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ADDENDA

ADDENDUM NUMBER 04

DATE: February 02, 2024

PROJECT: Cass District Library Edwardsburg, MI

PROJECT NUMBER: 22-1836

OWNER: Cass District Library

ARCHITECT: Abonmarche  
315 W. Jefferson Blvd.  
South Bend, IN 46601

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the Bidding Documents dated December 20, 2023, with addendum number 001 issued January 12, 2024, addendum number 002 issued January 19, 2024, and addendum 002 revised issued on January 24, 2024, and addendum 003 issued January 31, 2024 with amendments and additions noted below.

Acknowledge receipt of this Addendum in the space provided in the Bid Form. Failure to do so may disqualify the Bidder.

This Addendum consists of 33 pages and the following Drawings:

No.	Drawing Title	Issue Date
S1.0	Foundation Plan	02/02/2024
S21.	Foundation Details	02/02/2024
S2.3	Foundation Details	02/02/2024
S4.1	Steel Frame Elevations	02/02/2024
S4.2	Steel Frame Elevations	02/02/2024
E3.2	Mezzanine Power and Systems Plan	02/02/2024

## **GENERAL INFORMATION**

1. **ADD** Pergola Notes
  - a. Pergola shall be primed and painted as recommended by paint manufacturer. Paint color TBD.
  - b. Provide (1) coat Sherwin Williams primer.
  - c. Provide (2) coats Sherwin Williams paint.
  - d. Pergola architectural fasteners shall not be painted.

## **CHANGES TO THE PROJECT MANUAL**

### SECTION 004113 “BID FORM” (Attached)

2. **ADD** Entire Section

### SECTION 004322 “UNIT PRICES FORM” (Attached)

3. **ADD** Section in its entirety; unit price shall be included in the base bid for unsatisfactory soil excavation, disposal off-site, and replacement with satisfactory soil material from off-site.

### SECTION 012100 – ALLOWANCES (Attached)

4. **ADD** Section in its entirety; for allowance to be included in the base bid for unsatisfactory soil excavation, disposal off-site, and replacement with satisfactory soil material from off-site.

### SECTION 012200 – UNIT PRICES (Attached)

5. **ADD** Section in its entirety; for unit price to be included in the base bid for unsatisfactory soil excavation, disposal off-site, and replacement with satisfactory soil material from off-site

### SECTION 074113.16 – STANDING SEAM METAL ROOF PANELS (Re-Issue)

6. **REVISE** Entire Section (Attached)

### SECTION 283101 – ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS (Re-Issue)

7. **REVISE** Section 1.7 (Attached)
8. **ADD** Section 2.1 & 2.2 (Attached)

## **CHANGES TO THE DRAWINGS**

### DRAWING S1.0 – FOUNDATION PLAN (Re-Issued)

9. **REVISE** Footing Schedule, and exterior concrete slabs under entrance canopies.

### DRAWING S2.1 – FOUNDATION DETAILS (Re-Issued)

10. **REVISE** Footing Schedule, and exterior concrete slabs under entrance canopies.

DRAWING S2.3 – FOUNDATION DETAILS (Re-Issued)

11. **REVISE** Pergola Foundation Detail 4 including clarifications on pedestal and footing elevations and trim covering Simpson post base.

DRAWING S4.1 – STEEL FRAMING ELEVATIONS (Re-Issued)

12. **CLARIFY** Bracing on detail callouts.

DRAWING S4.2 – STEEL FRAMING ELEVATIONS (Re-Issued)

13. **CLARIFY** Bracing detail callouts and bracing details.

DRAWING E3.2 – MEZZANINE AND SYSTEMS POWER PLAN (Re-Issued)

14. **REMOVE** Digital time clocks from project.  
15. **ADD** Relay control panel to electrical room for lighting control.

**QUESTIONS AND ANSWERS**

16. PLAM at room 113 ceiling is shown but what will this be attached to?  
a. Please see **3,4/S3.3** STRUCTURAL DETAILS in Addendum 2 for PLAM ceiling framing at room 113. Framing to be suspended by wire rope and connected to HSS tube steel welded to truss.
17. Does the exterior slab reinforcing need to be epoxy coated at door stoops, patios, and dumpster enclosures?  
a. Please see revisions S1.0 & S2.1 for epoxy coated details.
18. Can you confirm how unsuitable soil removal and replacement will be addressed if encountered?  
a. Patriot Engineering to preform soil assessment for soil removal and replacement recommendations. Refer to SECTION 012200 “UNIT PRICES”, SECTION 012100 “ALLOWANCES”, and SECTION 004322 “UNIT PRICES FORM”.
19. Can you please clarify the decorative wall at the teen room 118?  
a. Please see ADD# 4.1 for more information.

END OF DOCUMENT

SECTION 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

PART 1 - GENERAL

1.1 BID INFORMATION

- A. Bidder Name: \_\_\_\_\_.
- B. Bidder Phone Number: \_\_\_\_\_.
- C. Bidder eMail: \_\_\_\_\_.
- D. Project Name: CDL Edwardsburg Library.
- E. Project Location: 319 M62, Cassopolis, MI 4903.
- F. Owner: Cass District Library - Edwardsburg Branch.
- G. Architect: Abonmarche Consultants, Inc. 315 W. Jefferson Blvd., South Bend, IN 46601.
- H. Architect Project Number: 22-1836.

1.2 CERTIFICATIONS AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by Abonmarche and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:
  - 1. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_).
  - 2. The above amount may be modified by amounts indicated by the Bidder on the attached Document 004323 "Alternates Form."

1.3 BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:

1. \_\_\_\_\_ Dollars  
(\$\_\_\_\_\_).

- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.4 SUBCONTRACTORS AND SUPPLIERS

- A. The following companies shall execute subcontracts for the portions of the Work indicated:

1. Concrete Work: \_\_\_\_\_.
2. Roofing Work: \_\_\_\_\_.
3. Plumbing Work: \_\_\_\_\_.
4. HVAC Work: \_\_\_\_\_.
5. Electrical Work: \_\_\_\_\_.

1.5 TIME OF COMPLETION

- A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect, and shall fully complete the Work as follows:

1. Start Construction: \_\_\_\_\_.
2. Substantial Completion: \_\_\_\_\_.
3. Final Completion: \_\_\_\_\_.

1.6 ACKNOWLEDGEMENT OF ADDENDA

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated \_\_\_\_\_.
2. Addendum No. 2, dated \_\_\_\_\_.
3. Addendum No. 2 (Rev), dated \_\_\_\_\_.
4. Addendum No. 3, dated \_\_\_\_\_.
5. Addendum No. 4, dated \_\_\_\_\_.

1.7 Acknowledgement of allowances included in bid.

A. Allowance No. 1:

Included \_\_\_\_

No Included \_\_\_\_

1.8 BID SUPPLEMENTS

A. The following supplements are a part of this Bid Form and are attached hereto.

1. Bid Form Supplement - Alternates.
2. Bid Form Supplement - Bid Bond Form (AIA Document A310-2010).
3. Bid Form Supplement - Proposed Schedule of Values.

1.9 CONTRACTOR'S LICENSE

A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in The State of Michigan, Cass County, Ontwa Township, Village of Edwardsburg and all Authorities having jurisdiction, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.10 SUBMISSION OF BID

A. Respectfully submitted this \_\_\_\_ day of \_\_\_\_\_, 2024.

B. Submitted By: \_\_\_\_\_ (Name of bidding firm or corporation).

C. Authorized Signature: \_\_\_\_\_ (Handwritten signature).

D. Signed By: \_\_\_\_\_ (Type or print name).

E. Title: \_\_\_\_\_ (Owner/Partner/President/Vice President).

F. Witnessed By: \_\_\_\_\_ (Handwritten signature).

22-1836 Edwardsburg Branch

BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

Cass District Library  
February 2, 2024 - Addendum 4

004113-3

- G. Attest: \_\_\_\_\_ (Handwritten signature).
- H. By: \_\_\_\_\_ (Type or print name).
- I. Title: \_\_\_\_\_ (Corporate Secretary or Assistant Secretary).
- J. Street Address: \_\_\_\_\_.
- K. City, State, Zip: \_\_\_\_\_.
- L. Phone: \_\_\_\_\_.
- M. License No.: \_\_\_\_\_.
- N. Federal ID No.: \_\_\_\_\_ (Affix Corporate Seal Here).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF DOCUMENT 004113

## SECTION 004322 - UNIT PRICES FORM

### 1.1 BID INFORMATION

- A. Bidder: \_\_\_\_\_.
- B. Project Name: CDL Edwardsburg Library.
- C. Project Location: 319 M62, Cassopolis, MI 4903.
- D. Owner: Cass District Library - Edwardsburg Branch.
- E. Architect: Abonmarche Consultants, Inc. 315 W. Jefferson Blvd., South Bend, IN 46601.
- F. Architect Project Number: 22-1836.

### 1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.

### 1.3 DESCRIPTION

- A. Unit price is[ an amount incorporated into the Agreement, applicable during the duration of the Work as] a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

### 1.4 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 1: Removal of unsatisfactory soil and replacement with satisfactory soil material:
  - 1. \_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_) per cubic yard.

END OF DOCUMENT 004322



## SECTION 012100 - ALLOWANCES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
  - 1. Lump-sum allowances.
  - 2. Unit-cost allowances.
- C. Related Requirements:
  - 1. Section 012200 "Unit Prices" for procedures for using unit prices, including adjustment of quantity allowances when applicable.
  - 2. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

#### 1.2 DEFINITIONS

- A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

#### 1.4 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

#### 1.5 UNIT-COST ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.
- B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

#### 1.6 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, required maintenance materials, and similar margins.
  - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
  - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
  - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
- B. Submit claims for increased costs due to a change in the scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

#### PART 2 - PRODUCTS (Not Used)

#### PART 3 - EXECUTION

##### 3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

### 3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Quantity Allowance: Include 2,000 cu.yd of unsatisfactory soil excavation and disposal off-site and replacement with satisfactory soil material from off-site, as specified in Section 312000 "Earth Moving."
  - 1. This allowance includes material, receiving, handling, and installation costs, and Contractor overhead and profit.
  - 2. Coordinate quantity allowance adjustment with unit-price requirements in Section 012200 "Unit Prices."

END OF SECTION

## SECTION 012200 - UNIT PRICES

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes administrative and procedural requirements for unit prices.
- B. Related Requirements:
  - 1. Section 012100 "Allowances" for procedures for using unit prices to adjust quantity allowances.
  - 2. Section 012600 "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

#### 1.2 DEFINITIONS

- A. Unit price is an amount incorporated into the Agreement, applicable during the duration of the Work as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

#### 1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the Part 3 "Schedule of Unit Prices" Article contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

- A. Unit Price No. 1: Removal of unsatisfactory soil and replacement with satisfactory soil material.
1. Description: Unsatisfactory soil excavation and disposal off-site and replacement with satisfactory fill material or engineered fill from off-site, as required, in accordance with Section 312000 "Earth Moving."
  2. Unit of Measurement: Cubic yard of soil excavated, based on in-place surveys of volume before and after removal.
  3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."

END OF SECTION

## SECTION 074113.16 - STANDING-SEAM METAL ROOF PANELS

### PART 1 - GENERAL

#### 1.1 SUMMARY

##### A. Section Includes:

1. Vertical-rib, snap-joint, standing-seam metal roof panels.
2. Roof insulation.

##### B. Related Requirements:

1. Section 061600 "Sheathing" for roof sheathing.
2. Section 077100 "Roof Specialties" for gutters and downspouts.
3. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

#### 1.2 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

#### 1.3 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written installation instructions and warranty requirements.

#### 1.4 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

## 1.5 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Structural failures including rupturing, cracking, or puncturing.
    - b. Deterioration of metal and other materials beyond normal weathering.
  - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
  - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
    - a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
    - b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
    - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
  - 2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Weathertightness Warranty: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
  - 1. Warranty Period: 20 years from date of Substantial Completion.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E1592:
  - 1. Wind Loads: As indicated on Drawings.
  - 2. Deflection Limits: For wind loads, no greater than 1/240 of the span.
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested in accordance with ASTM E1680 or ASTM E283/E283M at the following test-pressure difference:

1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- C. Water Penetration under Static Pressure: No water penetration when tested in accordance with ASTM E1646 or ASTM E331 at the following test-pressure difference:
  1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- D. Watertightness: No water penetration when tested in accordance with ASTM E2140 for hydrostatic-head resistance.
- E. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
  1. Uplift Rating: UL 90.
- F. FM Approvals Listing: Provide metal roof panels and component materials that comply with requirements in FM Approvals 4471 as part of a panel roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Approvals markings.
- G. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
  1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

## 2.2 STANDING-SEAM METAL ROOF PANELS, GENERAL

- A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed fasteners in side laps. Include all accessories required for weathertight installation.
  1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

## 2.3 VERTICAL-RIB, SNAP-JOINT, STANDING-SEAM METAL ROOF PANELS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
  1. ATAS International, Inc.
  2. Fabral; a brand of Flack Global Metals.
  3. MBCI; Cornerstone Building Brands.
  4. PAC-CLAD; Petersen; a Carlisle company.
- B. Basis-of-Design Product: PAC-CLAD; Snap-On Standing Seam Panel.



- C. Panels: Formed with vertical ribs at panel edges; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.
1. Structural Support: Over solid deck.
  2. Material: Metallic-coated steel.
  3. Panel Profile: Intermediate stiffening ribs symmetrically spaced between ribs.
  4. Panel Coverage: 16 inches.
  5. Panel Height: 1.0 inch.
  6. Clips: One piece, fixed, designed to accommodate thermal movement.
    - a. Steel Clips: Manufacturer's recommendation, minimum 0.028-inch-nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
    - b. Clip Spacing: 24 inches.

## 2.4 ROOF INSULATION

- A. Insulation over Solid Deck:
1. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 1, Grade 3, felt or glass-fiber mat facer on both major surfaces.
    - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
      - 1) Atlas Polyiso Roof and Wall Insulation.
      - 2) Elevate; Holcim Building Envelope.
      - 3) Hunter Panels; a Carlisle company.
      - 4) Johns Manville; a Berkshire Hathaway company.
    - b. Compressive Strength: 25 psi.
    - c. Size: 48 by 96 inches.
    - d. Thickness:
      - 1) Base Layer: 1-1/2 inches Insert thickness.
      - 2) Upper Layer: Insert thickness.

## 2.5 PANEL MATERIALS

- A. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with minimum ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with minimum ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
1. Nominal Thickness: 0.028 inch.
  2. Surface: Smooth, flat finish.

## 2.6 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, minimum ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 coating designation. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, fasteners, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
  - 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
  - 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
  - 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads.
- E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
  - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
  - 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
  - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

## 2.7 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate in accordance with equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations that apply to design, dimensions, metal, and other characteristics of item indicated.
  - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
  - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
  - 3. Seams for other than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
  - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with manufacturer's recommendations.
  - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not permitted on faces of accessories exposed to view.
  - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
    - a. Size: As recommended by metal panel manufacturer for application, but not less than thickness of metal being secured.

## 2.8 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
  1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
  2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.
    - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written installation instructions.

### 3.3 INSTALLATION OF ROOF INSULATION

- A. General: Install insulation concurrently with metal panel installation, in thickness indicated to cover entire surface, in accordance with manufacturer's written installation instructions.
  1. Set vapor-retarder-faced units with vapor retarder toward warm side of construction unless otherwise indicated. Do not obstruct ventilation spaces except for firestopping.

2. Tape joints and ruptures in vapor retarder and seal each continuous area of insulation to the surrounding construction to ensure airtight installation.

### 3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 ft. on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

### 3.5 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.
- B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

### 3.6 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

## SECTION 283101 - ADDRESSABLE FIRE ALARM AND DETECTION SYSTEMS

### PART 1 - PART 1 - GENERAL

#### 1.1 SECTION INCLUDES

- A. Fire alarm and detection systems.

#### 1.2 RELATED WORK

- A. Section 260553 - Electrical Identification: Refer to electrical identification for color and identification labeling requirements.

#### 1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in smoke detection and fire alarm systems with ten years' experience.
- B. Installer: A factory-authorized Electrical or Security Contractor licensed with the State and local jurisdiction with five years' experience in the design, installation, and maintenance of fire alarm systems by that manufacturer.
- C. Qualifications: The person managing/overseeing the preparation of shop drawings and the system installation/programming/testing shall be trained and certified by the system manufacturer and shall be Fire Alarm Certified by NICET, minimum Level 2. This person's name and certification number shall appear on the start-up and testing reports.

#### 1.4 REFERENCES

- A. ASME A17.1 - Safety Code for Elevators and Escalators
- B. NFPA 20 - Standard for Centrifugal Fire Pumps
- C. NFPA 70 - National Electrical Code (NEC)
- D. NFPA 72 - National Fire Alarm and Signaling Code
- E. NFPA 101 - Life Safety Code
- F. UL 2017 - General Purpose Signaling Devices and Systems
- G. UL 217 / 268 - Standard for Smoke Alarms / Smoke Detectors for Fire Alarm Systems
- H. UL 2572 - Control and Communication Units for Mass Notification Systems

## 1.5 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 260500 and as noted below.
  - 1. Failure to comply with all the following and all the provisions in 26 05 00 will result in the shop drawing submittal being rejected without review.
  - 2. Failure to submit the fire alarm without all requirements fulfilled in a single comprehensive submittal will be grounds to require a complete resubmittal.
- B. Provide product catalog data sheets as shop drawings.
  - 1. Provide a product catalog data sheet for each item shown on the Electrical Symbols List and for each piece of equipment that is not shown on the drawings, but required for the operation of the system.
  - 2. Where a particular Electrical Symbols List item has one or more variations (such as those denoted by subscripts, etc.) a separate additional product catalog data sheet shall be provided for each variation that requires a different part number to be ordered. The corresponding Electrical Symbols List symbol shall be shown on the top of each sheet.
  - 3. Where multiple items and options are shown on one data sheet, the part number and options of the item to be used shall be clearly denoted.
- C. Submit CAD Floor Plans as Shop Drawings:
  - 1. The complete layout of the entire system, device addresses, auxiliary equipment, and manufacturer's wiring requirements shall be shown.
  - 2. A legend or key shall be provided to show which symbols shown on the submittal floor plans correspond with symbols shown on the Contract Documents.

## 1.6 REGULATORY REQUIREMENTS

- A. System: UL listed.
- B. Conform to requirements of NFPA 101.
- C. Conform to requirements of Americans with Disabilities Act (ADA).
- D. Conform to UL 864 Fire Alarm, UL 1076 Security, UL2017 General Signaling, and UL 2572 Mass Notification Communications.

## 1.7 SYSTEM DESCRIPTION

- A. Performance Statement: This specification section and the accompanying fire alarm specific design documents describe the minimum material quality, required features, and operational requirements of the system. These documents do not convey every wire that must be installed and every equipment connection that must be made. Based on the equipment described and the performance required of the system, as presented in these documents, the Vendor and the Contractor are solely responsible for determining all wiring, programming and miscellaneous equipment required for a complete and operational system.
- B. This section of the specifications includes the furnishing, installation and connection of the microprocessor controlled, intelligent reporting, fire alarm equipment required to form a complete coordinated system that is ready for operation. It shall include, but is not limited to, alarm initiating devices, control panels, auxiliary control devices, annunciators, power supplies, and wiring as indicated on the drawings and specified herein.
- C. Extending the Existing Fire Alarm System: Provide all items, components, devices, hardware, software, programming, expansion components, conduit, wiring etc. needed to extend fire alarm system. This includes, but is not limited to, additional power supplies, initiating devices and circuits, signaling devices and circuits, monitoring devices and circuits, auxiliary control and related devices such as, door holders and their control, smoke damper control, fan shutdown, etc. The existing fire alarm system shall be extended such that the existing fire alarm system's functionality, integrity and annunciation shall be equivalent to pre-construction conditions, unless noted otherwise. The functionality and integrity shall be maintained during construction. The entire system shall be able to be completely reset from any single reset location point. The entire system shall be annunciated at any annunciation location.
- D. Extending the Existing Gamewell FCI 7100 Fire Alarm System: The existing control panel shall remain and shall be operational throughout construction. The system shall only be disabled to make new connections and to modify the programming. A fire watch shall be provided for all areas affected during outages. All system outages must be scheduled with the Owner at least one week prior. Individual devices may be disabled as needed based on construction activities to reduce the potential for false alarms, but all devices must be operational when the Contractor is not physically on site. New initiating devices may be connected to the existing signaling line circuits where capacity is available. Provide additional signaling line circuits as needed based on existing and new device quantity, including replacement of existing panel components. Provide new notification circuits to serve the new devices, including all necessary power supplies, amplifiers, batteries, and 120-volt input circuits. All new devices shall be programmed to provide the same sequence of operation as the existing devices of the same type, unless noted otherwise.
- E. Fire Alarm System: NFPA 72; Automatic and manual fire alarm system, non-coded, analog-addressable with automatic sensitivity control of certain detectors, multiplexed signal transmission.



