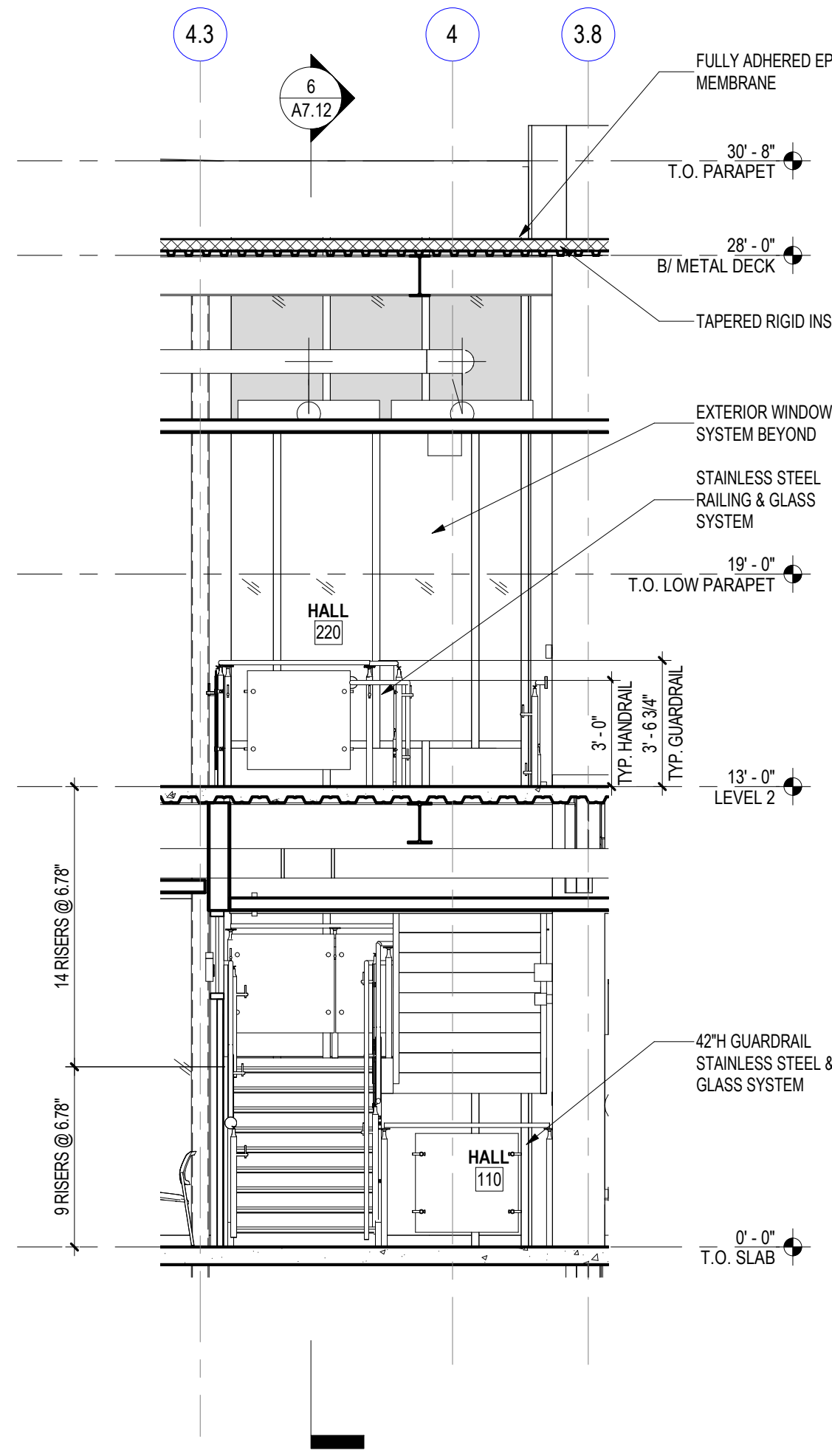
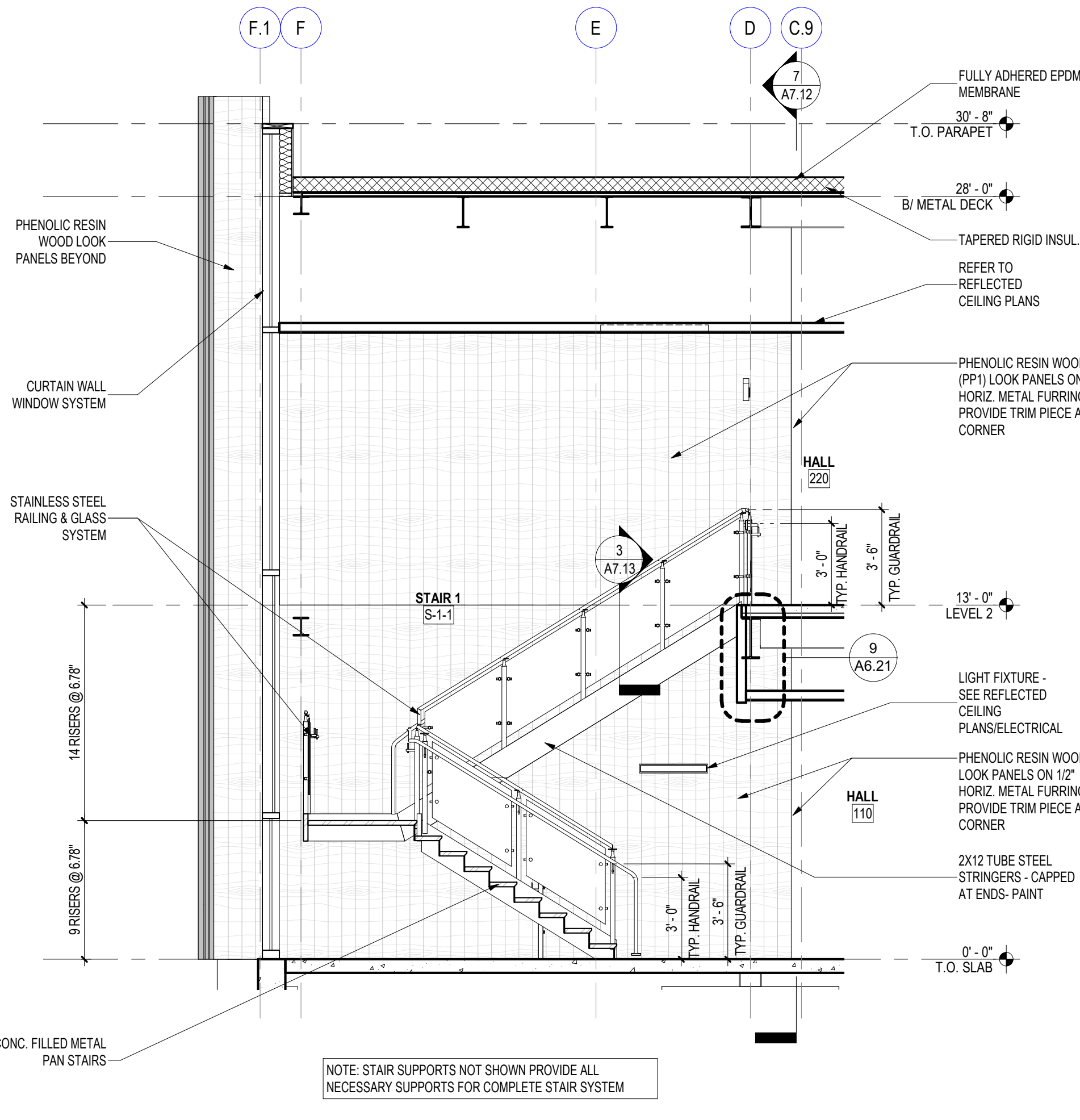


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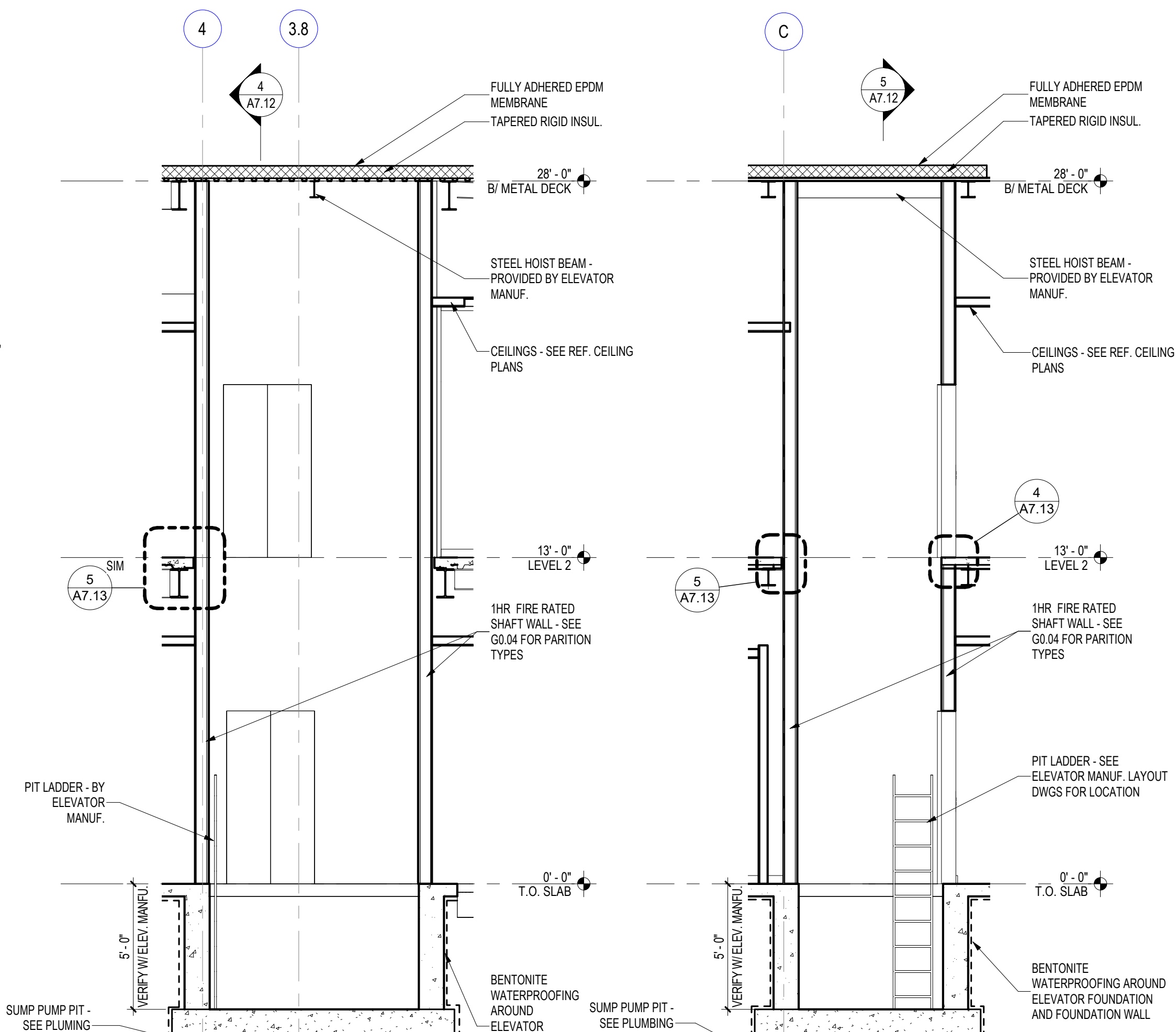
**7 STAIR 1 NS SECTION**

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



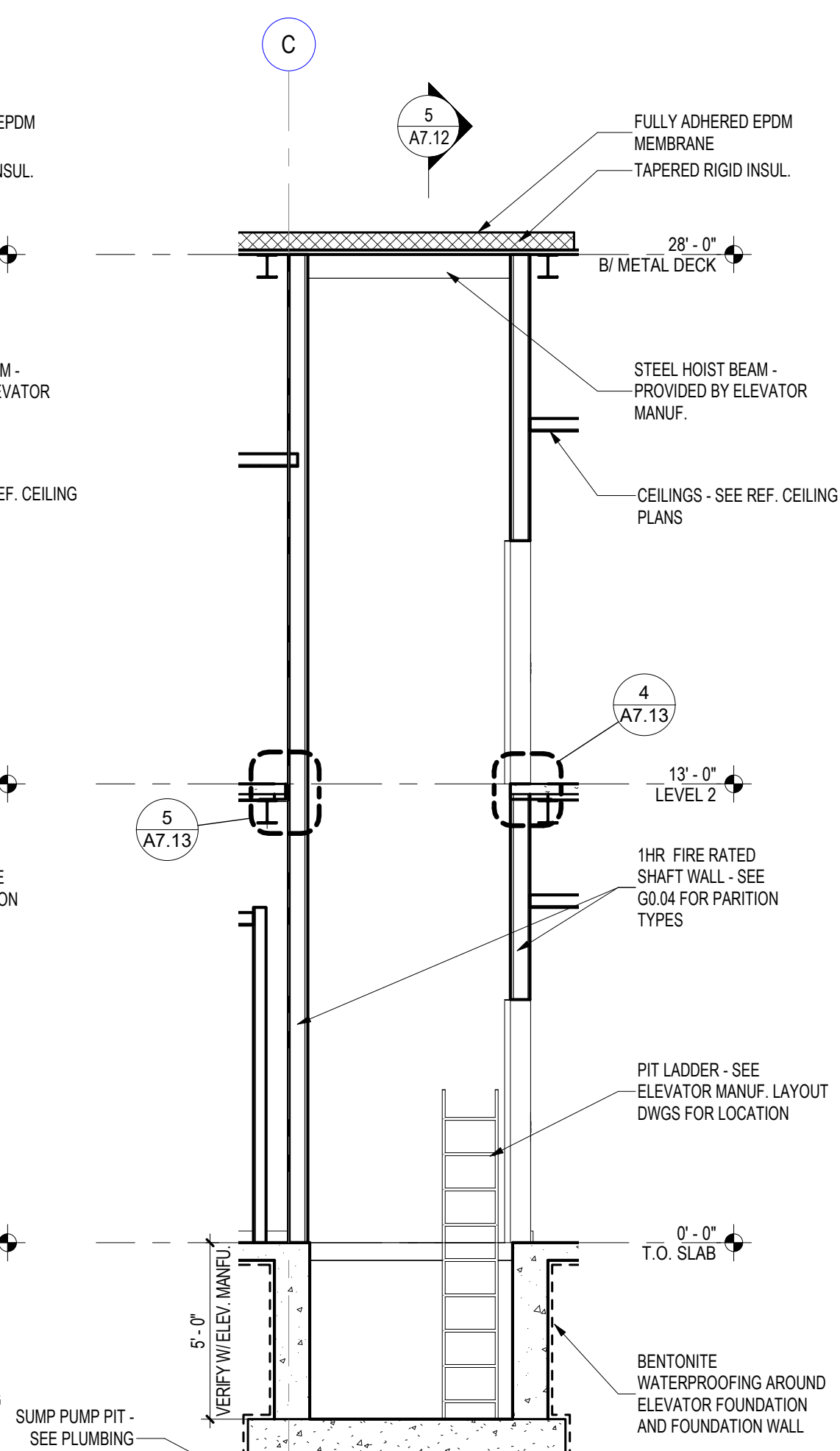
**6 STAIR 1 EW SECTION**

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



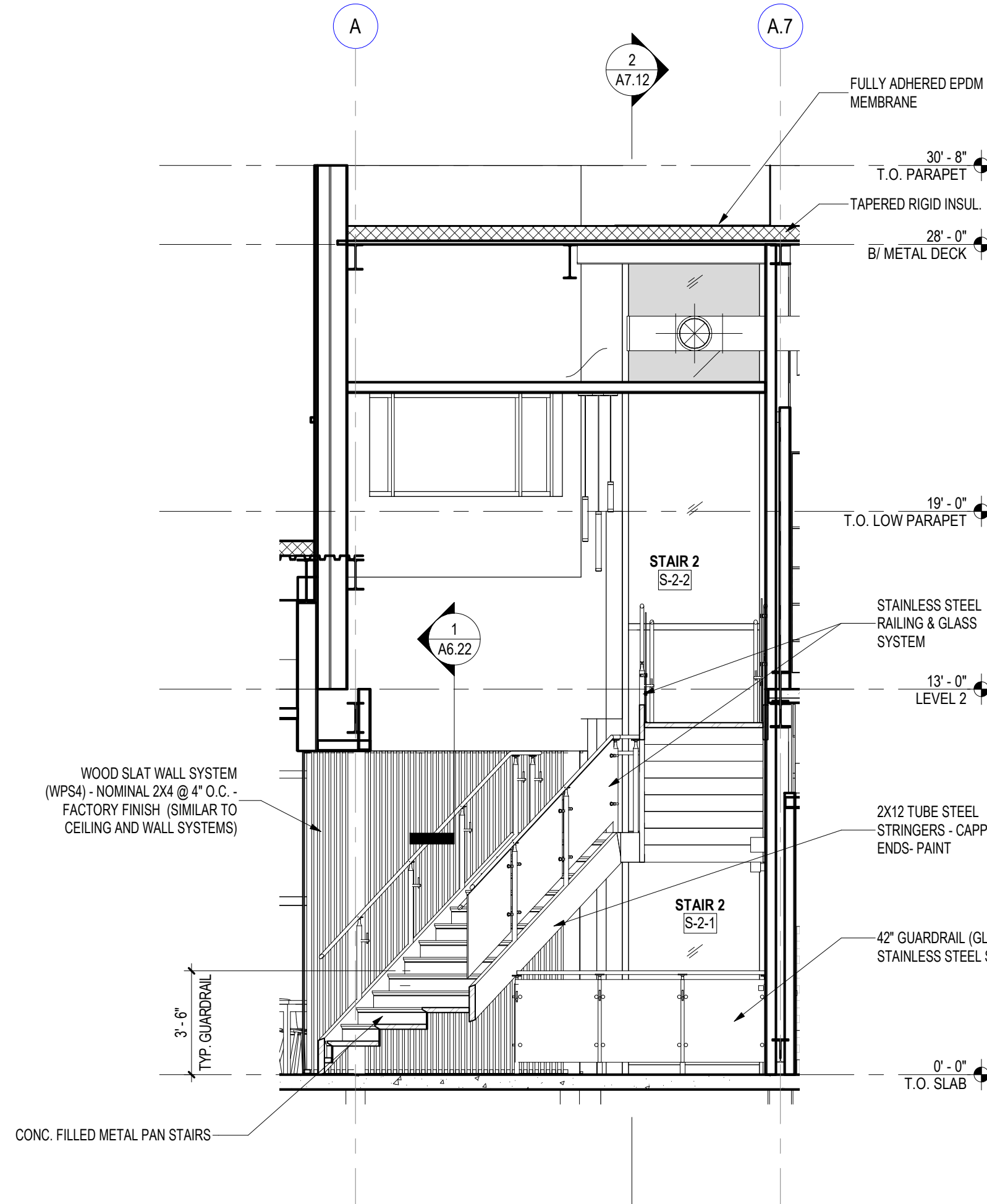
**5 ELEVATOR SECTION**

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



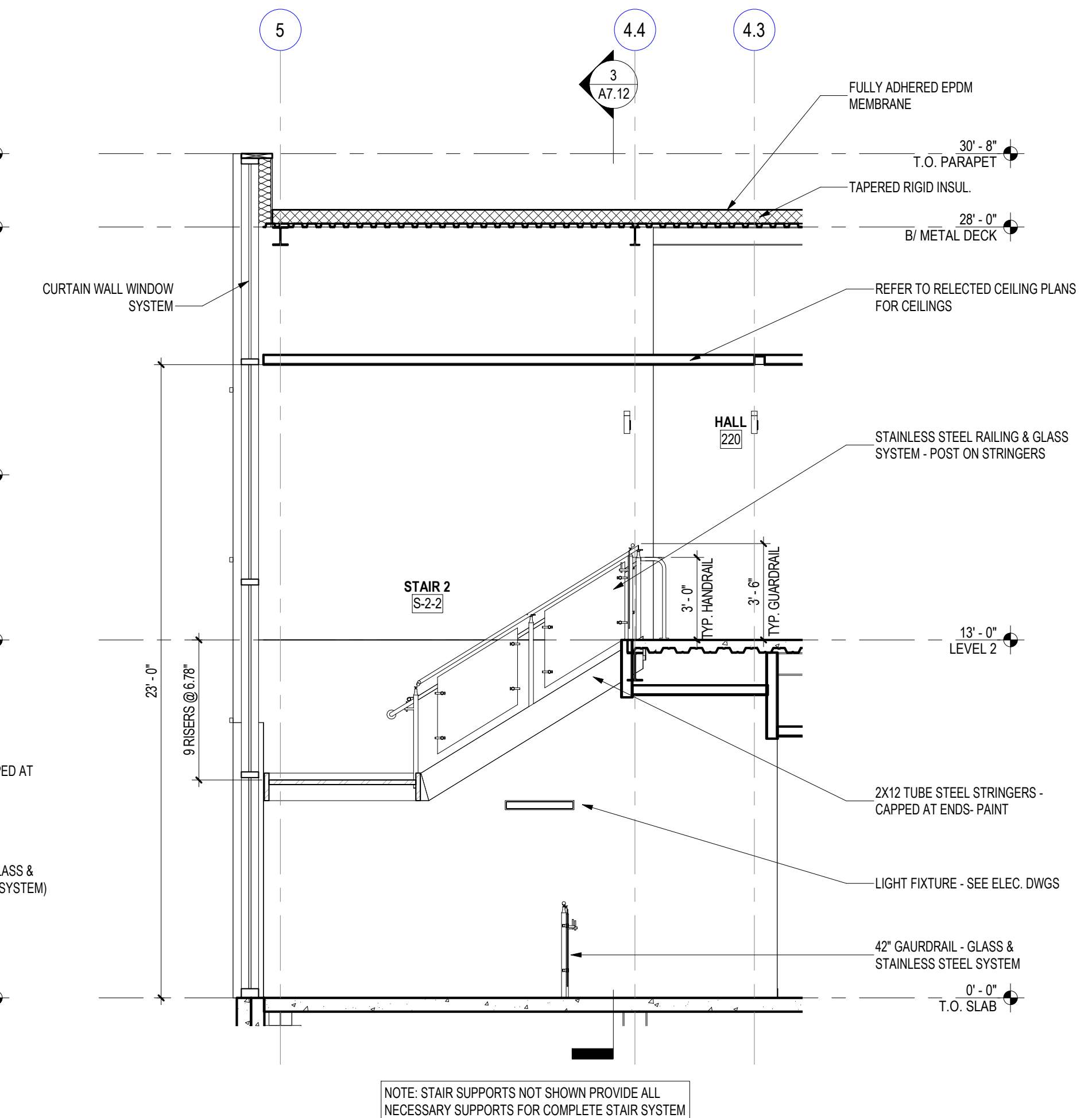
**4 ELEVATOR SECTION**

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



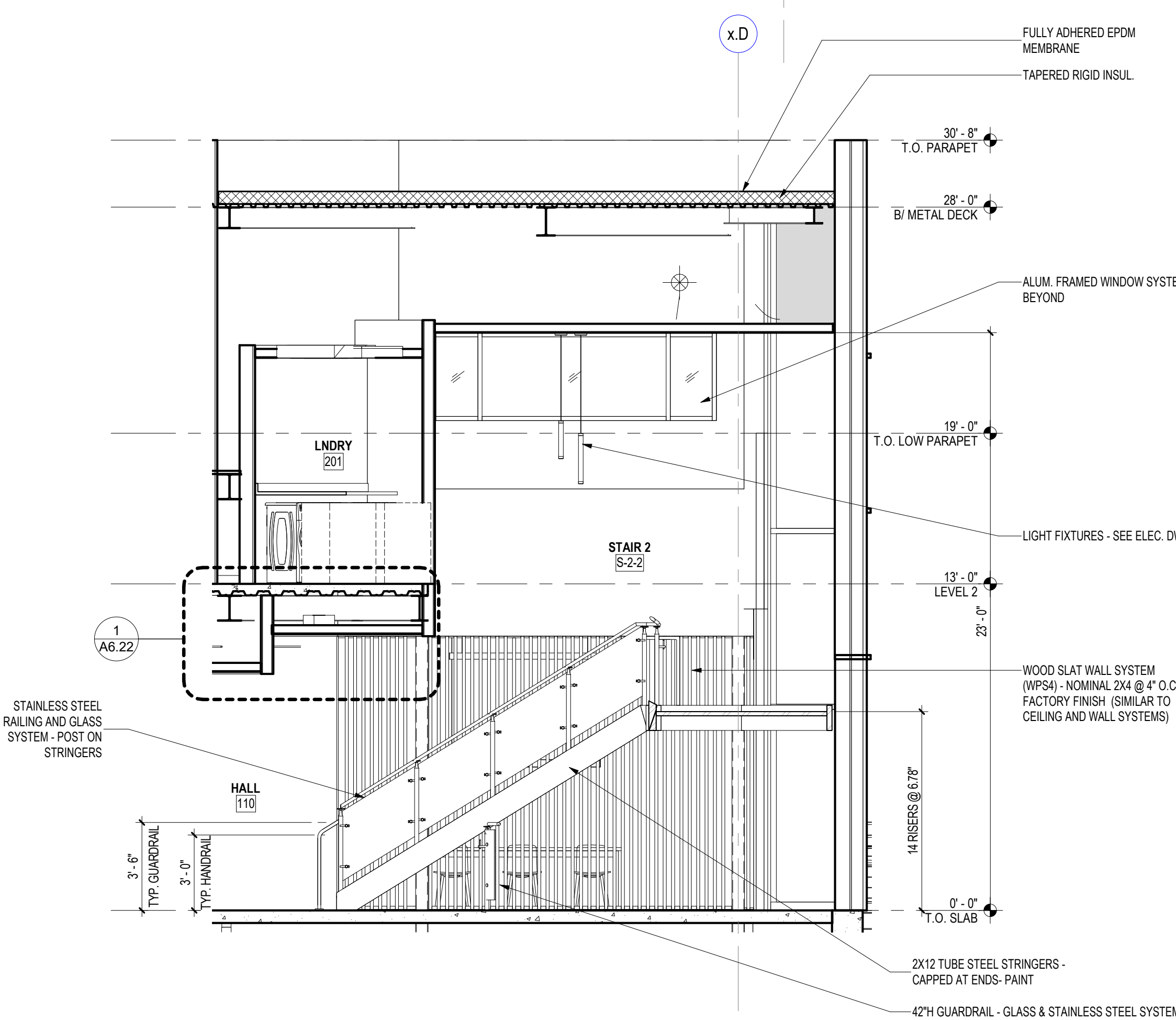
**3 STAIR 2 NS SECTION**

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



**2 STAIR 2 EW SECTION**

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

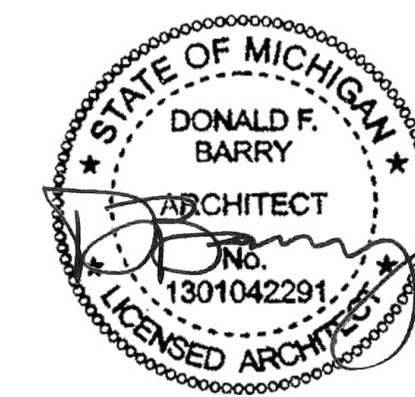


**1 STAIR 2 SECTION**

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

Issue	Date
Bids/Permits	10/11/24
Bids/Permits	08/04/23
Design Development	05/26/23
Drawn/TCA/A3C	Checked/TCA/A3C





