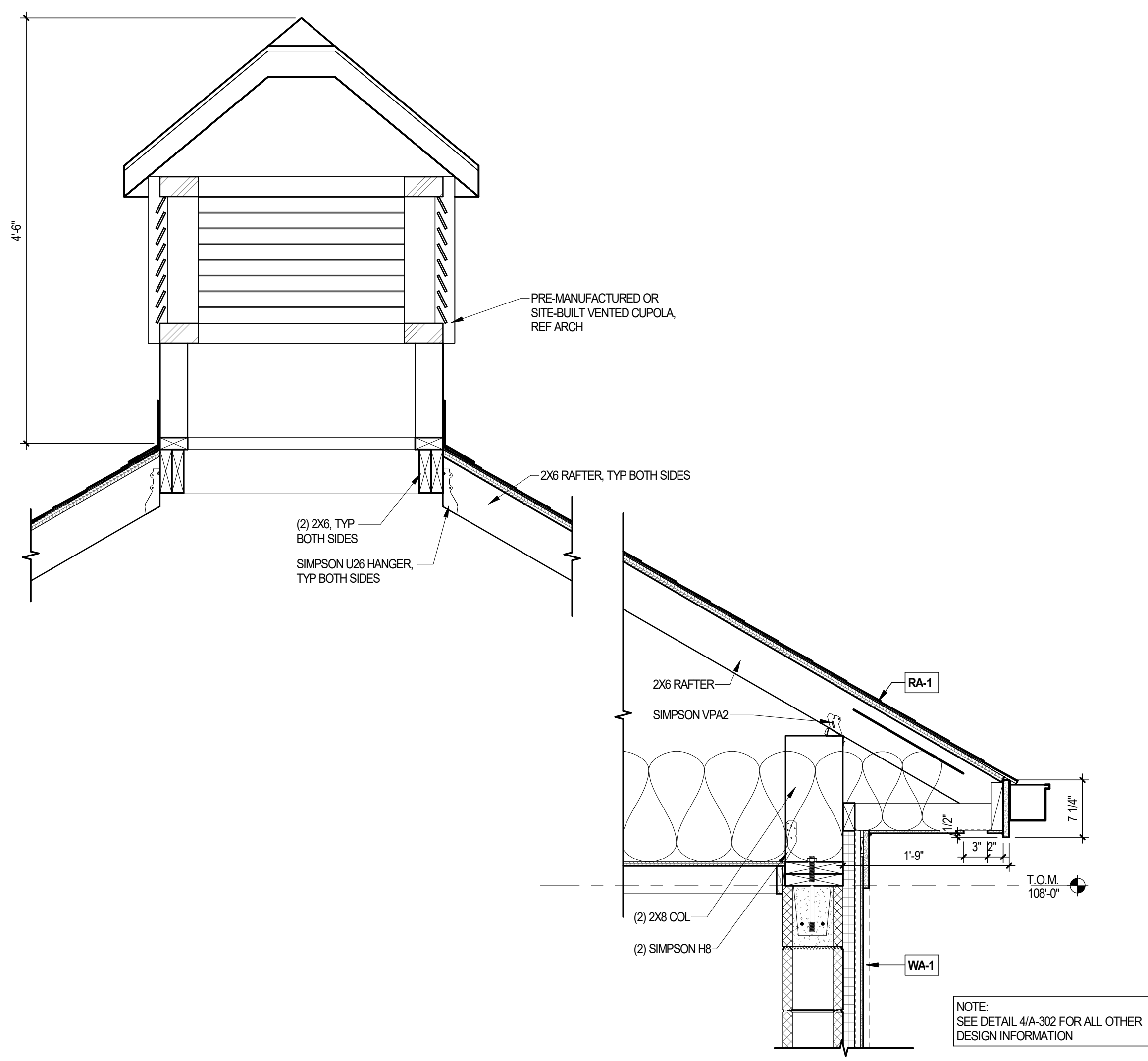


1 TYPICAL SUPPORTED SLAB DETAIL
1" = 1'-0"

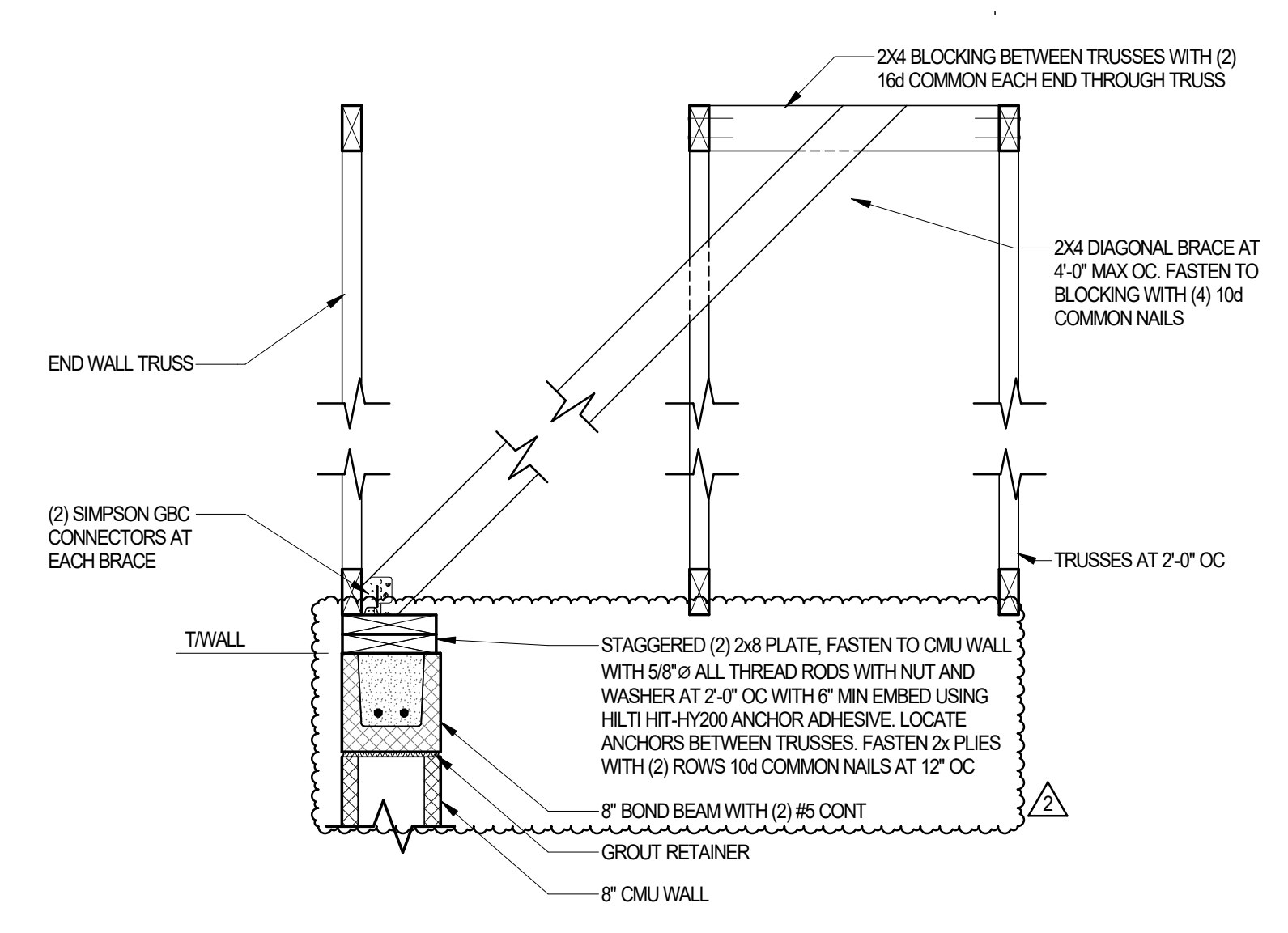
ISSUED FOR: BID SET	2024/1/22
REVISION	DATE
1	01/29/2025
2	
ADDITIONAL 2	

PROJECT NUMBER: 0123-24-020
 PM: CM
 CANTON CHARTER TOWNSHIP
 CHERRY HILL VILLAGE
 Cherry Hill Rd, Canton, MI 48187
 STRUCTURAL DETAILS