- F. System Supervision: Provide electrically supervised system, with supervised Signal Line Circuit (SLC) and Notification Appliance Circuit (NAC). Occurrence of single ground or open condition in initiating or signaling circuit places circuit in TROUBLE mode. Component or power supply failure places system in TROUBLE mode.
- G. Drawings: Only device layouts and some equipment have been shown on the contract drawings. Wiring and additional equipment to make a complete and functioning system has not been shown, but shall be submitted on the shop drawings.

## 1.8 OPERATION AND MAINTENANCE DATA

- A. Include operating instructions, and maintenance and repair procedures.
- B. Include the CAD floor plan drawings.
- C. Include shop drawings as reviewed by the Architect/Engineer and the local Authority Having Jurisdiction.

## PART 2 - PRODUCTS

### 2.1 SIGNALING LINE CIRCUIT DEVICES

- A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.
- B. Signal Line Device(s):
  - 1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
    - a. Device type as follows:
      - 1) W = Weather Proof
      - 2) Candela Ratings:
        - a) ## = 15 Candela, 30 Candela; 75 Candela; 110 Candela; 177 Candela
        - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.
    - b. Sequence of operation as follows:
      - 1) D = HVAC Control
- C. FA-120; Smoke Detectors:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) Blank = Photoelectric
2. (BLANK) Analog Photoelectric Type Sensor: Shall use the photoelectric principle to measure smoke density and send data to the control panel representing the analog level of smoke density measured.
3. Each smoke detector shall connect directly to an SLC loop, unless listed as stand alone.
4. Each detector shall be mounted, where shown on the drawings, on a twist-lock base with all mounting hardware provided. Provide a two-piece head/base design.
5. Each detector shall have a manual switching means to set the internal identifying code (address) of that detector, which the control panel shall use to identify its address with the type of sensor connected.
6. Dual alarm and power indicators shall be provided that flash under normal conditions and remain continuous under alarm or trouble conditions. Remote indicator terminals shall be provided. Provide a remote LED indicator device if detector is not visible from a floor standing position.
7. A test means shall be provided to simulate an alarm condition.
8. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location with maintained temperatures between 32°F and 120°F.

D. FA-122; Duct Smoke Detectors, Sampling Tube Type:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Duct-type smoke detectors shall use the same analog photoelectric sensor technology, with the same features specified for standard smoke detectors, except with additional features as specified below.
  - b. Provide sampling tubes and mounting hardware to match the duct to which it is attached. Where the detector housing is larger than the duct height, Contractor shall fabricate a mounting bracket for the detector and attach according to the fire alarm manufacturer's recommendations.
  - c. Provide a remote alarm LED indicator device (FA-241) or (FA-242) if detector is not visible from a floor-standing position. If detector is located above a suspended ceiling, mount remote indicator in ceiling directly below detector with a white single-gang faceplate labeled: Duct Smoke Detector.

E. FA-130; Manual Pull Stations:

1. Manual pull station, addressable, double action, reset key lock, semi-flush mount, red high abuse plastic or cast metal construction with white lettering. Provided with all necessary mounting hardware.

2. Manual stations shall connect directly to an SLC loop. Stations shall provide address setting means using rotary decimal or DIP switches.
3. Where operation is noted as required below 32°F and/or above 120°F, a conventional device shall be installed with a unique monitor module located in the nearest available location, with maintained temperatures between 32°F and 120°F.

F. FA-160; Monitor Modules:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Monitor Module shall connect directly to an SLC loop and receive power from a separate 24 VDC circuit. It shall interface initiating devices with the control panel using Style D or Style B circuits. Contractor Option: Use an interface module (2-wire operation) for Style B circuits connected to normally-open dry contacts, such as a flow switch.
3. The module shall be mounted in an enclosure located in an accessible service location as near as possible to the device(s) being monitored, or where shown on the drawings. All mounting hardware shall be provided.
4. The module shall supply the required power to operate the monitored device(s).
5. The module shall provide address setting means using rotary decimal or DIP switches.

## 2.2 NOTIFICATION APPLIANCE DEVICES

- A. Combination Devices: Subscripts identify combination type devices when applicable. Contractor shall provide the combination device or provide multiple device(s) to meet the functionality when the manufacturer does not offer the required functionality with a single device.

B. Notification Appliance Device(s):

1. Subscripts: Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
  - a. Device types as follows:
    - 1) W = Weather Proof
    - 2) Candela Ratings:
      - a) ## = 15 Candela; 30 Candela; 75 Candela; 110 Candela; 177 Candela
      - b) CD = NICET designer shall select Candela rating as required to provide full coverage of the space.

C. Notification Device(s):

1. Wall Mounted: Red housing with white lettering or pictogram.

D. FA-200; Visual Alarm Devices:

1. Wall or ceiling mounted, refer to plans.
2. High intensity (Candela rating as scheduled on the drawings) xenon strobe or equivalent under a lens. Candela rating shall be visible from exterior of the device.
3. The maximum pulse duration shall be 0.2 seconds with a maximum duty cycle of 40%. The flash rate shall be 1 Hz. Where more than two strobes are visible from any one location, the fire alarm visual devices shall be synchronized.
4. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.
5. (W) Weatherproof Visual Notification Device: High intensity strobe, square housing, 75 Candela rating, suitable for wet locations. Provide with weatherproof back box.
  - a. Mounting: Semi-flush wall.
  - b. Conduit shall not be exposed.

E. FA-210; Audio Horn Alarm Devices:

1. Subscripts are used to define the device type, installation, and identify the device with a specific sequence of operation.
2. Wall or ceiling mounted, refer to plans.
3. Sound Rating: 85 dB at 10 feet. Sound levels for alarm signals shall not exceed 120 dBA in the occupied area.
4. Device shall be capable of a high and low dB level setting. Unless noted otherwise, the device shall be set to the high setting at building completion.
5. Device, housing, and backbox shall be UL listed for fire alarm/emergency applications.

F. FA-211; Combination Audio Horn and Visual Alarm Device:

1. Wall or ceiling mounted, refer to plans.
2. Combine audio and visual components into a single device. Refer to the corresponding paragraphs above for requirements of each component.
3. (W) Weatherproof Audio/Visual Notification Device: Electronic horn with high intensity strobe, square housing, 75 Candela, suitable for wet locations. Provide with weatherproof back box.
  - a. Mounting: Semi-flush wall.
  - b. Conduit shall not be exposed.

2.3 NOTIFICATION APPLIANCE CIRCUIT PANEL (NAC)

- A. As shown on the plans or as a Contractor's option if not shown, furnish and install NAC extender panels as necessary to provide remote power supply for notification appliance circuits (NAC). Contractor shall indicate quantity and locations of each NAC on the shop drawing submittals.

- B. Each NAC shall be self-contained remote power supply with batteries, and battery charger mounted in a surface lockable cabinet. Battery capacity shall be sufficient for operation for 24 hours in a non-alarm state followed by alarm for 15 minutes, plus 25% spare capacity for future devices. Each NAC provides a minimum of up to 4 outputs, 2A continuous, or 6A full load total capacity.
- C. Power for each NAC shall be from a local 120 VAC circuit. Provide two #12 conductors and one #12 ground in 1/2" conduit to each NAC from a dedicated 20A/1P circuit breaker with a red handle and a manufacturer's standard handle lock-on device. Coordinate panel and circuit number with the Architect/Engineer prior to installation.
- D. Mounting: Surface.

## 2.4 WIRING

- A. Fire alarm wiring/cabling shall be furnished and installed by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes. Cabling shall be UL listed and labeled as complying with the Electrical Code for power-limited fire alarm signal service.

## PART 3 - EXECUTION

### 3.1 SEQUENCES OF FIRE ALARM OPERATION

- A. Panel/Annunciator Alarm, Trouble, Supervisory Indication:
  - 1. Appropriate system Alarm, Trouble, or Supervisory LED shall flash at the control panel, transponder, and annunciator locations.
  - 2. The LCD display shall indicate all information associated with the condition, including the name of the item, type of device and its location within the protected premises.
  - 3. Transmit the appropriate signal (supervisory, trouble, alarm) to the central station via the digital communicator.
- B. Audible Alarms Sequence:
  - 1. Audible alarms throughout the building shall sound.
- C. Visual Alarms Sequence:
  - 1. Visual alarms throughout the building shall flash.
- D. AHU and Mechanical Fan Shutdown Sequence:
  - 1. The fire alarm system shall utilize addressable relays to de-energize all AHU motor controllers and mechanical fans. Coordinate other requirements with HVAC installer.

2. The fire alarm system shall directly shut down the AHU or mechanical fan through the local HVAC control device (i.e., variable frequency drive or motor starter).
3. Where a facility has more than one AHU or mechanical fan, each shall be shutdown individually based on input from initiation devices in the area served by the unit or designated for each air distribution system.
4. All AHUs and mechanical fans shall be shutdown simultaneously throughout the building.

### 3.2 INSTALLATION

A. Install system in accordance with manufacturer's instructions and referenced codes.

B. Devices:

1. General:
  - a. All ceiling-mounted devices shall be located where shown on the reflected ceiling and floor plans. If not shown on the reflected ceiling or reflected floor drawings, the devices shall be installed in the relative locations shown on the floor drawings in a neat and uniform pattern.
  - b. All devices shall be coordinated with luminaires, diffusers, sprinkler heads, piping and other obstructions to maintain a neat and operable installation. Mounting locations and spacing shall not exceed the requirements of NFPA 72.
  - c. Where the devices are to be installed in a grid type ceiling system, the detectors shall be centered in the ceiling tile.
  - d. The location of all fire alarm devices shall be coordinated with other devices mounted in the proximity. Where a conflict arises with other items or with architectural elements that will not allow the device to be mounted at the location or height shown, the Contractor shall notify the Architect/Engineer to coordinate a different acceptable location.
2. Per the requirements of NFPA, detector heads shall not be installed until after the final construction cleaning unless required by the local Authority Having Jurisdiction (AHJ). If detector heads must be installed prior to final cleaning (for partial occupancy, to monitor finished areas or as otherwise required by the AHJ), they shall not be installed until after the fire alarm panel is installed, with wires terminated, ready for operation. Any detector head installed prior to the final construction cleaning shall be removed and cleaned prior to closeout.
3. Protection of Fire Alarm System:
  - a. A smoke detector shall be installed within the vicinity of the main fire alarm panel and every NAC extender panel per NFPA 72. A heat detector may be substituted when a smoke detector is not appropriate for the environment of installation.
4. Duct-type Analog Smoke Detectors:

- a. Duct-type analog smoke detectors shall be installed on the duct where shown on the drawings and details. The sampling tubes shall be installed in the respective duct at the approximate location where shown on the electrical drawings to meet the operation requirements of the system.
  - b. All detectors shall be accessible.
  - c. Duct-type detectors shall be installed according to the manufacturer's instructions.
- 5. Manual Pull Stations:
  - a. Stations shall be located where shown and at the height noted on the drawings.
- 6. Addressable Relays and Monitor Modules:
  - a. Modules shall be located as near to the respective monitor or control devices as possible, unless otherwise indicated on the drawings.
  - b. All modules shall be mounted in or on a junction box in an accessible location.
  - c. Where not visible from a floor standing position, a remote indicator shall be installed to allow inspection of the device status from a local floor standing location.
- 7. Notification Appliance Devices:
  - a. Devices shall be located where shown on the drawings.
  - b. Wall-mounted audio, visual and audio/visual alarm devices shall be mounted as denoted on the drawings.
  - c. Where ceiling mounted visual alarm devices or combination audio/visual alarm devices are shown where the ceiling is greater than 30'-0" high, they shall be stem mounted so that the entire unit is below 30'-0". This does not apply to audio-only alarm devices.

C. Wiring:

- 1. Fire alarm wiring/cabling shall be provided by the Contractor in accordance with the manufacturer's recommendations and pursuant to National Fire Codes.
- 2. Wiring shall be installed in conduit from device to above accessible ceilings. Exposed plenum-rated cable (FPLP) shall be used above accessible ceilings supported every 4 feet or run in cable trays (if applicable) maintaining a minimum of 5-inches clearance from all lighting ballasts. Fire alarm cabling shall not be installed in the same bridge rings or cable trays designated for the cabling of other systems.
- 3. Notification Appliance Circuits shall provide the features listed below. These requirements may require separate circuits for visual and audible devices.
  - a. Fire alarm temporal audible notification for all audio appliances.
  - b. Synchronization of all visual devices where two or more devices are visible from the same location.
  - c. Ability to silence audible alarm while maintaining visual device operation.

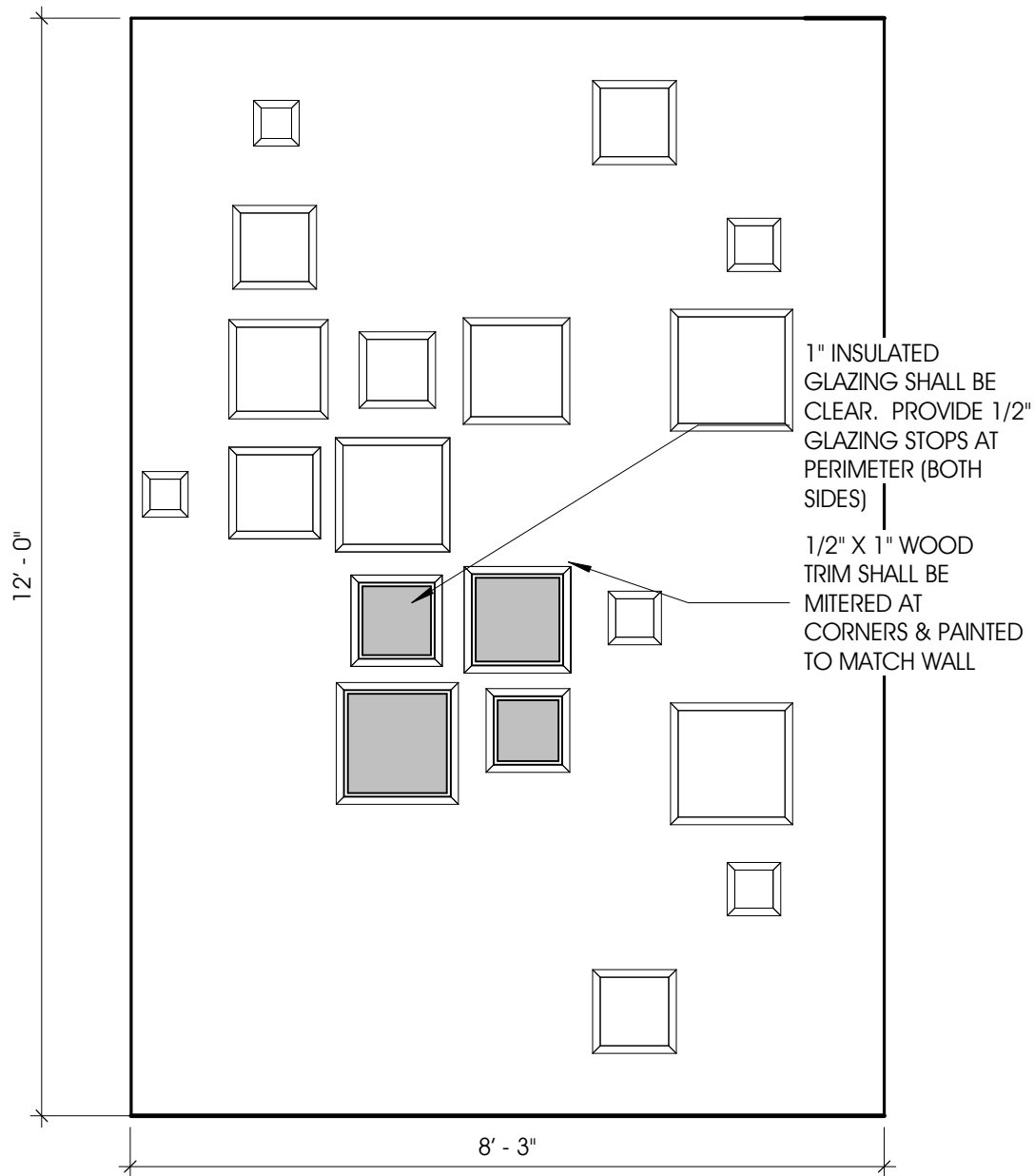
- d. Emergency communication alert and textual visible appliance notification.
  - 4. Notification Appliance Circuits shall not span floors.
  - 5. Signal line circuits connecting devices shall not span floors or 2-hour smoke compartments.
  - 6. No wiring other than that directly associated with fire alarm detection, alarm or auxiliary fire protection functions shall be in fire alarm conduits. Wiring splices shall be avoided to the extent possible, and if needed, they shall be made only in junction boxes, and enclosed by plastic wire nut type connectors. Transposing or changing color coding of wires shall not be permitted. All conductors in conduit containing more than one wire shall be labeled on each end, in all junction boxes, and at each device with "E-Z Markers" or equivalent. Conductors in cabinets shall be carefully formed and harnessed so that each drops off directly opposite to its terminal. Cabinet terminals shall be numbered and coded, and no unterminated conductors are permitted in cabinets or control panels. All controls, function switches, etc. shall be clearly labeled on all equipment panels.
- D. Devices surface mounted in finished areas shall be mounted on surface backboxes furnished by fire alarm equipment supplier. Backboxes shall be painted to match device, shall be the same shape and size as the device shall not have visible knockouts.
- E. Make conduit and wiring connections to door release devices, sprinkler flow and pressure switches, sprinkler valve monitor switches, fire suppression system control panels, duct analog smoke detectors and all other system devices shown or noted on the Contract Documents or required in the manufacturer's product data and shop drawings.

### 3.3 MANUFACTURER'S FIELD SERVICES

- A. Include services of certified technician to supervise installation, adjustments, final connections, and system testing.
- B. Note that room numbers depicted on the architectural/engineering drawings will not necessarily reflect the actual room (signage) numbers that the Owner selects. Contractor and fire alarm manufacturer shall coordinate the actual room numbers as the Owner directs to identify each device. This list shall be a part of the floor plan record drawing to be turned in at the project closeout.