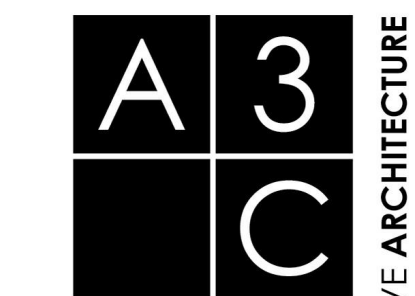
Project Number **21018**

Issue	Date
Bids/Permits	10/11/24
Bids/Permits	08/04/23

Drawn: KJ      Checked: FEA

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

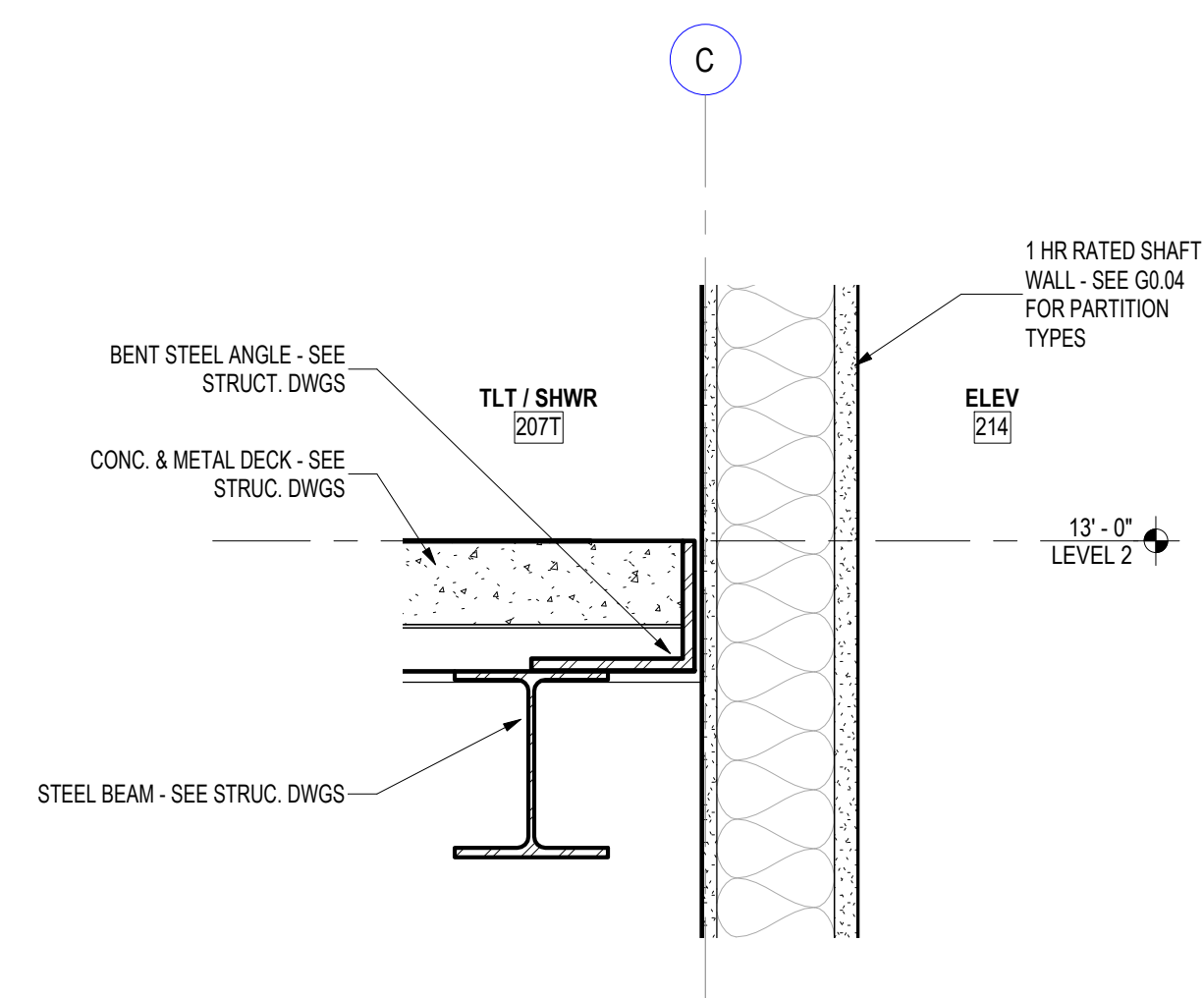
STAIR & ELEVATOR  
DETAILS



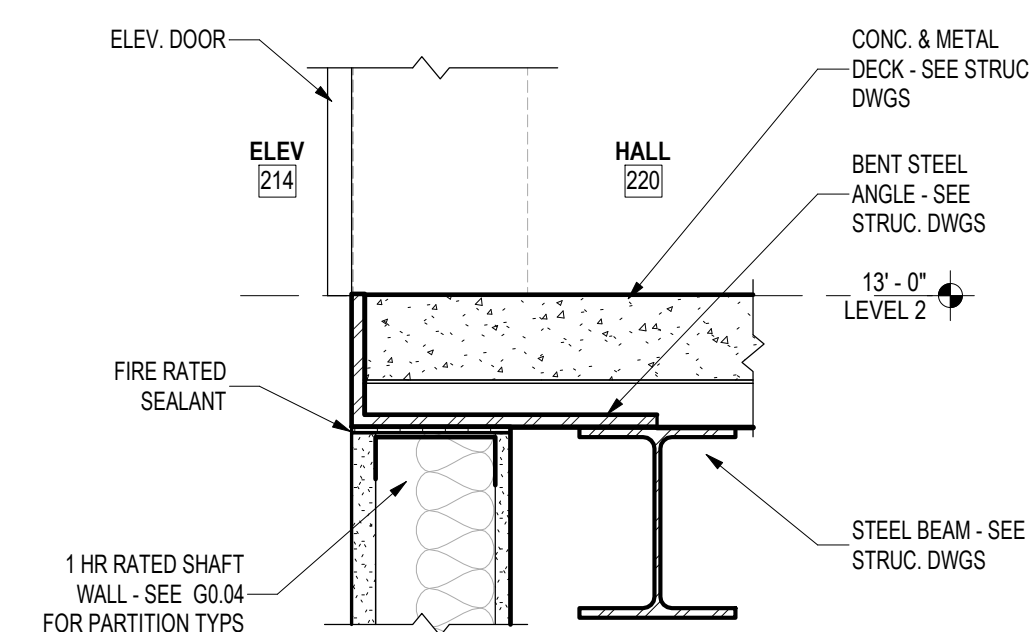
115 1/2 E. LIBERTY STREET  
ANN ARBOR, MI 48104  
T: (734) 663 - 1910  
F: (866) 732 - 2168  
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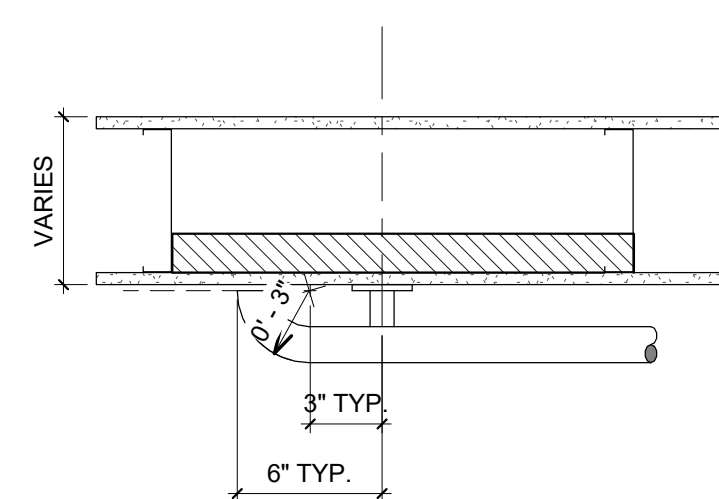
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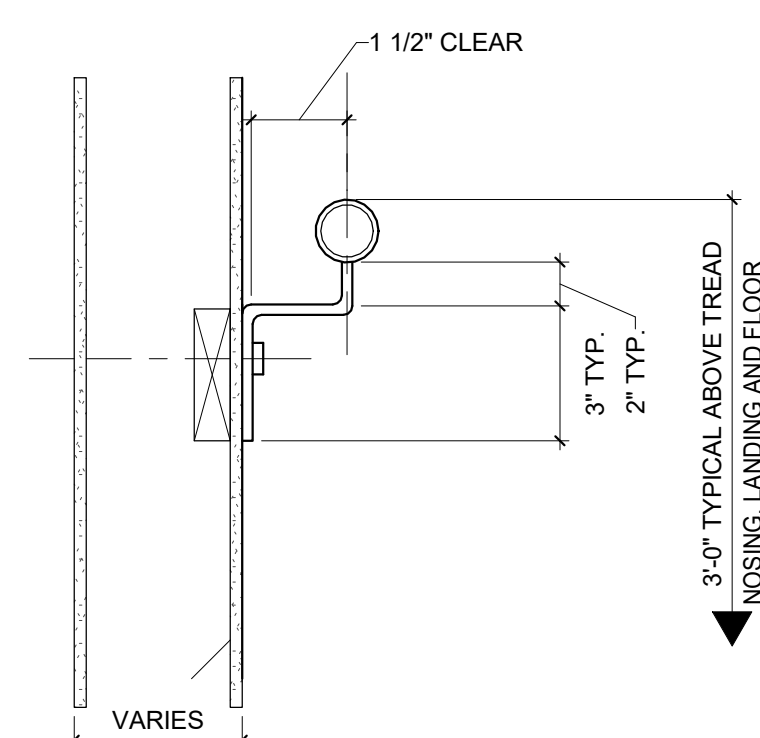
**5 DETAIL**  
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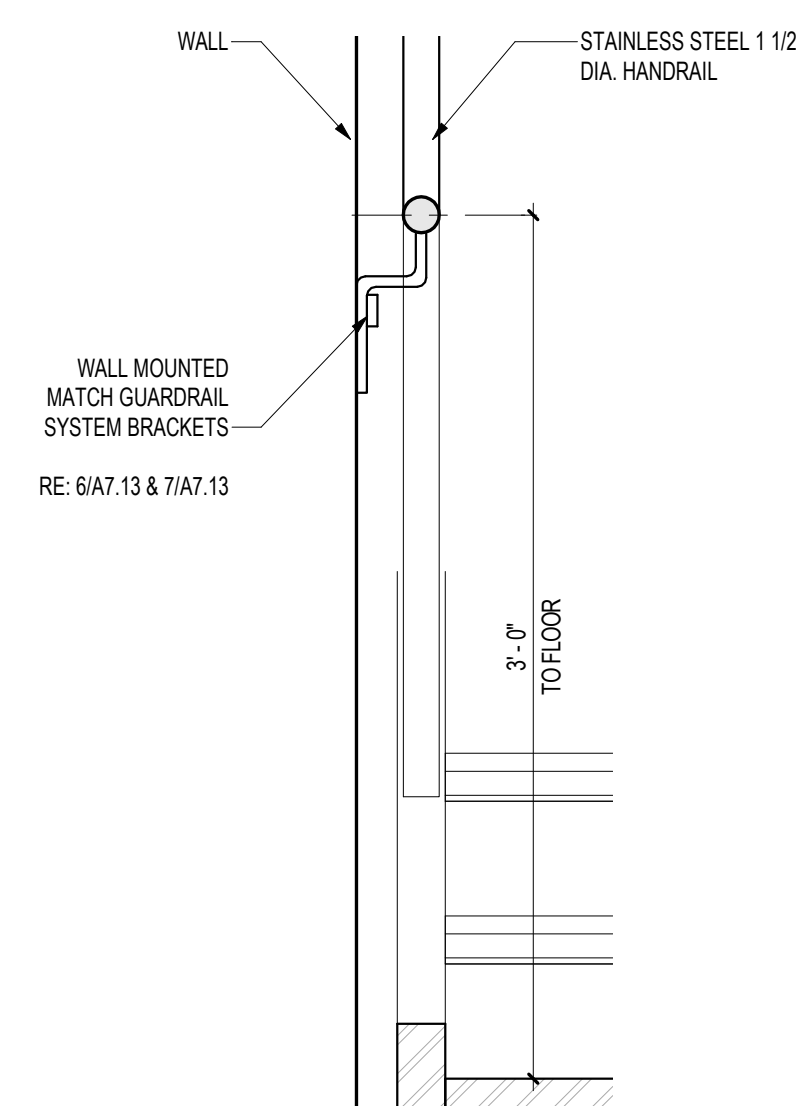
**4 DETAIL**  
Scale: 1 1/2" = 1'-0"