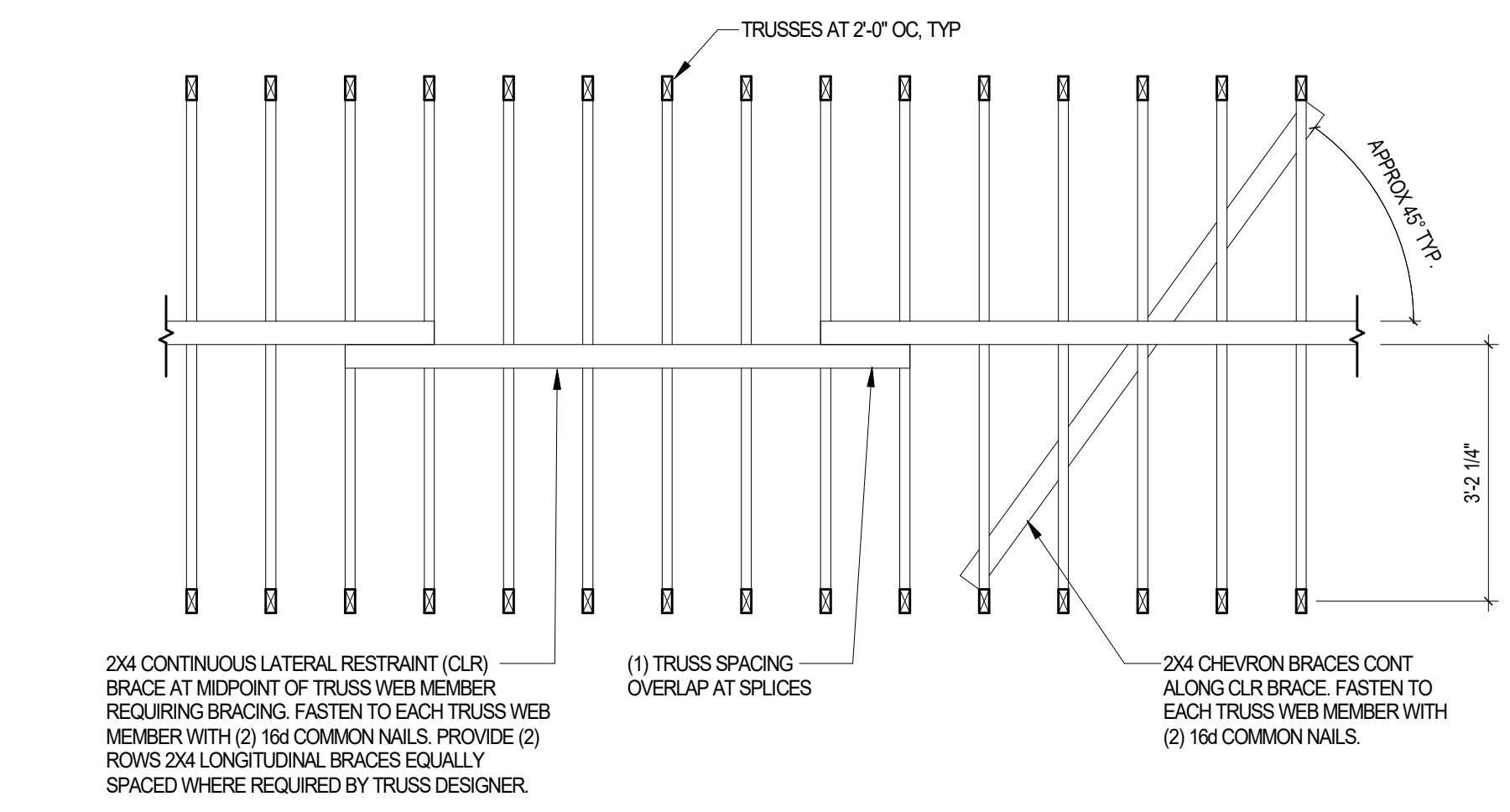




3 FRAMING AT CUPOLA
1" = 1'-0"



2 VERTICAL TRUSS BRACING DETAIL
1" = 1'-0"



1 TYPICAL TRUSS WEB MEMBER LATERAL BRACING
1/2" = 1'-0"

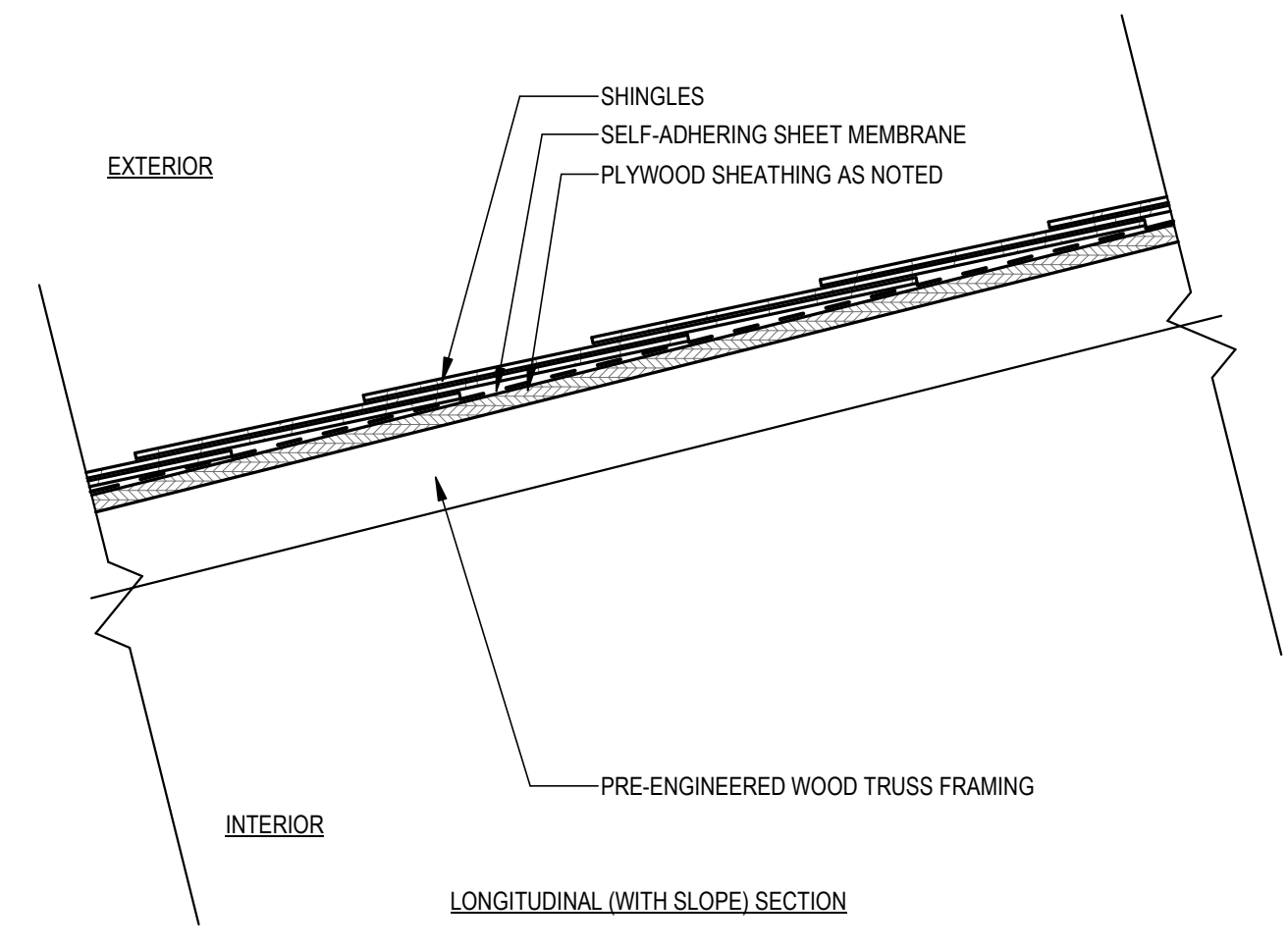
ISSUED FOR:	BID SET	20241122
REVISION:	DESCRIPTION	DATE
2	ADDENDUM 2	01/09/2025

PROJECT NUMBER: 013324-020
 PM: CM
CANTON CHARTER TOWNSHIP
CHERRY HILL VILLAGE
 Cherry Hill Rd, Canton, MI 48187