END OF SECTION





1 Detail 0  
4.1 1/2" = 1'-0"



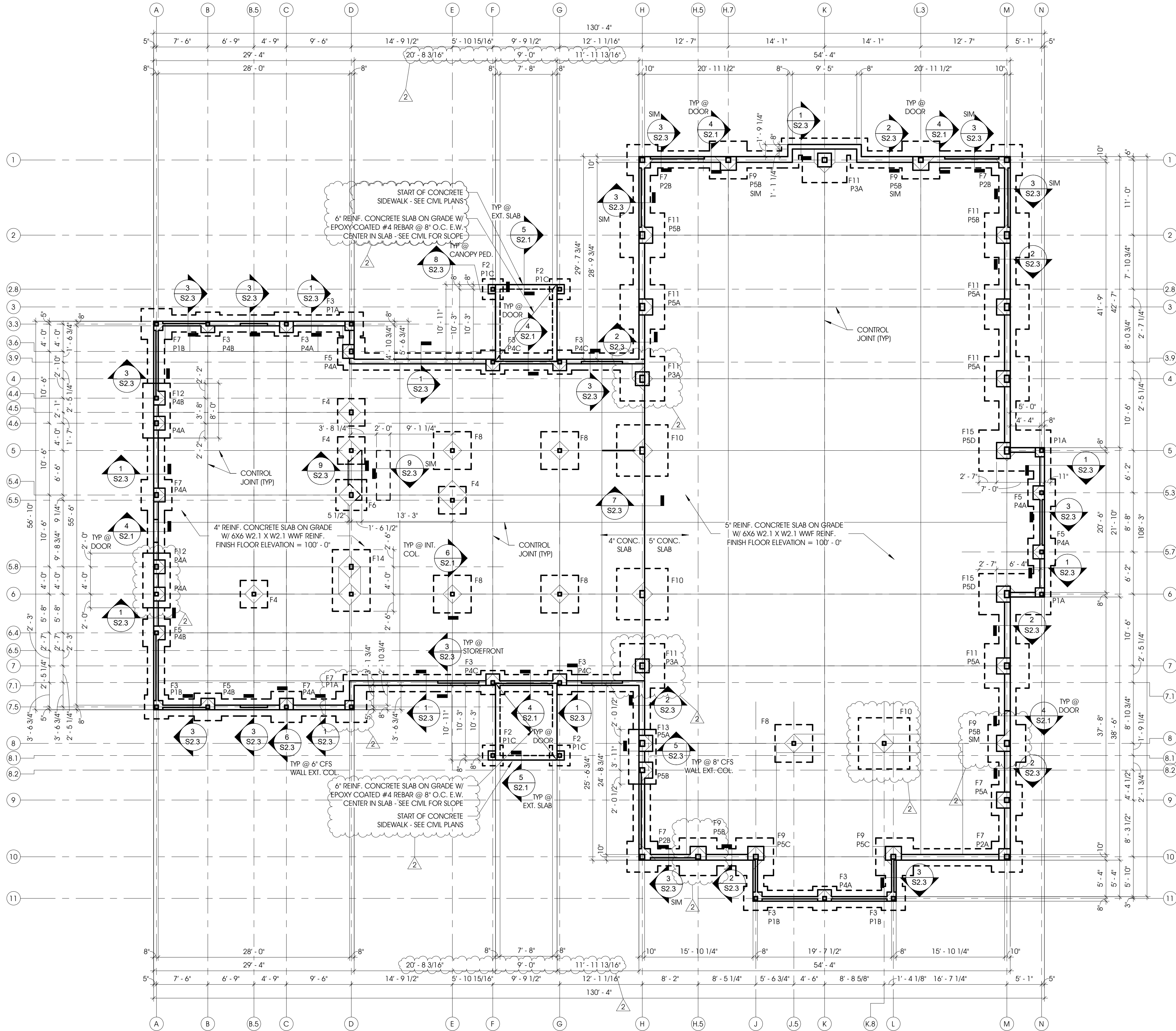
315 W JEFFERSON BLVD  
South Bend, IN 46601  
T 574.232.8700  
F 574.251.4440  
abonmarche.com

Fort Wayne  
Benton Harbor  
Manistee  
South Haven

Goshen  
Hobart  
Lafayette  
South Bend  
Valparaiso

**CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
DETAIL @ TEEN ROOM**

DATE	02/02/2024
PROJECT NO.	22-1836
ADD #	4.1



1 FOUNDATION PLAN  
S1.0 1/8" = 1'-0"

## GENERAL NOTES

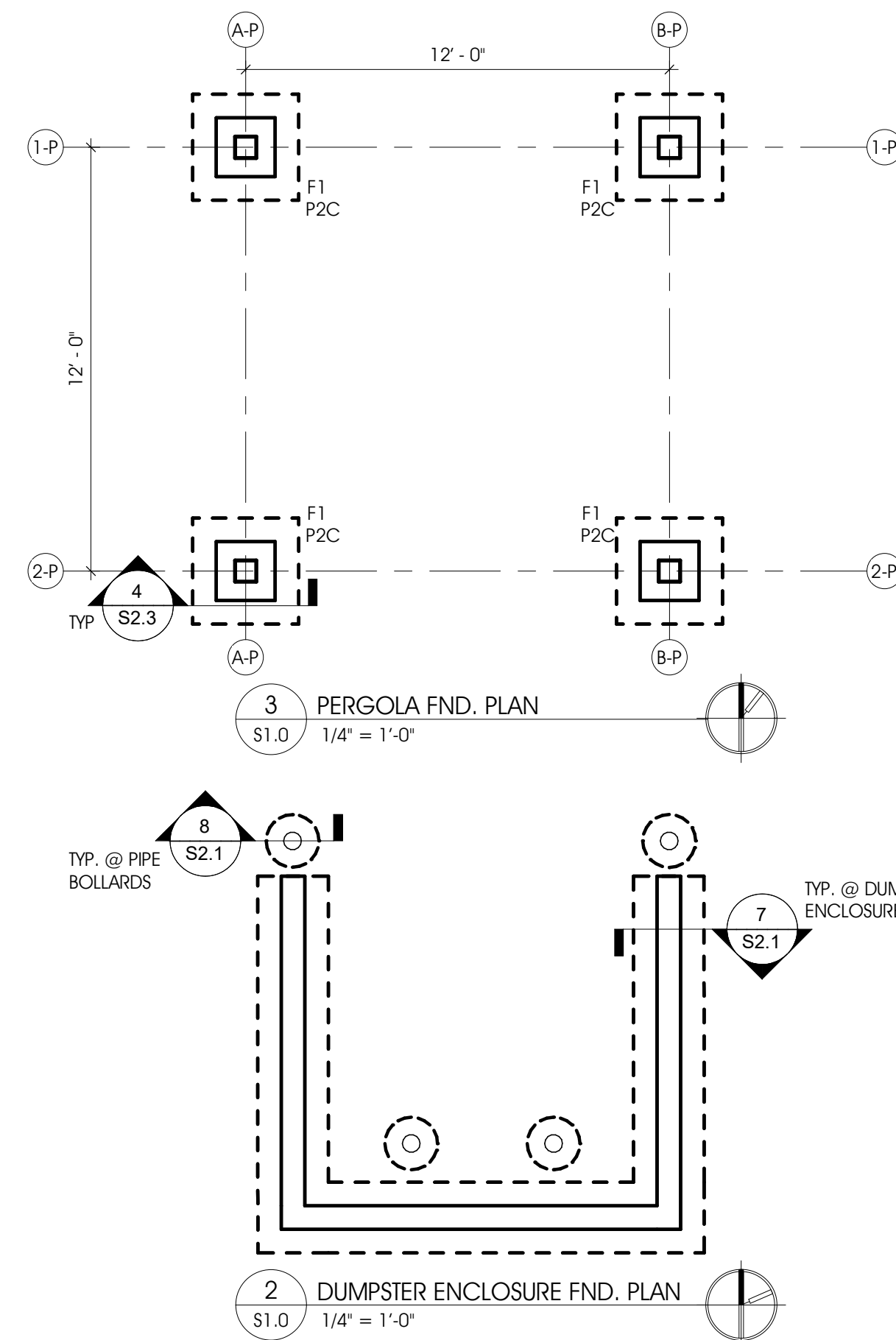
- ALL SLABS ON GRADE TO BE AT FINISH FLOOR ELEVATION 100' - 0" = 824.00' U.N.O.
- ALL INTERIOR CONCRETE SLABS ON GRADE TO BE 4" OR 5" THICK CONCRETE (SEE PLAN FOR LOCATION) WITH 6x6 - W2.1xW2.1 WWF REINFORCING. LOCATE 1'-1/2" CLEAR BELOW TOP OF SLAB U.N.O.
- DESIGN BASED ON SOIL BEARING CAPACITY OF 1,500 PSF, SEE S0.1 FOR FURTHER DESIGN SPECIFICATIONS.