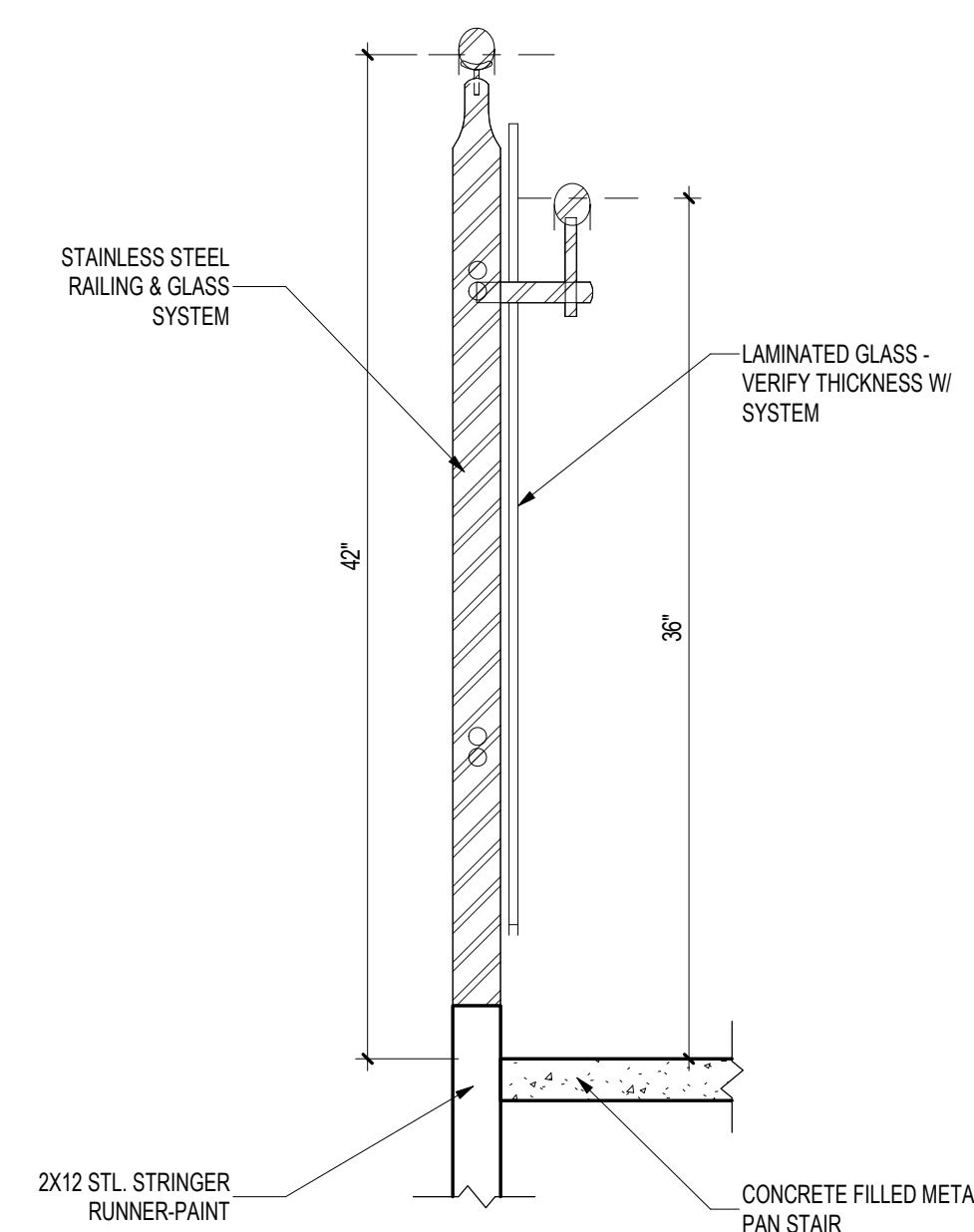
## 7 HANDRAIL MOUNTING - 2



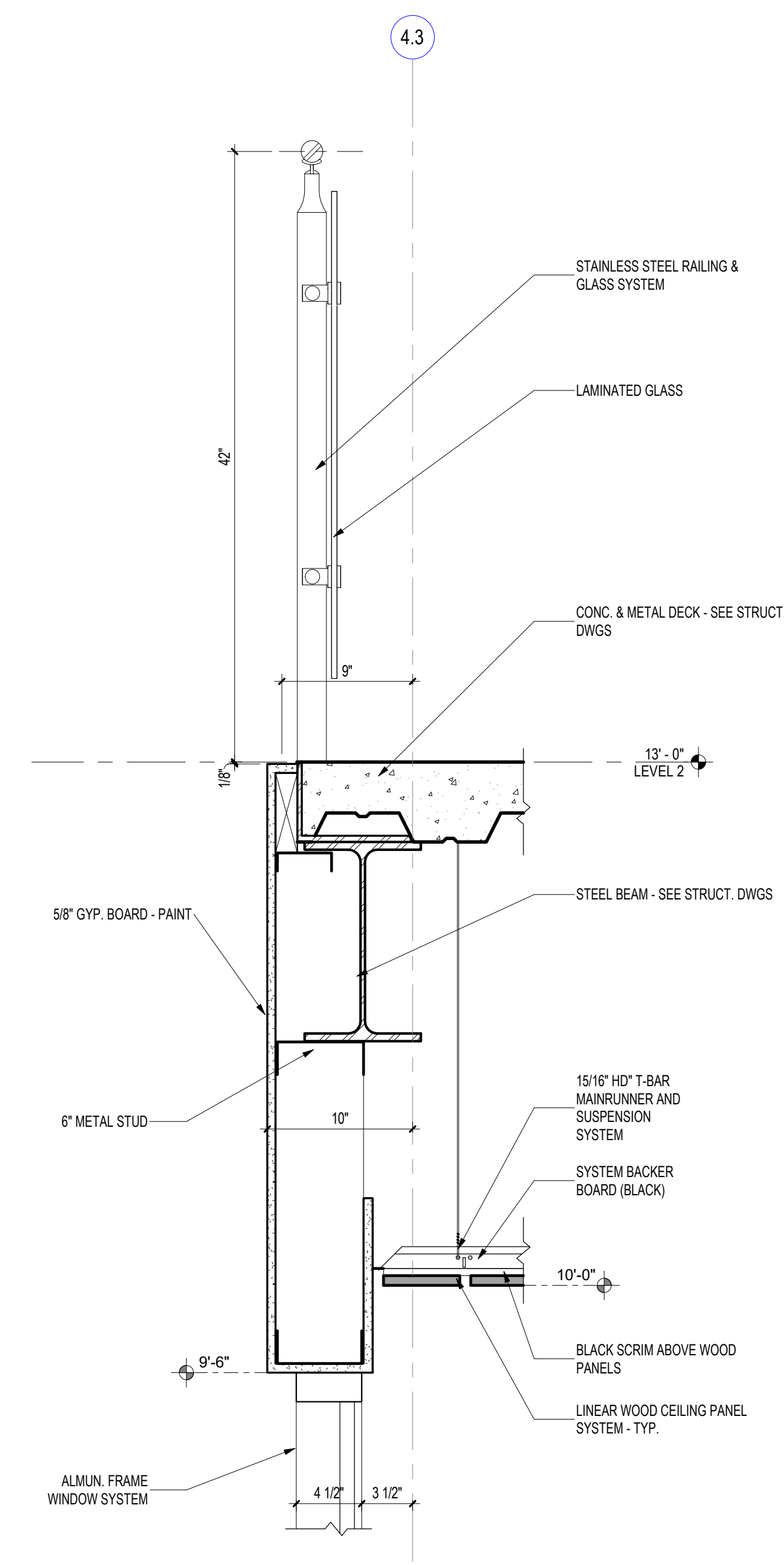
## 6 HANDRAIL MOUNTING - 1



### 3 HANDRAIL DETAIL - WALL



**2** **TYP. GUARDRAIL & HANDRAIL DETAIL**  
Scale: 1 1/2" = 1'-0"

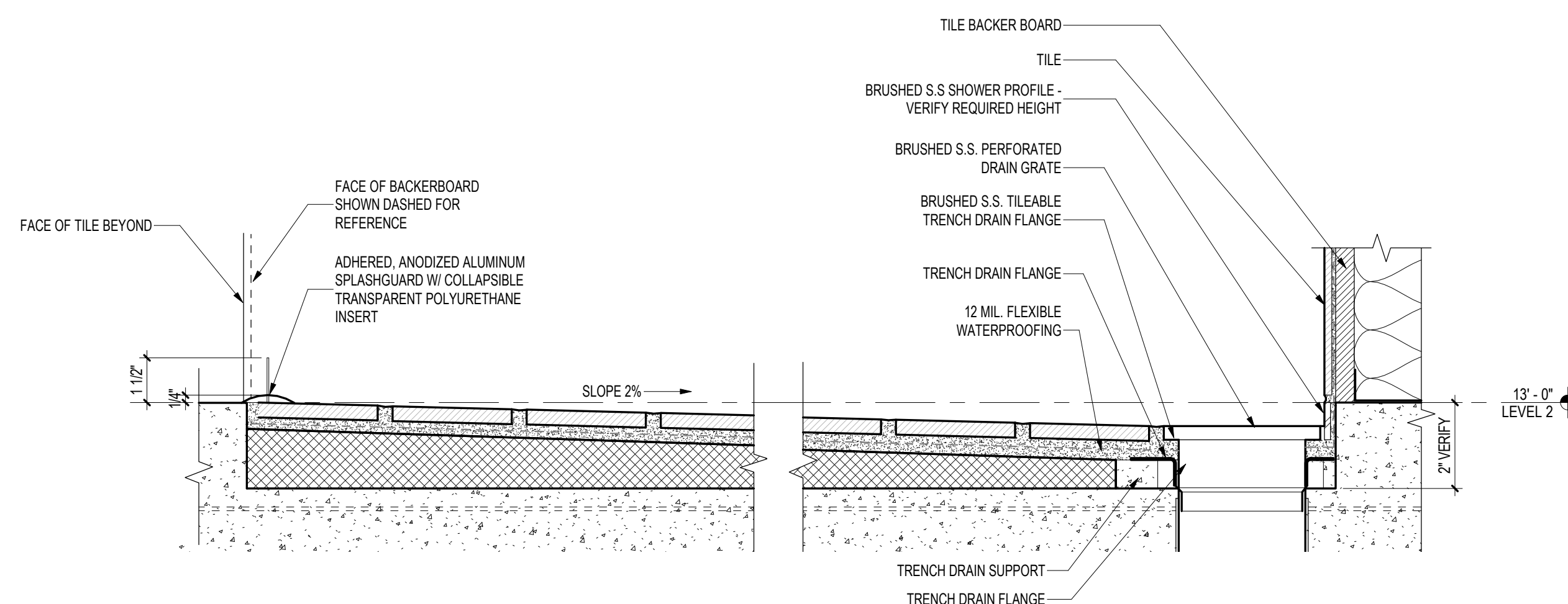


**1** **DETAIL**  
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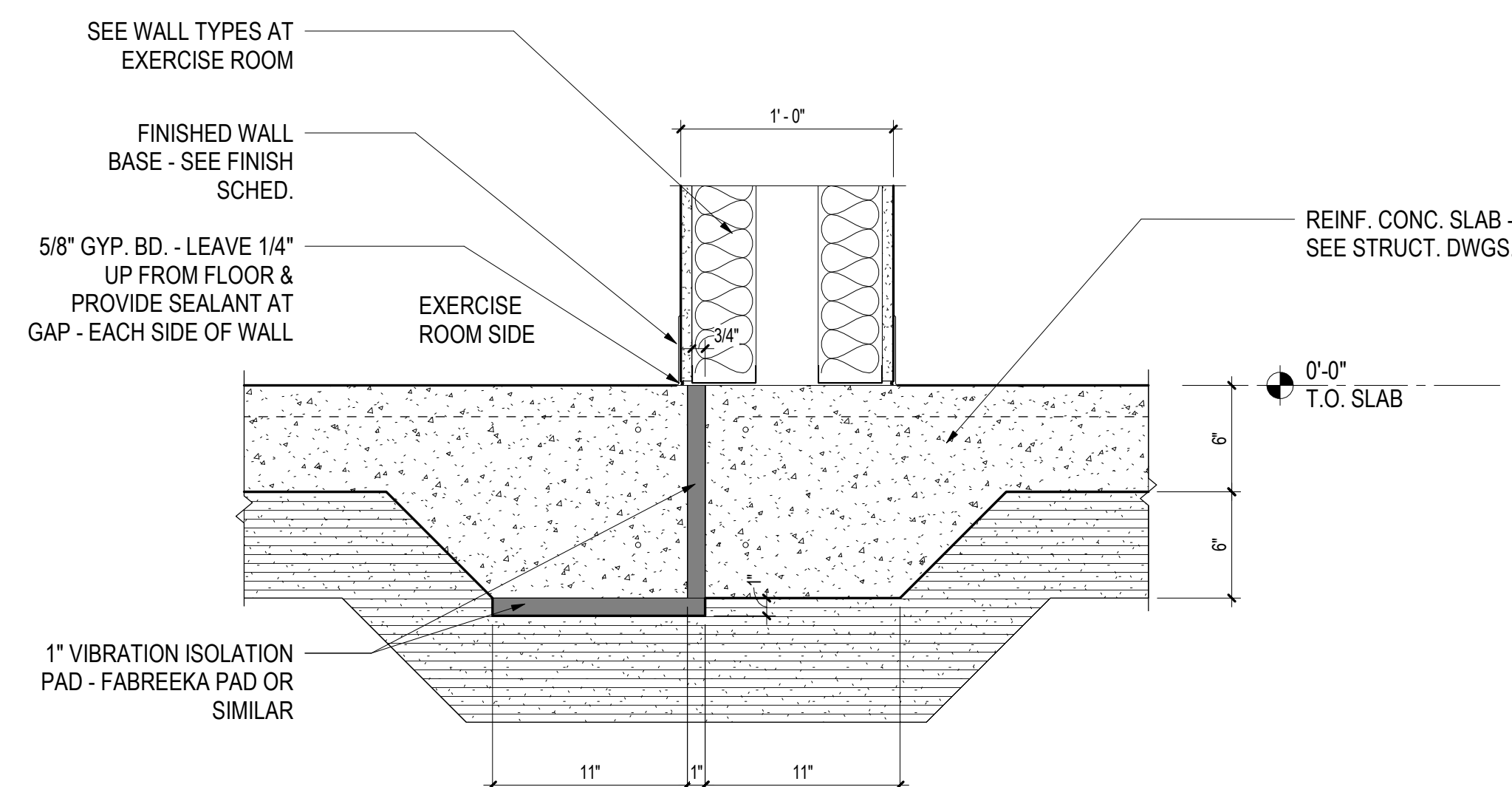




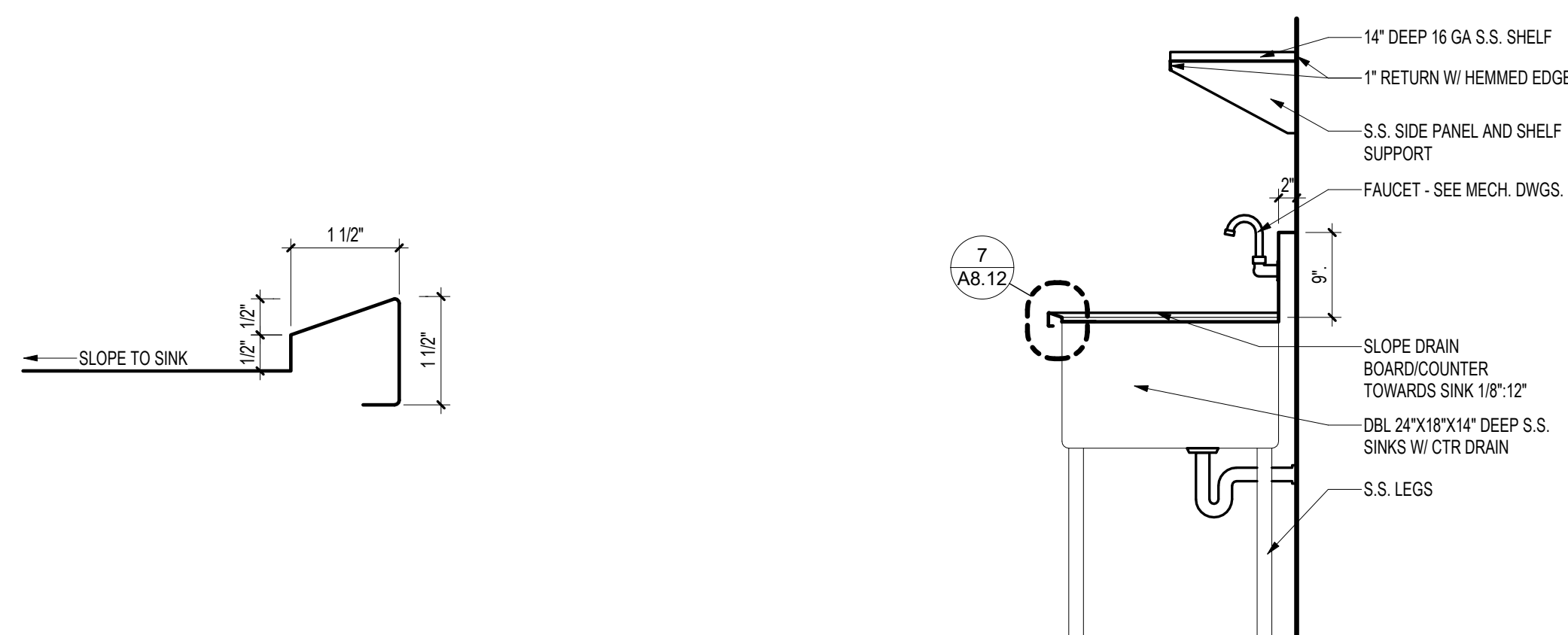




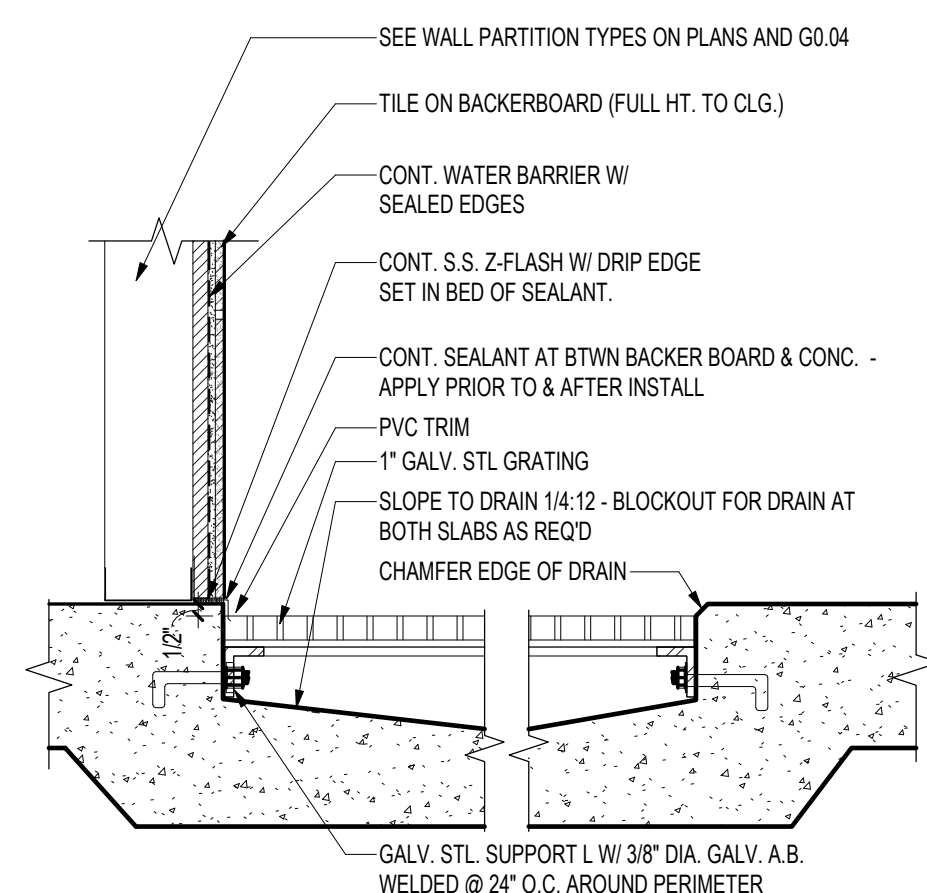
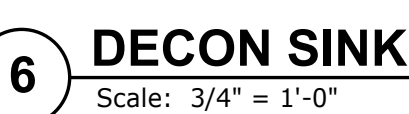
**10 SHOWER ENCLOSURE SECTION**  
Scale: 3" = 1'-0"



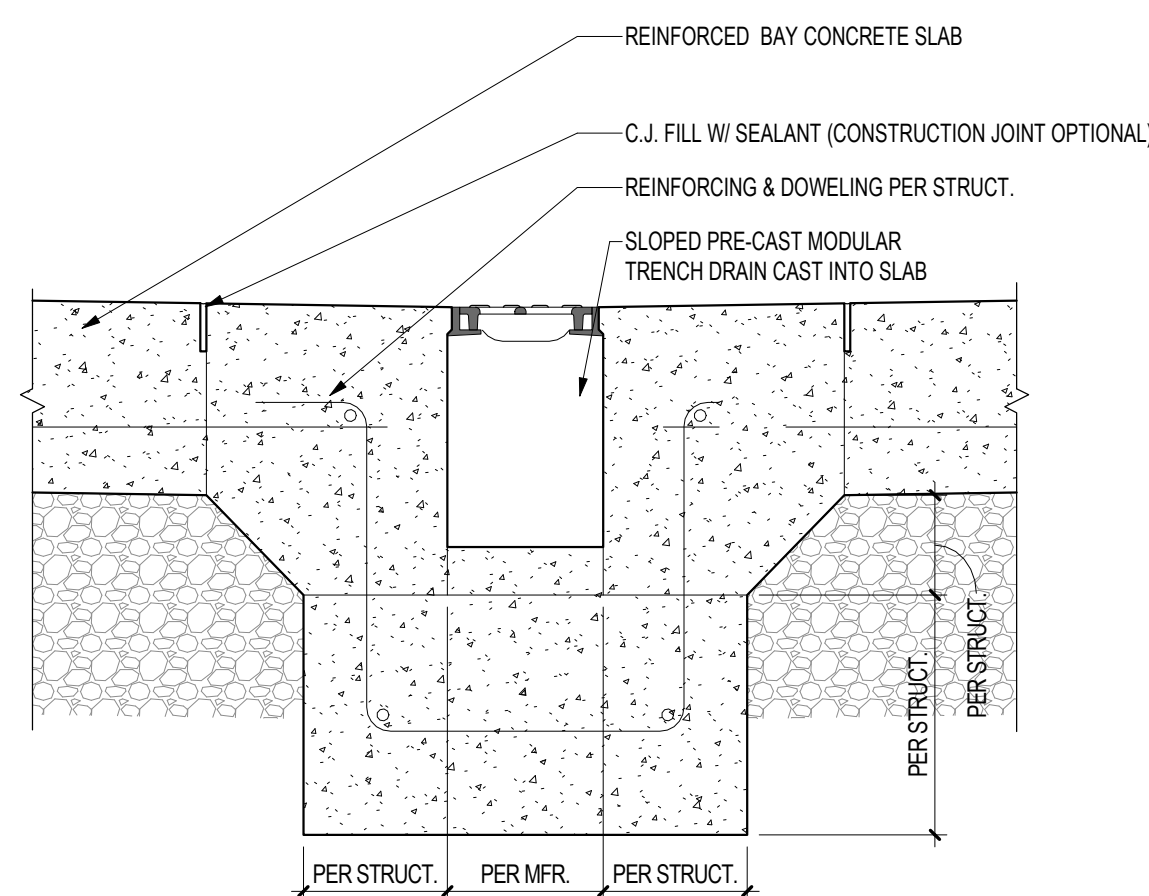
**9 ISOLATION JOINT**  
Scale: 1 1/2" = 1'-0"



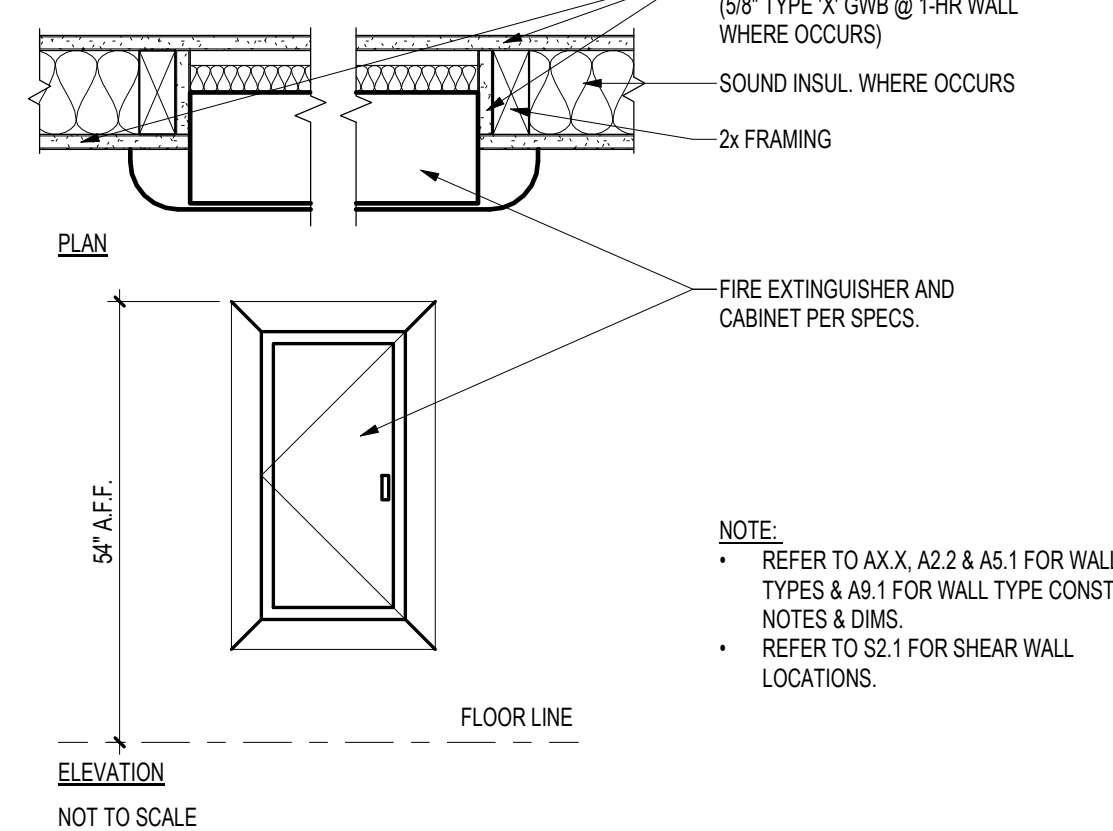
### 7 DECON SINK LIP PROFILE



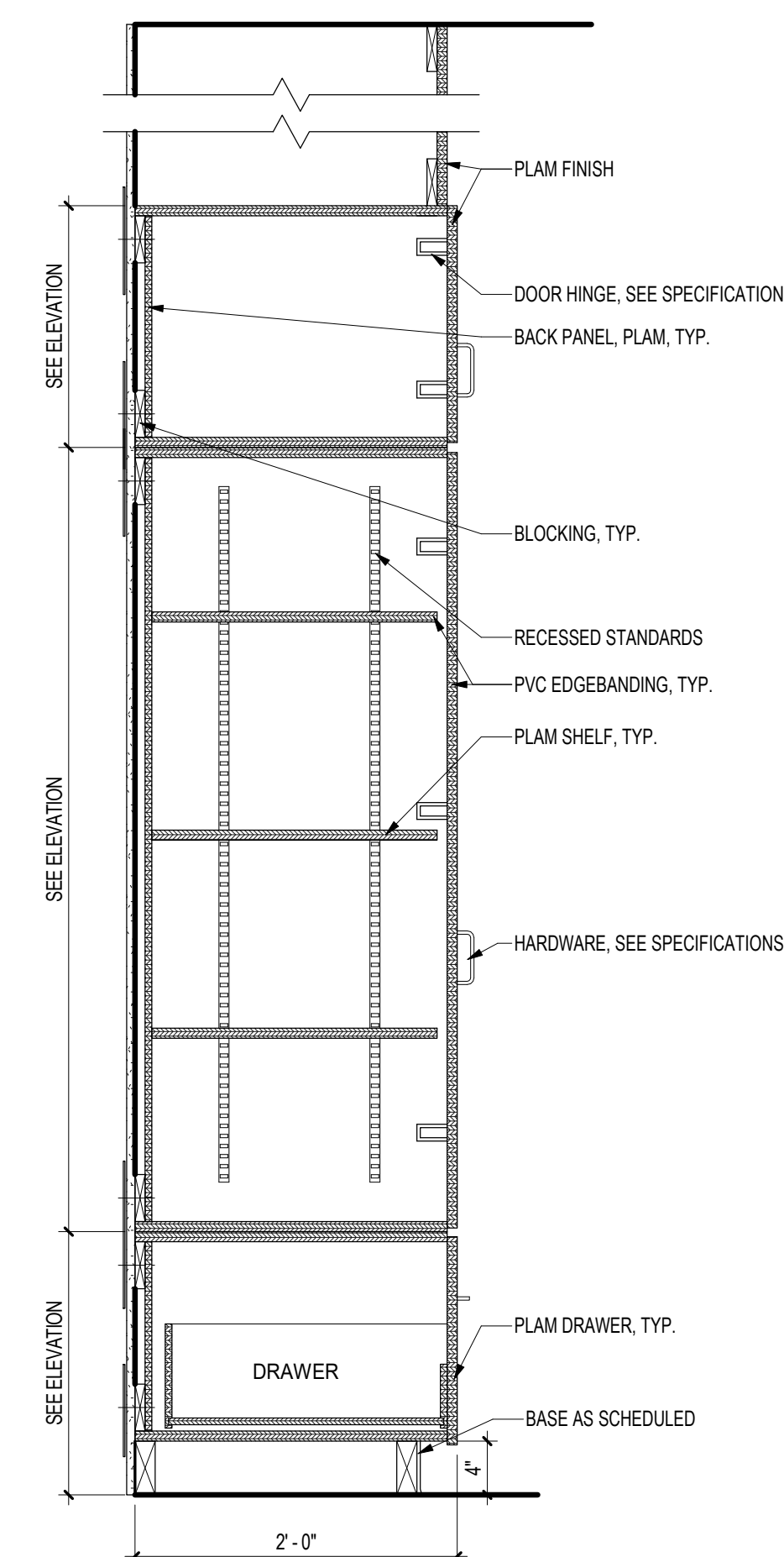
## 5 WASHOFF SINK SECTION



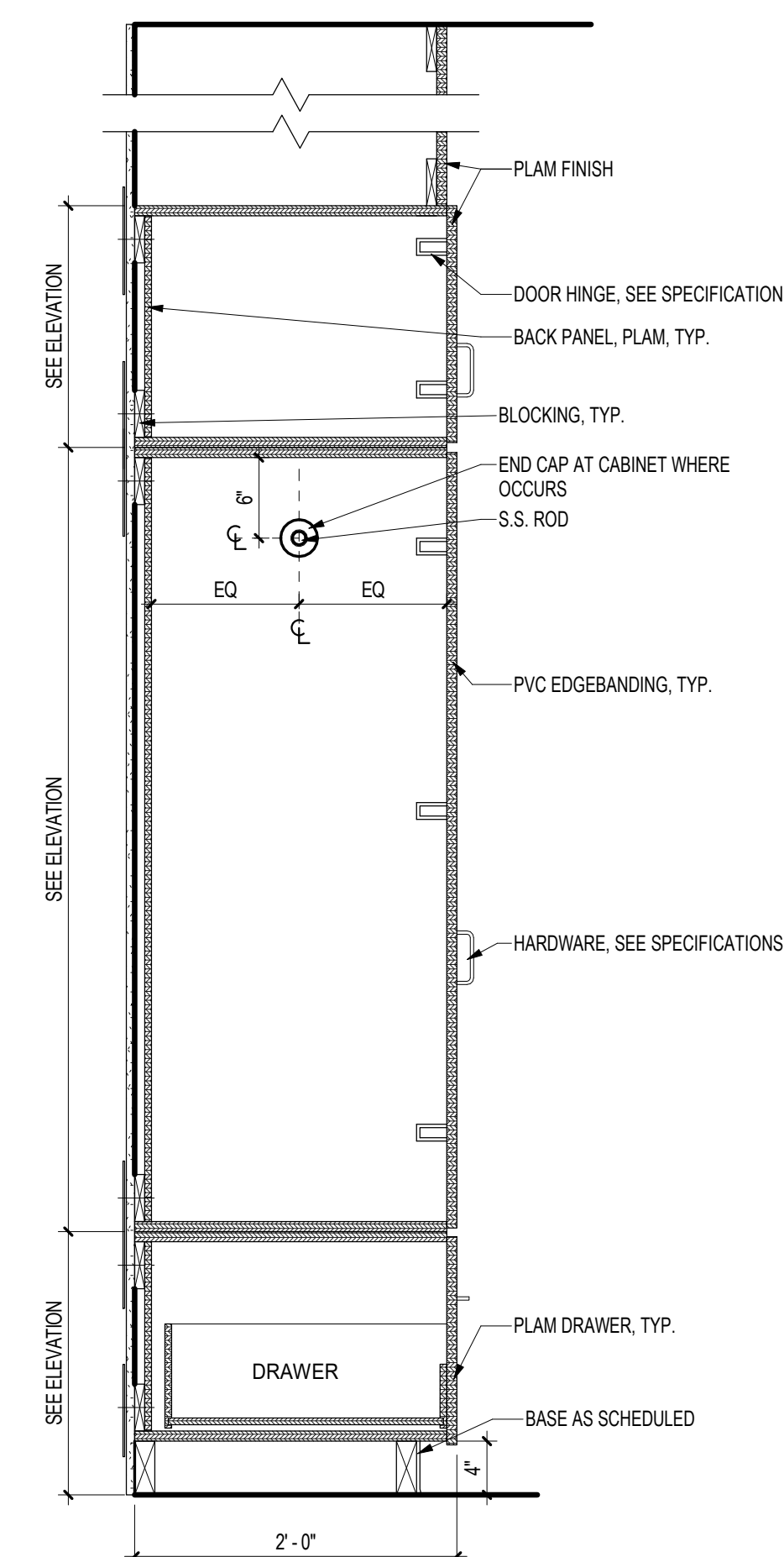
**4 TRENCH DRAIN** SEE STRUCT. DWGS. FOR THICKENED SLAB INFORMATION  
Scale: 1 1/2" = 1'-0"



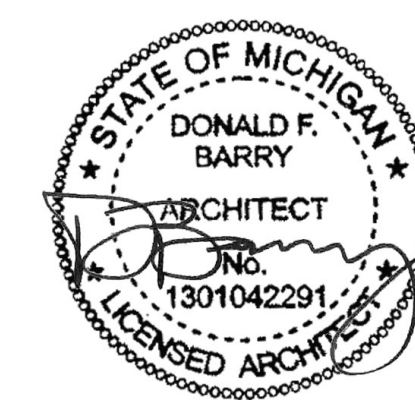
### 3 FIRE EXTINGUISHER CABINET



## 2 CASEWORK DETAIL



## 1 CASEWORK DETAIL



Project Number **21018**

<b>Issue</b>	<b>Date</b>

Bids/Permits	10/11/24
Bids/Permits	08/04/23
DAWD/KJ/FEA Checked: FEA	

City of Ann Arbor
NEW FIRE STATION 4
2415 S HURON PKWY  
ANN ARBOR, MI 48104

INTERIOR FINISH  
DETAILS

A	3
	C

115 1/2 E. LIBERTY STREET  
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COLLABORATIVE ARCHITECTURE

Shee

A8.12



GENERAL NOTES

- ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS, INCLUDING THE XXX BUILDING CODE. ALL GOVERNING STANDARDS LISTED IN THESE NOTES SHALL BE THE EDITION REFERENCED IN THIS GOVERNING CODE.
- CONTRACTOR SHALL PROVIDE TEMPORARY SHORING, BRACING, AND SHEETING AND SHALL MAKE SAFE ALL FLOORS, ROOFS, WALLS, AND ADJACENT PROPERTY AS PROJECT CONDITIONS REQUIRE. SHORING AND SHEETING SHALL BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE PROJECT JURISDICTION, HIRED BY THE CONTRACTOR, WHO SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR THE OWNER'S REVIEW.
- THE CONTRACT DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. THESE NOTES HIGHLIGHT RATHER THAN REPLACE THE SPECIFICATIONS CONTAINED IN THE PROJECT MANUAL.

FOUNDATIONS

- BUILDING FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL HAVING A MINIMUM BEARING CAPACITY OF 3,000 AS SPECIFIED BY THE GEOTECHNICAL CONSULTANT, PEA GROUP, PROJECT NO. 2022-0184. ADEQUACY OF BEARING STRATUM SHALL BE VERIFIED IN FIELD PRIOR TO PLACING CONCRETE. ALL NECESSARY ADJUSTMENTS TO THE BOTTOM OF FOOTINGS TO BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
- DO NOT PLACE BACKFILL AGAINST BASEMENT WALLS UNTIL ALL FLOORS BRACING THESE WALLS ARE IN PLACE AND HAVE ATTAINED THEIR 28-DAY STRENGTH.
- ALL EXTERIOR FOOTINGS SHALL BE PLACED A MINIMUM OF 3' - 6" BELOW FINAL GRADE.
- CONCRETE SHALL BE POURED IN DRY EXCAVATIONS. CONTRACTOR SHALL NOTE SOIL AND WATER CONDITIONS AS SHOWN BY BORINGS INCLUDED IN THE REFERENCED GEOTECHNICAL SUBSURFACE INVESTIGATION REPORT(S) AND DEPTHS OF FOOTING AS SHOWN ON FOUNDATION PLANS.

CONCRETE

- ALL CONCRETE WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:
  - AMERICAN CONCRETE INSTITUTE (ACI) "BUILDING CODE REQUIREMENTS FOR CONCRETE" (ACI 318)
  - ACI COLLECTION, LATEST EDITION
  - CONCRETE REINFORCING STEEL INSTITUTE (CRSI) "MANUAL OF STANDARD PRACTICE"
- ALL CONCRETE COMPOSITE ON METAL DECK SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- ALL OTHER CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 OR A775 EPOXY COATED WHEN CALLED OUT ON PLAN. REINFORCING STEEL SHALL BE DETAILED ACCORDING TO THE ACI "DETAILS AND DETAILING OF REINFORCEMENT" (ACI 315).
- REINFORCING STEEL TO BE WELDED TO CONFORM TO ASTM A706 GRADE 60.
- WELDED WIRE REINFORCEMENT (W.W.R.) SHALL CONFORM TO ASTM A1064, WITH A MINIMUM YIELD STRENGTH OF 65,000 PSI.
- COORDINATE SIZE AND LOCATION OF ALL OPENINGS AND PIPE SLEEVES WITH ALL OTHER DISCIPLINES. MINIMUM CONCRETE BETWEEN SLEEVES SHALL BE 6".
- ALL GROUT SHALL BE NONSHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI.
- MINIMUM CONCRETE COVER FOR REINFORCING STEEL IN CAST-IN-PLACE NON-PRESTRESSED MEMBERS SHALL BE AS FOLLOWS:
  - ALL CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND: 3"
  - ALL CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    - 2" (#6 THROUGH #18 BARS)
    - 1-1/2" (#5 BAR, W31 OR D31 WIRE, AND SMALLER)
  - NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
    - SLABS, JOISTS, AND WALLS:
      - 1-1/2" (#14 THROUGH #18 BARS)
      - 3/4" (#11 BAR AND SMALLER)
    - BEAMS, COLUMNS, PEDESTALS, AND TENSION TIES (STIRRUPS, TIES, SPIRALS, HOOPS, AND PRIMARY REINFORCEMENT): 1-1/2"
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. NO CONCRETE WORK SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.
- CLEAN AND ROUGHEN TO 1/4" AMPLITUDE ALL EXISTING CONCRETE SURFACES TO RECEIVE NEW CONCRETE PRIOR TO PLACEMENT.
- SEE OTHER DRAWINGS IN THIS PROJECT FOR SIZE AND LOCATIONS OF EQUIPMENT PADS, INSERT AND EMBED ITEMS.
- REINFORCING DOWELS, WATER STOPS, AND OTHER EMBED ITEMS SHALL BE INSTALLED AND SECURED PRIOR TO CONCRETE PLACEMENT. "WET-SETTING" OF EMBEDDED ITEMS IS NOT PERMITTED.
- CONDUIT EMBEDDED IN CONCRETE SHALL FOLLOW THE GUIDELINES IN THE TYPICAL DETAILS. THE CONTRACTOR SHALL NOT VIOLATE THESE GUIDELINES WITHOUT WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.