STRUCTURAL DETAILS

GENERAL NOTES - PARTITIONS

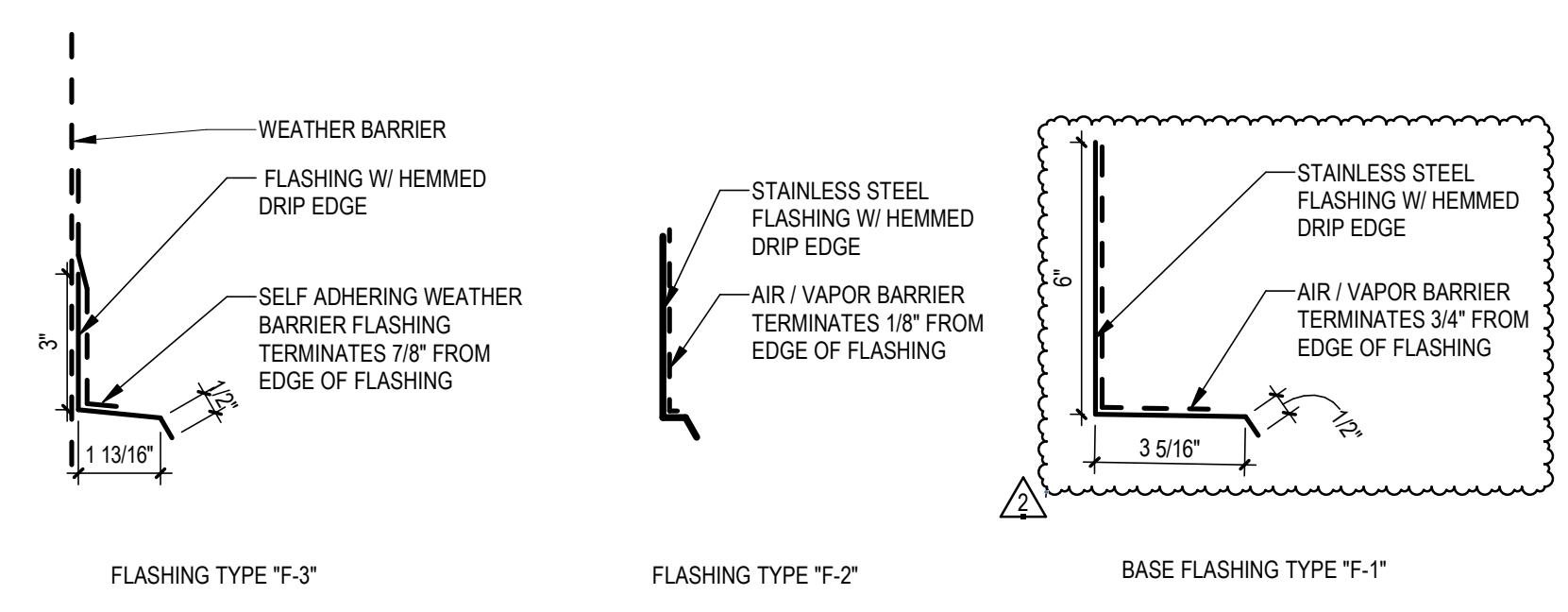
1. USE PARTITION TYPE 'M8' UNO
2. FOR CLARITY, PARTITION TYPES DO NOT INDICATE BASE AND FLOOR FINISHES. REFER TO ROOM FINISH SCHEDULE.
3. APPLY A CONTINUOUS BEAD OF ACOUSTICAL SEALANT AROUND ALL ELECTRICAL WALL BOXES
4. FOR NON-FIRE-RATED PARTITIONS, APPLY ACOUSTICAL SEALANT AROUND PENETRATIONS ABOVE THE CEILING IN FULL-HEIGHT PARTITIONS, UNO