## FOOTING SCHEDULE

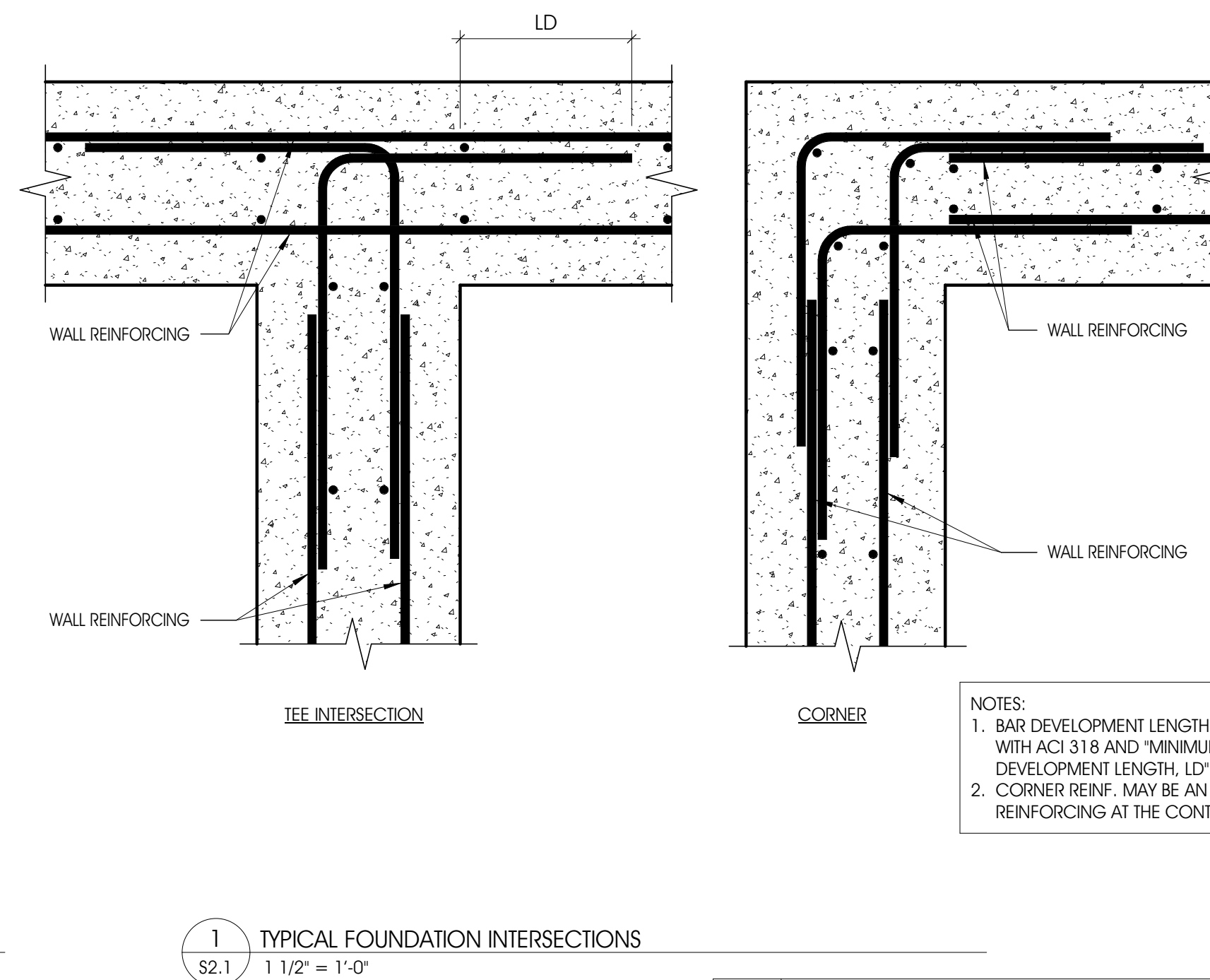
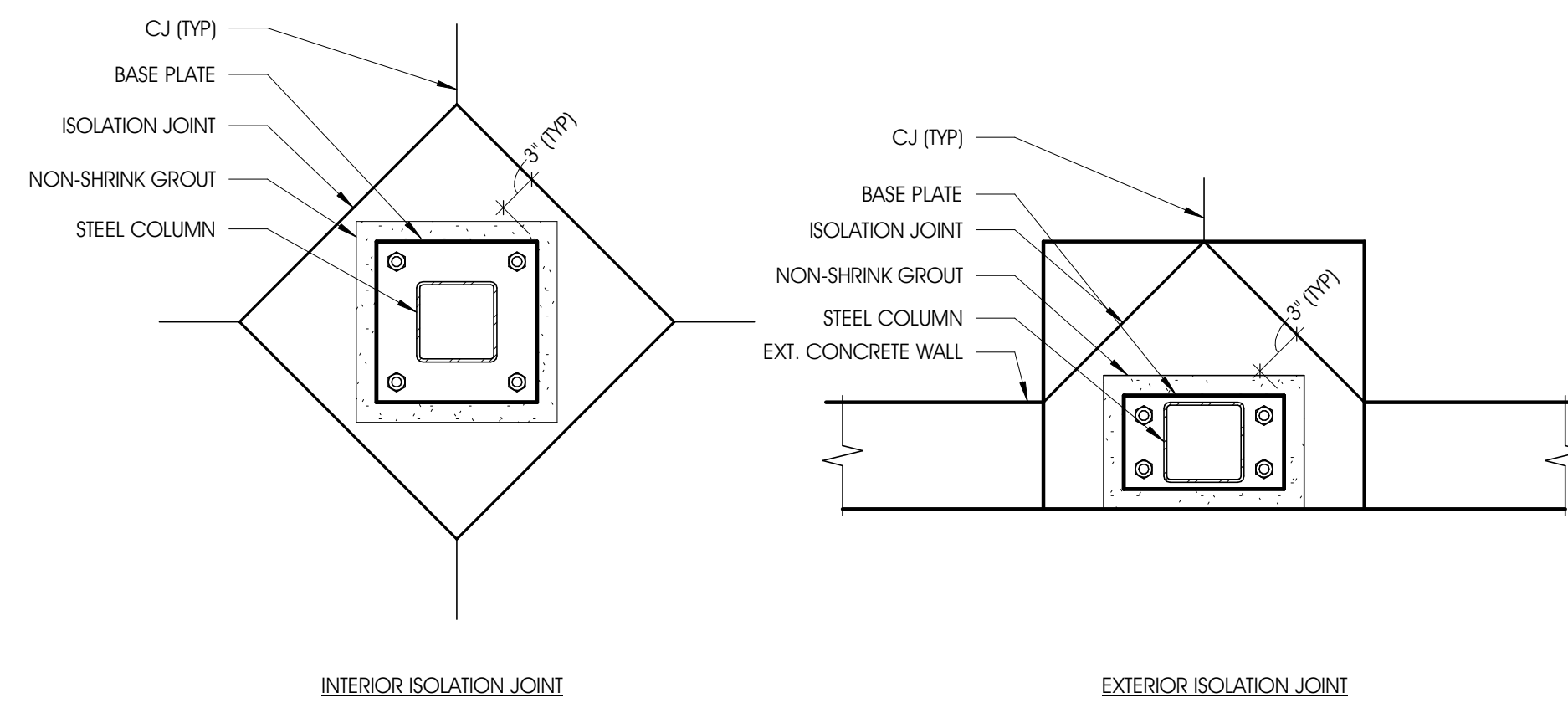
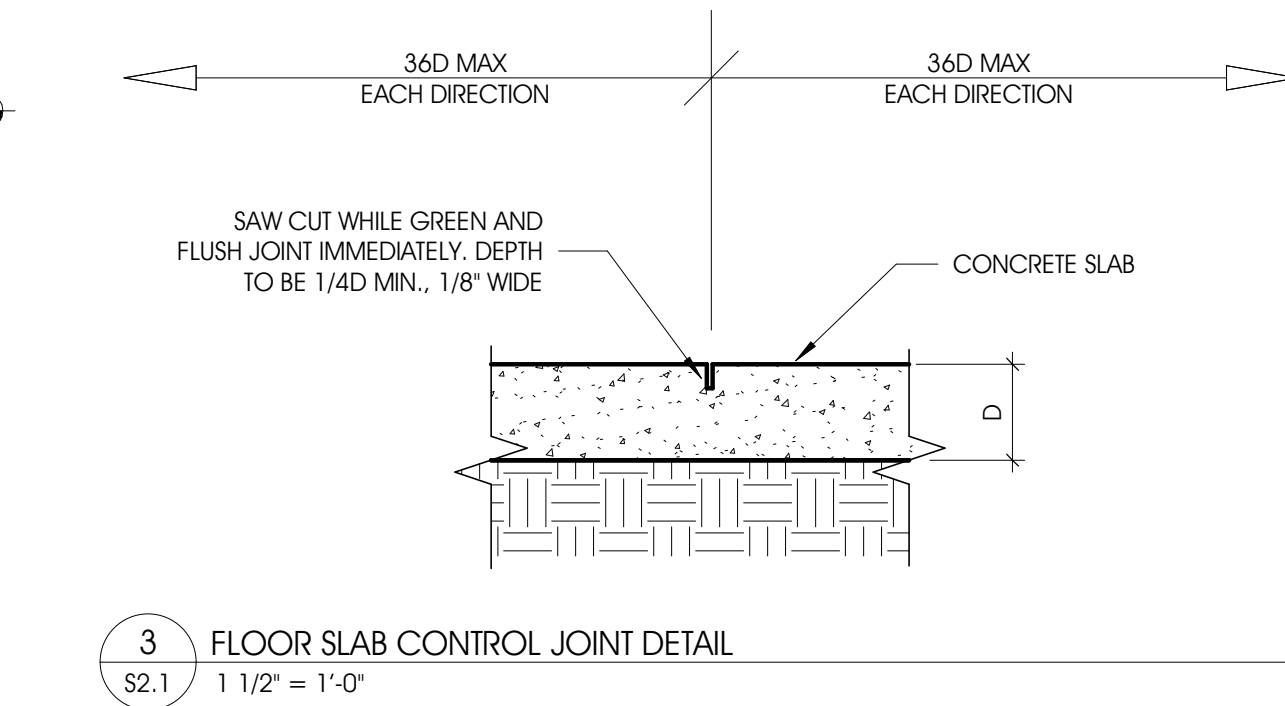
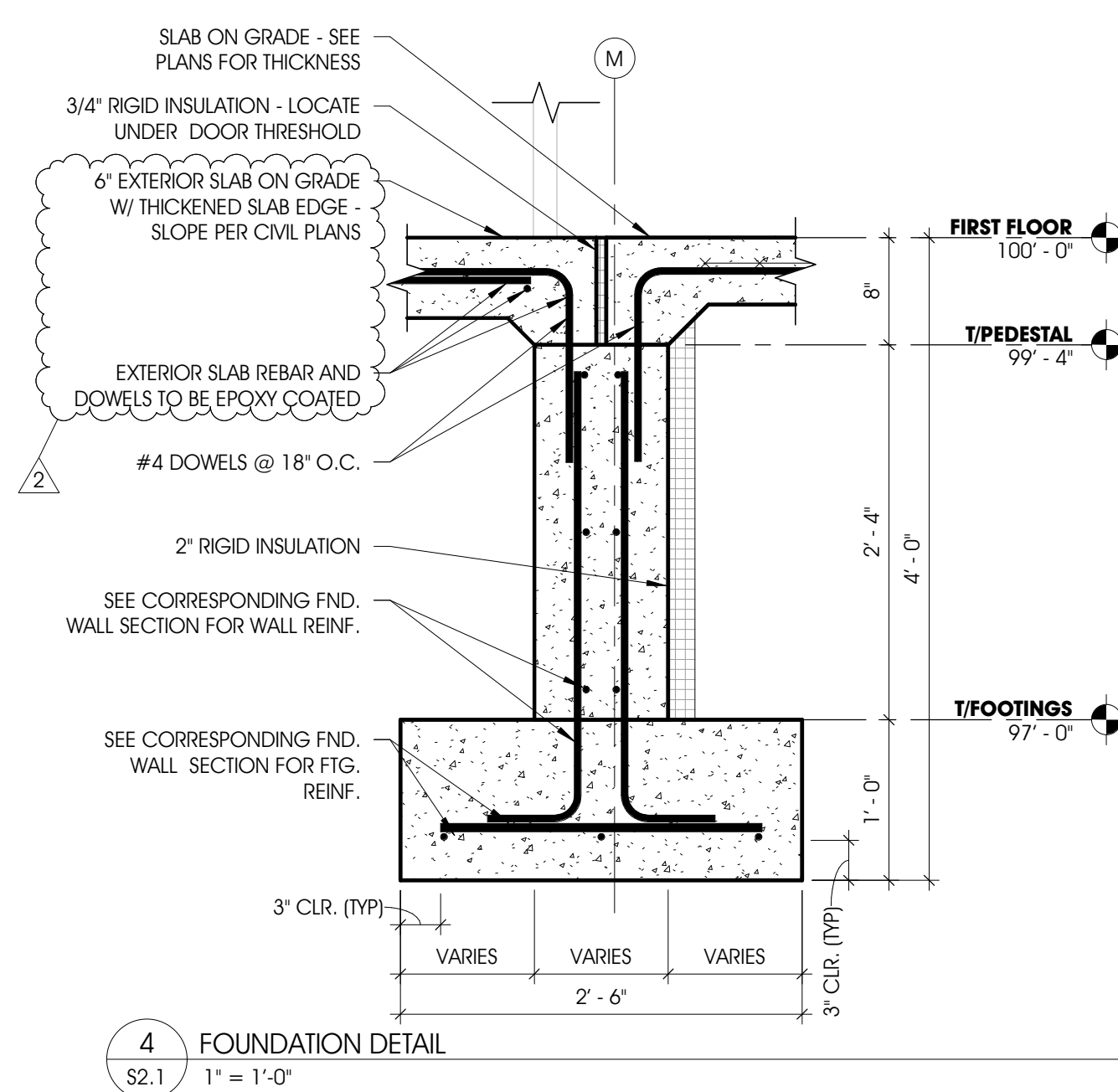
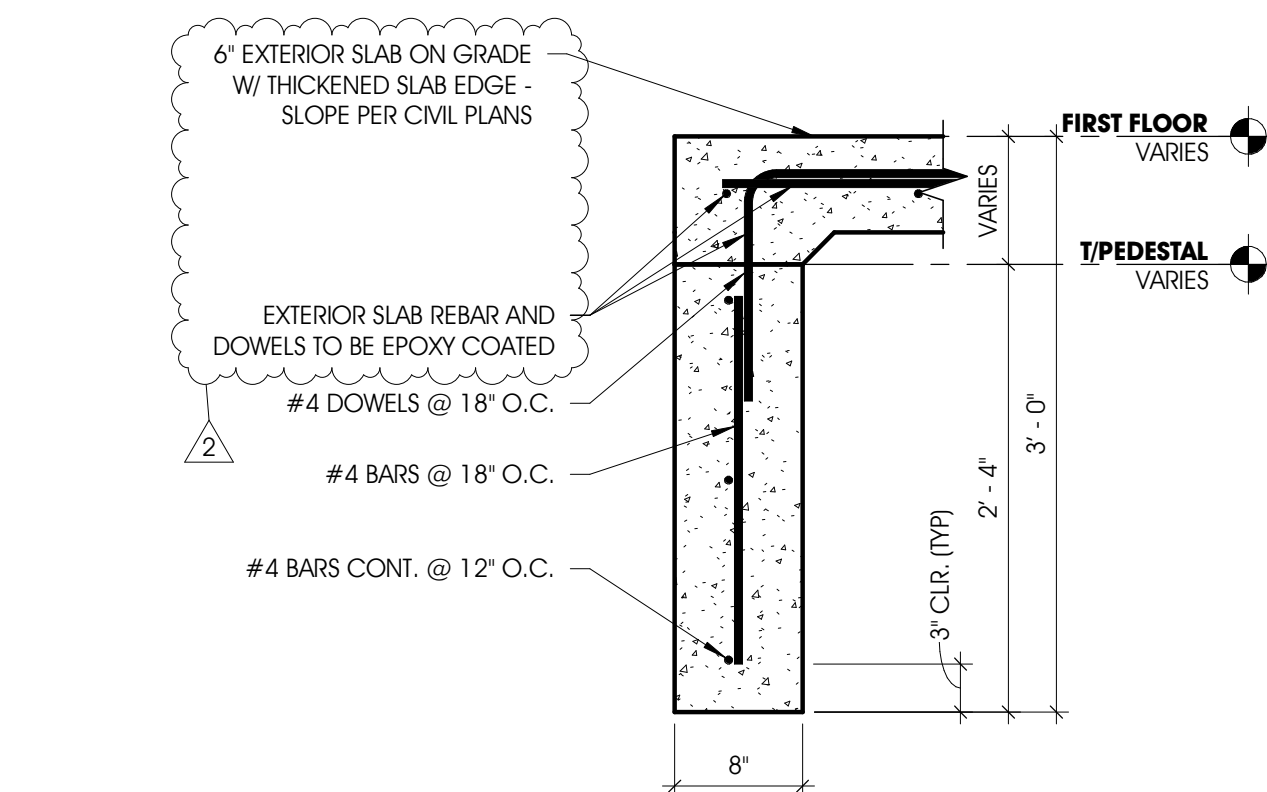
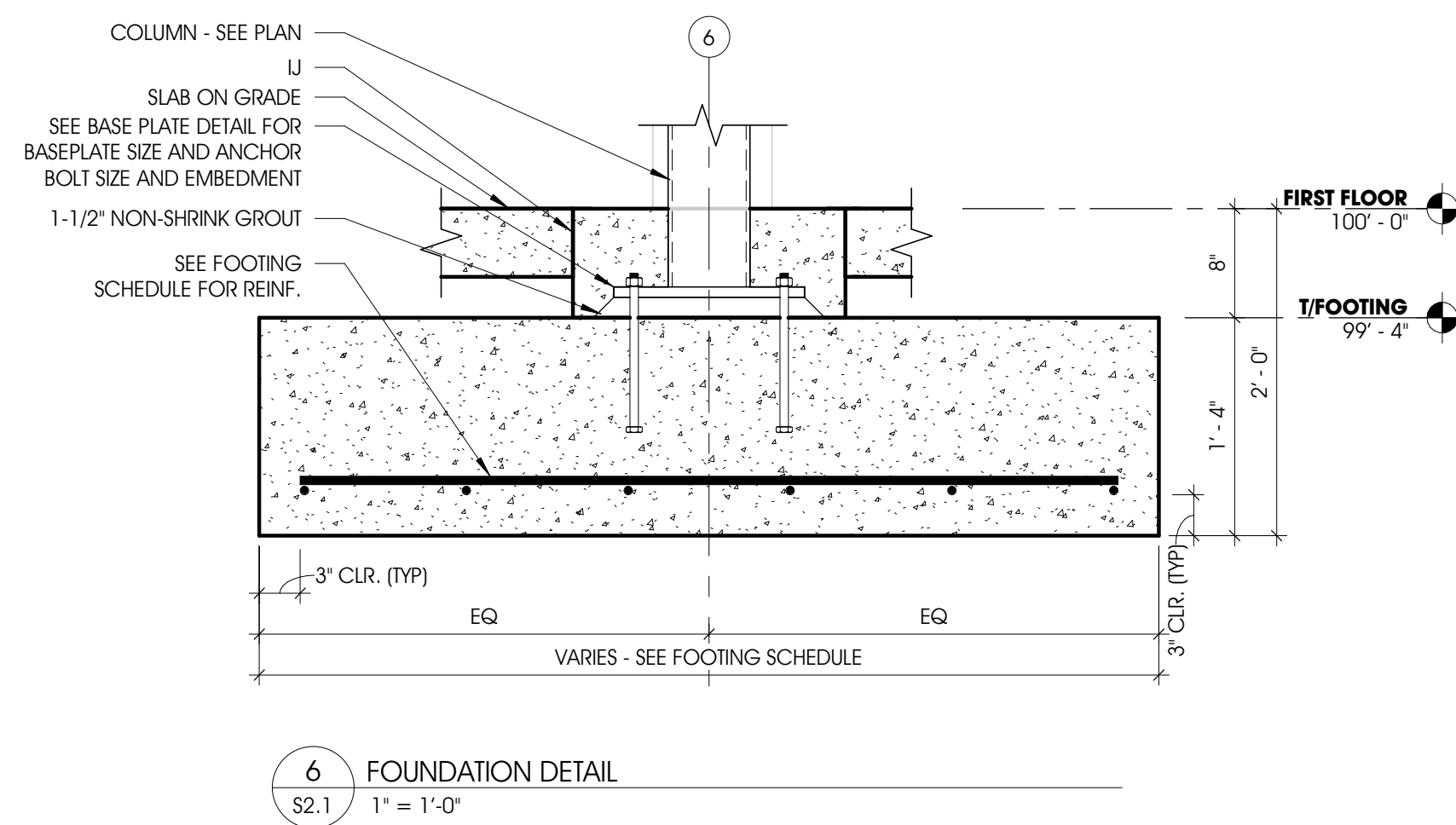
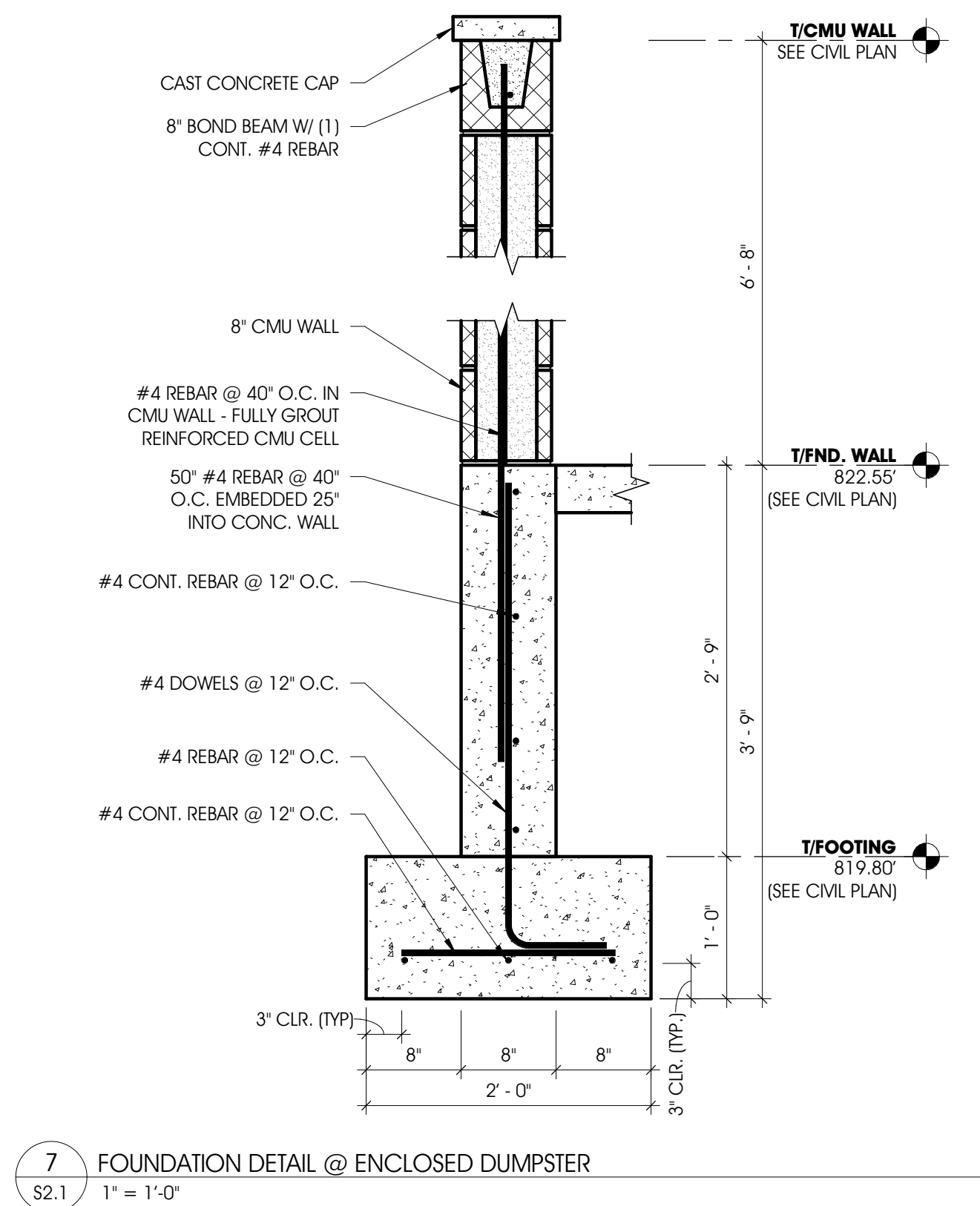
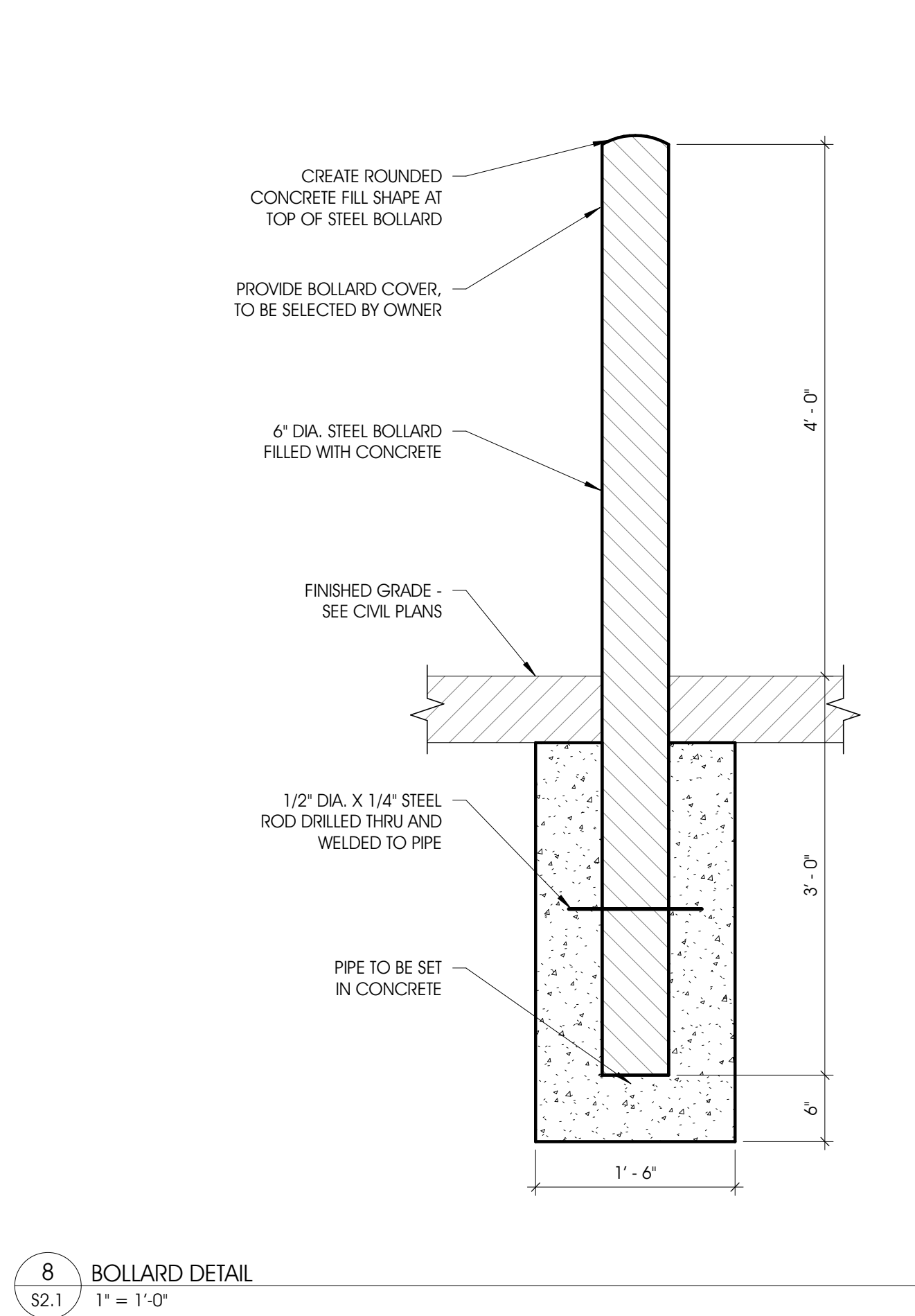
MARK	DIMENSIONS	THICK	LOCATION	1/FTG. ELEV.	TOP REINF.	BOT. REINF.	QNTY
F1	3'-0X3'-0"	12"	1P/AP, 1P/BP, 2P/AP, 2P/BP	96'-6"	-	(4) #5 E.W.	4
F2	3'-0X3'-0"	12"	2.8/F, 2.8/G, 8.1/F, 8.1/G	97'-0"	-	(4) #5 E.W.	4
F3	3'-6X3'-6"	12"	3.3/B, 3.3/C, 3.3/D, 3.9/F, 3.9/G, 7.1/F, 7.1/G, 7.5/A, 11/J, 11/K, 11/L	97'-0"	-	(4) #5 E.W.	11
F4	4'-0X4'-0"	16"	4.5/D, 5/D, 5.5/E, 6/B.5	99'-4"	-	(5) #5 E.W.	4
F5	4'-0X4'-0"	12"	3.6/D, 5.3/N, 5.7/N, 6.4/A, 7.5/B	97'-0"	(5) #5 E.W.	(5) #5 E.W.	5
F6	4'-6X4'-6"	16"	5.4/D	99'-4"	-	(5) #5 E.W.	1
F7	4'-6X4'-6"	12"	1/H, 1/M, 3.3/A, 5.4/A, 7.5/C, 7.5/D, 9/M, 10/H, 10/M	97'-0"	-	(6) #5 E.W.	9
F8	5'-6X5'-6"	16"	5/E, 5/G, 6/E, 6/G, 8/U.5	99'-4"	-	(7) #5 E.W.	5
F9	5'-6X5'-6"	12"	1/H.7, 1/L.3, 8/M, 10/H.5, 10/J, 10/L	97'-0"	(7) #5 E.W.	(7) #5 E.W.	6
F10	7'-6X7'-6"	24"	5/H, 6/H, 8/K.8	99'-4"	(9) #5 E.W.	(9) #5 E.W.	3
F11	6'-6X6'-6"	12"	1/K, 2/H, 2/M, 3/H, 3/M, 4/H, 4/M, 7/H, 7/M	97'-0"	(8) #5 E.W.	(8) #5 E.W.	9
F12	4'-0X8'-0"	16"	4.4.4.6/A, 5.8.6/A	97'-0"	#5 @ 12" SHORT WAY #5 @ 12" LONG WAY	#5 @ 12" SHORT WAY #5 @ 12" LONG WAY	2
F13	4'-0X8'-0"	16"	8.8.2/H	97'-0"	#5 @ 6" SHORT WAY #5 @ 6" LONG WAY	#5 @ 6" SHORT WAY #5 @ 6" LONG WAY	1
F14	5'-6X9'-0"	36"	5.8.6/D	99'-4"	#5 @ 6" SHORT WAY #5 @ 6" LONG WAY	#5 @ 6" SHORT WAY #5 @ 6" LONG WAY	1
F15	6'-0X10'-6"	12"	5/M.N, 6/M.N	97'-0"	#5 @ 12" SHORT WAY #5 @ 12" LONG WAY	#5 @ 12" SHORT WAY #5 @ 12" LONG WAY	2

## PEDESTAL SCHEDULE

MARK	SIZE	VERT. REINF.	HORIZ. REINF.	QNTY.	1/PEDESTAL ELEV.
P1A-B	16"x16"	(10) #5 DOWELS	#4 TIES @ 8" O.C.	8	99'-4"
P1C	16"x16"	(10) #5 DOWELS	#4 TIES @ 8" O.C.	4	SEE CIVIL
P2A-B	20"x20"	(16) #5 DOWELS	#4 TIES @ 8" O.C.	17	99'-4"
P2C	20"x20"	(8) #5 DOWELS	#4 TIES @ 8" O.C.	4	SEE CIVIL
P3A	24"x24"	(20) #5 DOWELS	#4 TIES @ 8" O.C.	3	99'-4"
P4A-C	20"x24"	(16) #5 DOWELS	#4 TIES @ 8" O.C.	18	99'-4"
P5A-D	24"x28"	(22) #5 DOWELS	#4 TIES @ 8" O.C.	17	99'-4"

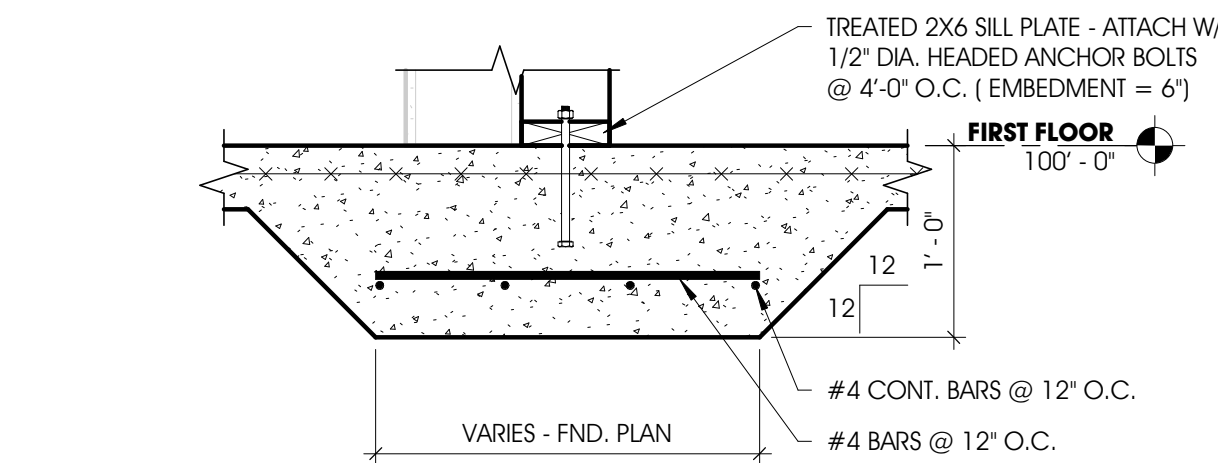


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NO.	REVISION DESCRIPTION	BY	DATE