STRUCTURAL STEEL

- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE FOLLOWING GOVERNING STANDARDS:
  - AISC 360 "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS".
  - AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
  - AMERICAN WELDING SOCIETY (AWS D1.1) "STRUCTURAL WELDING CODE - STEEL".
  - RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC) "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS".
- ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
  - WIDE FLANGE BEAMS, COLUMNS, AND STRUCTURAL TEES: ASTM A992.
  - HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE C.
  - STRUCTURAL PIPE SECTIONS: ASTM A53, GRADE B.
  - CHANNELS AND ANGLES: ASTM A36 UNLESS OTHERWISE NOTED.
  - STRUCTURAL STEEL PLATE SHALL BE ASTM A572 GRADE 50 HAVING A MINIMUM YIELD POINT OF 50,000 PSI, GRADE 42 HAVING A MINIMUM YIELD POINT OF 42,000 PSI FOR THICKNESS GREATER THAN 4".
  - BOLTED CONNECTIONS SHALL BE PER ASTM F3125. GRADES ARE TO BE SELECTED AS FOLLOWS:
    - STANDARD BEAM TO BEAM/GIRDER: ASTM F3125, GRADES A325, F1852, A490 OR F2280 BOLTS IN SNUG-TIGHTENED JOINTS (3/4" DIAMETER MINIMUM WITH HARDENED WASHERS).
    - BEAM/GIRDER TO COLUMN CONNECTIONS, COLUMN SPLICES AND BOLTS EXPERIENCING TENSION LOADS (UNLESS OVERSIZED OR SLOTTED HOLES ARE USED, IN WHICH CASE SLIP-CRITICAL JOINTS SHALL BE USED): ASTM F3125, GRADES A325, F1852, A490 OR F2280 BOLTS IN PRETENSIONED JOINTS (3/4" DIAMETER MINIMUM WITH HARDENED WASHERS).
    - MOMENT CONNECTIONS AND BRACED FRAME CONNECTIONS: ASTM F3125, GRADES A325, F1852, A490 OR F2280 BOLTS IN SLIP CRITICAL JOINTS (3/4" DIAMETER MINIMUM WITH HARDENED WASHERS). FAYING SURFACES SHALL BE CLASS A UNLESS OTHERWISE NOTED.
  - ANCHOR RODS: ASTM F1554, GRADE 36.
  - STRUCTURAL STEEL NOTED TO BE STAINLESS STEEL SHALL BE ASTM A276 STAINLESS STEEL TYPE 316L [304L], UNLESS NOTED OTHERWISE.
- ALL STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM F593 GRADE B8/B8M FOR TYPE 304/316, RESPECTIVELY, TO MATCH MATERIAL JOINED.
- ALL STAINLESS STEEL NUTS SHALL CONFORM TO ASTM F594 GRADE 8/8M FOR TYPE 304/316, RESPECTIVELY, TO MATCH BOLT MATERIAL.
- STEEL CONNECTION SHALL BE STANDARD AISC FRAMED BEAM CONNECTIONS, AND SHALL BE
  - DESIGNED BY A LICENSED ENGINEER WORKING FOR THE FABRICATOR, WHO SHALL PROVIDE CALCULATIONS.
  - UTILIZING LRFD LOADS AND PROCEDURES.
  - UNLESS OTHERWISE NOTED ON PLAN, PROVIDE CONNECTIONS BASED ON MINIMUM SHEAR CAPACITY REQUIREMENTS IN THE FOLLOWING TABLE WHICH ARE BASED ON AISC SINGLE SHEAR TAB CONNECTIONS.

MINIMUM SHEAR CAPACITY REQUIREMENTS			
BEAM DEPTH (NOMINAL)	MIN. SHEAR CAPACITY LRFD (Kips)	MIN. NUMBER OF BOLT ROWS	
8", 10"	24	2	
12", 14"	42	3	
16"	62	3	
18"	78	4	
21"	88	4	
24"	90	5	
27"	108	6	
30"	126	7	
33"	142	7	
36"	155	8	
40"+	165	9	

- REINFORCING IS TO BE PROVIDED AT CONNECTIONS WHERE CUTS REDUCE THE SHEAR OR MOMENT CAPACITY BELOW THAT REQUIRED TO SUSTAIN THE REACTION. FLANGES AND WEBS ARE TO BE REINFORCED WHERE THE LOCAL CAPACITY TO SUSTAIN CONNECTION LOADS ARE INADEQUATE. CUTS OR COPES MAY PREVENT MINIMUM NUMBER OF BOLT ROWS SHOWN ABOVE FROM BEING ACHIEVED. WINDH IS ACCEPTABLE PENDING WRITTEN APPROVAL AND CONFIRMATION THAT MINIMUM SHEAR CAPACITY HAS BEEN MET.
- CONNECTIONS SHALL BE DESIGNED FOR SHEAR AND ECCENTRICITY, CONSIDERING THAT THE CONNECTIONS ARE AN EXTENSION OF THE BEAMS AND GIRDERS.
- MINIMUM WELD SIZE IS 1/4" FILLET UNLESS NOTED OTHERWISE.
- ALL BEAMS EXCEPT CANTILEVER BEAMS SHALL BE FABRICATED AND INSTALLED WITH NATURAL CAMBER UP. CANTILEVER BEAMS SHALL BE FABRICATED AND INSTALLED SO THAT NATURAL CAMBER RAISES CANTILEVER END.
- FIELD CUTTING OR BURNING OF STEEL IS PROHIBITED EXCEPT WITH THE EXPRESS WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. (IN WHICH CASE ALL BURNING OF STEEL MUST CONFORM TO THE THERMAL CUTTING REQUIREMENTS OF AISC AND AWS)
- WELDING SHALL BE PERFORMED BY CERTIFIED, AWS-QUALIFIED WELDERS. WELDING ELECTRODES FOR CARBON STEEL SHALL BE AWS E1. CLASS E70XX. FOR ASTM A572 GRADE 50 KSI PLATE USE ELECTRODE E7018 OR APPROVED EQUAL (OR ELECTRODES THAT MEET THE REQUIREMENT OF \_\_\_\_). WELDING ELECTRODES FOR ASTM A276 STAINLESS STEEL, TYPE 304, SHALL CONFORM TO AWS A5.4 FOR SHIELDED METAL ARC WELDING, ELECTRODE CLASS E308. OR AWS A5.9 FOR GAS METAL ARC WELDING, ELECTRODE CLASS ER308. WELDING ELECTRODES FOR ASTM A276 TYPE 316L STAINLESS STEEL SHALL CONFORM TO AWS A5.4 FOR SHIELDED METAL ARC WELDING, ELECTRODE CLASS E316. OR AWS A5.9 FOR GAS METAL ARC WELDING, ELECTRODE CLASS ER316. WELDING ELECTRODES FOR JOINING STAINLESS STEEL TO CARBON STEEL SHALL CONFORM TO ELECTRODE CLASS E309/ER309.
- SHOP PAINT EXPOSED STEEL MEMBERS, STEEL MEMBERS NOT ENCASED IN CONCRETE OR SPRAY FIREPROOFED, AND ALL STEEL MEMBERS AT THE EXTERIOR WALL WITH TNEMC V10-99 OR APPROVED EQUAL EXCEPT FOR MEMBERS TO BE HOT DIPPED GALVANIZED.
- ALL EXTERIOR EXPOSED STEEL AND STEEL SUPPORTING EXTERIOR SHALL BE HOT DIPPED GALVANIZED. HOT DIP GALVANIZING SHALL CONFORM TO ASTM A123. REPAIR SCRATCHES OR ABRADED GALVANIZED SURFACE WITH ZINC RICH PAINT.
- LINTELS SHALL BE INSTALLED OVER ALL OPENINGS IN MASONRY WALLS AS FOLLOWS:

MASONRY OPENING	LINTEL
4' - 0" OR LESS	L4x3-1/2x5/16 LLV
4' - 1" TO 7' - 0"	L6x3-1/2x5/16 LLV

- 3-1/2" LEGS ARE HORIZONTAL.
- PROVIDE ONE ANGLE FOR EACH 4" OF WALL THICKNESS.
- PROVIDE L5x5x5/16 ANGLES FOR 6" THICK WALLS AND PARTITIONS WITH OPENINGS UP TO 6' - 0".
- PROVIDE MINIMUM 6" BEARING AT EACH END.
- LINTELS OVER 6' - 4" SHALL BE FIREPROOFED.
- SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. NO FABRICATION OF STEEL SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.
- PROVIDE MECHANICALLY GALVANIZED BOLTS FOR EXTERIOR APPLICATIONS.

STEEL DECK

- STEEL DECKING WORK SHALL CONFORM TO THE AISI NORTH AMERICAN "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".
- STEEL DECKING UNITS AND ACCESSORY ITEMS SHALL BE FORMED FROM STEEL SHEETS CONFORMING TO ASTM A1008 OR A653 WITH A MINIMUM YIELD STRENGTH OF 50,000 PSI (33,000 PSI FOR STEEL ROOF DECKING UNITS). SEE DECK SCHEDULE FOR MORE INFORMATION. BEFORE FORMING, THE STEEL SHEET SHALL RECEIVE A HOT DIP GALVANIZED COATING CONFORMING TO ASTM A653, GRADE 90.
- STEEL DECKING SHALL BE SHORED AS REQUIRED BY PLANS OR BY SPAN AND LOAD CONDITIONS TO SUPPORT WET WEIGHT OF CONCRETE AND ALL CONSTRUCTION LOADS.
- THE SIDE LAPS OF ADJACENT UNITS SHALL BE FASTENED BY APPROVED METHOD (TO BE SHOWN ON SHOP DRAWINGS) BETWEEN SUPPORTS. AT INTERVALS TO PROVIDE SUFFICIENT DIAPHRAGM STRENGTH TO MAINTAIN BUILDING ALIGNMENT AND TO SUSTAIN LOCAL CONSTRUCTION LOADS WITHOUT DISTORTION OR SEPARATION, MAXIMUM SPACING SHALL BE 3'-0" BETWEEN SUPPORT BEAMS. END LAPS OF SHEETS SHALL BE A MINIMUM OF 2 INCHES.
- EXCEPT AS OTHERWISE NOTED, DECK SHALL BE ATTACHED TO STRUCTURAL STEEL BY 3/4"x0 FUSION WELDS @ 12" ON CENTER AT END AND INTERIOR SUPPORTS PERPENDICULAR TO THE DECK SPAN AND AT EDGE AND INTERIOR SUPPORTS PARALLEL TO THE DECK SPAN. WELDS MAY BE OMITTED IN RIBS IN WHICH SHEAR CONNECTORS ARE TO BE APPLIED, AS LONG AS MAXIMUM SPACING BETWEEN ATTACHMENTS DOES NOT EXCEED 18" ON CENTER, AND SUCH THAT EACH DECK SECTION SHALL HAVE SUFFICIENT WELDS TO ADEQUATELY SECURE THE DECK, BRING THE DECK INTO DIRECT CONTACT WITH THE SUPPORTING STEEL AND TO PROVIDE SUFFICIENT DIAPHRAGM STRENGTH TO MAINTAIN BUILDING ALIGNMENT.
- AS AN ALTERNATE TO PUDDLE WELDS FOR STEEL DECK ATTACHMENT TO STRUCTURAL STEEL, HILTI X-HSN-24 OR X-ENP-19 POWDER ACTUATED FASTENERS, OR AN APPROVED EQUAL, WITH EQUIVALENT OR GREATER CAPACITY TO THE SPECIFIED ATTACHMENT MAY BE USED. PRIOR TO INSTALLATION, THE CONTRACTOR SHALL SUBMIT ALTERNATE FASTENING PATTERN TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. SUBMITTAL SHALL INCLUDE PROPOSED ALTERNATE PATTERN AND ANY CALCULATIONS OR SUPPORTING MANUFACTURER DATA NEEDED TO DEMONSTRATE THAT THE PATTERN MEETS OR EXCEEDS THE CAPACITY OF THE SPECIFIED ATTACHMENT.
- POWDER ACTUATED FASTENERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL BE CERTIFIED AND TRAINED BY THE MANUFACTURER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- PRIOR TO FABRICATION, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE STEEL DECKING SHOWING DECK GAUGE, SIZE, AND LAYOUT AS WELL AS CLOSURE CONDITIONS, WELDS TO SUPPORTS AND SIDE LAP DETAILS.
- ALL REINFORCED OPENINGS IN STEEL DECK SHALL BE INSTALLED BY STEEL DECK SUBCONTRACTOR. STEEL DECK SUBCONTRACTOR TO PROVIDE REINFORCING AS PER TYPICAL DETAILS.
- AT STEEL DECK WITHOUT CONCRETE FILL, THE FOLLOWING MAY BE ATTACHED WITHOUT SPECIFIC APPROVAL OF THE STRUCTURAL ENGINEER: ACOUSTICAL TILE AND GYPSUM BOARD CEILING ONLY; NO PIPING, DUCTING OR CONDUIT. MAXIMUM CEILING WEIGHT = 3.5 PSF. MAXIMUM WIRE HANGER LOAD = 60 LBS.
- WHERE SUSPENSION OF HANGER WIRES ARE REQUIRED BY OTHERS, VERIFY AND COORDINATE LOCATIONS, PATTERNS, SPACING, ETC. WITH THE APPROPRIATE TRADE. DRILL OR PUNCH HOLES AT BOTTOM OF DECK FLUTES OF SUFFICIENT SIZE TO PASS SUPPORT WIRES. WIRE SUPPORTS SHALL BE LOOPED AND SECURED WITH A MINIMUM OF THREE (3) TIGHT TURNS AROUND A MINIMUM 1-1/2" x 12" LONG FURRING CHANNEL OR NO. 3x12" LONG REINFORCING BAR CENTERED ABOVE THE HOLE AND LAID IN THE DECK FLUTES.

COLD FORMED METAL FRAMING

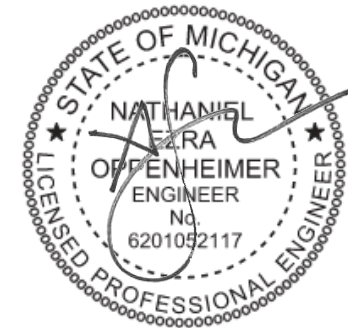
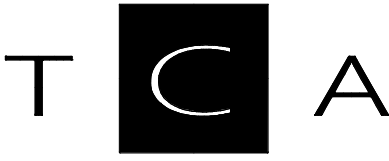
- ALL COLD FORMED METAL FRAMING WORK SHALL COMPLY WITH THE AISI NORTH AMERICAN "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", AS WELL AS ANSI A42.4 "SPECIFICATIONS FOR INTERIOR LATHING AND FURRING".
- ALL SHEATHING APPLIED TO METAL JOISTS SHALL BE SCREWED AND GLUED TO THE JOISTS. PROVIDE HILTI S-VW 12-24x2-1/2 PFH #4 WINGS @ 12" O.C. CONNECT TO PERIMETER SUPPORTS PARALLEL TO DECK WITH HILTI S-VW 12-24x2-1/2 PFH #4 WINGS @ 12" O.C. THE ADHESIVE SHALL BE AN APA APPROVED ELASTOMERIC ADHESIVE.
- INSTALL METAL FRAMING IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS, UNLESS OTHERWISE INDICATED. ALL MATERIALS SHALL BE GALVANIZED.
- ALL LOAD BEARING STUDS, JOISTS, AND ACCESSORIES SHALL BE MADE OF THE MINIMUM TYPE, SIZE, GAUGE, AND SPACING SHOWN ON DRAWINGS AND PROVEN IN THE CALCULATIONS.
- SUBMIT SIGNED AND SEALED SHOP DRAWINGS AND CALCULATIONS FOR ALL LOAD BEARING COLD FORMED METAL FRAMING (JOISTS, STUDS, ETC.) PRIOR TO FABRICATION. SHOP DRAWINGS SHALL INDICATE PLACING OF ALL FRAMING MEMBERS SHOWING TYPE, SIZE, GAGE, NUMBER, LOCATION AND SPACING. THEY SHALL ALSO INDICATE SUPPLEMENTAL STRAPPING, BRACING, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION. SEE SPECIFICATIONS, LOADING DIAGRAMS AND SCHEDULE FOR STRUCTURAL PERFORMANCE CRITERIA.
- SHOP DRAWINGS SHALL SHOW SIZE AND LENGTH OF WELDS FOR ALL WELDED CONNECTIONS AND TYPE, SIZE AND NUMBER OF SCREWS FOR ALL SCREWED CONNECTIONS. SUBMIT MANUFACTURER DATA GIVING STRENGTH VALUES FOR ALL FASTENERS USED. WELDED CONNECTIONS SHALL BE WIRE BRUSHED AND COATED WITH A ZINC RICH PAINT.
- ALL GALVANIZED STUDS AND/OR JOISTS, 10, 12, 14 AND 16 GAGE, SHALL BE FORMED FROM STEEL THAT CORRESPONDS TO THE REQUIREMENTS OF ASTM A446, WITH A MINIMUM YIELD OF 50,000 PSI.
- ALL GALVANIZED 18 AND 20 GAGE STUDS AND/OR JOISTS, AND ALL GALVANIZED TRACK, BRIDGING AND ACCESSORIES SHALL BE FORMED FROM STEEL THAT CORRESPONDS TO THE REQUIREMENTS OF ASTM A653, WITH A MINIMUM YIELD OF 33,000 PSI.
- ALL STUDS, JOIST AND ACCESSORIES SHALL BE PRIMED WITH RUST - INHIBITIVE PAINT MEETING THE PERFORMANCE REQUIREMENTS OF TT-P-636C, OR SHALL BE FORMED FROM STEEL HAVING A G-60 GALVANIZED COATING.
- FRAMING COMPONENTS MAY BE PRE-ASSEMBLED INTO PANELS PRIOR TO ERECTING. PREFABRICATED PANELS SHALL BE SQUARE WITH COMPONENTS ATTACHED IN A MANNER AS TO PREVENT RACKING.
- AXIALLY LOADED STUDS SHALL BE INSTALLED IN A MANNER WHICH WILL ASSURE THE ENDS OF THE STUDS ARE POSITIONED AGAINST THE INSIDE TRACK WEB, PRIOR TO STUD AND TRACK ATTACHMENT.
- STUDS SHALL BE PLUMBED, ALIGNED AND SECURELY ATTACHED TO THE FLANGES OR WEBS OF BOTH UPPER AND LOWER TRACKS.
- WALL STUD BRIDGING SHALL BE ATTACHED IN A MANNER TO PREVENT STUD ROTATION. BRIDGING ROWS SHALL BE SPACED ACCORDING TO THE FOLLOWING SCHEDULE. WALLS UP TO 10'-0" HEIGHT: ONE ROW AT MID-HEIGHT. WALLS EXCEEDING 10'-0" HEIGHT: BRIDGING ROWS SPACED NOT TO EXCEED 5'-0" ON-CENTER.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL TEMPORARY BRACING AND SHORING AS REQUIRED UNTIL ERECTION IS COMPLETED AND ALL ADJACENT ADJACENT FRAMING IS COMPLETE.
- SPLICES IN AXIALLY LOADED STUDS ARE NOT PERMITTED.
- JOISTS SHALL BE LOCATED DIRECTLY OVER BEARING STUDS OR LOAD DISTRIBUTION MEMBER TO BE PROVIDED AT THE TOP TRACK.

POST-INSTALLED ADHESIVE AND MECHANICAL ANCHORS

- POST INSTALLED ANCHORAGE SHALL BE INSTALLED BY QUALIFIED PERSONNEL PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AS INCLUDED IN THE ANCHOR PACKAGING, TO INTACT BASE MATERIAL. INSTALLATION OF ANCHORS SHALL BE CARRIED OUT BY AN INSTALLER TRAINED TO INSTALL THE SPECIFIED ANCHORS. NOTIFY ENGINEER OF RECORD PRIOR TO INSTALLATION IF BASE MATERIAL CONDITION DEVIATES FROM STRUCTURAL DRAWINGS OR ASSUMPTIONS AND CONDITIONS OF THE MPII. ALL HOLES SHALL BE DRY AND HAMMER DRILLED UNLESS OTHERWISE NOTED, AND ALL CONCRETE BASE MATERIAL TO RECEIVE ADHESIVE ANCHORS SHALL HAVE A MINIMUM AGE OF 21 DAYS.
- INSTALLATION OF ADHESIVE ANCHORS IN A HORIZONTAL OR UPWARDLY INCLINED ORIENTATION AND SUPPORTING A SUSTAINED TENSION LOAD SHALL BE PERFORMED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER. CERTIFICATION SHALL INCLUDE WRITTEN AND PERFORMANCE TESTS IN ACCORDANCE WITH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR APPROVED EQUAL. PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS PROVIDE OWNER AND ENGINEER OF RECORD WITH DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS SUPPORTING SUSTAINED TENSION LOADS ARE TRAINED AND CERTIFIED.
  - OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE PISTON PLUG SYSTEM SPECIFIED BY THE MPII AND PRODUCED BY THE CORRESPONDING MANUFACTURER FOR THE ANCHOR SYSTEM BEING INSTALLED.
- EXISTING REINFORCING BARS IN THE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. REINFORCING BARS SHALL NOT BE CUT WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD. UNLESS NOTED ON THE DRAWINGS THAT THE EXISTING REBARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS BY A MEANS APPROVED BY THE ENGINEER OF RECORD.
- ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS, PROXIMITY OF ANCHORS TO EDGE OF CONCRETE, AND EMBEDMENT DEPTH INTO THE SUBSTRATE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING, EDGE CLEARANCES, AND EMBEDMENT DEPTHS INDICATED ON THE DRAWINGS.
- UNLESS OTHERWISE INDICATED, POST INSTALLED ANCHORAGE SHALL BE ADHESIVE TYPE HILTI HIT-HY 200-R INTO CONCRETE OR HILTI HIT-HY 270 INTO BRICK MASONRY, GROUT FILLED CMU OR UNGROUTED CMU BASE MATERIAL. PROVIDE MESH SCREEN IN UNGROUTED CMU, UNREINFORCED MASONRY CONSTRUCTION, AND BRICK MASONRY WITH HOLES OR VOIDS.
- SUBSTITUTION REQUESTS FOR ALTERNATE ANCHORAGE PRODUCTS SHALL BE SUBMITTED TO ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO USE. THIS SHALL INCLUDE MANUFACTURER PRODUCT DATA AND CALCULATIONS DEMONSTRATING THAT THE PROPOSED SUBSTITUTE CAN ACHIEVE THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. ANCHOR CAPACITY USED IN DESIGN SHALL BE BASED ON THE TECHNICAL DATA PUBLISHED BY THE MANUFACTURER OR SUCH OTHER METHOD AS APPROVED BY THE ENGINEER OF RECORD. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC-ES EVALUATION REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, AND AVAILABILITY OF MPII. ADHESIVE ANCHOR EVALUATION WILL ALSO CONSIDER CREEP, IN-SERVICE TEMPERATURE AND INSTALLATION TEMPERATURE AND MUST PROVIDE INFORMATION ON THESE ITEMS. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE ENGINEER OF RECORD PRIOR TO USE.

SPECIAL INSPECTIONS (IBC)

- INSPECTIONS REQUIRED BY THE LOCAL JURISDICTION SHALL BE PERFORMED BY A TESTING AGENCY PROVIDED BY THE OWNER FOR THE FOLLOWING ITEMS:
  - STEEL CONSTRUCTION (IBC 1705.2)
    - STRUCTURAL STEEL (IBC 1705.2.1)
      - STRUCTURAL STEEL WELDING (AISC 360, AWS D1.1)
      - HIGH STRENGTH BOLTS (AISC 360)
    - STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL
      - COLD-FORMED STEEL DECK (IBC 1705.2.2)
  - CONCRETE CONSTRUCTION (IBC 1705.3, TABLE 1705.3)
    - WELDING OF REINFORCING BARS (IBC 1705.3.1, TABLE 1705.3)
    - MATERIALS TESTS (IBC 1705.3.2, TABLE 1705.3)
    - POST-INSTALLED ANCHORS (IBC TABLE 1705.3, ACI 318 CHAPTER 17)
  - MASONRY CONSTRUCTION (IBC 1705.4, ACI 530 AND ACI 530.1 LEVEL B QUALITY ASSURANCE)
    - SOILS (IBC 1705.6, TABLE 1705.6)
    - FABRICATED ITEMS (IBC 1705.10)
  - SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE (IBC 1705.12)
    - STRUCTURAL STEEL (IBC 1705.12.1)
  - TESTING AND QUALIFICATION FOR SEISMIC RESISTANCE (IBC 1705.13)
- STRUCTURAL OBSERVATIONS REQUIRED BY THE LOCAL JURISDICTION AND IBC 1704.5 SHALL BE PERFORMED BY A REGISTERED DESIGN PROFESSIONAL PROVIDED BY THE OWNER. STRUCTURAL OBSERVATIONS SHALL BE THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
- TESTING AGENCY FOR THE INSPECTIONS SHALL FILE ALL APPROPRIATE FORMS WITH THE BUILDING DEPARTMENT.