SHINGLED ROOF ON WOOD TRUSSES

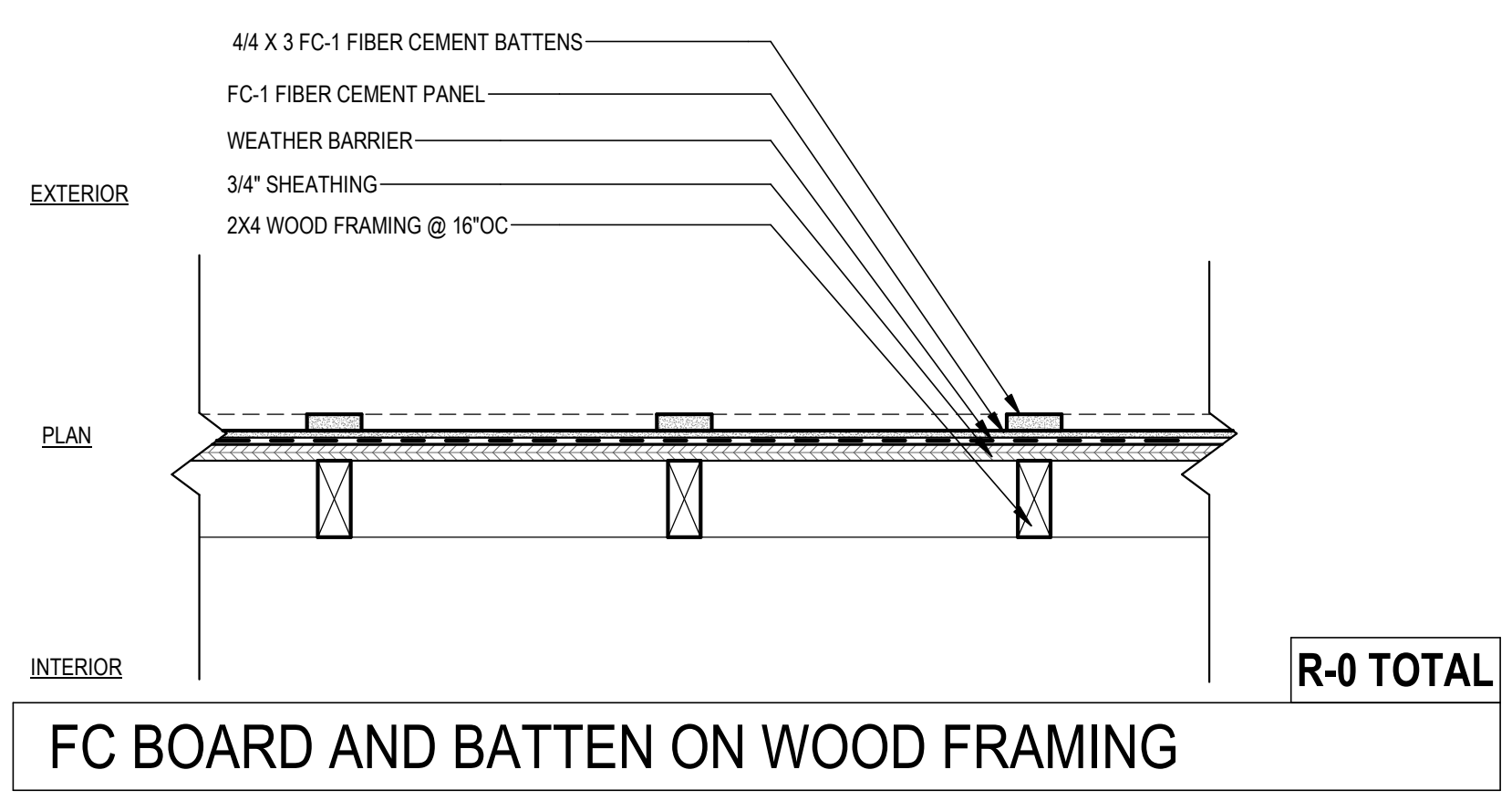
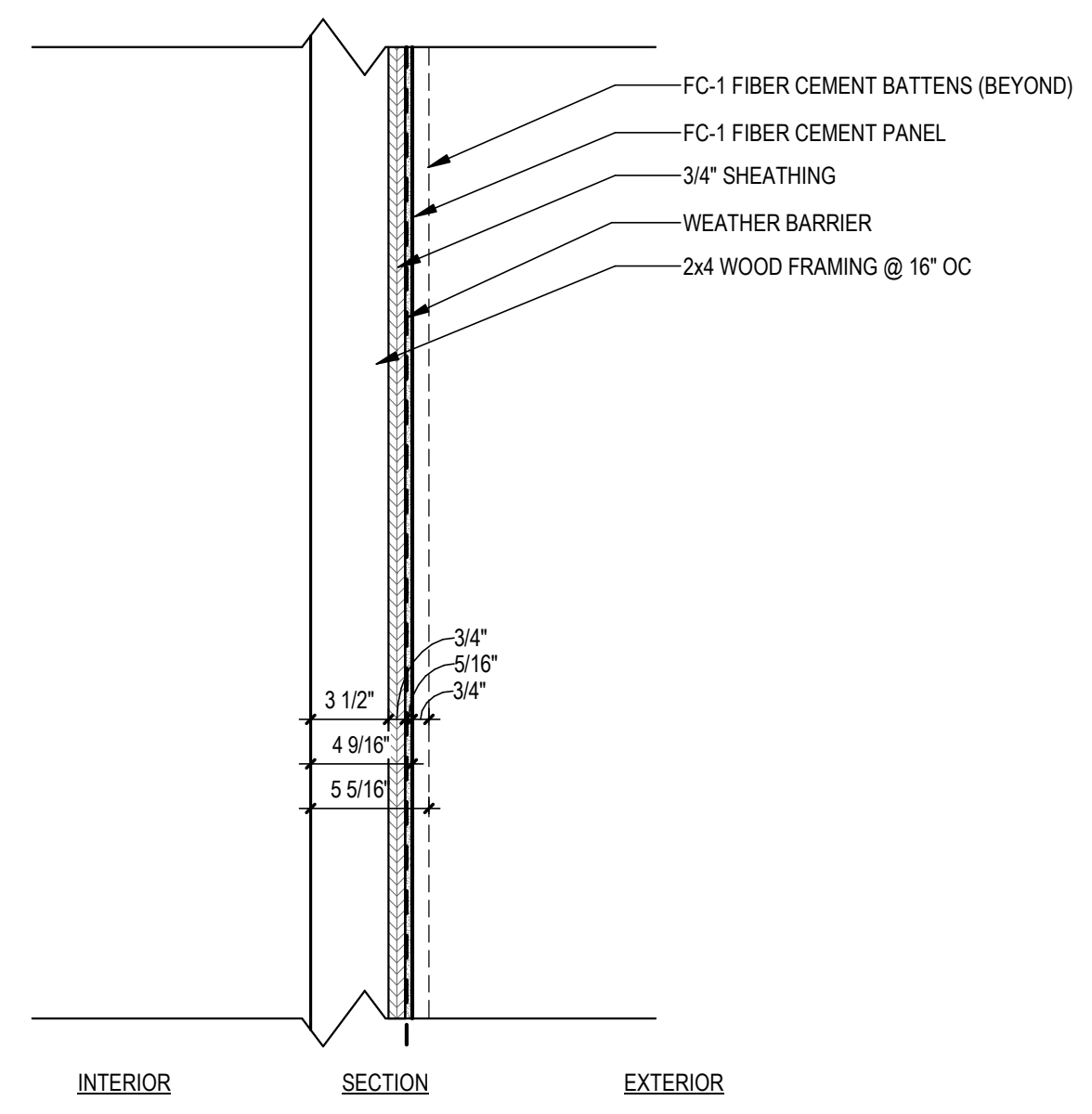
ROOF ASSEMBLY
TILED ROOF SYSTEM
ASPHALT SHINGLES
PRE-ENGINEERED WOOD TRUSS FRAMING