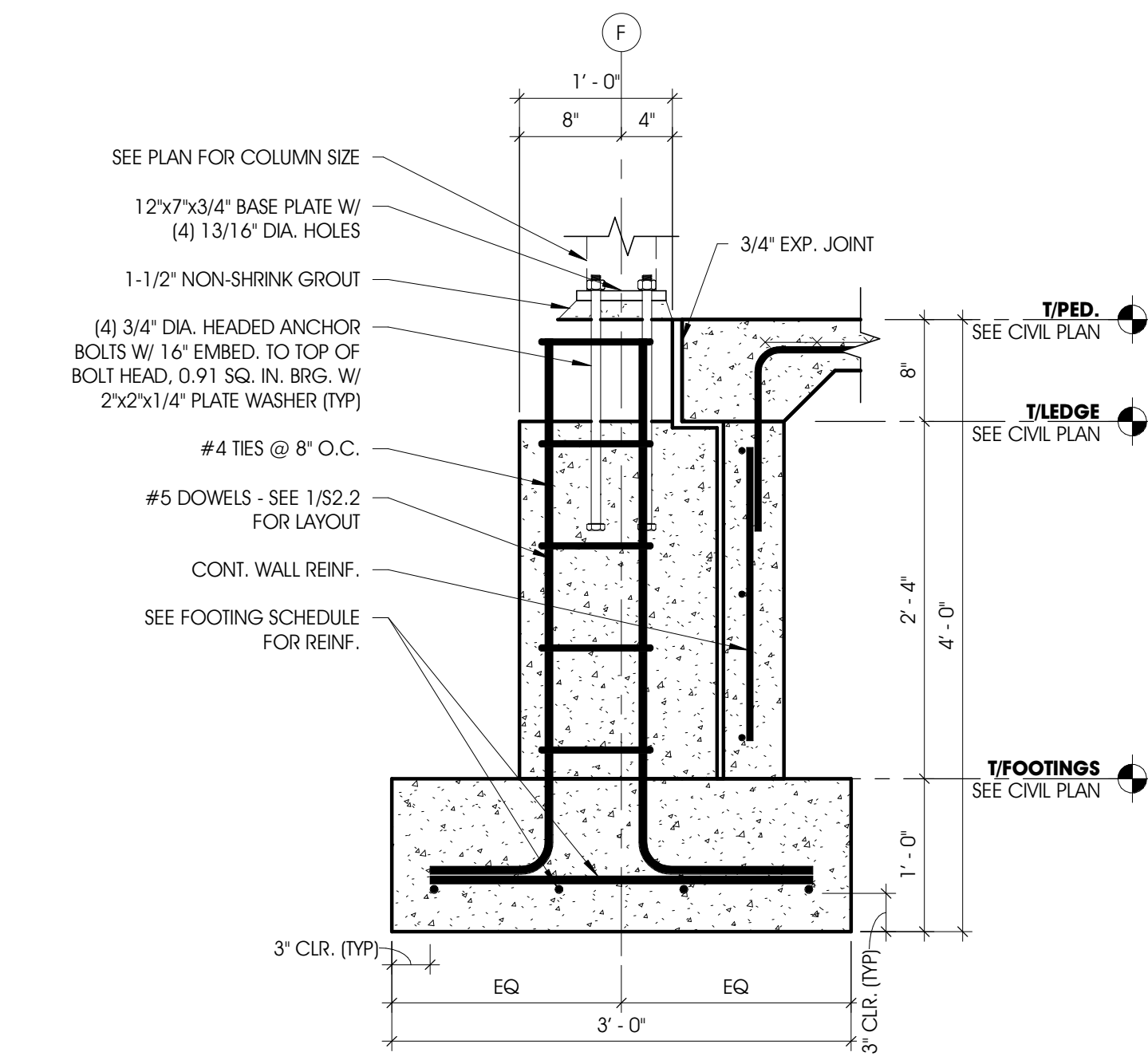


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NO.	REVISION DESCRIPTION	BY	DATE

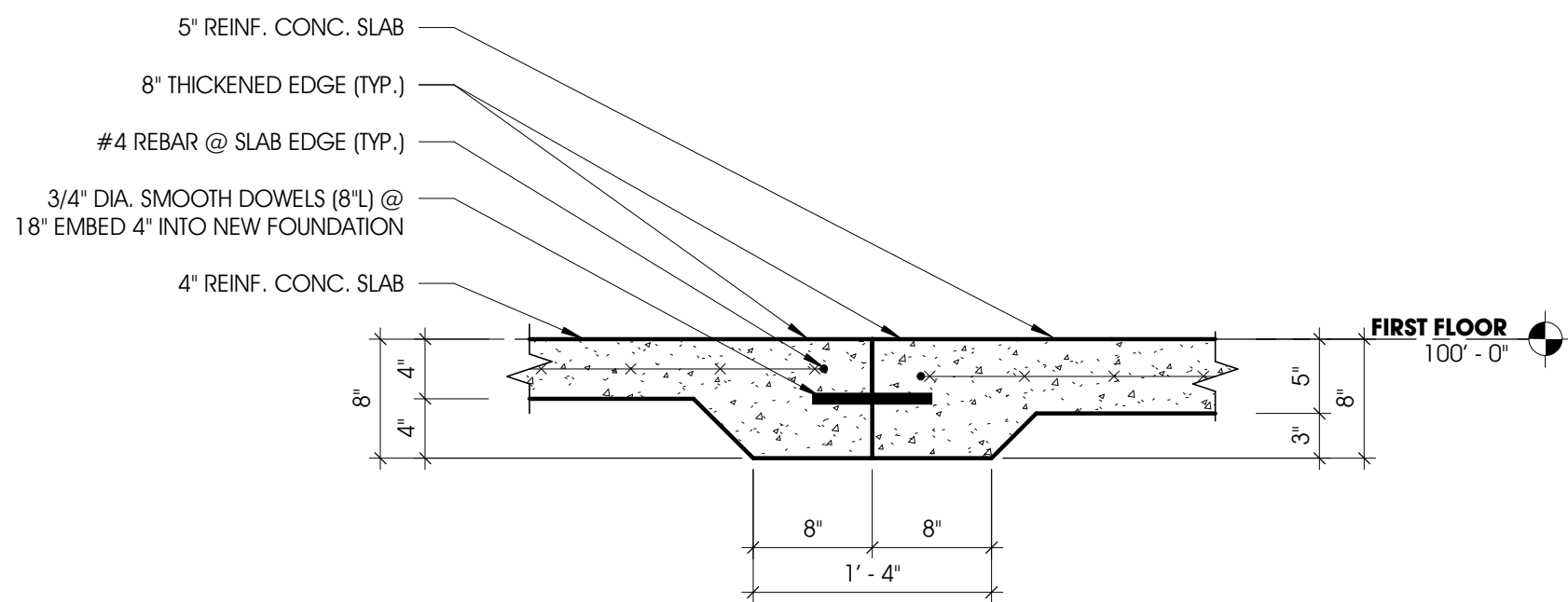




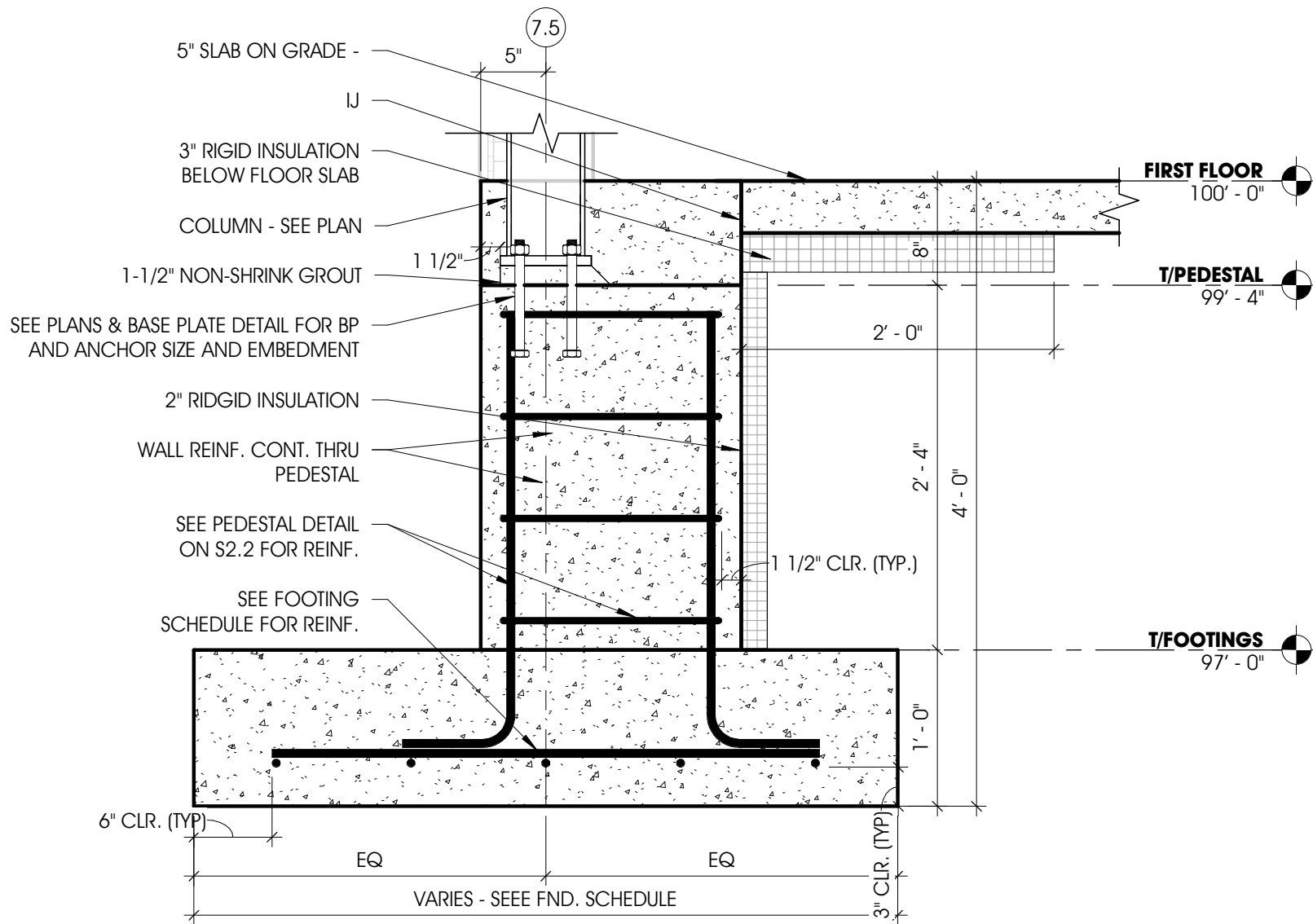
9 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



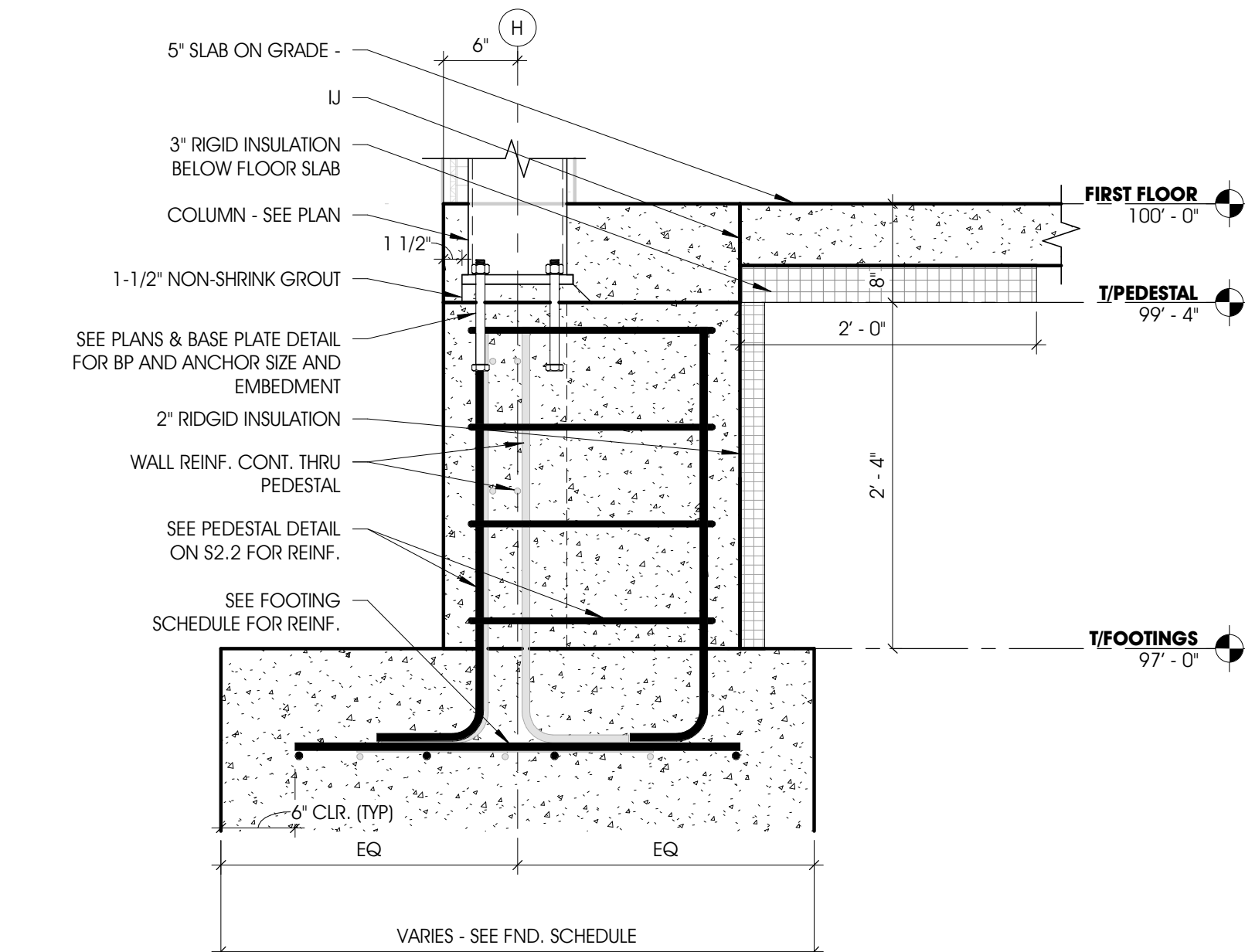
8 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



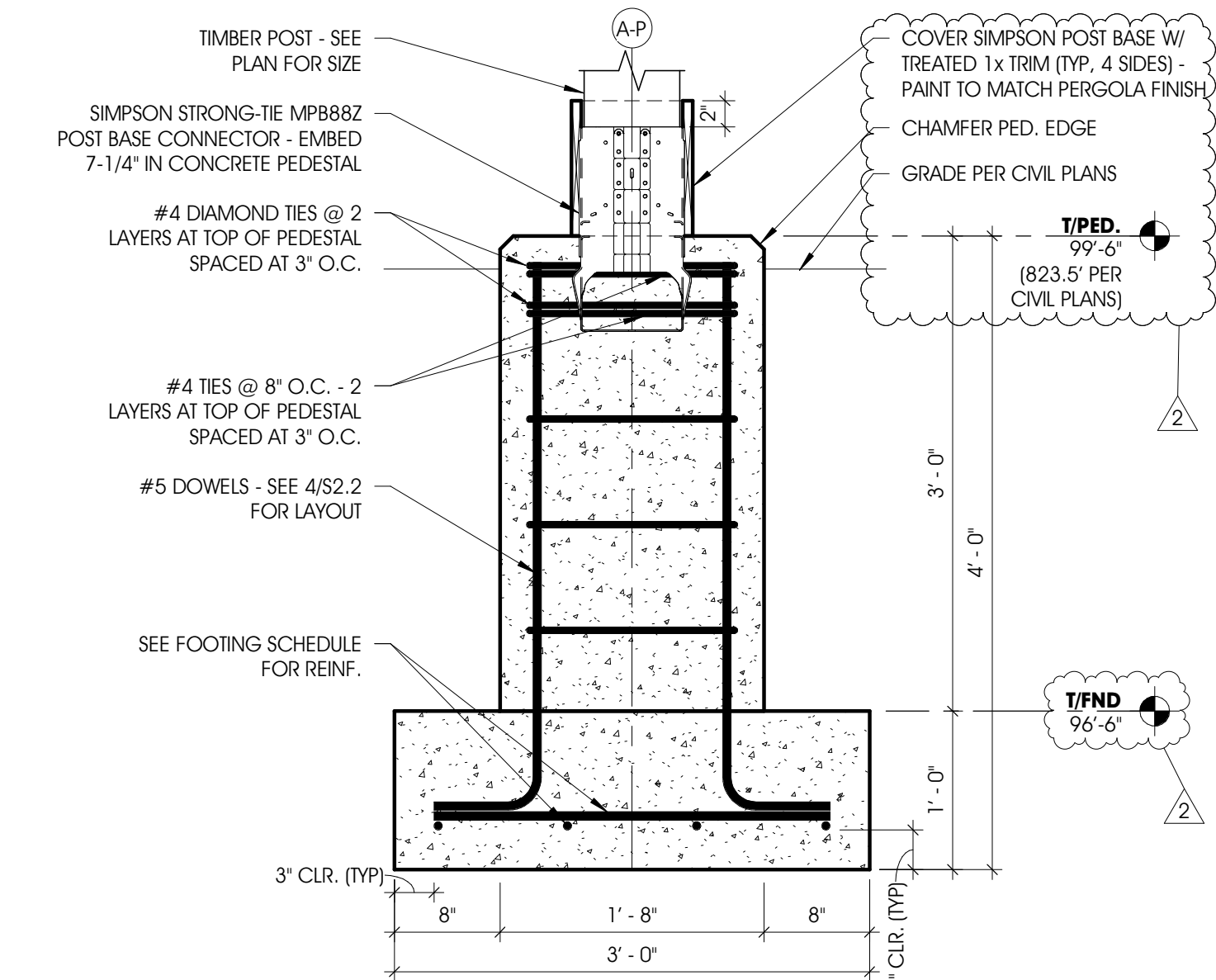
7 FLOOR SLAB DETAIL  
S2.3 1" = 1'-0"



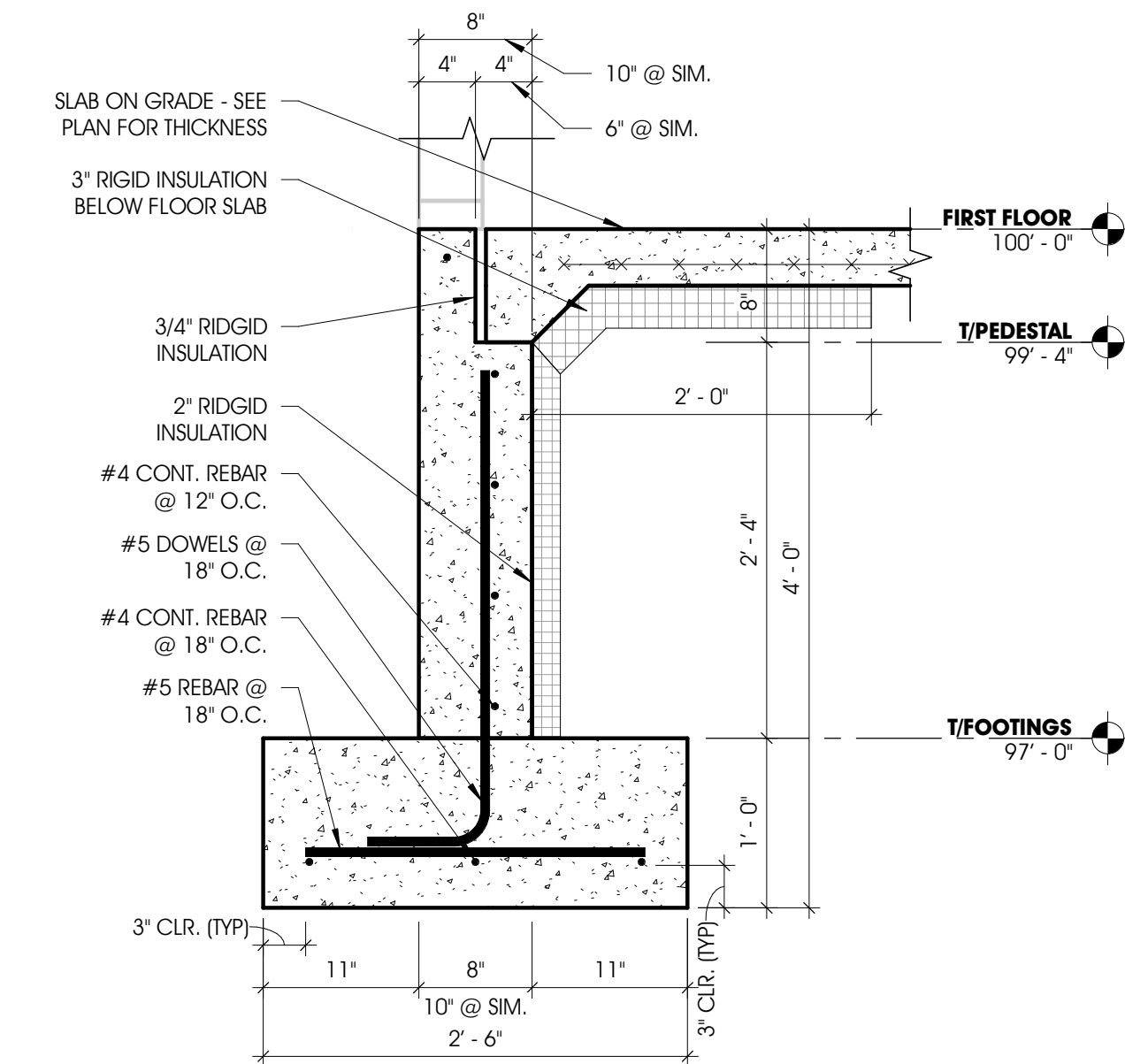
6 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