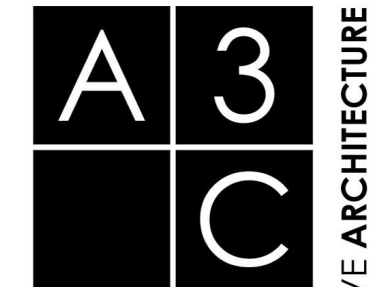
Project Number 21018

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24


Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

GENERAL  
STRUCTURAL NOTES



1115 1/2 E. LIBERTY STREET  
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COLLABORATIVE ARCHITECTURE

Sheet

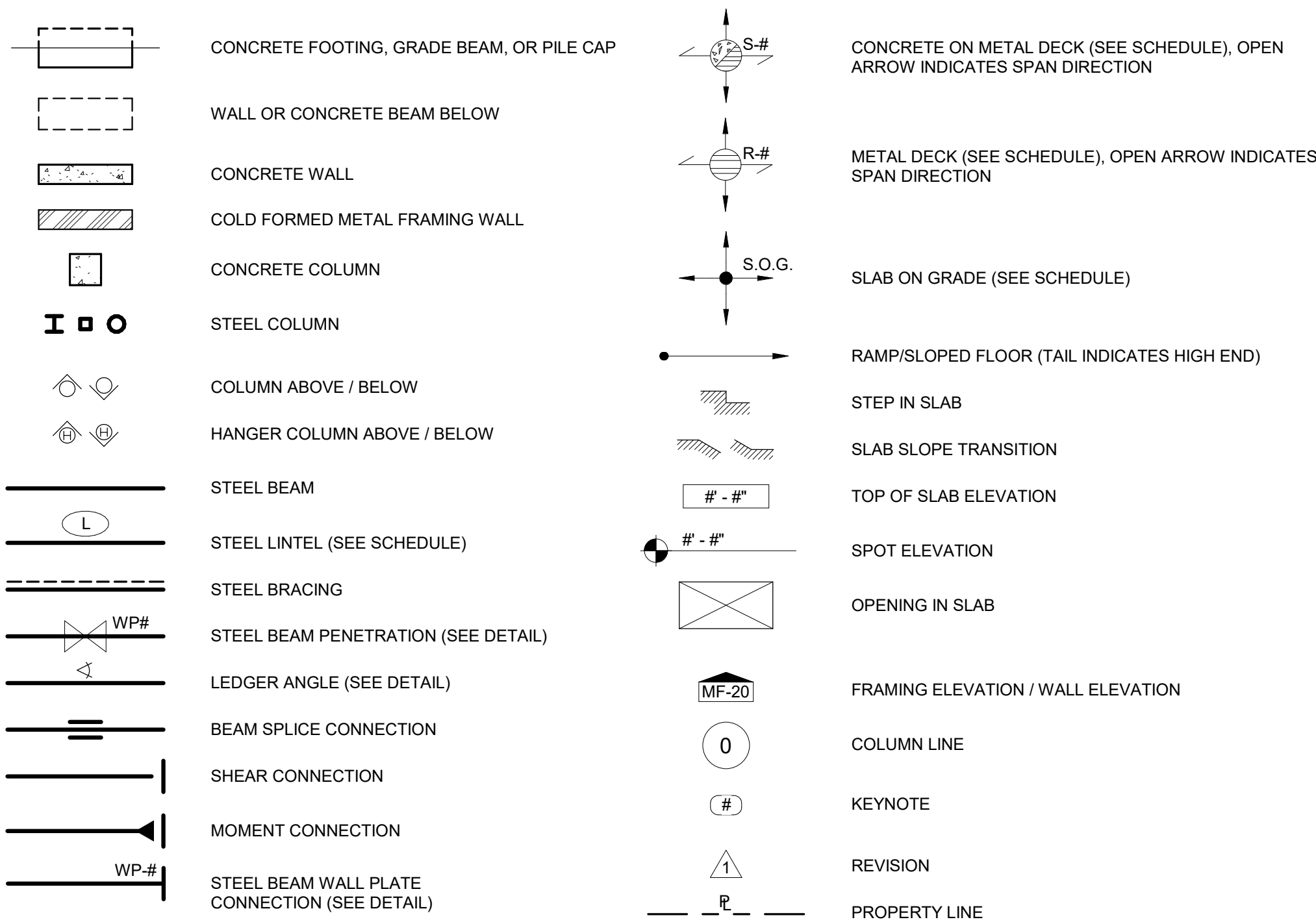
S0.01



STANDARD ABBREVIATIONS

ADD'L	ADJ.	A/E	ALT.	ANCH.	APPROX.	ARCH.	BLDG.	BM.	B.O.	BOT.	BRG.	CANT.	CFS	C.I.P.	C.J.	CLG.	CLR.	CMU	COL.	COMP.	CONC.	CONST.	CONT.	COORD.	CONTR.	CONTR.	CTR.	DBL.	DEMO	DIA.	DIA.G.	DIM.	D.L.	DN.	DTL.	DWG(S)	DWL.	EA.	E.F.	E.J.	EL.	ELEC.	ELEV.	EMBED.	E.O.				
	ADJACENT	DESIGN TEAM OF RECORD	ALTERNATE	ANCHOR	APPROXIMATE/APPROXIMATELY	ARCHITECT/ARCHITECTURAL	BUILDING	BEAM	BOTTOM OF	BOTTOM	BEARING	CANTILEVER	COLD FORMED STEEL	CAST IN PLACE	CONTRACTION JOINT	CEILING	CLEAR	CONCRETE MASONRY UNIT	COLUMN	COMPOSITE	CONCRETE	CONSTRUCTION	CONTINUOUS	COORDINATE/COORDINATION	CONTRACTOR	CONTRACT OFFICER'S	TECHNICAL REPRESENTATIVE	CENTER	DOUBLE	DEMOLITION/DEMOLISH	DIAMETER	DIAGONAL	DIMENSION	DEAD LOAD	DOWN	DETAIL	DRAWING(S)	DOWEL	EACH	EACH FACE	EXPANSION JOINT	ELEVATION	ELECTRICAL	ELEVATOR	EMBEDMENT	EDGE OF			
	ENGR.	E.O.R.	EQ.	E.S.	E.W.	EXP.	EXT.	FDN.	FIN.	FLR.	FRMG.	F.S.	FT.	FTG.	GAGE	GALV.	G.B.	HDR.	HGR.	HORIZ.	H.P.	HT.	HVAC	I.D.	I.F.	I.J.	INFO	INT.	JT.	K	LB.	L.L.	LLBB	LLH	LLV	L.P.	L.W.	L.W.	MAS.	MAX.	MECH.	MEP	MFR.	MIN.	MISC.	M.O.	MPII	N.F.	N.I.C.
	ENGINEER	ENGINEER OF RECORD	EQUAL	EACH SIDE	EACH WAY	EXPANSION	EXTERIOR	FOUNDATION	FINISH	FLOOR	FRAMING	FAR SIDE	FEET	FOOTING	GAGE	GALVANIZED	GRADE BEAM	HEADER	HANGER	HORIZONTAL	HIGH POINT	HEIGHT	HEATING, VENTILATION, & AIR CONDITIONING	INSIDE DIAMETER	INSIDE FACE	ISOLATION JOINT	INFORMATION	INTERIOR	JOINT	KIP	POUND	LIVE LOAD	LONG LEGS BACK-TO-BACK	LONG LEG HORIZONTAL	LONG LEG VERTICAL	LOW POINT	LIGHTWEIGHT	LONG WAY	MASONRY	MAXIMUM	MECHANICAL	MECH., ELECT., PLUMBING, & FIRE PROTECTION	MANUFACTURER	MINIMUM	MISCELLANEOUS	MASONRY OPENING	MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS	NEAR FACE	NOT IN CONTRACT

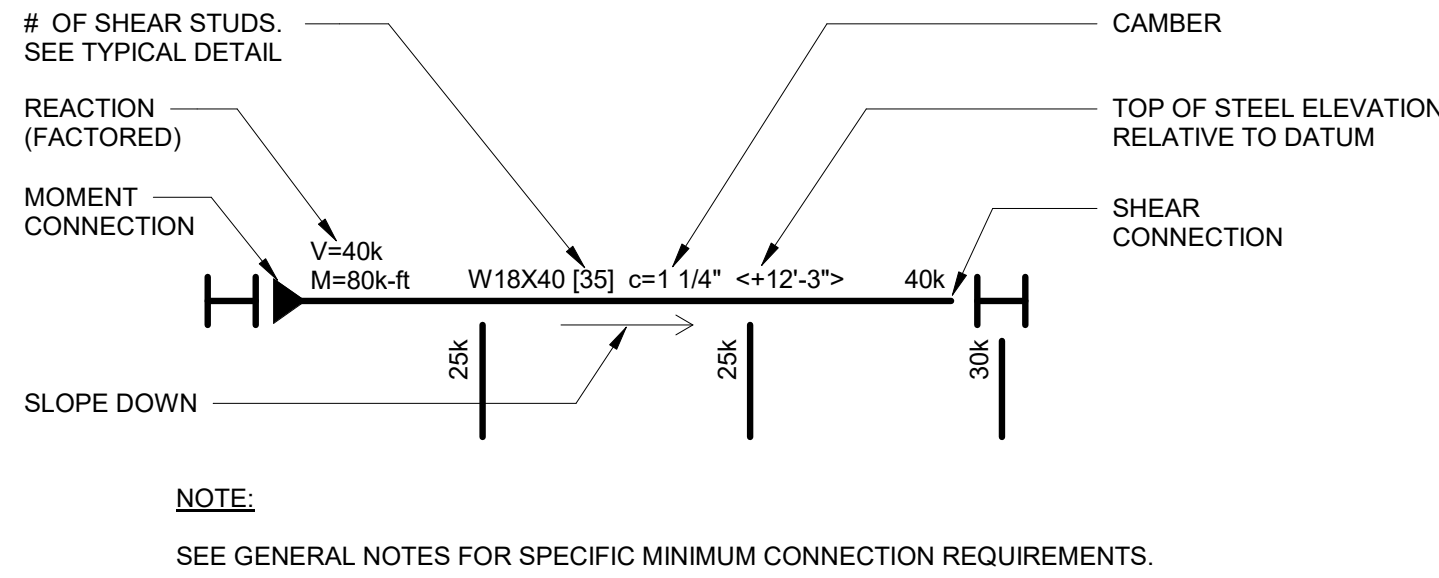
LEGEND



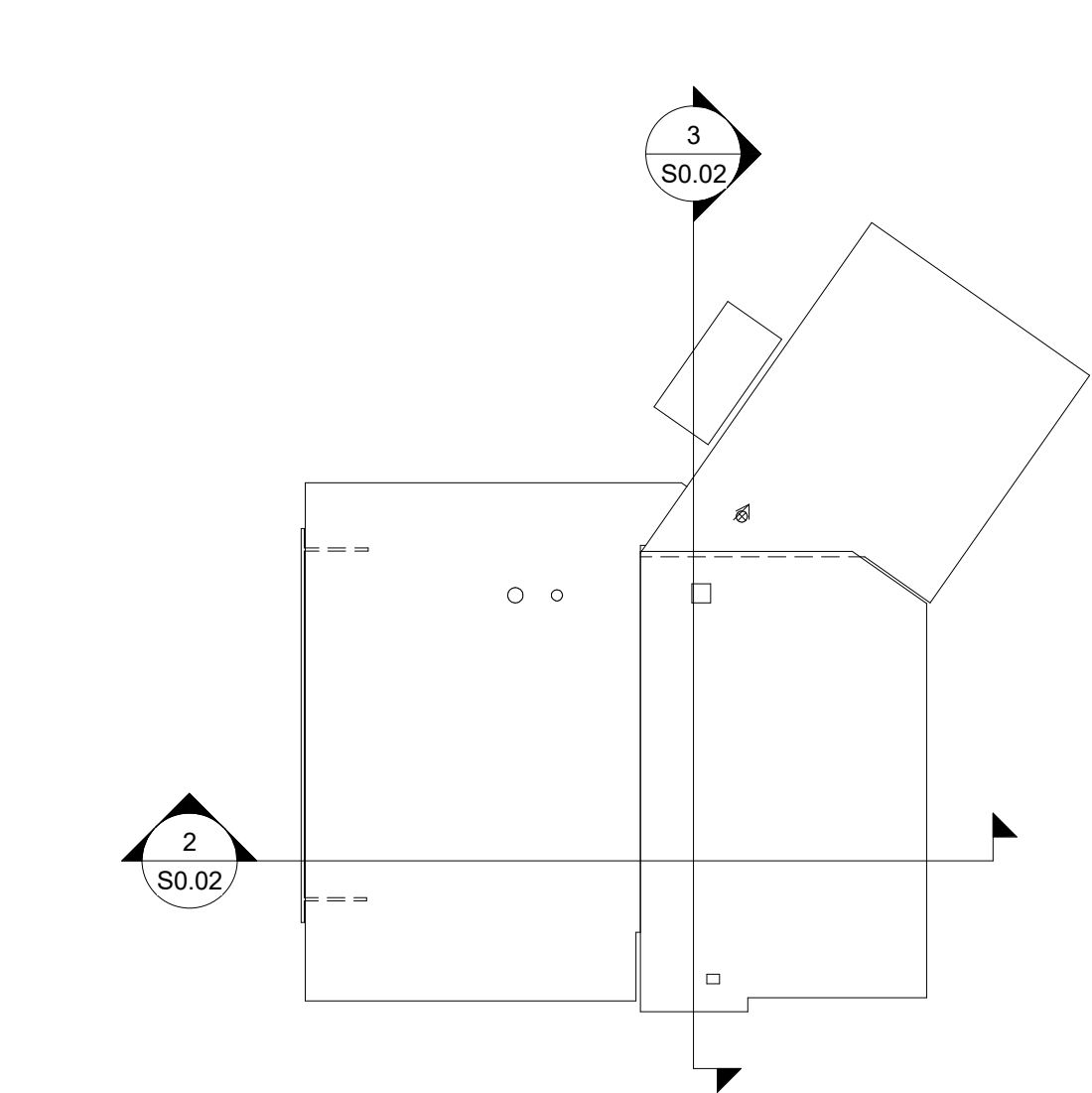
[## - ##]	BOTTOM OF FOOTING ELEVATION RELATIVE TO DATUM
<## - ##>	TOP OF FRAMING ELEVATION RELATIVE TO DATUM
{## - ##}	TOP OF PIER ELEVATION RELATIVE TO DATUM
(## - ##)	BOTTOM OF BASE PLATE ELEVATION RELATIVE TO DATUM
BP__	STEEL BEAM BEARING PLATE, SEE SCHEDULE & DETAILS
CBP__	STEEL COLUMN BASE PLATE, SEE SCHEDULE & DETAILS
F__	CONCRETE SPREAD FOOTING, SEE SCHEDULE & DETAILS
M__	CONCRETE MAT FOUNDATION, SEE SCHEDULE & DETAILS
P__	CONCRETE OR MASONRY PIER, SEE SCHEDULE & DETAILS
S__	CONCRETE SLAB OR CONCRETE SLAB ON METAL DECK, SEE SCHEDULE & DETAILS
W__	CONCRETE WALL, SEE SCHEDULE & DETAILS
WF__	WALL FOOTING, SEE SCHEDULE & DETAILS

DESIGN PARAMETER TABLE			
GOVERNING CODE:		2015 MICHIGAN BUILDING CODE	
BUILDING CATEGORY:		IV	
SNOW LOAD:			
20	Pg	GROUND SNOW LOAD	
1.0	Ce	SNOW EXPOSURE FACTOR	
1.2	Is	SNOW LOAD IMPORTANCE FACTOR	
1.0	Ct	THERMAL FACTOR	
WIND LOAD:			
120	MPH	BASIC WIND SPEED	
1.0	I	WIND IMPORTANCE FACTOR	
B		WIND EXPOSURE CATEGORY	
0.18	GCPi	INTERNAL PRESSURE COEFFICIENT	
VARIABLES, SEE PLANS	PSF	C&C VELOCITY PRESSURE AT MEAN ROOF HEIGHT	
82	K	DESIGN BASE SHEAR	
SEISMIC DESIGN:			
1.5	I	SEISMIC IMPORTANCE FACTOR	
0.095	Ss	SHORT PERIOD SPECTRAL RESPONSE ACCELERATION	
0.048	S1	1-SECOND PERIOD SPECTRAL RESPONSE ACCELERATION	
D		SITE CLASS	
0.102	S(ds)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT SHORT PERIODS	
0.077	S(d1)	5-% DAMPED SPECTRAL RESPONSE COEFFICIENT AT 1-SECOND PERIODS	
C		SEISMIC DESIGN CATEGORY	
STEEL ORDINARY MOMENT FRAMES AND BRACED FRAMES		BASIC SEISMIC FORCE RESISTING SYSTEM	
55	K	DESIGN BASE SHEAR	
0.051	Cs	SEISMIC RESPONSE COEFFICIENT	
3	R	RESPONSE MODIFICATION FACTOR	
EQUIVALENT STATIC FORCE		ANALYSIS PROCEDURE	

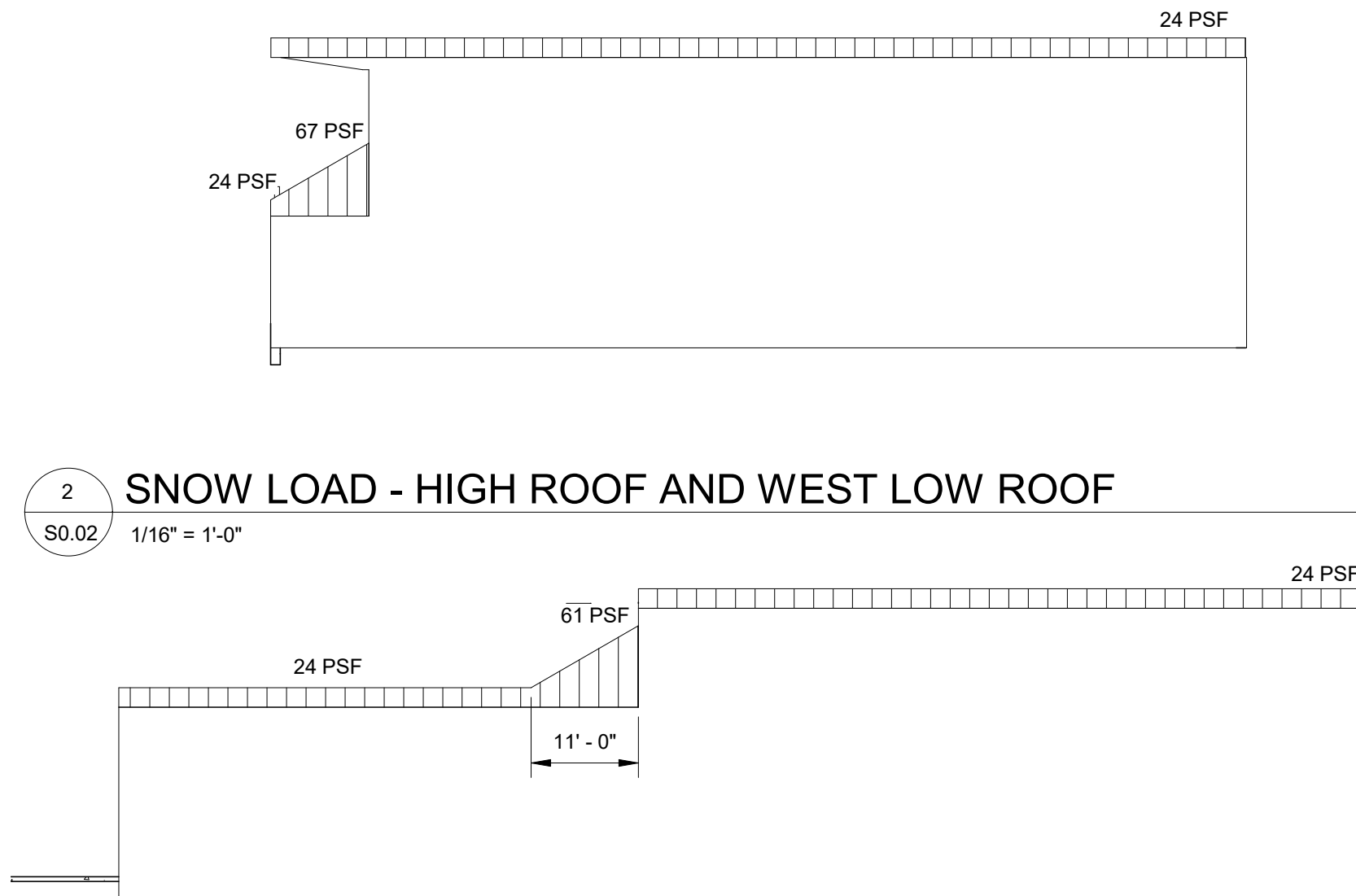
STRUCTURAL STEEL FRAMING KEY



LOADS (PSF)	FIRST FLOOR, TYPICAL (PSF)	FIRST FLOOR, APPARATUS BAY (PSF)	FIRST FLOOR, ELEVATOR MAT (PSF)	SECOND FLOOR (PSF)	LOW ROOFS (PSF)	HIGH ROOF (PSF)
DEAD LOAD						
6" NW CONCRETE SLAB	72.5					
12" NW CONCRETE SLAB		145	145			
5-1/4" LW SLAB ON METAL DECK				41		
STEEL FRAMING				8	8	8
SUPERIMPOSED DEAD LOAD						
SOLAR PANELS						30
EPDM ROOF COVERING					1.5	1.5
WATERPROOFING AND INSULATION					6	6
1.5B 18 GAGE ROOF DECK					2.8	2.8
CEILING AND SERVICES				15	15	15
TILE FLOOR				16		
LIVE LOADS						
EMERGENCY VEHICLE		250				
ASSEMBLY	100		100			
RESIDENTIAL				40		
PARTITIONS				15		
ROOF					20	20

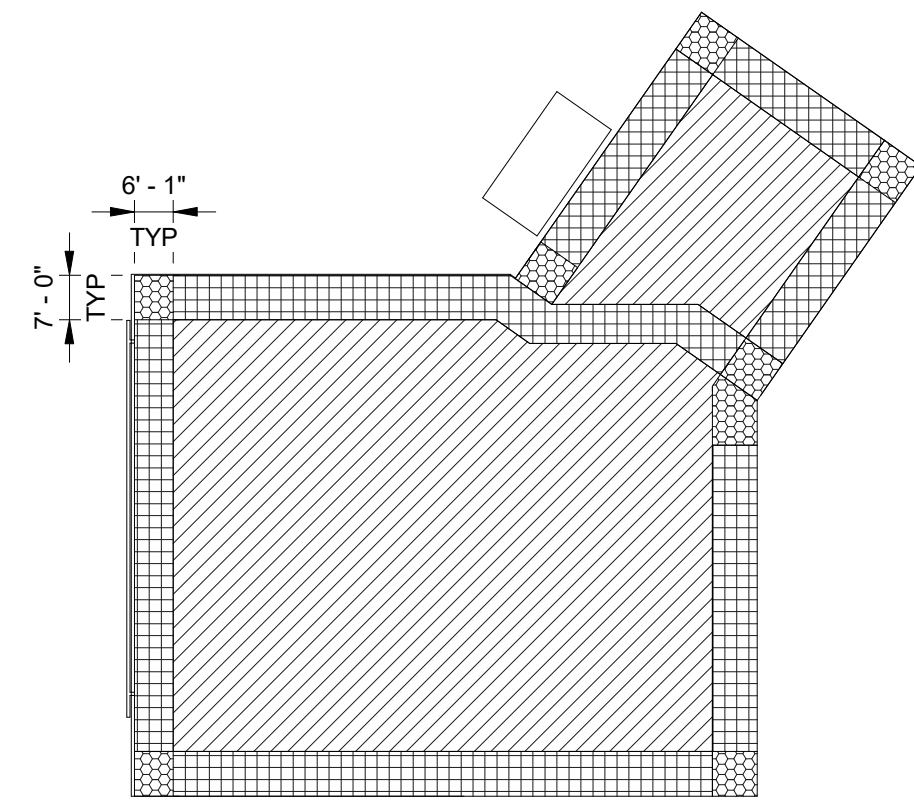


1 SNOW LOAD PLAN  
S0.02 1" = 30'-0"



2 SNOW LOAD - HIGH ROOF AND WEST LOW ROOF  
S0.02 1/16" = 1'-0"

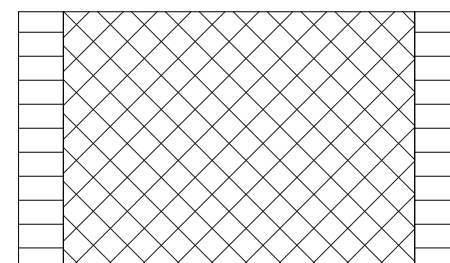
3 SNOW LOAD - HIGH ROOF AND NORTHEAST LOW ROOF  
S0.02 1/16" = 1'-0"



4 COMPONENTS AND CLADDING WIND LOADS  
S0.02 1" = 30'-0"

WIND LOADS

- ZONE 1 (ROOF) 20.2 PSF; -23.7 PSF
- ZONE 2 (ROOF) 20.2 PSF; -28.1 PSF
- ZONE 3 (ROOF) 21.2 PSF; -29.0 PSF
- ZONE 4 (MIDDLE WALL) 17.8 PSF; -19.7 PSF
- ZONE 5 (END WALL) 19.1 PSF; -22.3 PSF



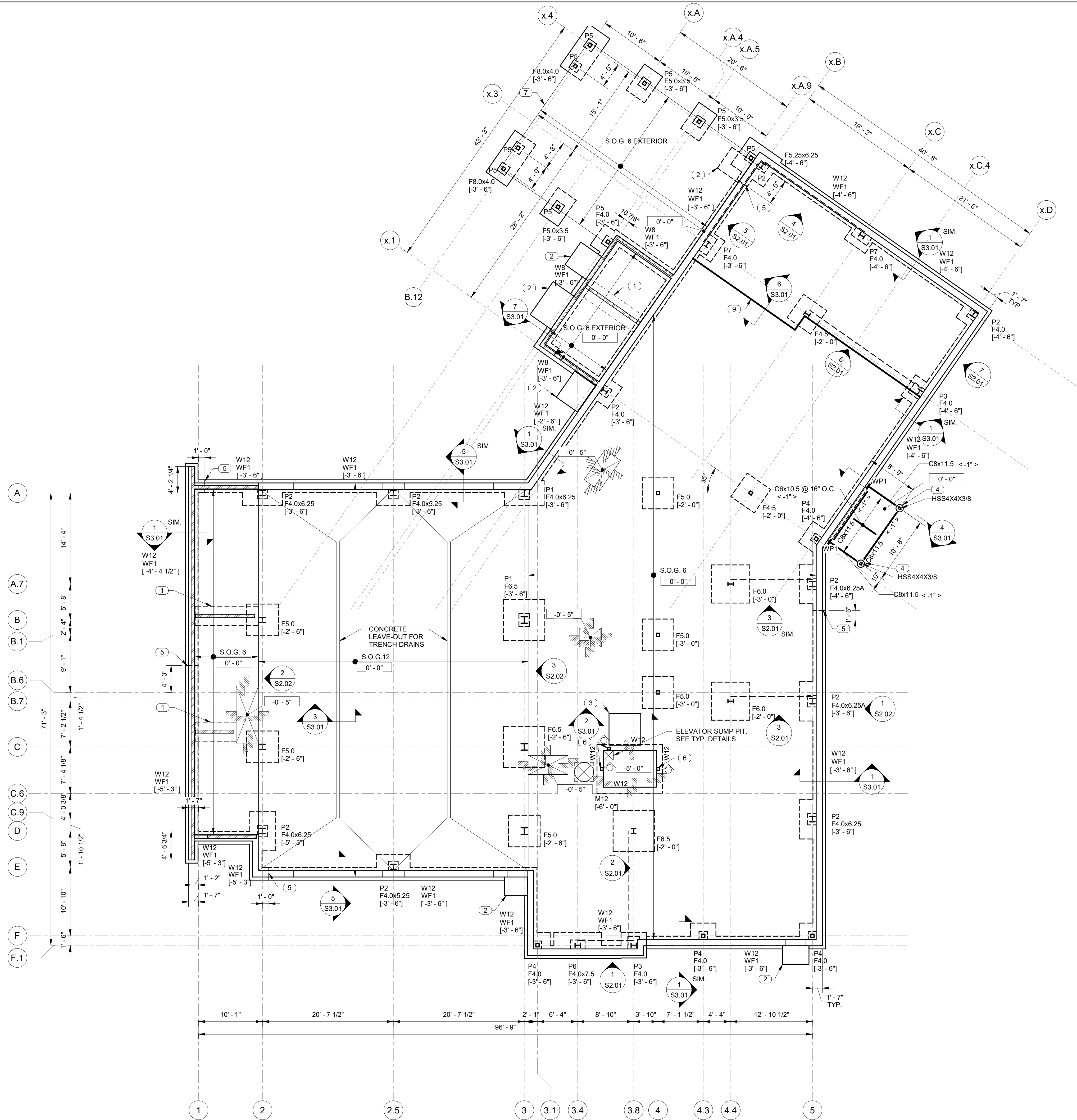
NOTES:

- POSITIVE PRESSURE PUSHES TOWARDS THE BUILDING'S INTERIOR. NEGATIVE PRESSURE PUSHES OUTWARD (SUCTION).
- LOADS REPORTED ARE ULTIMATE STRENGTH (WIND VELOCITY PRESSURE V = 120 MPH). MULTIPLY LOADS BY 0.6 FOR SERVICE LEVEL PRESSURES (V = 90 MPH).
- LOADS INDICATED FOR WALLS ARE APPLIED TO THE ENTIRE WALL ELEVATION ALONG THE PLAN EXTENTS INDICATED.
- FINAL NET DESIGN WIND PRESSURE, INCLUDING ALL PERMITTED REDUCTIONS, USED IN THE DESIGN SHALL NOT BE LESS THAN 16 PSF ACTING IN EITHER DIRECTION.