ROOF ASSEMBLY RA-1



FLASHING PROFILE TYPES

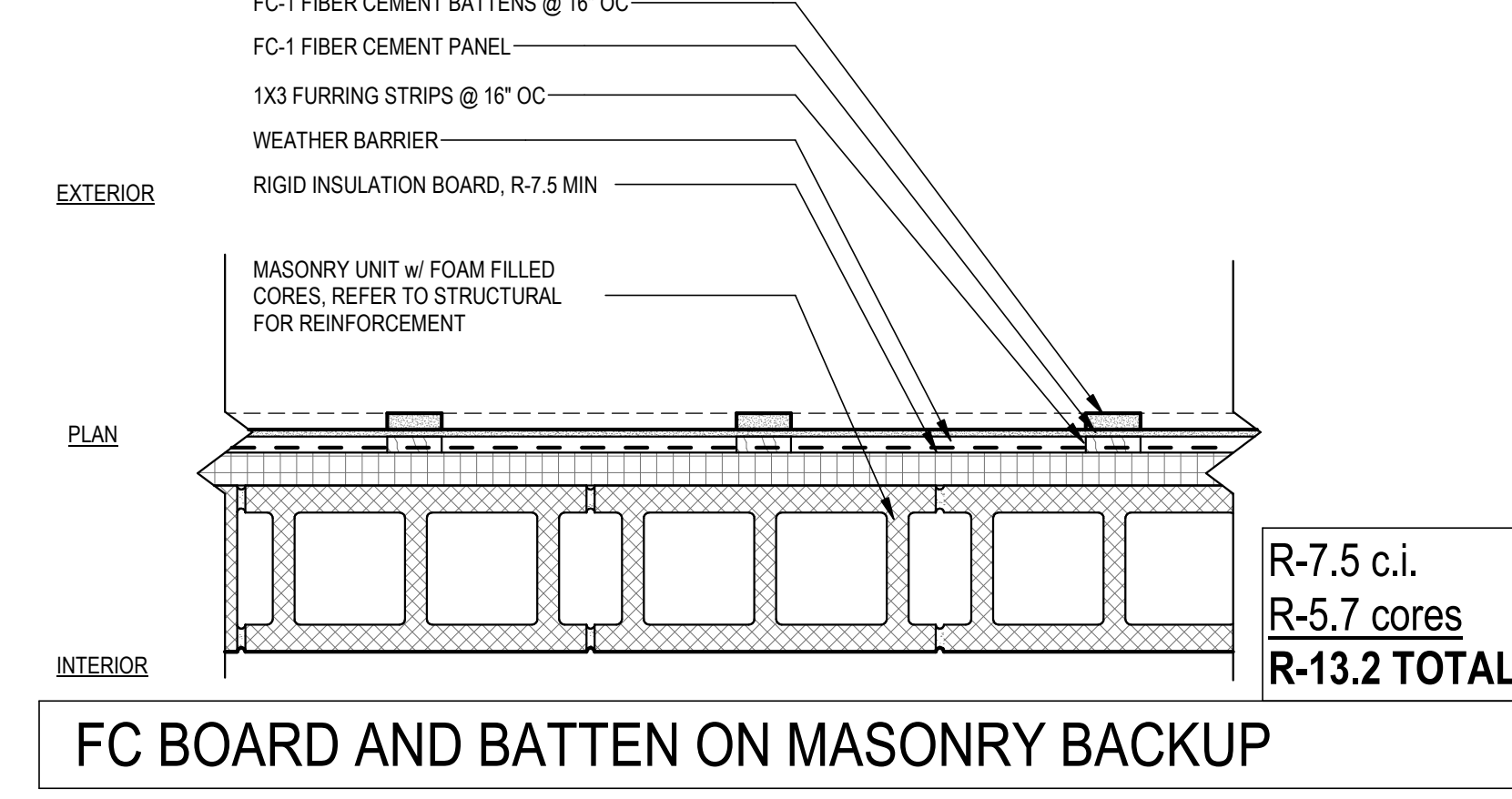
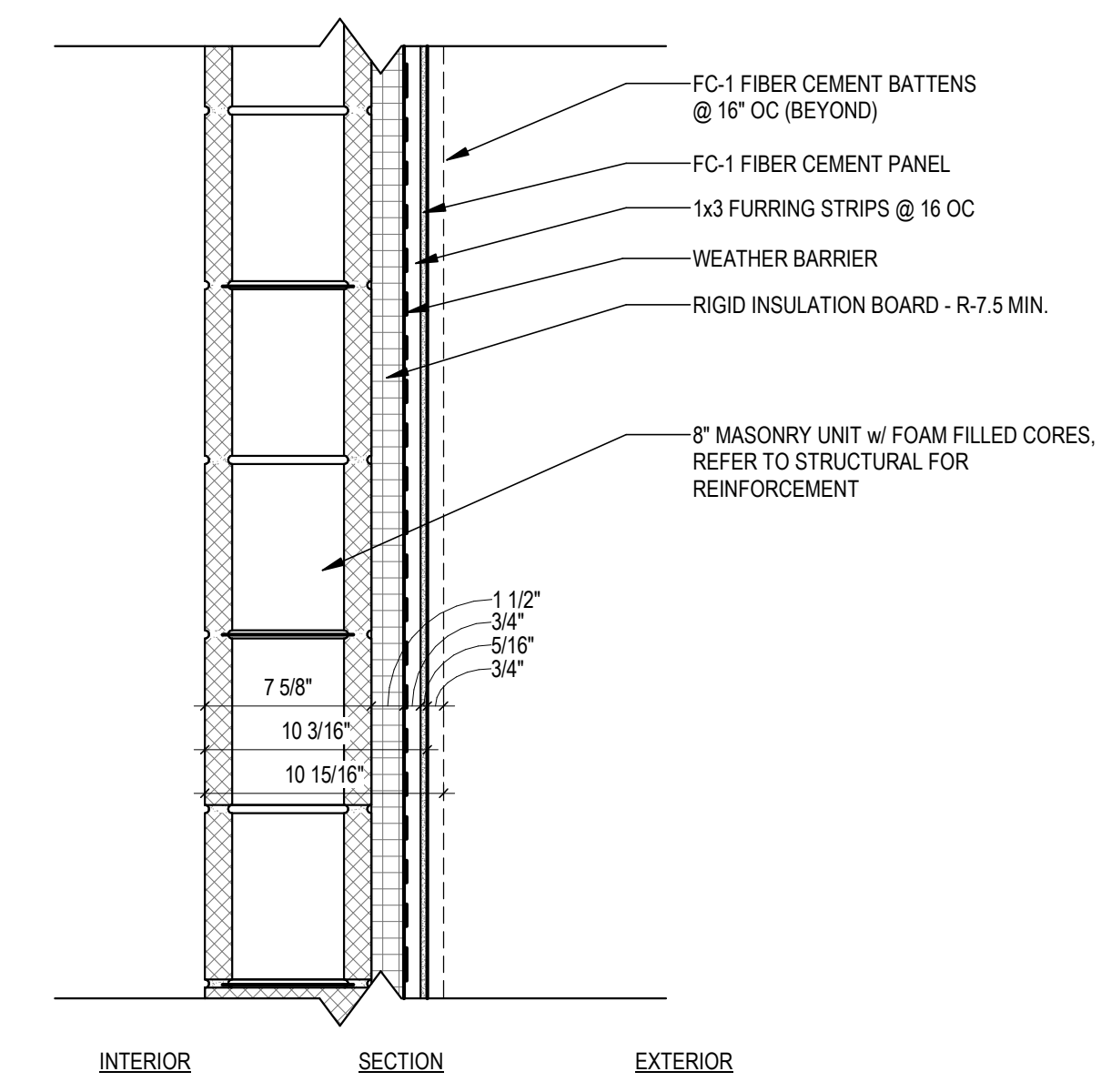
ALL VISIBLE EDGES OF FLASHING TO BE FINISHED