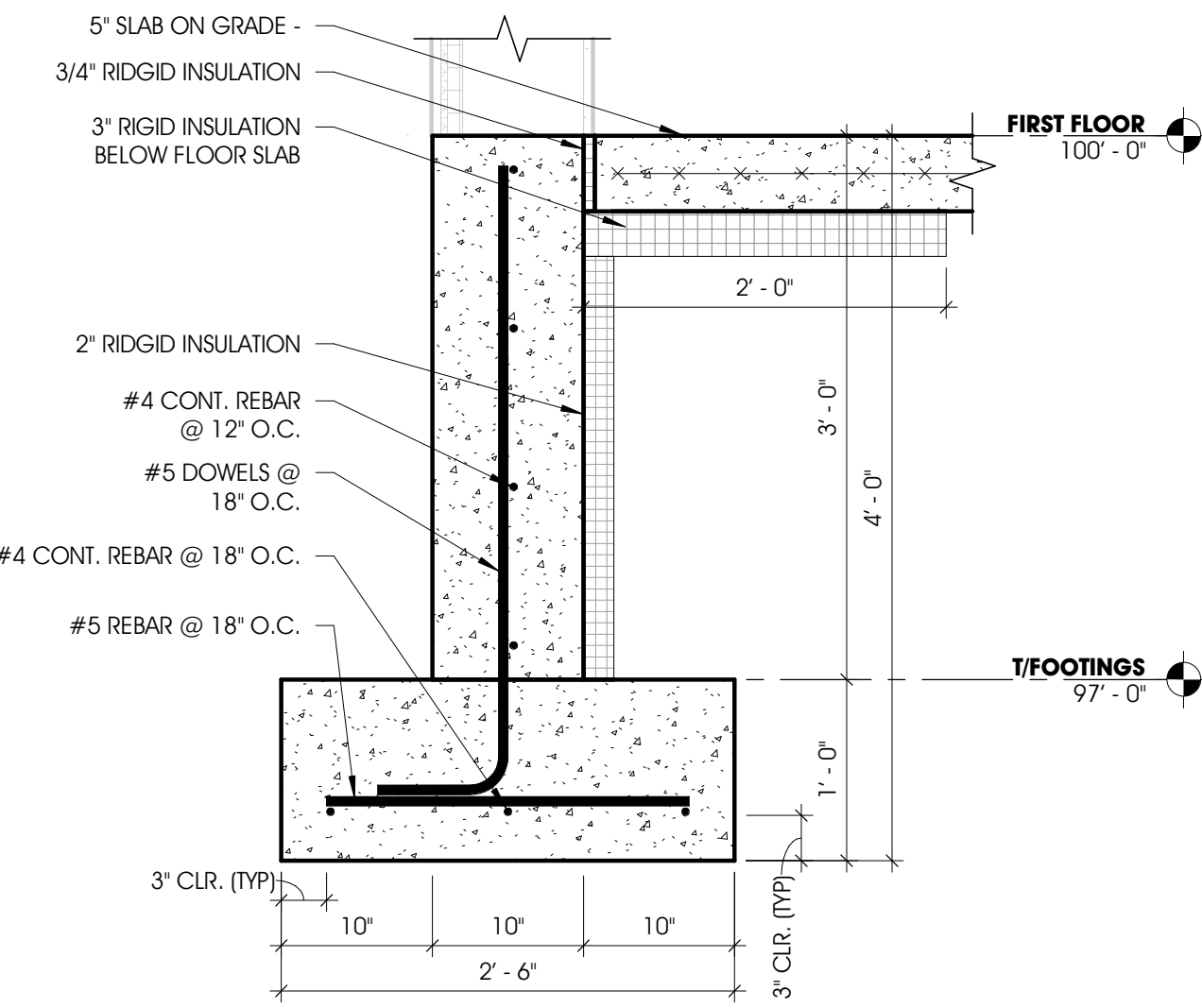
5 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



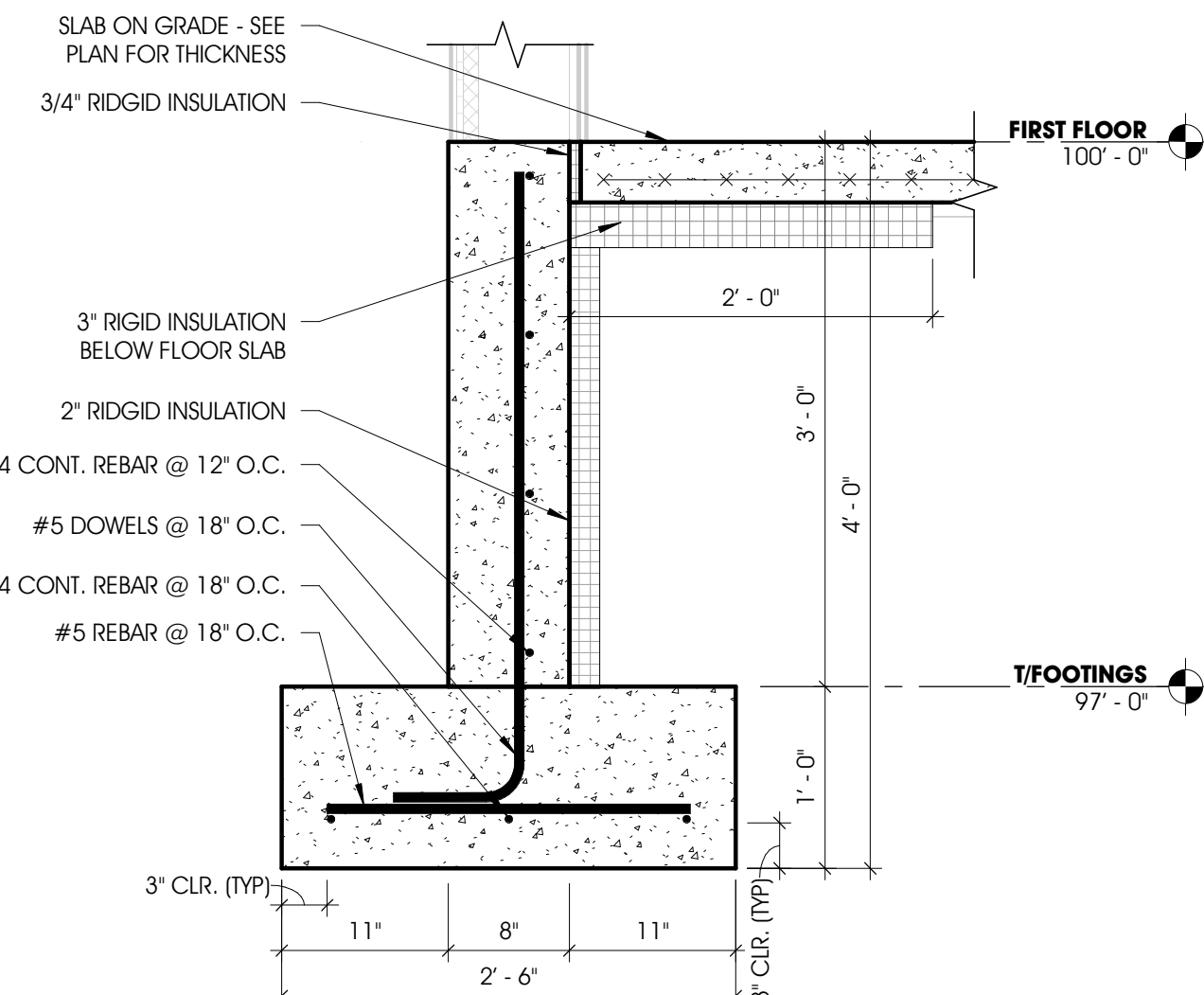
4 PERGOLA FOUNDATION DETAIL  
S2.3 1" = 1'-0"



3 FOUNDATION DETAIL @ STOREFRONT  
S2.3 1" = 1'-0"

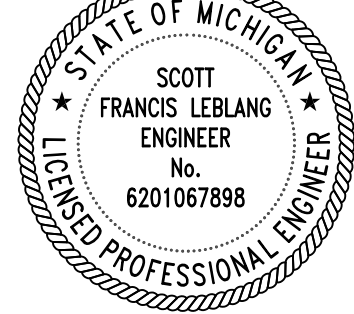


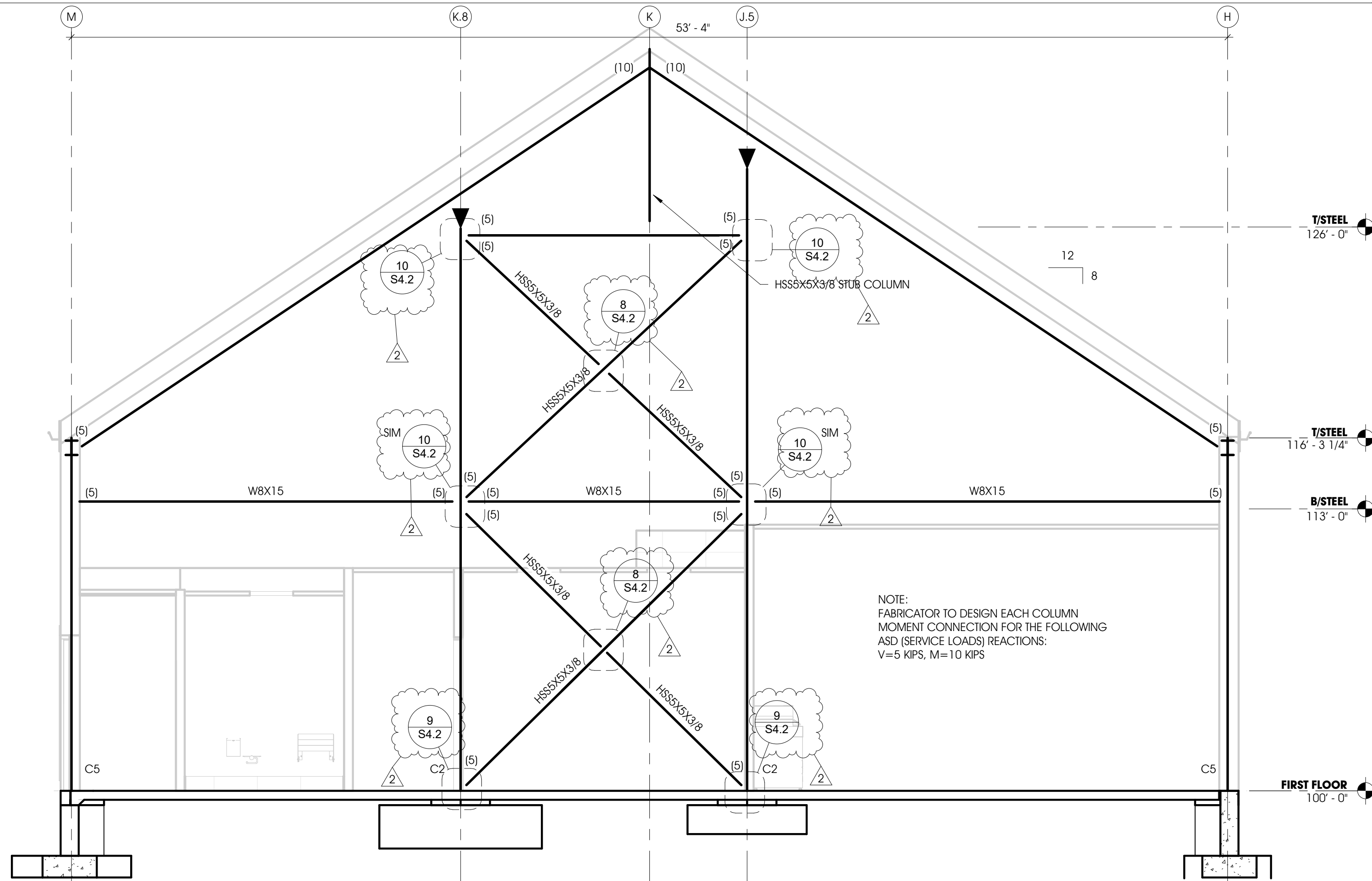
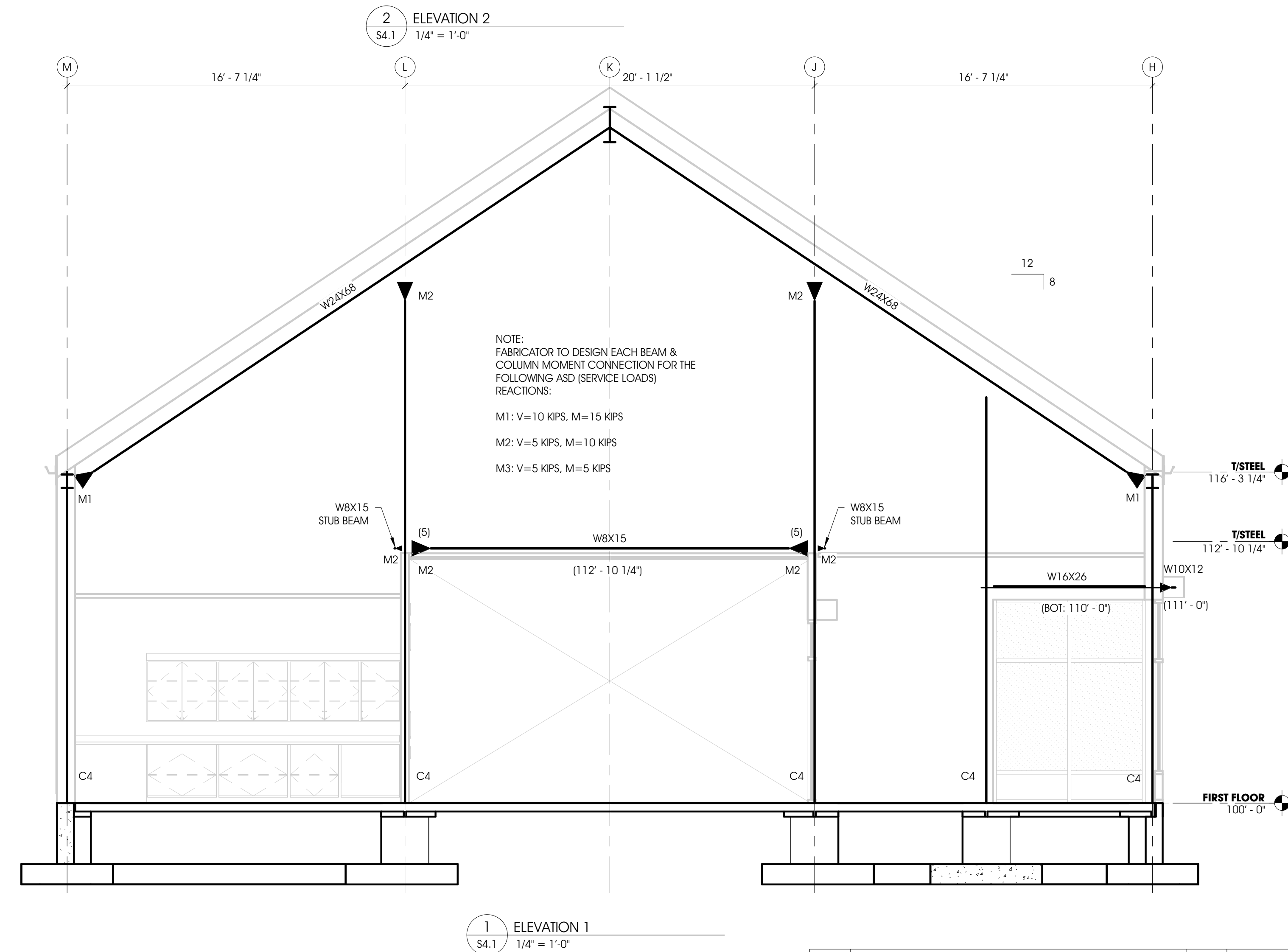
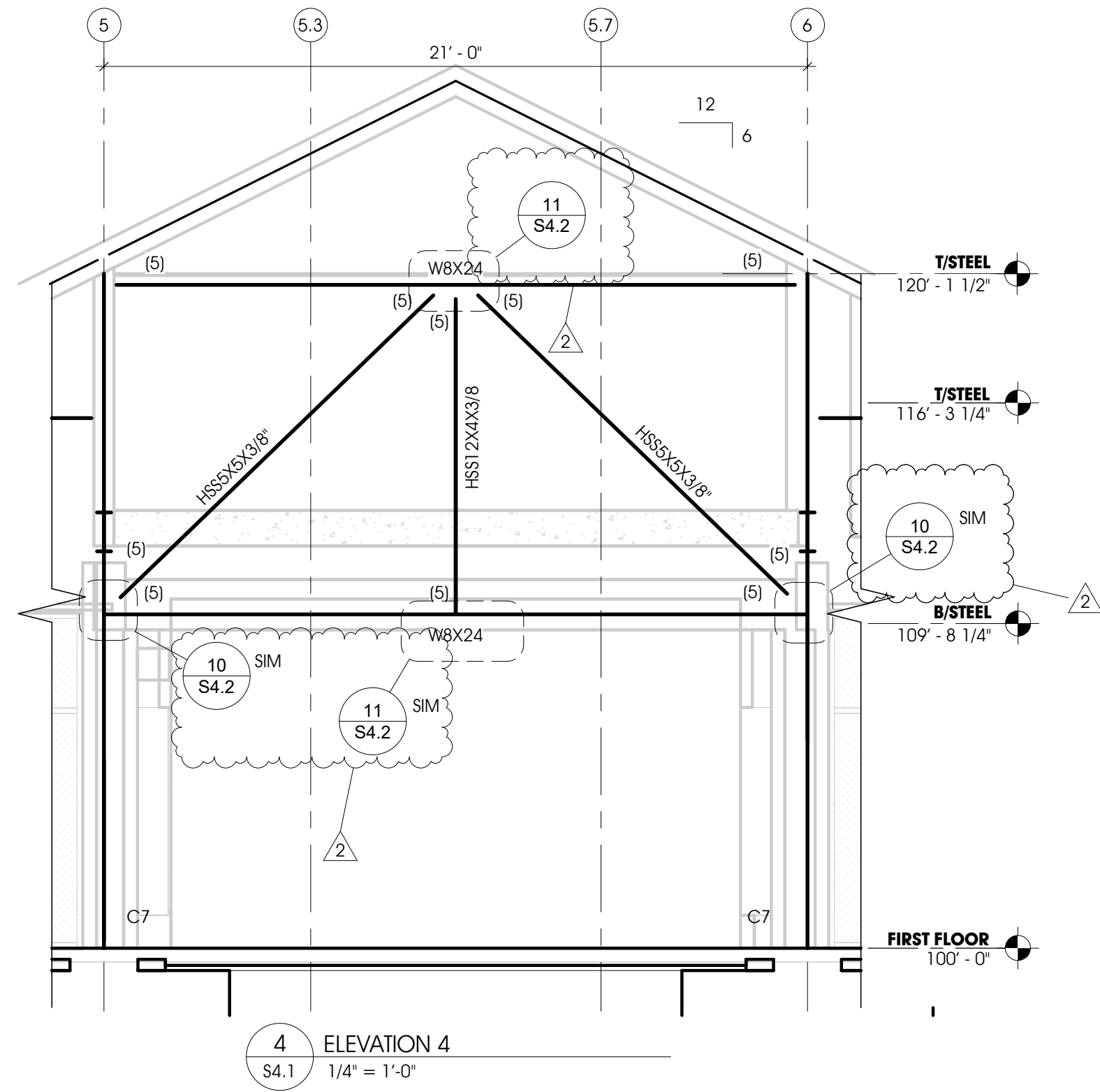
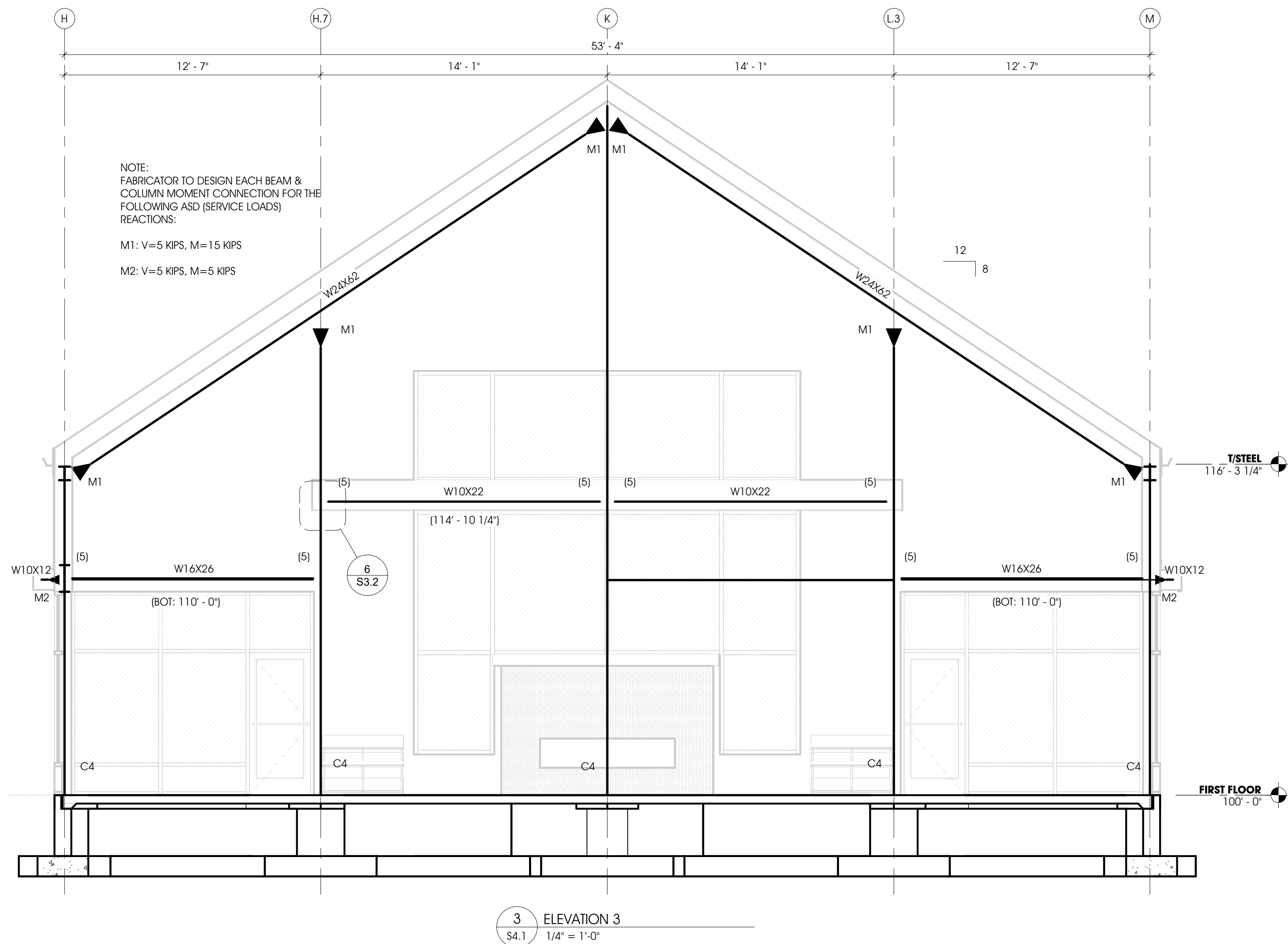
2 FOUNDATION DETAIL  
S2.3 1" = 1'-0"