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24



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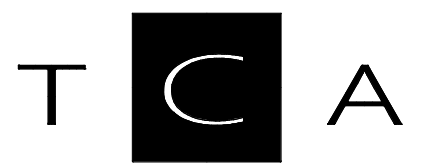
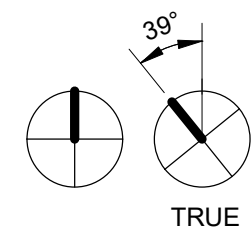
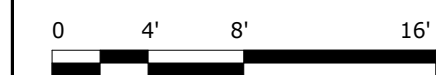
1 FIRST LEVEL FLOOR PLAN  
S1.01 1/8" = 1'-0"

## SHEET NOTES

1. DATUM ELEVATION 0' - 0" REFERENCES TOP OF LEVEL 1 ELEVATION 0' - 0"
2. BOTTOM OF FOOTING ELEVATIONS IS [-3' - 6"] BELOW DATUM UNLESS NOTED THUS [X' - X"]
3. REFER TO S0.01 FOR GENERAL NOTES.
4. SEE S6.01 FOR COLUMN SCHEDULES.
5. COORDINATE ALL DIMENSIONS WITH ARCHITECT, CIVIL, MEP AND OTHER PRIME CONTRACTORS.
6. COORDINATE ALL SLAB OPENINGS, SLOPES, SLEEVES, DEPRESSIONS, EDGE DIMENSIONS AND CURBS WITH ARCHITECT, CIVIL, MEP AND OTHER PRIME CONTRACTORS.

## KEYNOTES

MARK	DESCRIPTION
1	THICKENED SLAB, SEE TYPICAL DETAIL.
2	FROST BLOCK WITH #4 AT 12" EACH WAY TOP AND BOTTOM. COVER ENTIRE DOORSWING. COORD. W/ ARCH. BOTTOM OF CONCRETE EXTEND BELOW GRADE -3'-6" MIN. DOWEL INTO BUILDING FOUNDATION.
3	EXTRACTOR EQUIPMENT 5'x5' CONCRETE PAD. SEE ARCH FOR LOCATION.
4	14" DIA. CONCRETE SONOTUBE WITH 5-#5 VERTICAL BARS AND #3 TIES @ 12" O.C. BOTTOM OF SONOTUBE AT -3'-6" FROM TOP OF GRADE.
5	STEPPED WALL FOOTING. SEE TYPICAL DETAIL.
6	HSS5X5X3/8 HOISTWAY STEEL COLUMNS. COORDINATE WITH ARCH AND ELEVATOR MANUFACTURER FOR LOCATION
7	TOP OF SLAB ELEV. TO MATCH CIVIL. SEE CIVIL DRWG.
9	VIBRATION ISOLATION JOINT. SEE ARCH.



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City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104  
FIRST LEVEL  
STRUCTURAL PLAN



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Sheet

S1.01

SILMAN PROJECT # 20145



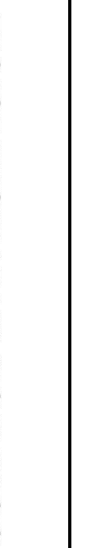


1 SECC  
S1.02 1/8" = 1'-0"

## KEYNOTES

Drawn:	AD	Checked:	RH
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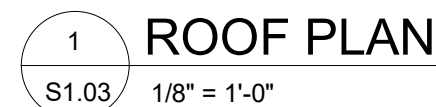
## SECOND LEVEL STRUCTURAL PLAN



## S1.02

SILMAN PROJECT #20145



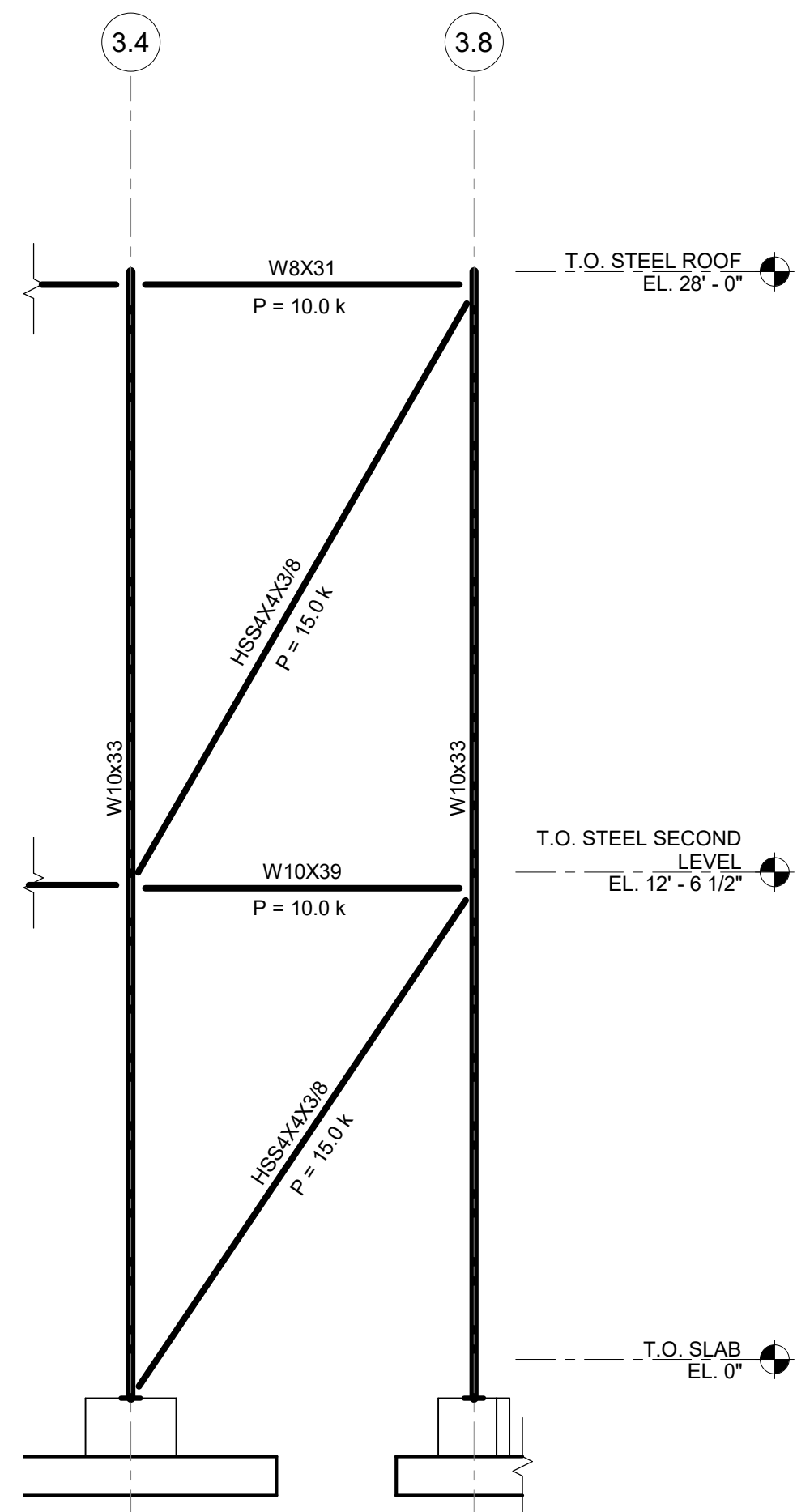


## KEYNOTES

## S1.03

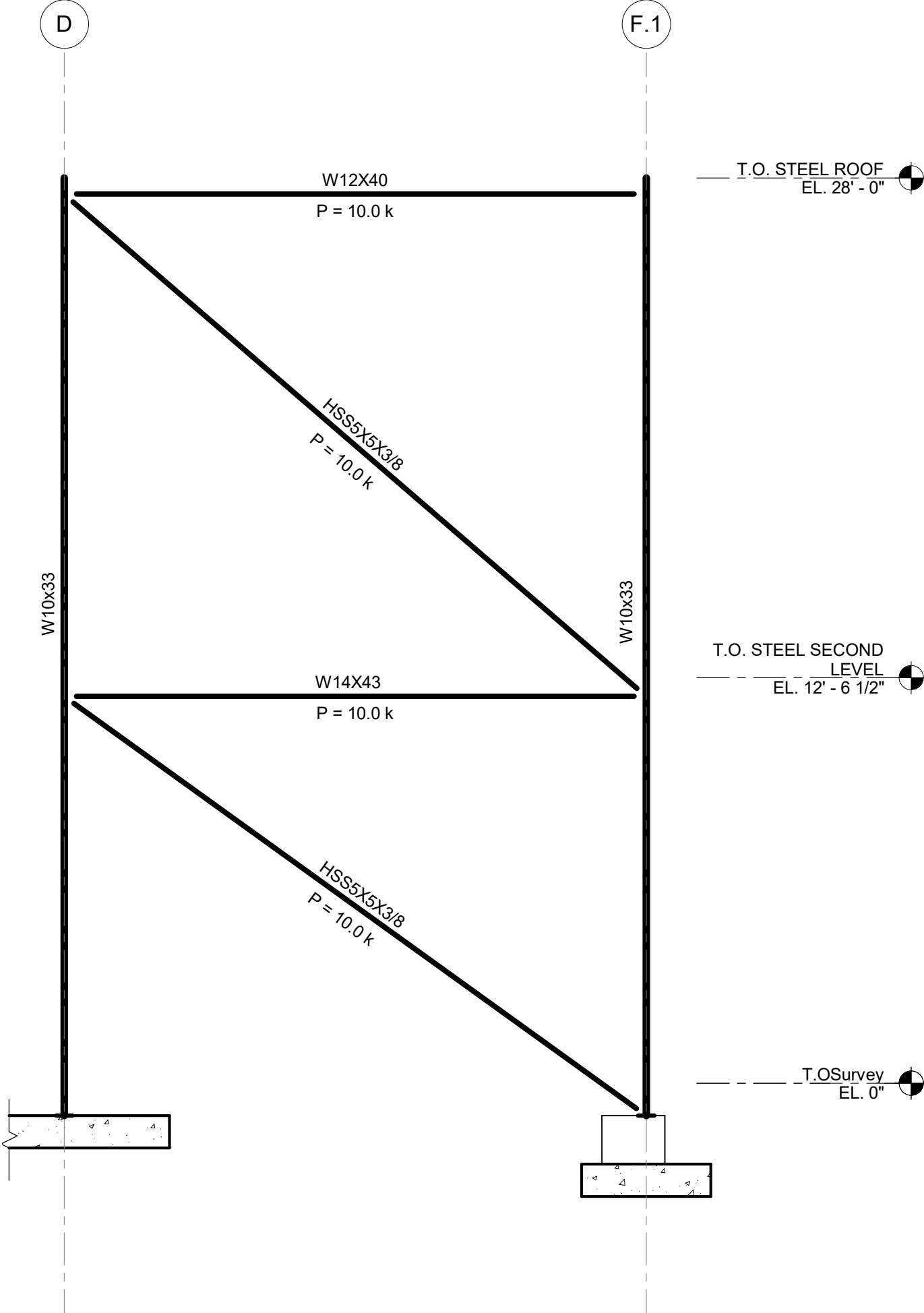


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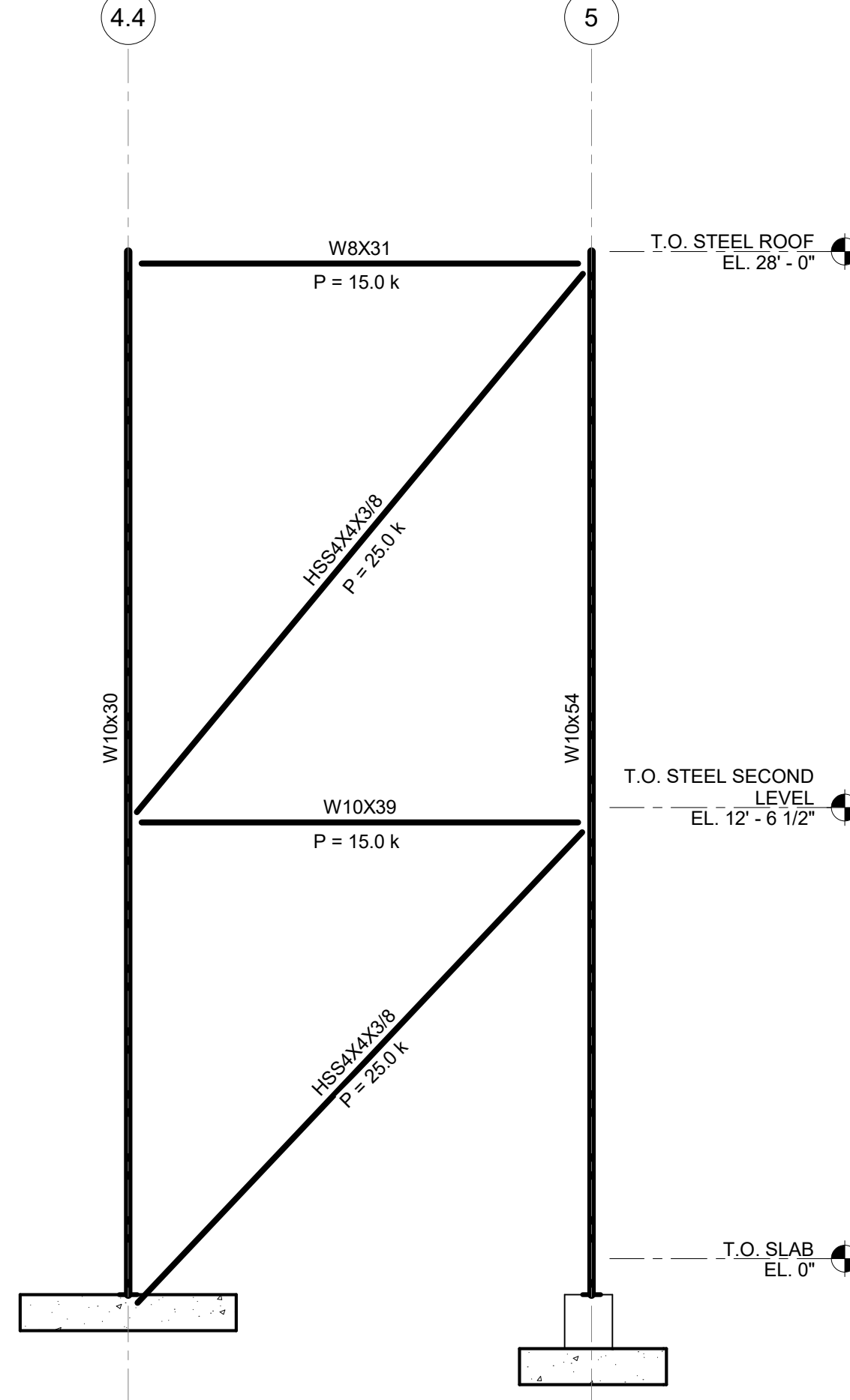
NOTE: LOADS SHOWN ARE LRFD LOADS.

1 GRID F.1 ELEVATION  
S2.01 1/4" = 1'-0"



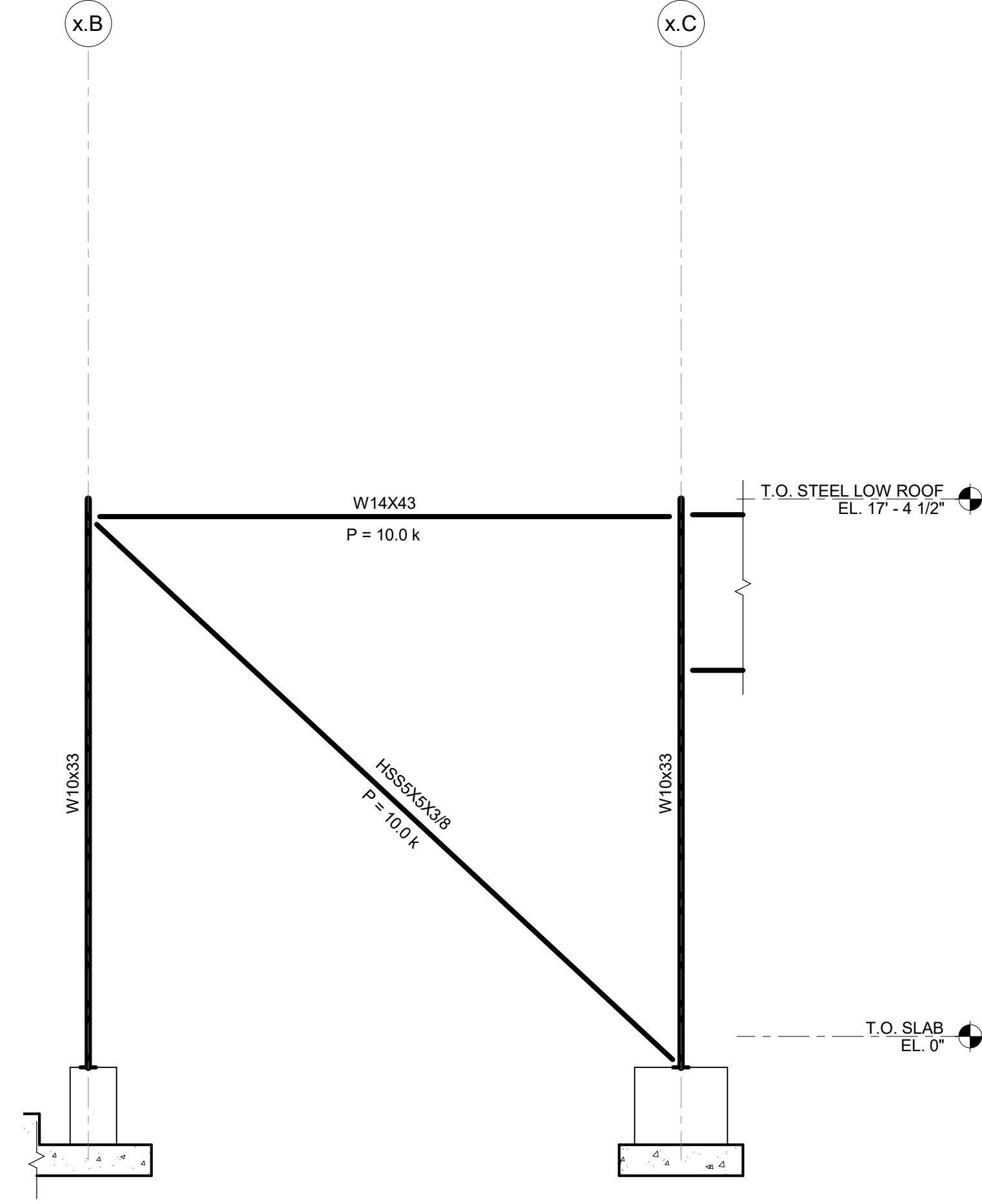
NOTE: LOADS SHOWN ARE LRFD LOADS.

2 GRID 3.8 ELEVATION  
S2.01 1/4" = 1'-0"



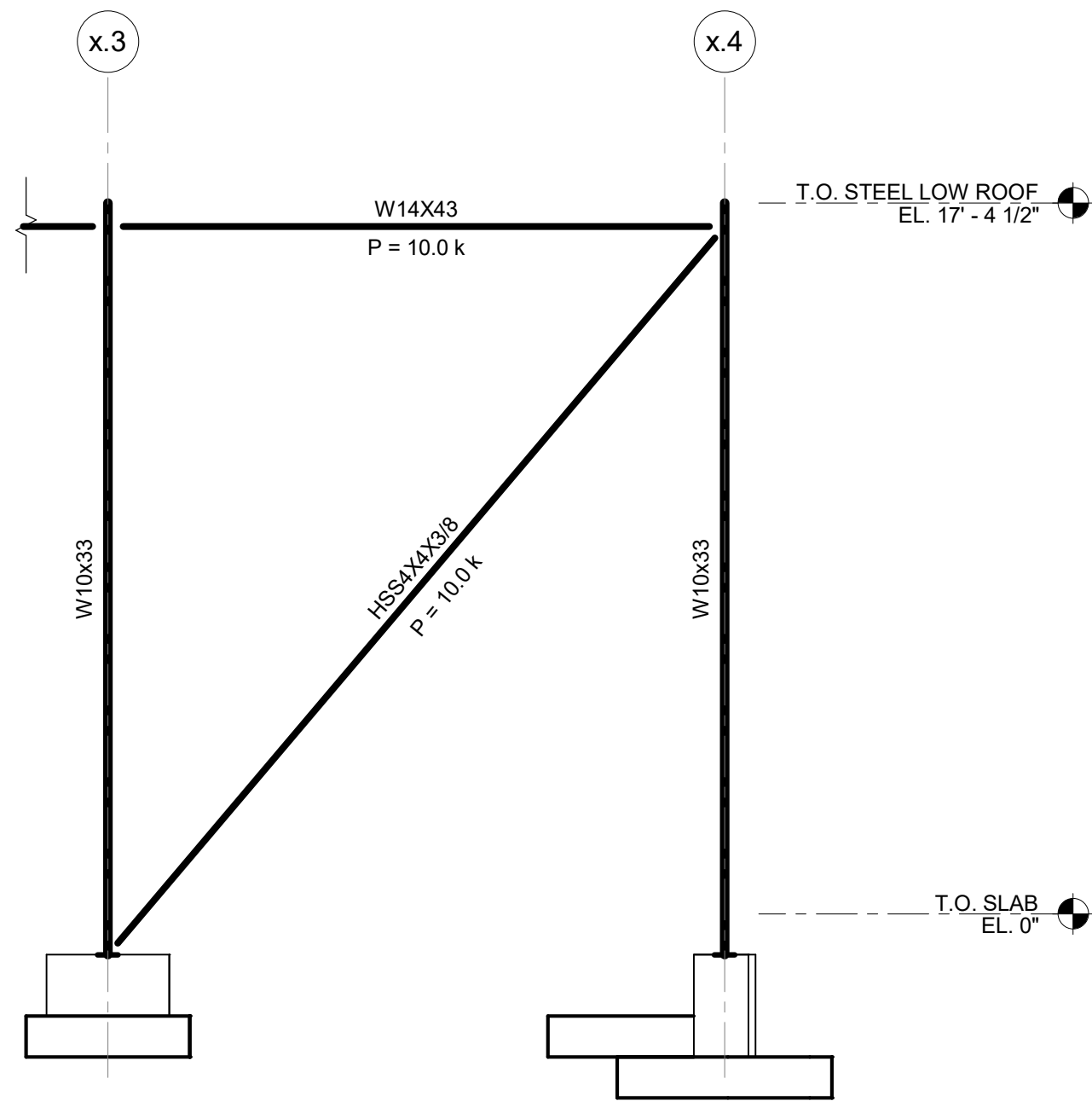
NOTE: LOADS SHOWN ARE LRFD LOADS.

3 GRID B.7 ELEVATION  
S2.01 1/4" = 1'-0"



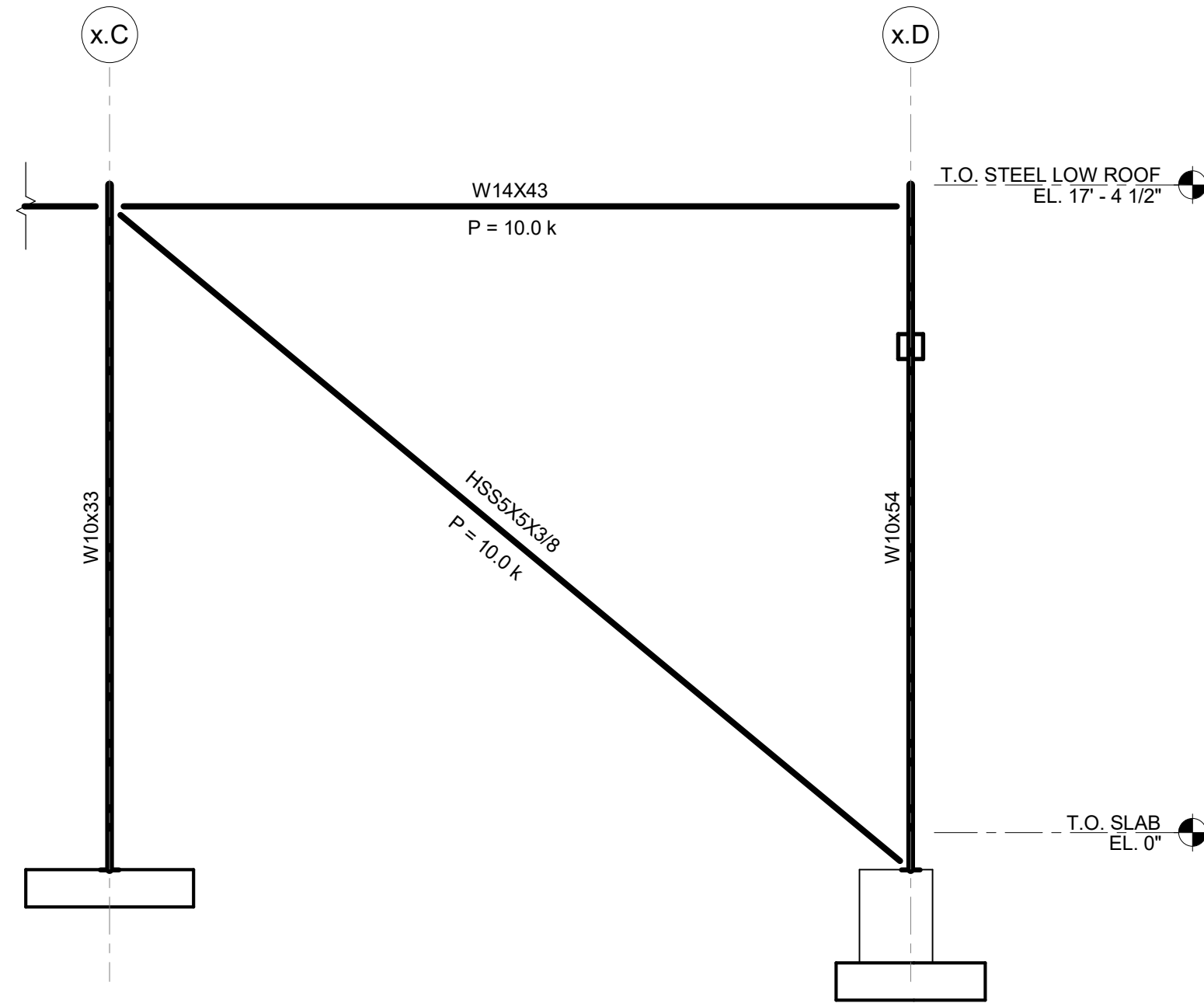
NOTE: LOADS SHOWN ARE LRFD LOADS.