WALL ASSEMBLY
FIBER CEMENT BOARD AND BATTEN
WOOD FRAMING

WALL ASSEMBLY WA-2

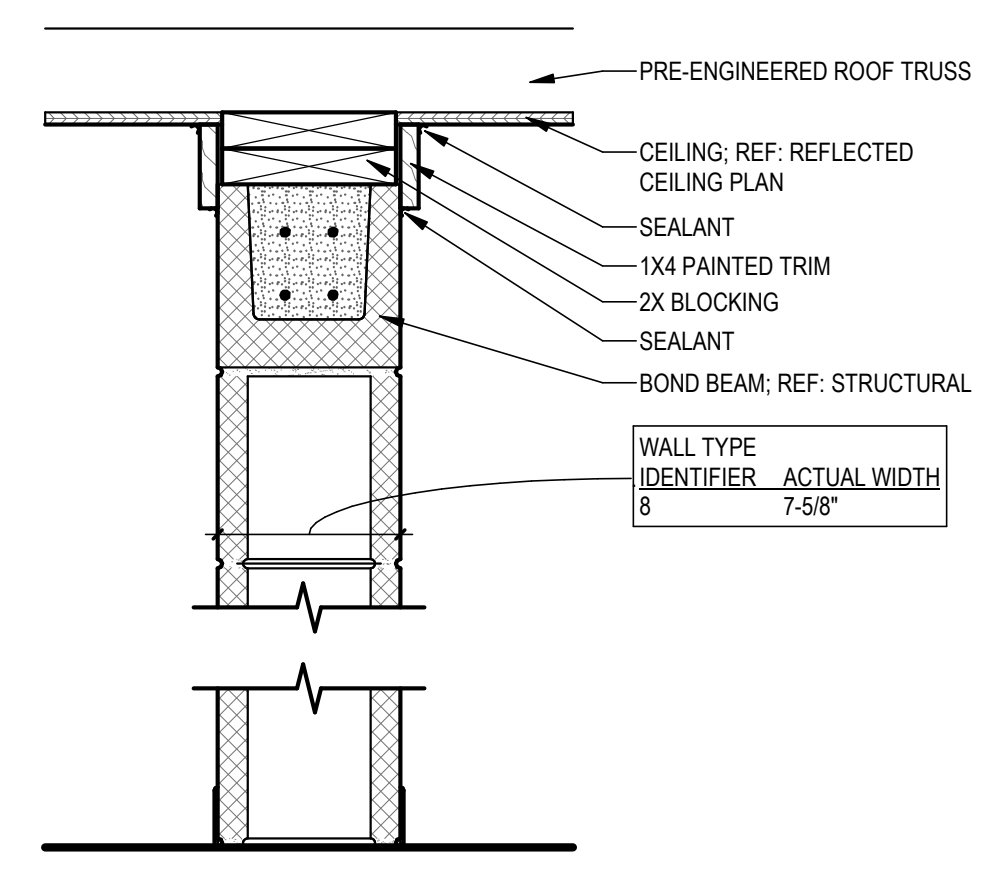
R-0 TOTAL



WALL ASSEMBLY
FIBER CEMENT BOARD AND BATTEN
RIGID INSULATION
REINFORCED CONCRETE MASONRY UNIT

WALL ASSEMBLY WA-1

R-7.5 c.i.
R-5.7 cores
R-13.2 TOTAL



TYPE 'M'
FULL HEIGHT MASONRY WALL

WALL TYPE IDENTIFIER ACTUAL WIDTH
8 7'-5/8"

ISSUED FOR: BID SET	2024/1/22
REVISION	DATE
2	01/09/2025
DESCRIPTION	ADDENDUM 2

PROJECT NUMBER: 0133-24-0020
 PM: CM
 CANTON CHARTER TOWNSHIP
 CHERRY HILL VILLAGE
 Cherry Hill Rd, Canton, MI 48187
 ASSEMBLIES AND PARTITIONS