1 FOUNDATION DETAIL  
S2.3 1" = 1'-0"

2	ADDENDUM #4	JMO	02/02/2024
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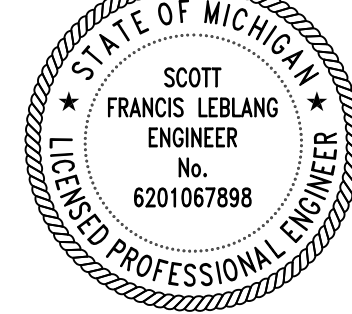
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22-1836

SHEET NO.

S4.1

STEEL FRAME ELEVATIONS

PROJECT:  
NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI



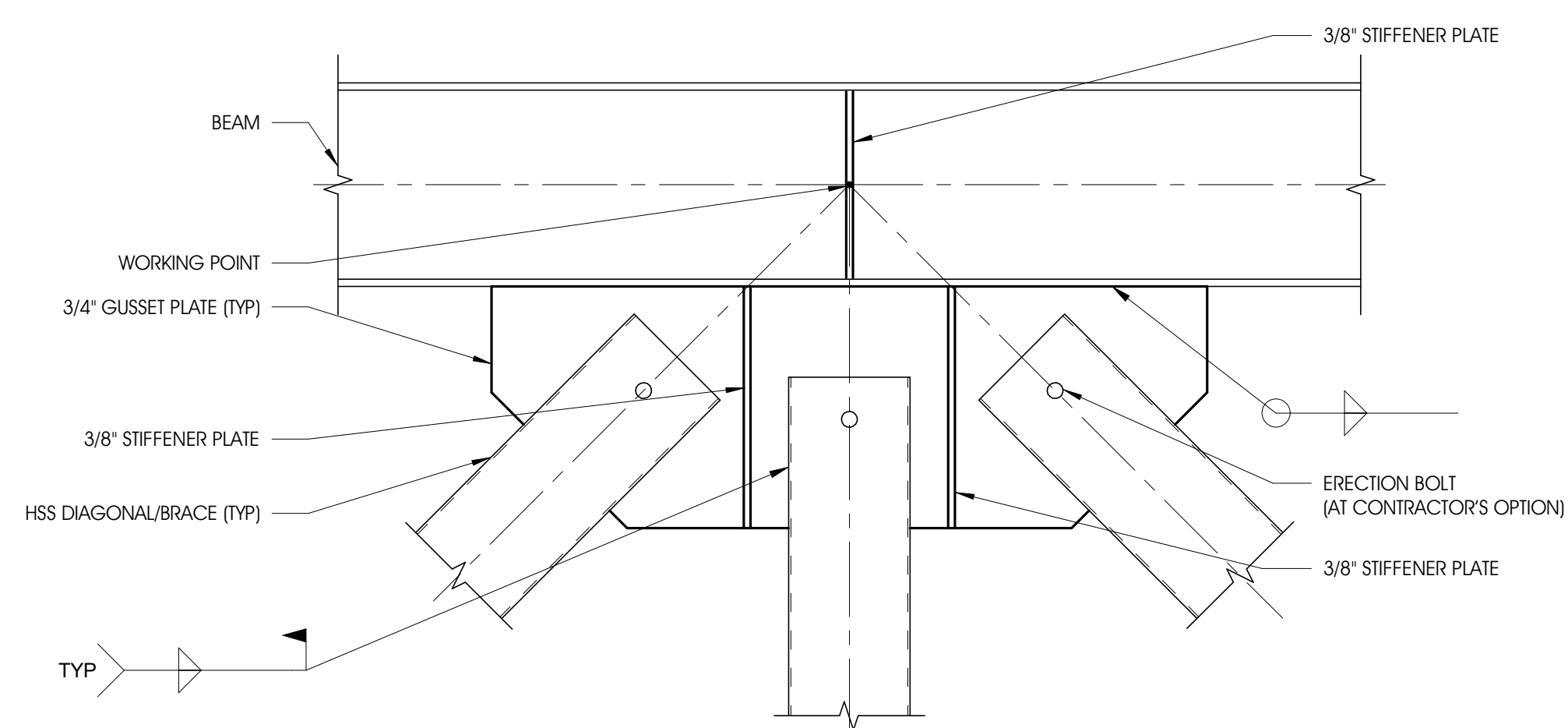
315 W. JEFFERSON BLVD  
EDWARDSBURG, MI 46601  
T: 574.232.8700  
F: 574.231.4440  
abonmarche.com

Benton Harbor  
Cass City  
Grand Rapids  
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Valparaiso

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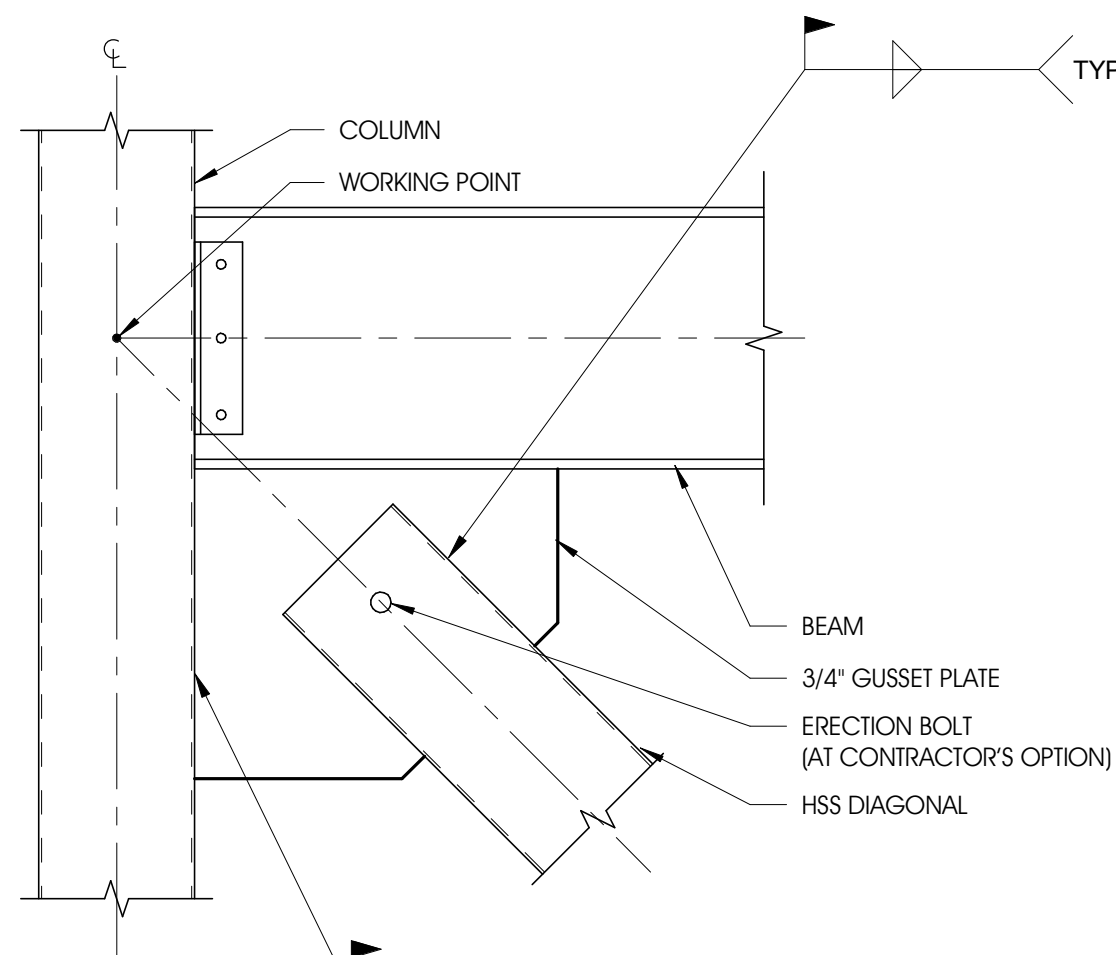
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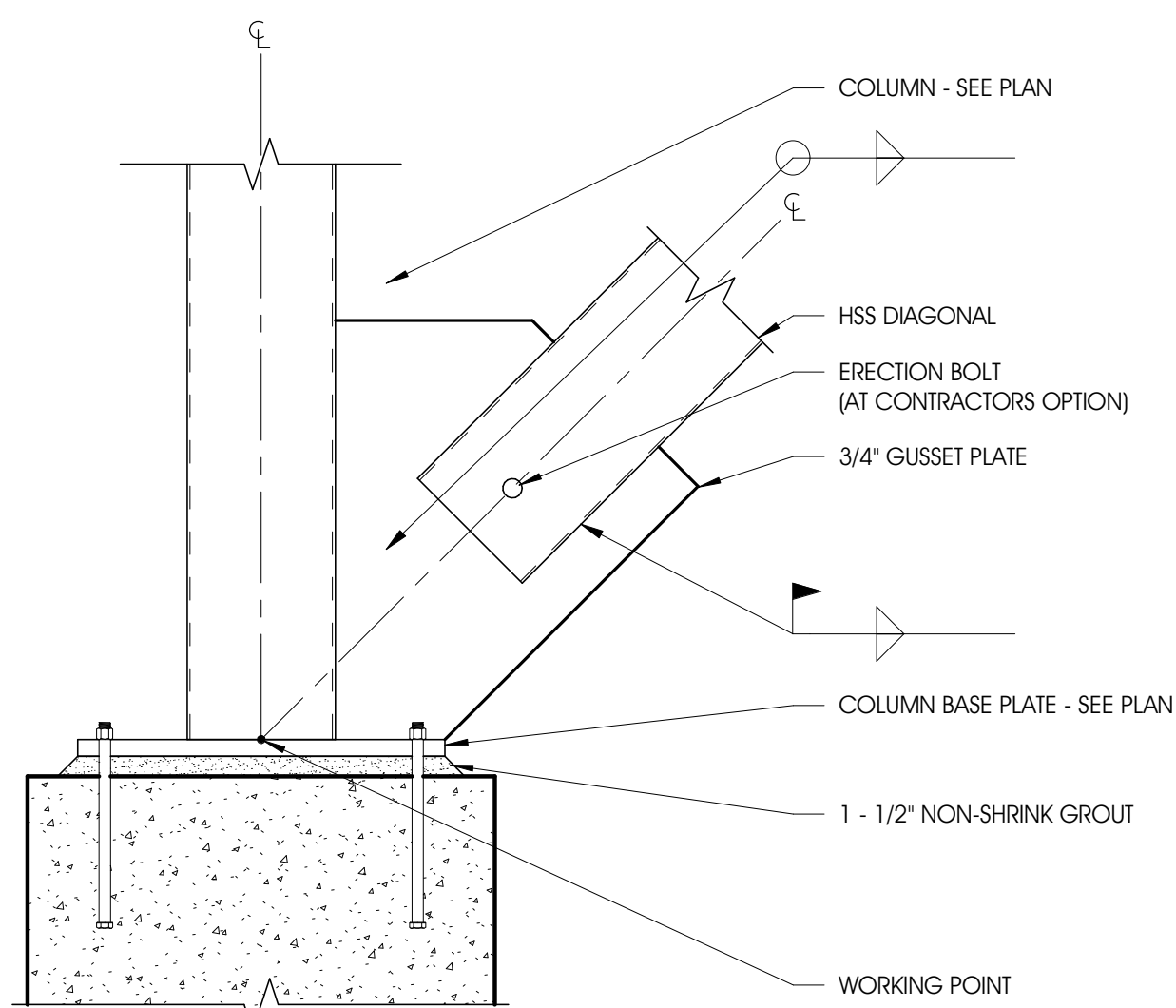
NOTE:  
FABRICATOR TO DESIGN EACH HSS BRACE  
CONNECTION FOR THE FOLLOWING ASD  
(SERVICE LOADS) AXIAL REACTION:  $R = \pm 25$  KIPS

11 BRACED BAY DETAIL  
S4.2 3/8" = 1'-0"



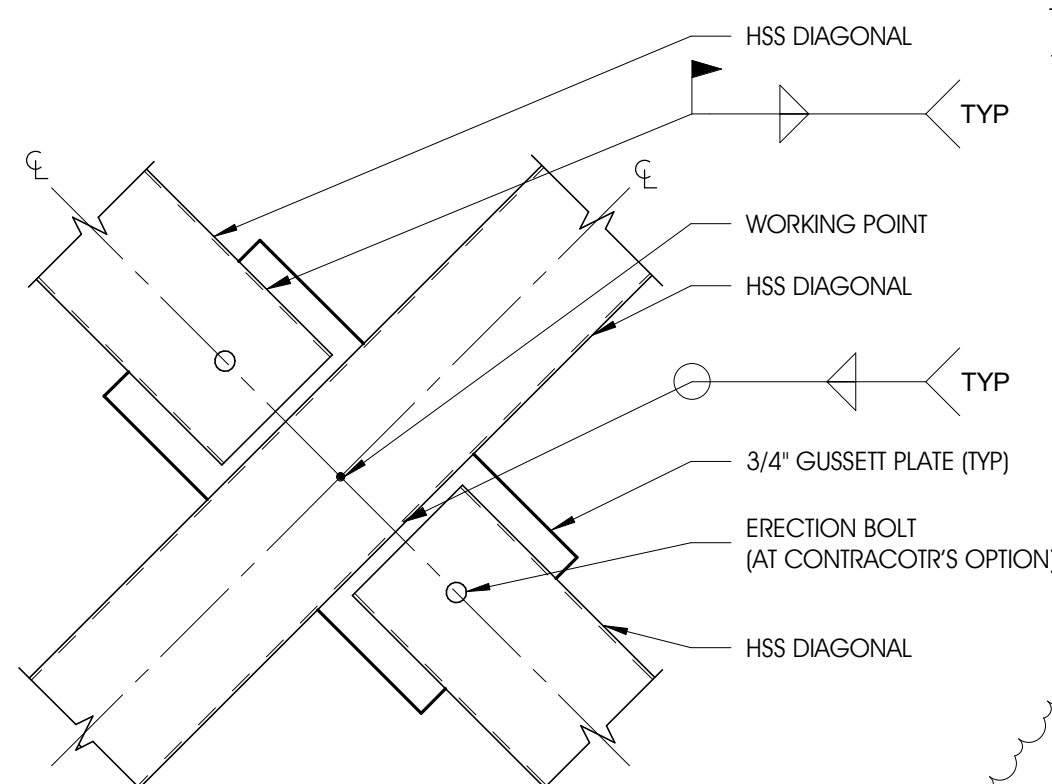
NOTE:  
FABRICATOR TO DESIGN EACH HSS BRACE  
CONNECTION FOR THE FOLLOWING ASD  
(SERVICE LOADS) AXIAL REACTION:  $R = \pm 25$  KIPS

10 BRACED BAY DETAIL  
S4.2 3/8" = 1'-0"



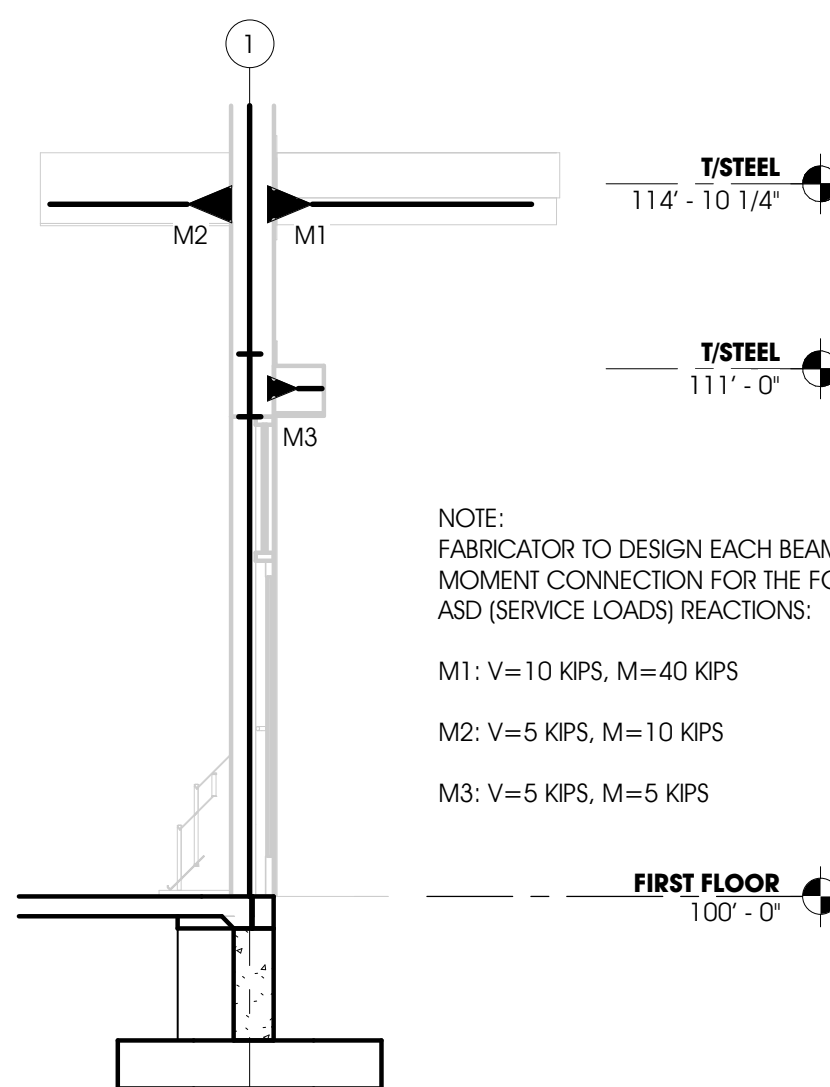
NOTE:  
FABRICATOR TO DESIGN EACH HSS BRACE  
CONNECTION FOR THE FOLLOWING ASD  
(SERVICE LOADS) AXIAL REACTION:  $R = \pm 25$  KIPS