4 GRID x.4 ELEVATION  
S2.01 1/4" = 1'-0"



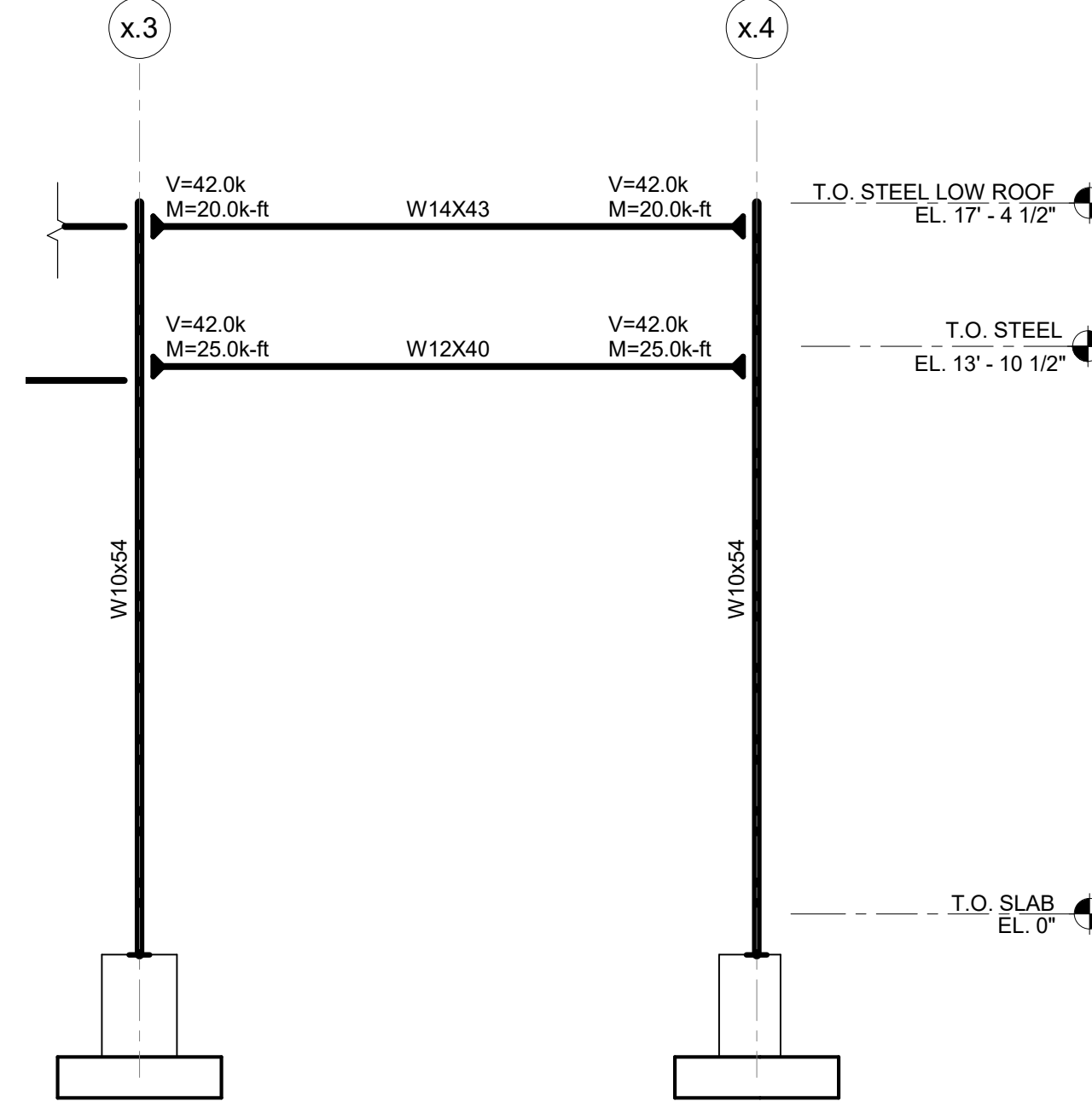
NOTE: LOADS SHOWN ARE LRFD LOADS.

5 GRID x.B ELEVATION  
S2.01 1/4" = 1'-0"



NOTE: LOADS SHOWN ARE LRFD LOADS.

6 GRID x.3 ELEVATION  
S2.01 1/4" = 1'-0"



NOTE: LOADS SHOWN ARE LRFD LOADS.

7 GRID x.D ELEVATION  
S2.01 1/4" = 1'-0"

Project Number 21018

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24

Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104  
ELEVATIONS





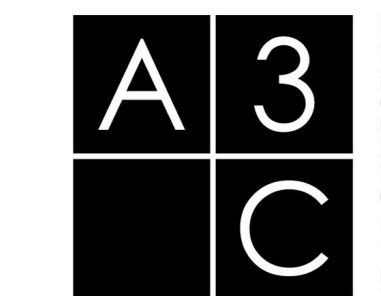
Project Number 21018

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Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

ELEVATIONS



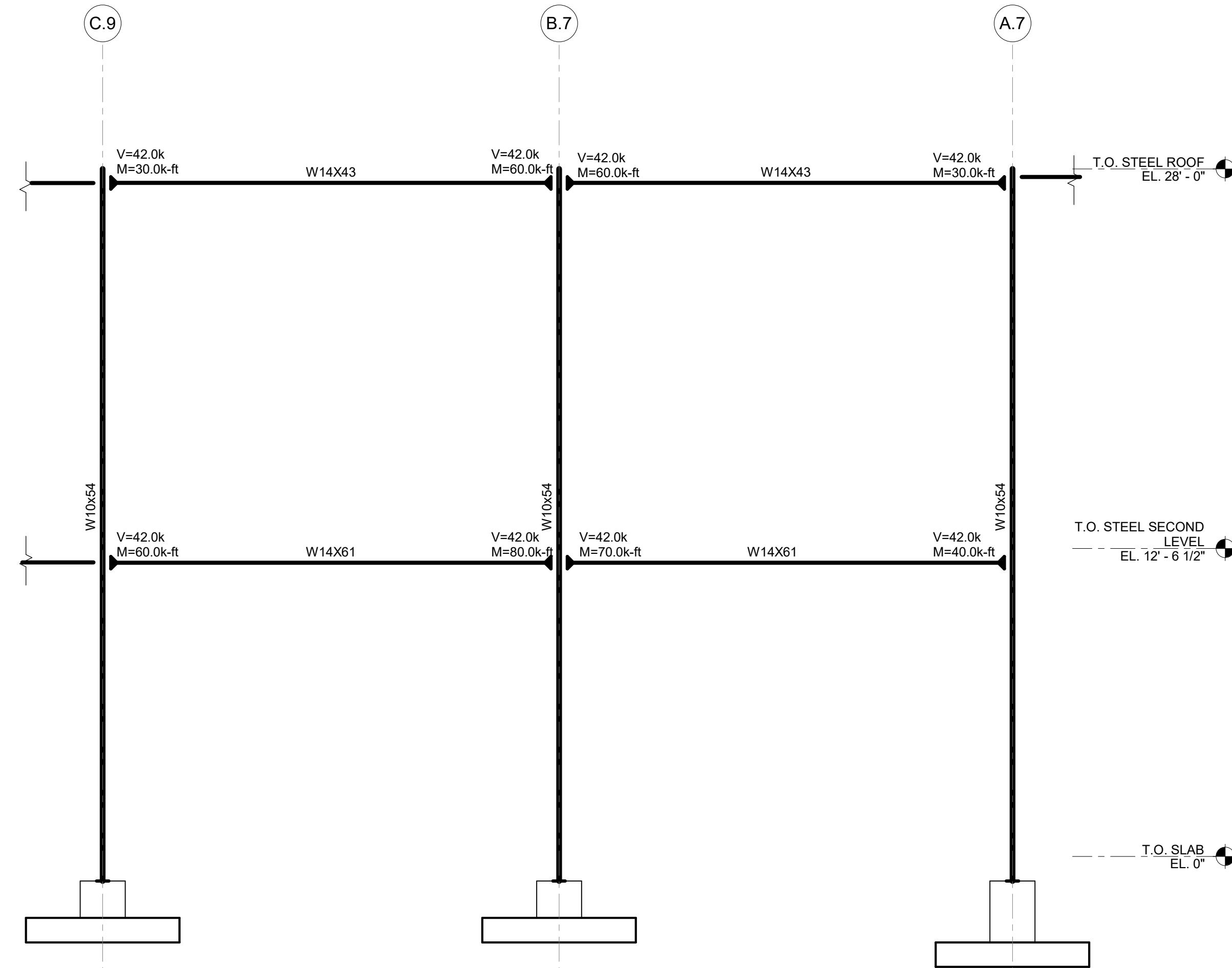
115 1/2 E LIBERTY STREET  
ANN ARBOR, MI 48104  
T: (734) 663 - 1910  
F: (866) 732 - 2168  
www.a3c.com

COLLABORATIVE ARCHITECTURE

Sheet

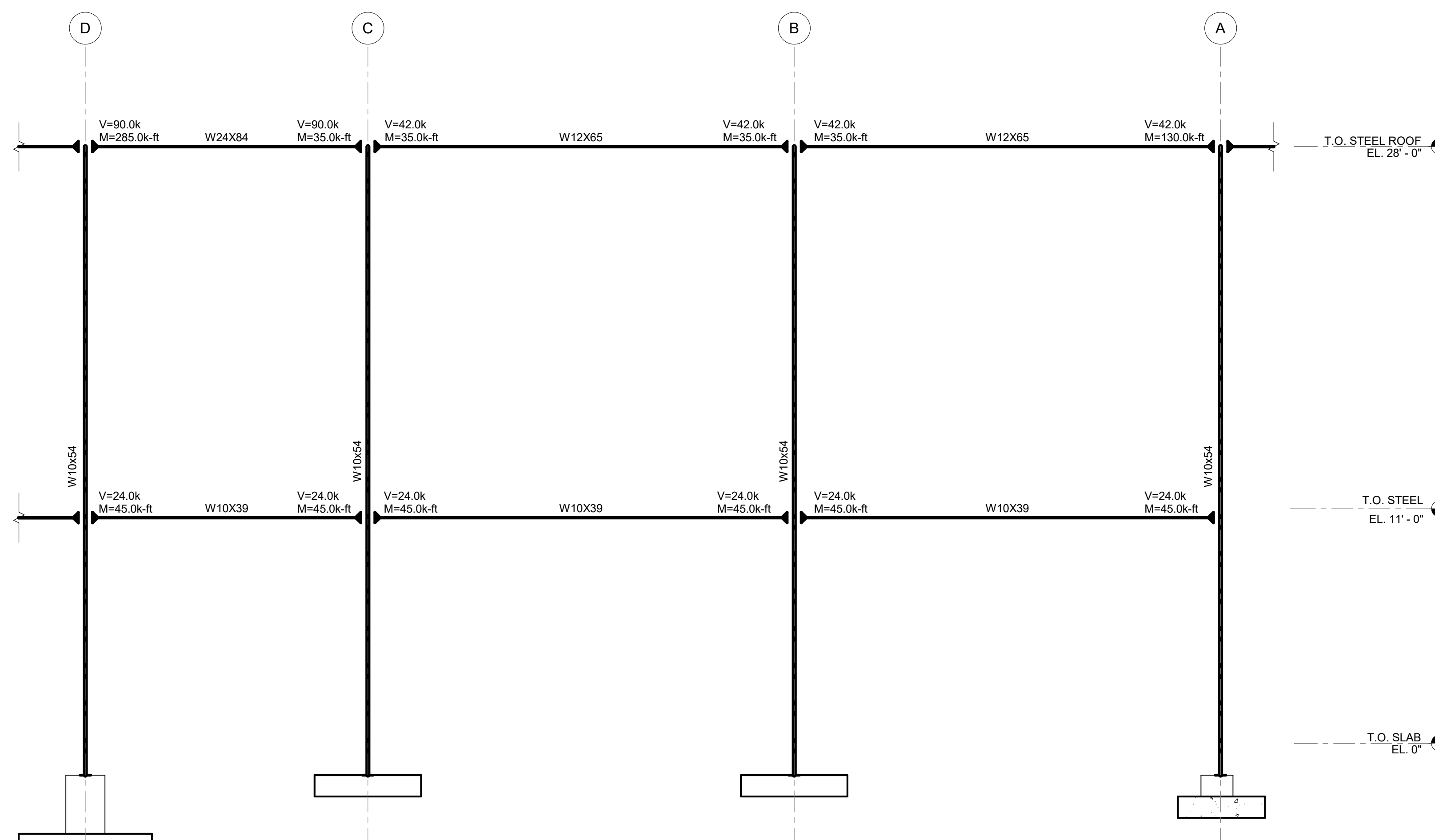
S2.02

SILMAN PROJECT #20145



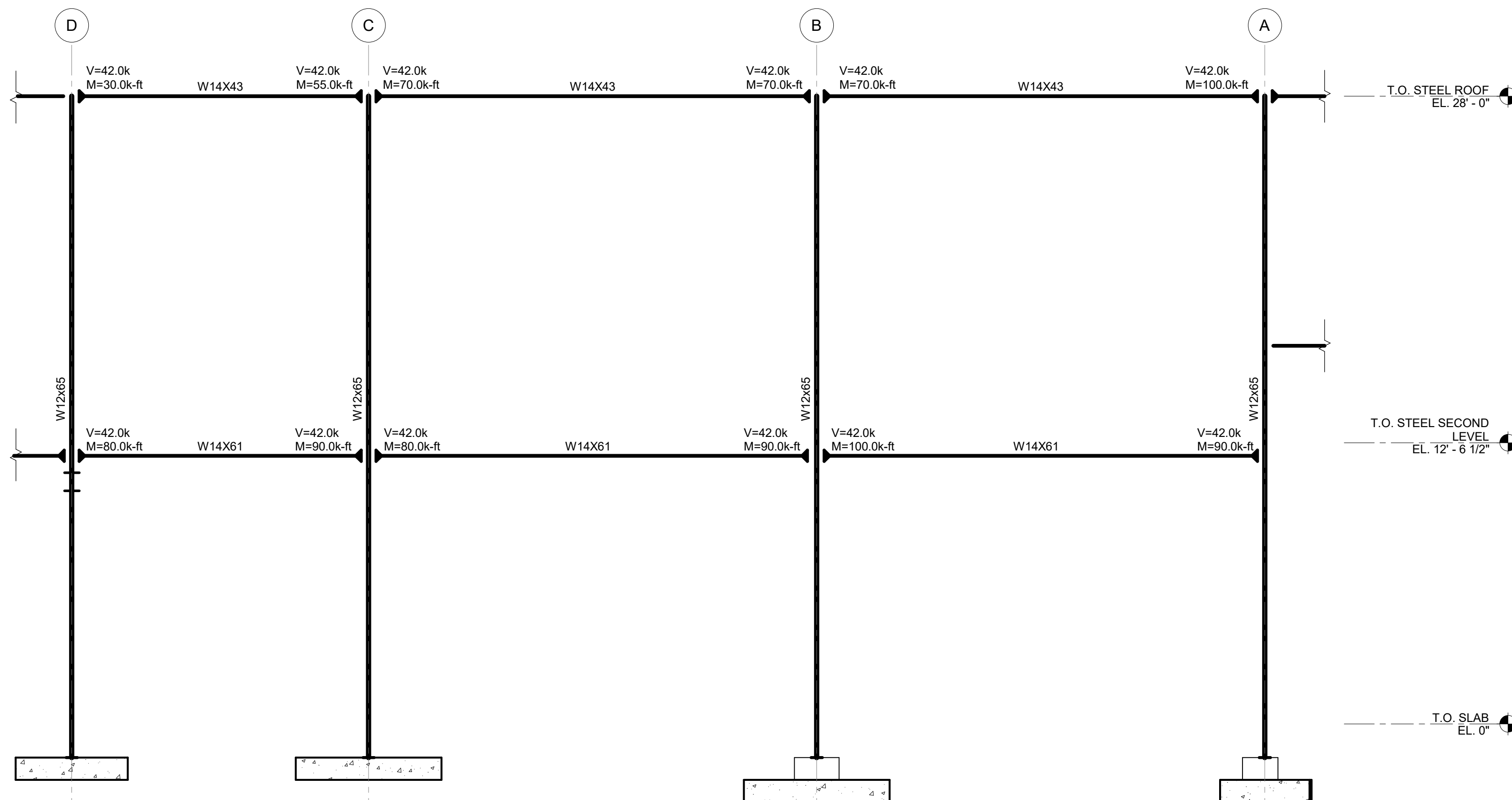
NOTE: LOADS SHOWN ARE LRFD LOADS.

1 GRID 5 ELEVATION  
S2.02 1/4" = 1'-0"



NOTE: LOADS SHOWN ARE LRFD LOADS.

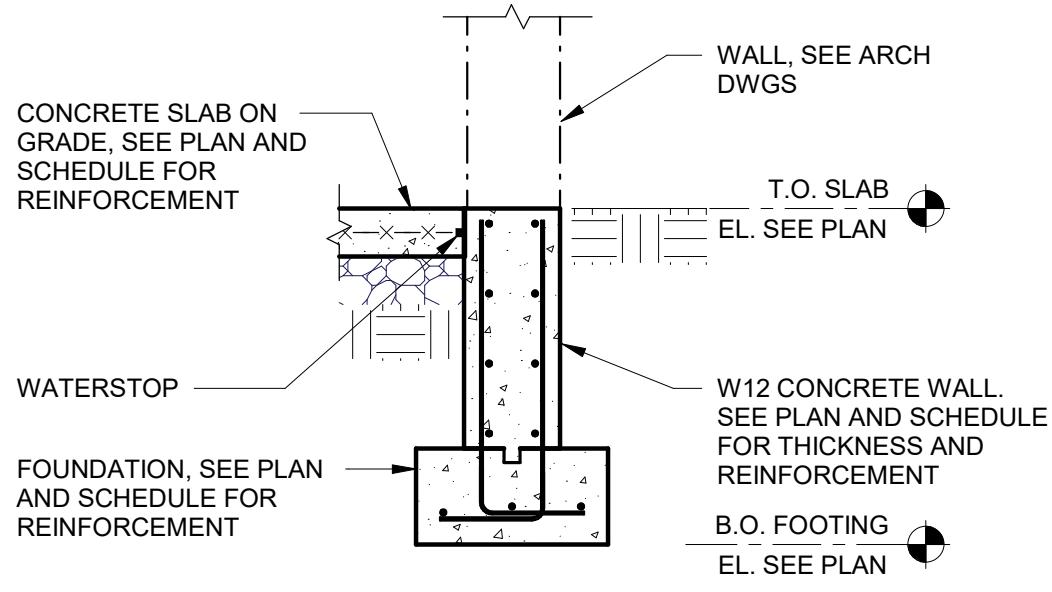
2 GRID 2 ELEVATION  
S2.02 1/4" = 1'-0"



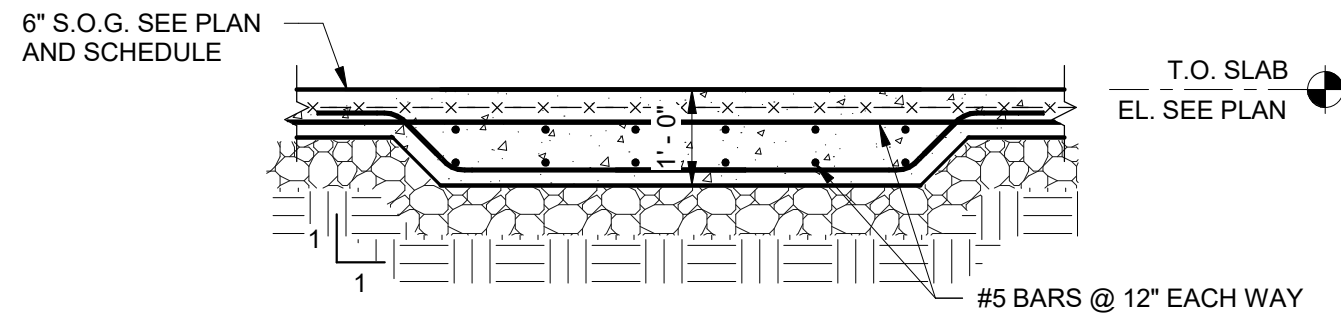
NOTE: LOADS SHOWN ARE LRFD LOADS.

3 GRID 3 ELEVATION  
S2.02 1/4" = 1'-0"

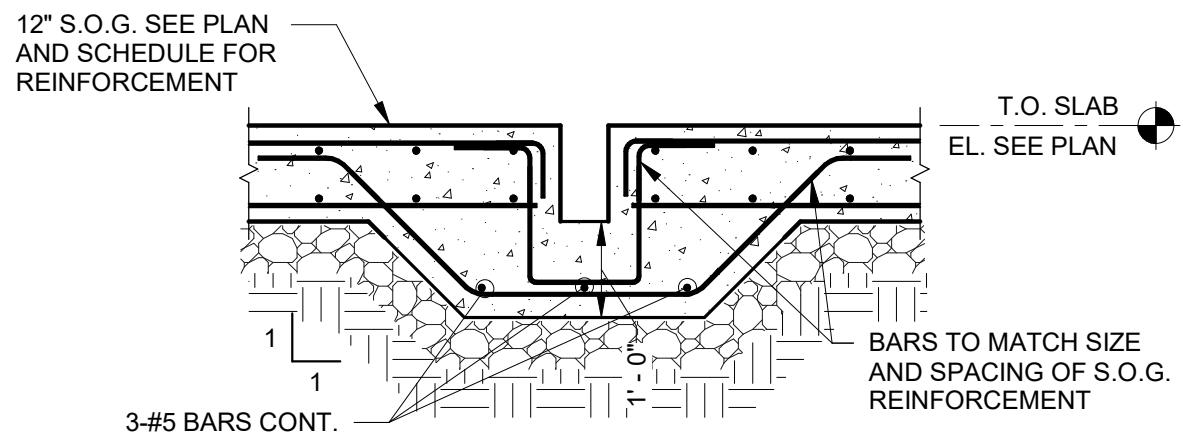




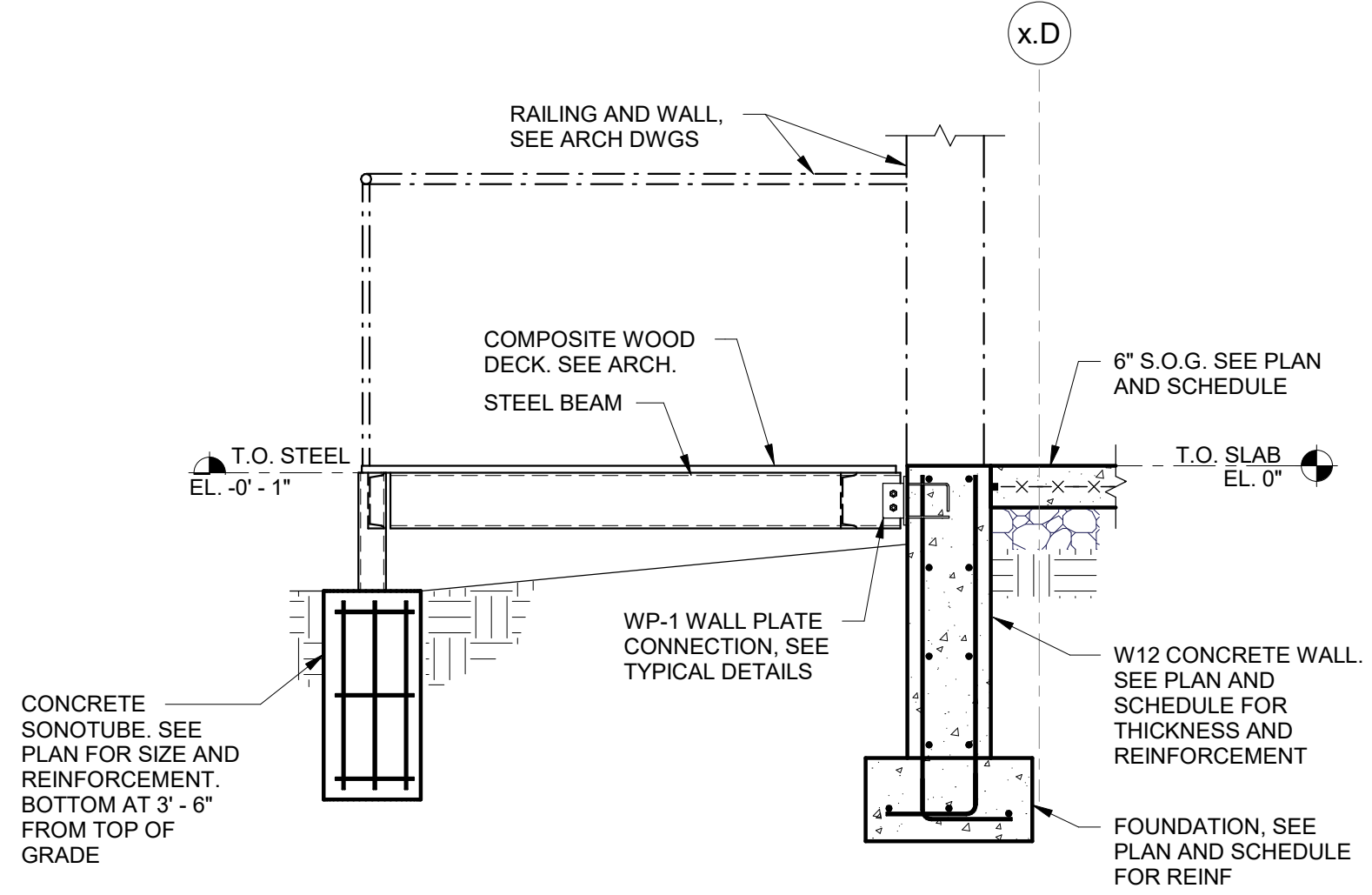
1 SECTION  
S3.01 1/2" = 1'-0"