9 BRACED BAY DETAIL  
S4.2 3/8" = 1'-0"



NOTE:  
FABRICATOR TO DESIGN EACH HSS BRACE  
CONNECTION FOR THE FOLLOWING ASD  
(SERVICE LOADS) AXIAL REACTION:  $R = \pm 25$  KIPS

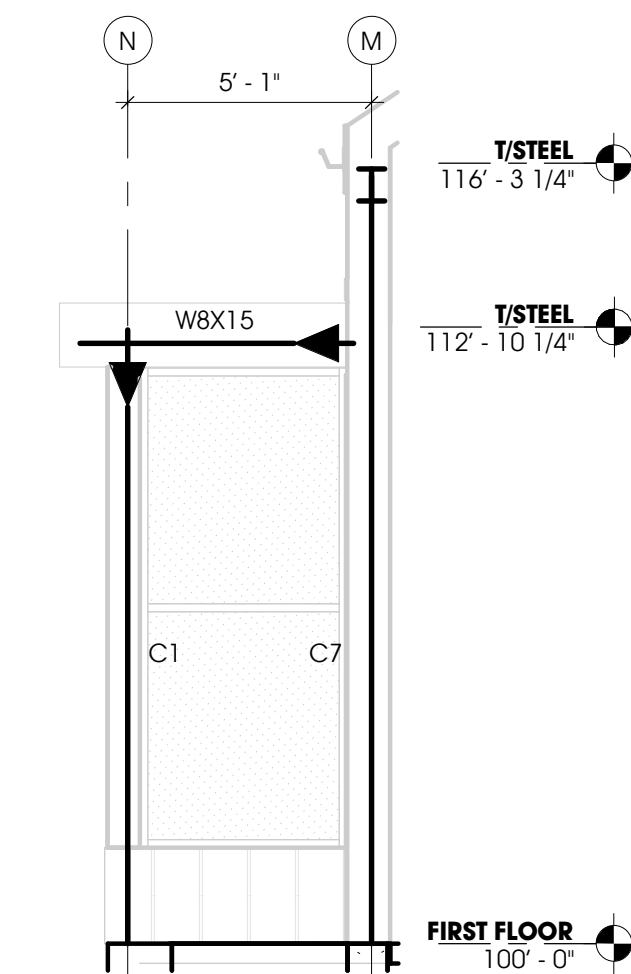
8 BRACED BAY DETAIL  
S4.2 3/8" = 1'-0"



NOTE:  
FABRICATOR TO DESIGN EACH BEAM  
MOMENT CONNECTION FOR THE FOLLOWING  
ASD (SERVICE LOADS) REACTIONS:

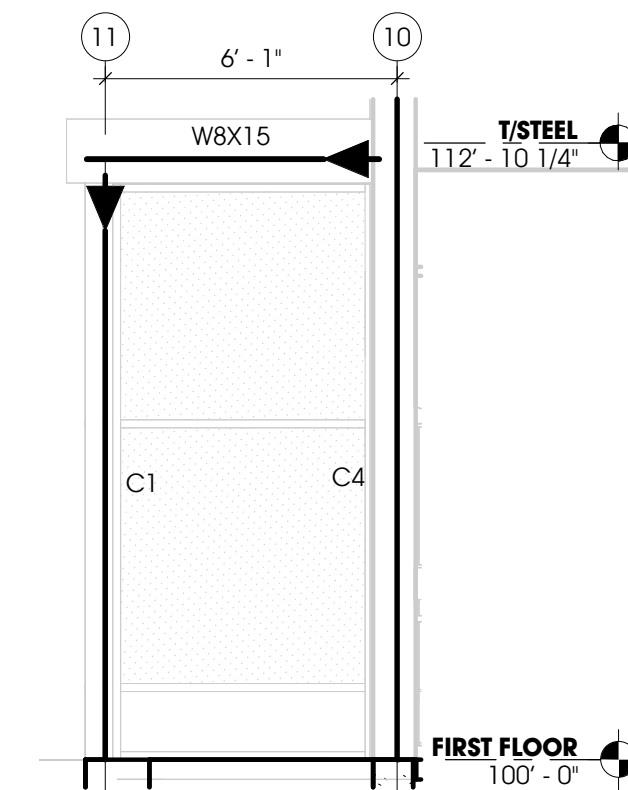
M1:  $V=10$  KIPS,  $M=40$  KIPS  
M2:  $V=5$  KIPS,  $M=10$  KIPS  
M3:  $V=5$  KIPS,  $M=5$  KIPS

7 ELEVATION 11  
S4.2 1/4" = 1'-0"



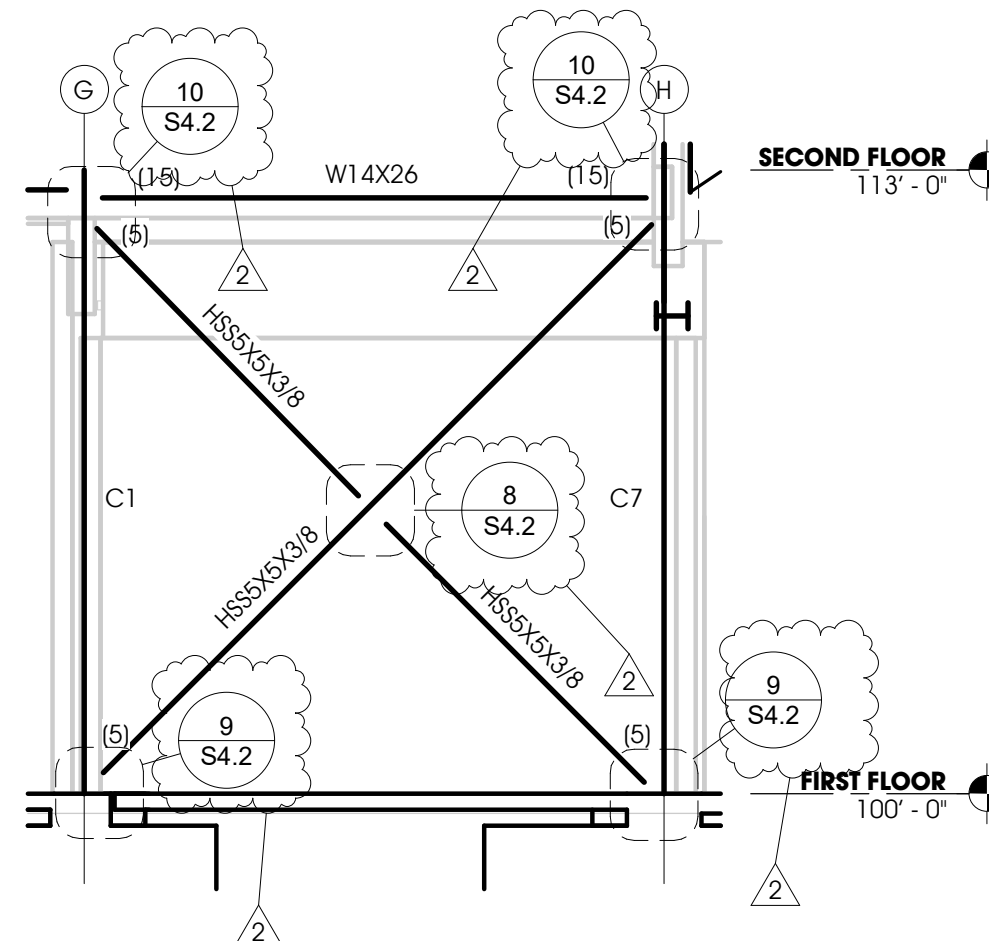
NOTE:  
FABRICATOR TO DESIGN EACH BEAM &  
COLUMN MOMENT CONNECTION FOR THE  
FOLLOWING ASD (SERVICE LOADS)  
REACTIONS:  $V=5$  KIPS,  $M=20$  KIPS

6 ELEVATION 10  
S4.2 1/4" = 1'-0"

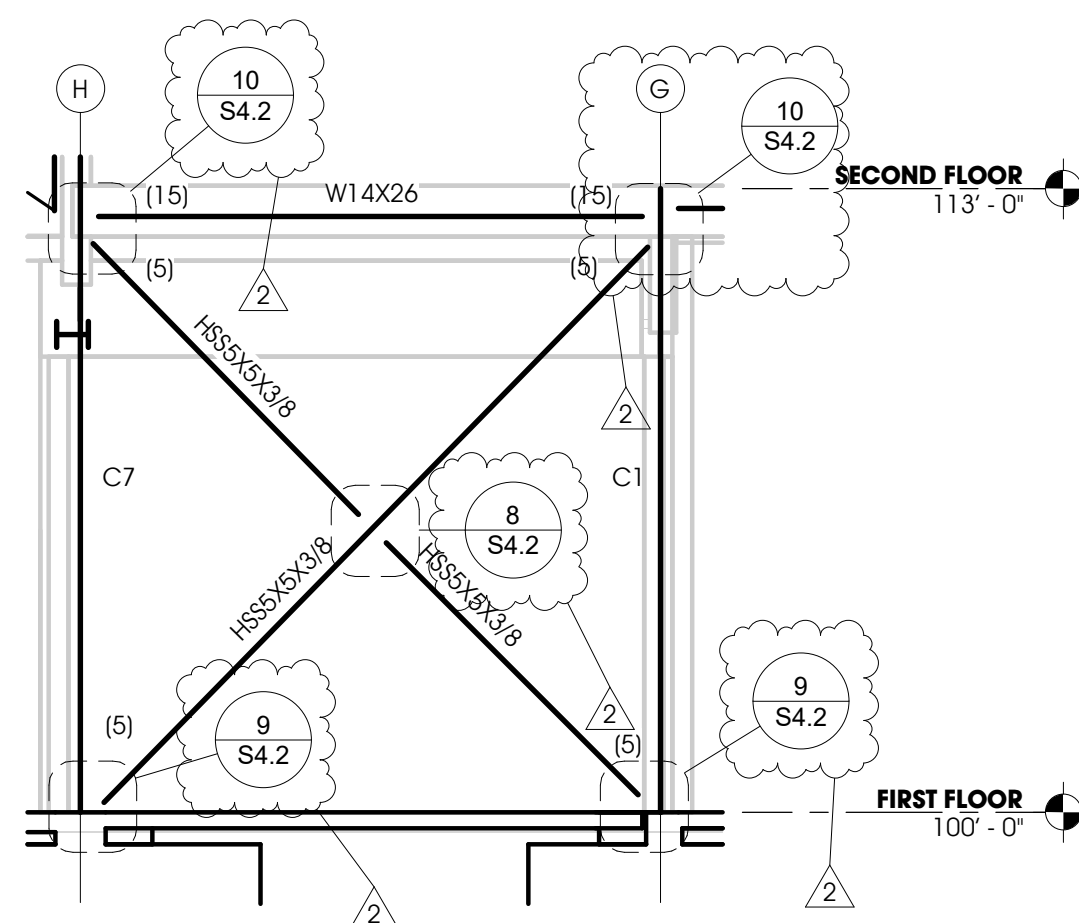


NOTE:  
FABRICATOR TO DESIGN EACH BEAM &  
COLUMN MOMENT CONNECTION FOR THE  
FOLLOWING ASD (SERVICE LOADS)  
REACTIONS:  $V=5$  KIPS,  $M=15$  KIPS

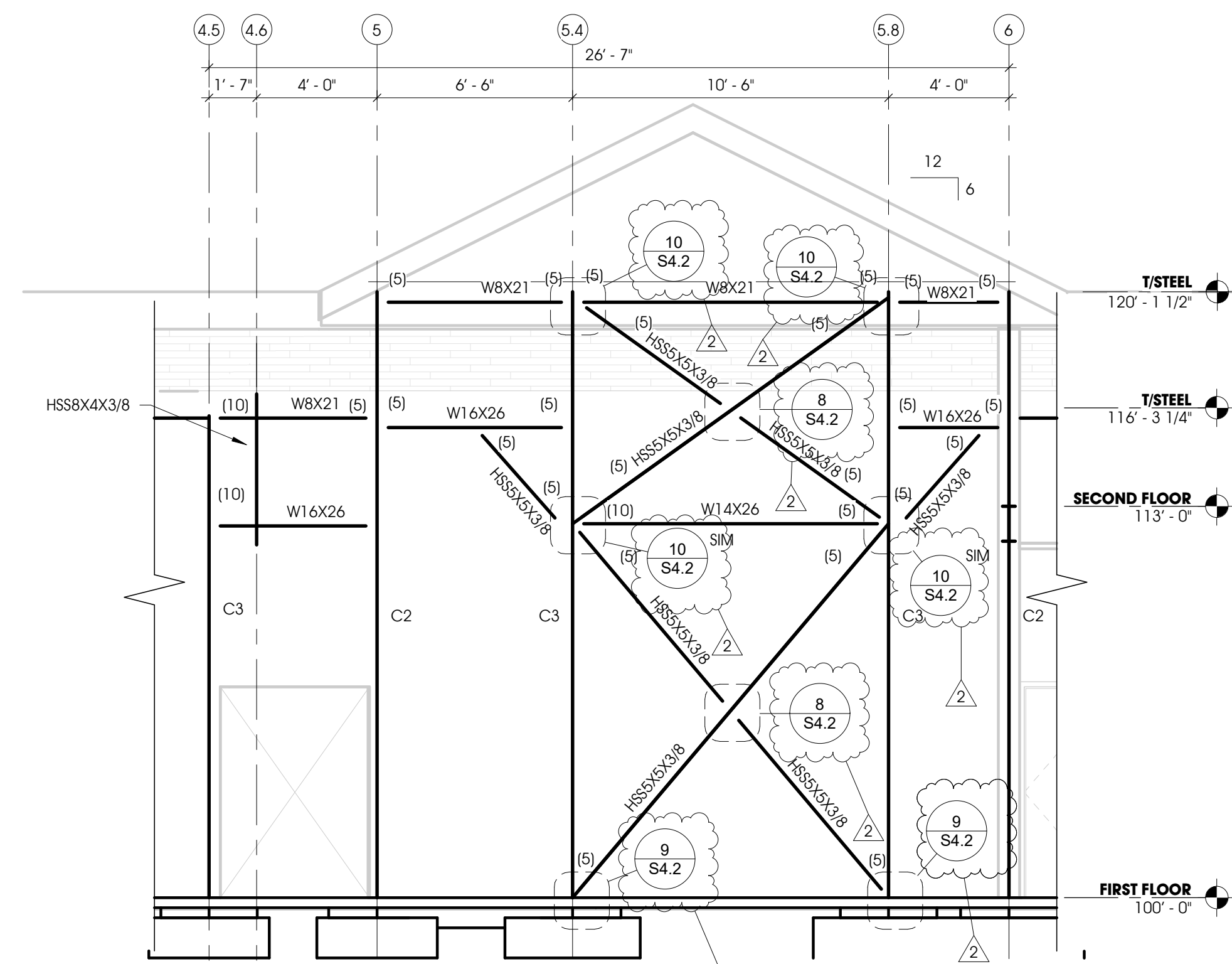
5 ELEVATION 9  
S4.2 1/4" = 1'-0"



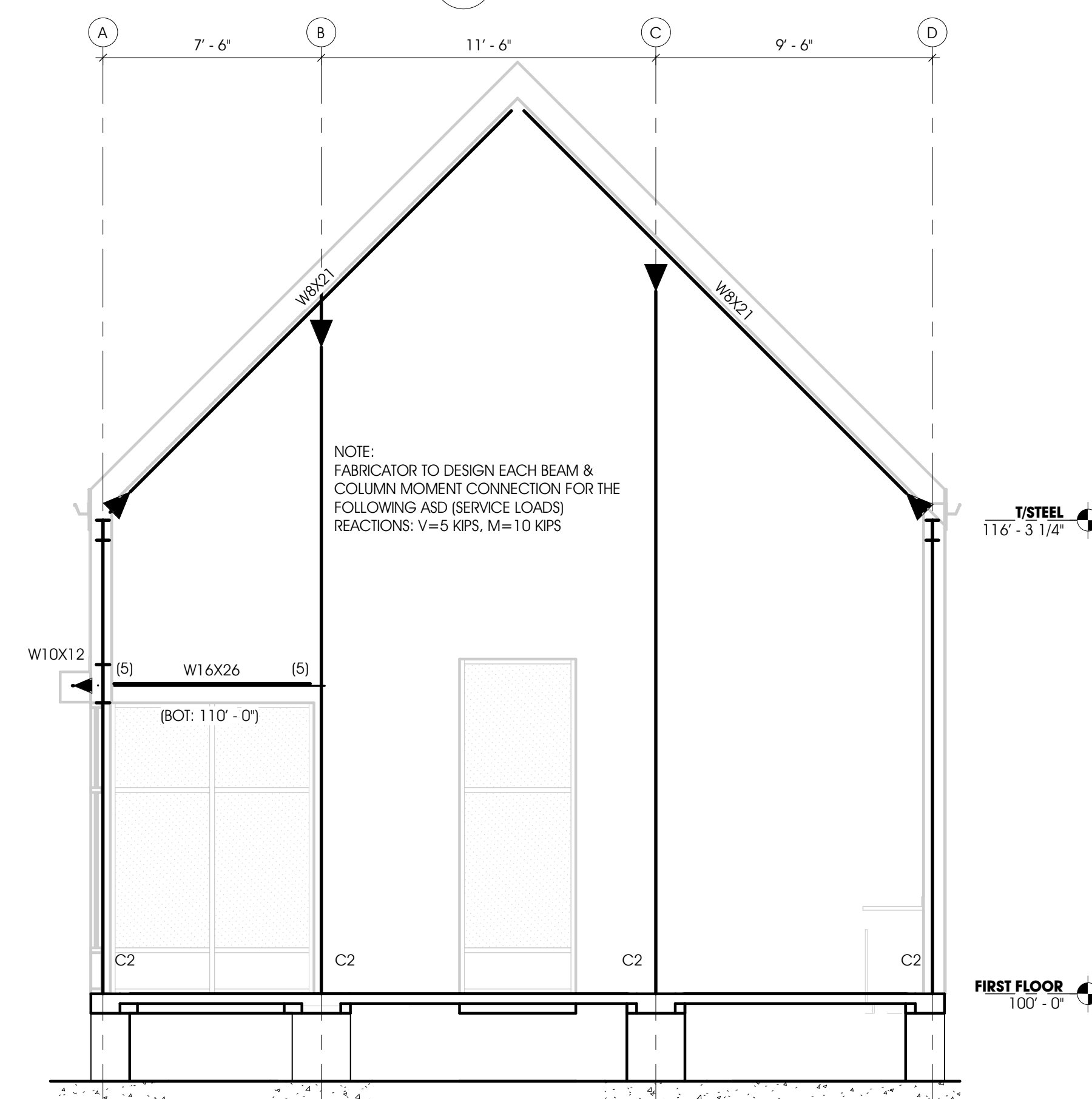
4 ELEVATION 8  
S4.2 1/4" = 1'-0"



3 ELEVATION 7  
S4.2 1/4" = 1'-0"



2 ELEVATION 6  
S4.2 1/4" = 1'-0"



1 ELEVATION 5  
S4.2 1/4" = 1'-0"

## STEEL FRAME ELEVATIONS

PROJECT:  
**NEW CONSTRUCTION FOR:  
CASS DISTRICT LIBRARY  
EDWARDSBURG BRANCH  
W. MAIN STREET,  
EDWARDSBURG, MI**

SHEET TITLE:

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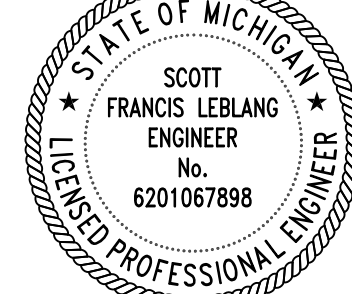
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QA/QC REVIEW: SFL

DATE: 12/20/2023

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SIGNATURE: *Scott Francis LeBlanc*

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S4.2

**ABONMARCHÉ**

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Engineering, Architecture, Land Surveying

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SIGNATURE:	
DATE:	

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SHEET NO.	