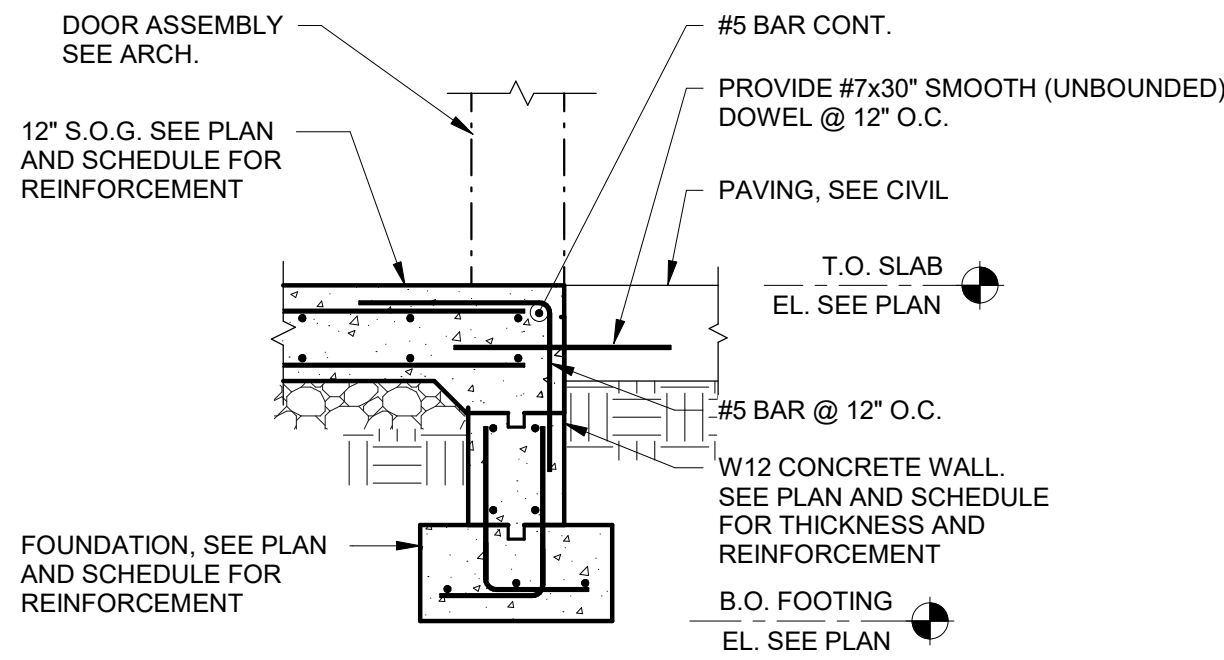
2 EQUIPMENT PAD SECTION  
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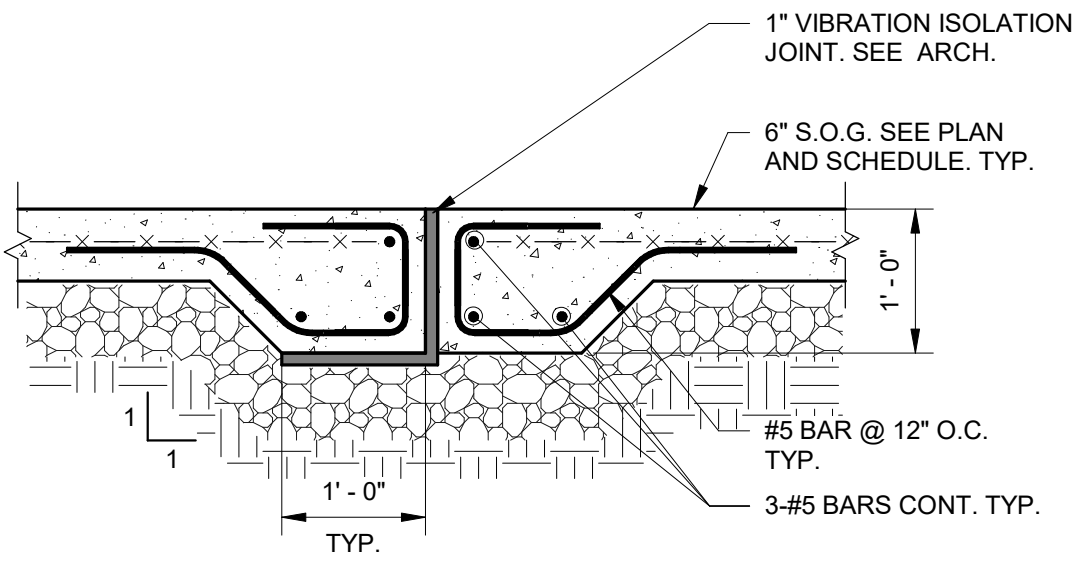
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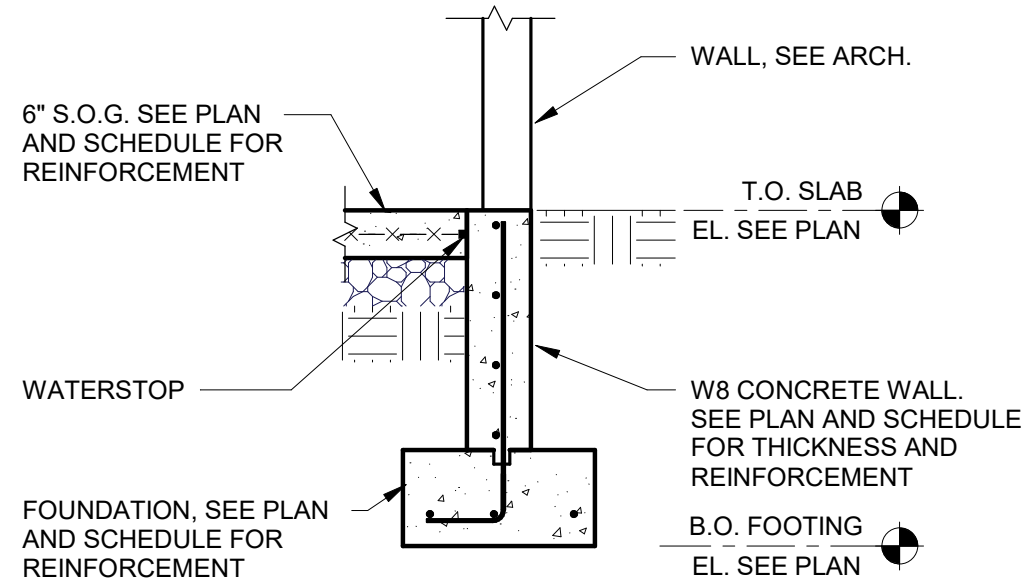
4 SECTION  
S3.01 1/2" = 1'-0"



5 SECTION  
S3.01 1/2" = 1'-0"



6 SECTION  
S3.01 3/4" = 1'-0"



7 SECTION  
S3.01 1/2" = 1'-0"



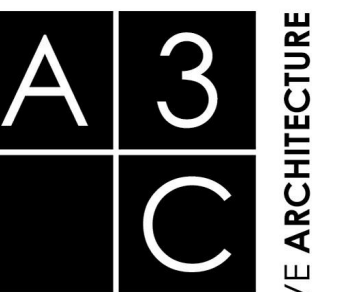
Project Number 21018

Issue	Date
DESIGN DEVELOPMENT	05/26/23
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Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

FOUNDATION SECTIONS



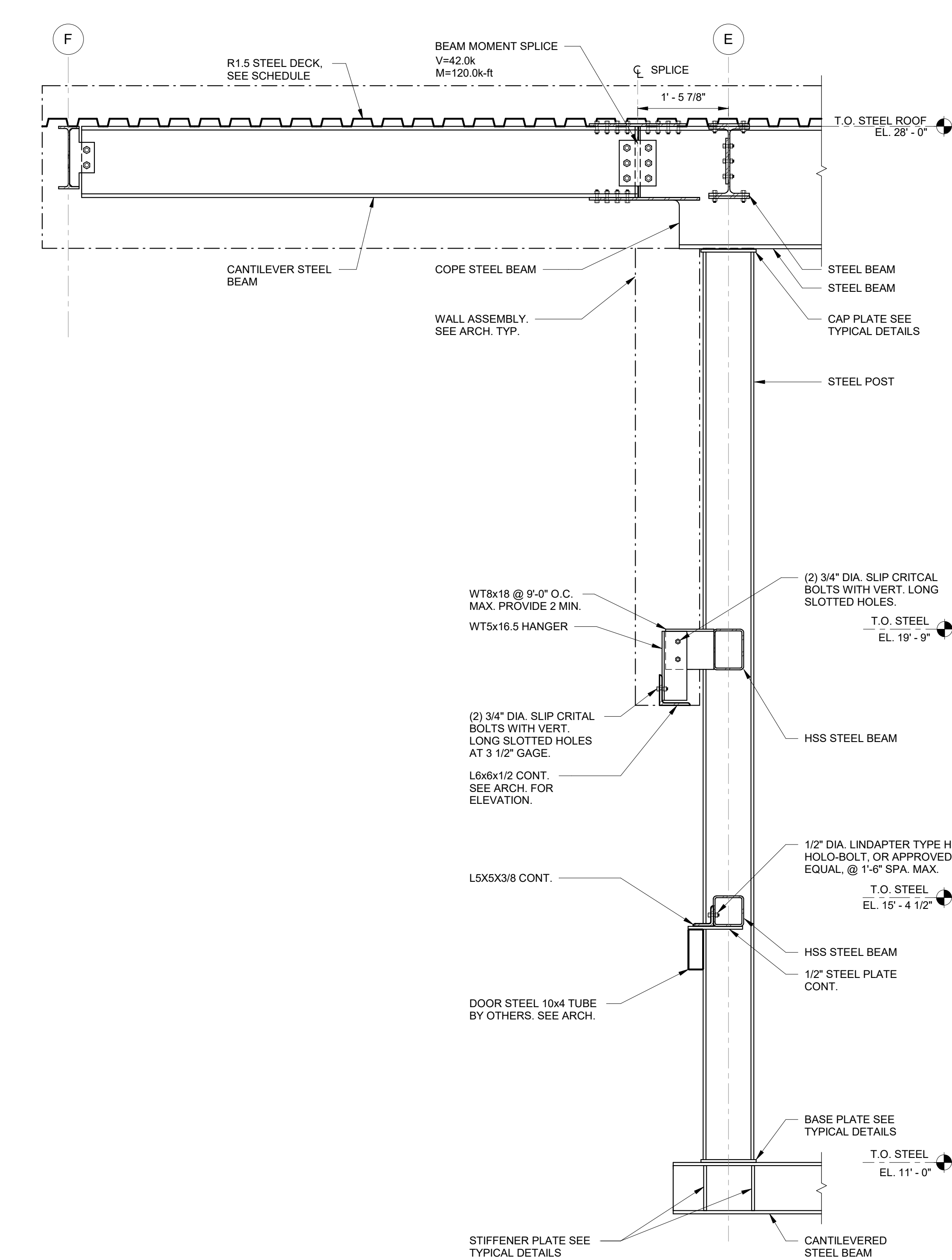
115 1/2 E. LIBERTY STREET  
ANN ARBOR, MI 48104  
T: (734) 663 - 1910  
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Sheet  
S3.01

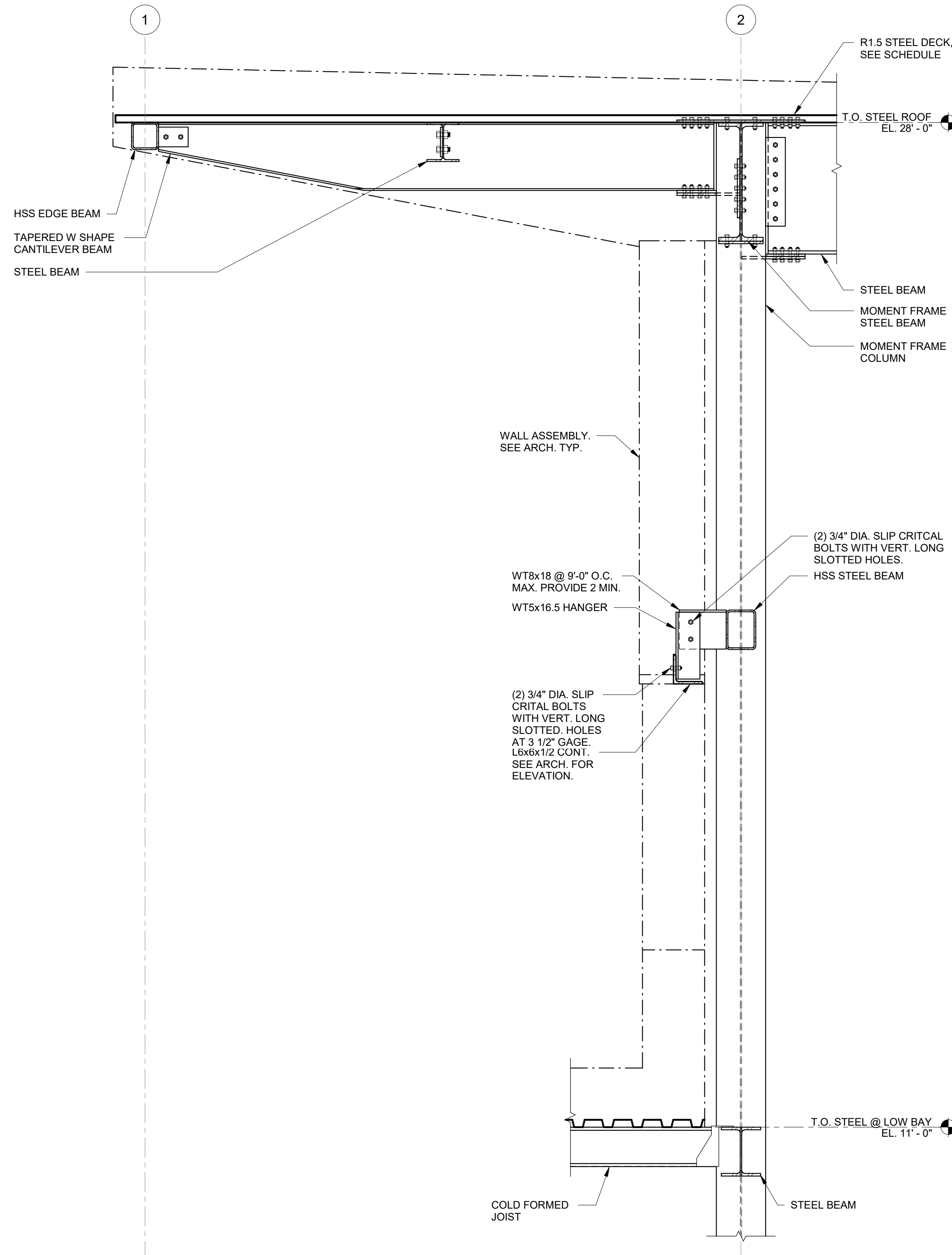
SILMAN PROJECT # 20145



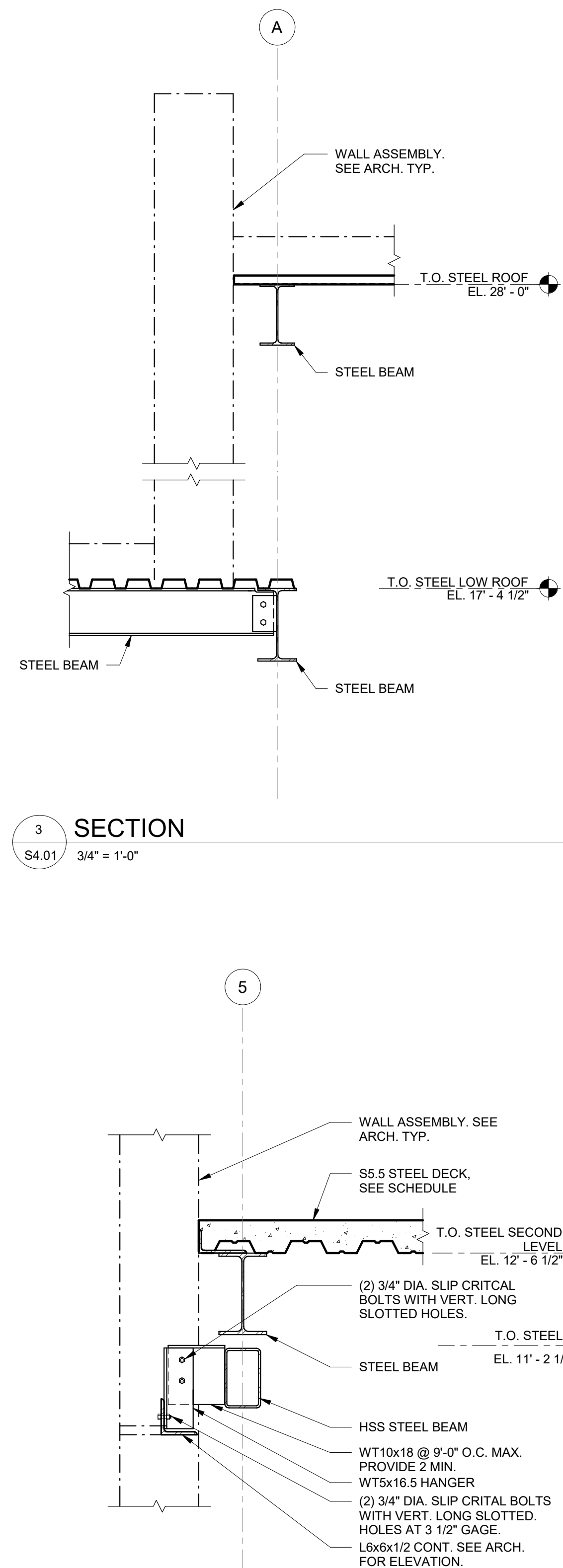
10/10/2024 11:26:33 AM



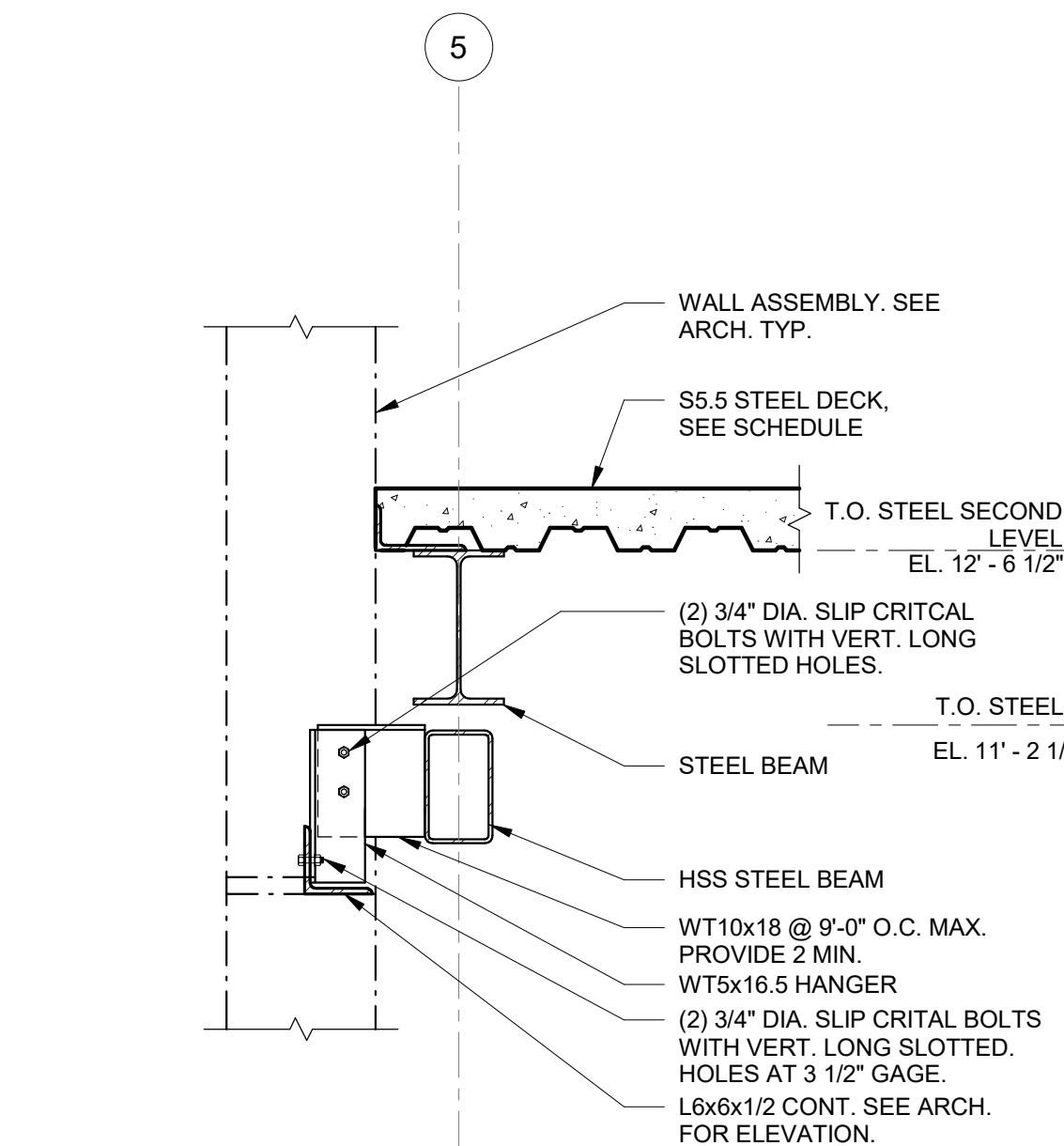
1 SECTION  
S4.01 3/4" = 1'-0"



2 SECTION  
S4.01 3/4" = 1'-0"



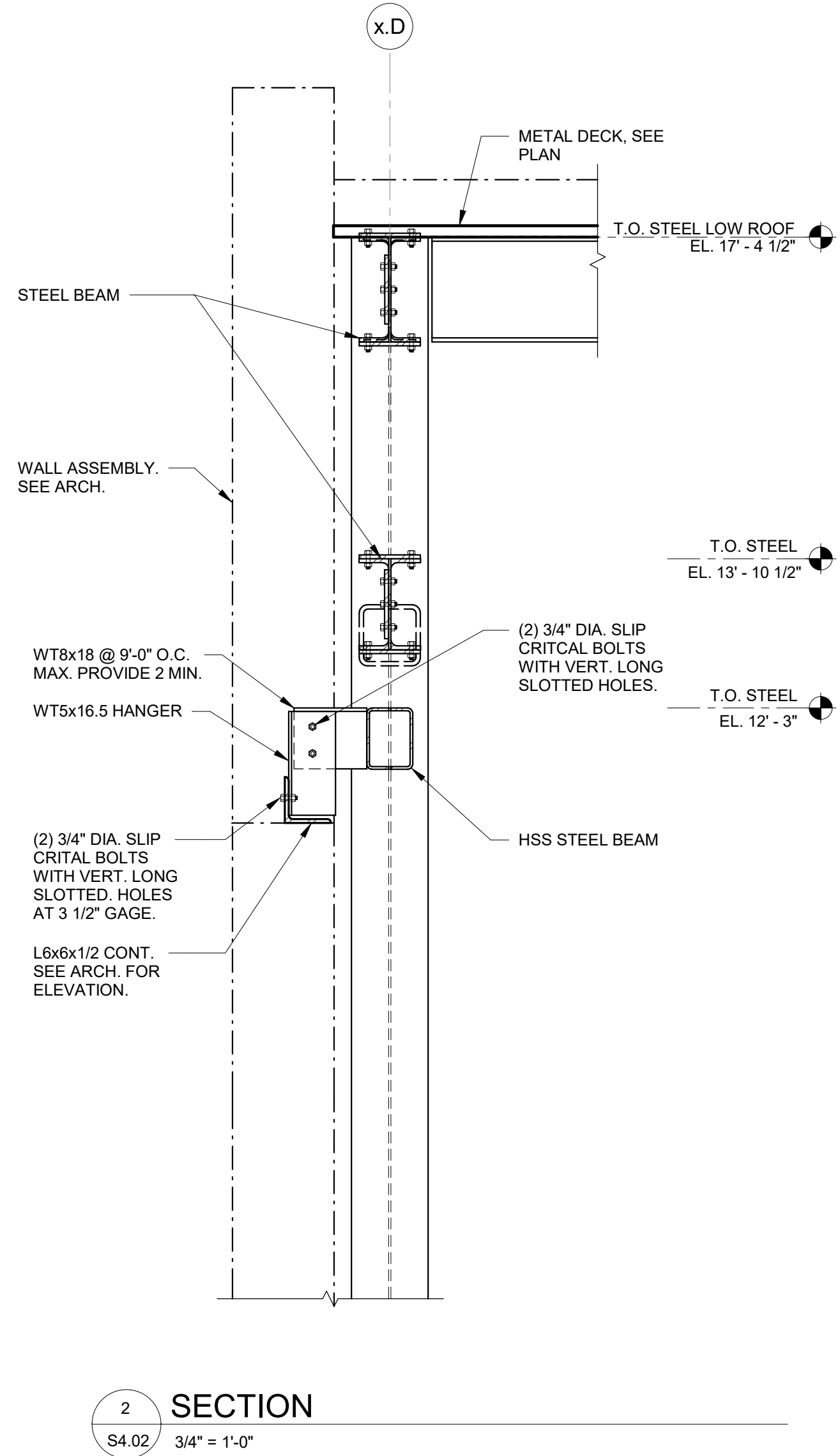
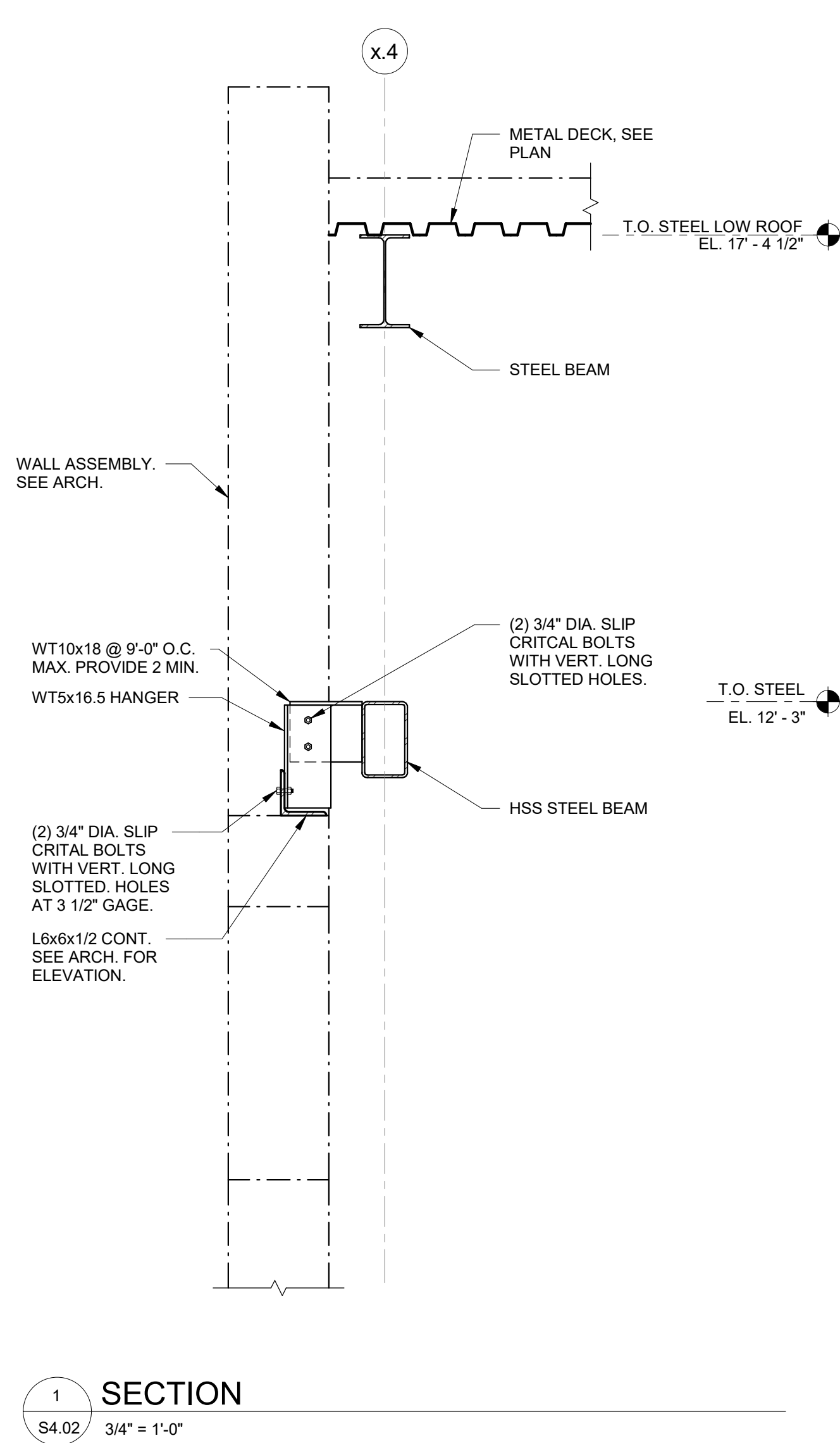
3 SECTION  
S4.01 3/4" = 1'-0"



4 SECTION  
S4.01 3/4" = 1'-0"



10/10/2024 11:26:33 AM



Project Number 21018

Issue	Date
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City of Ann Arbor  
NEW FIRE STATION 4  
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ANN ARBOR, MI 48104

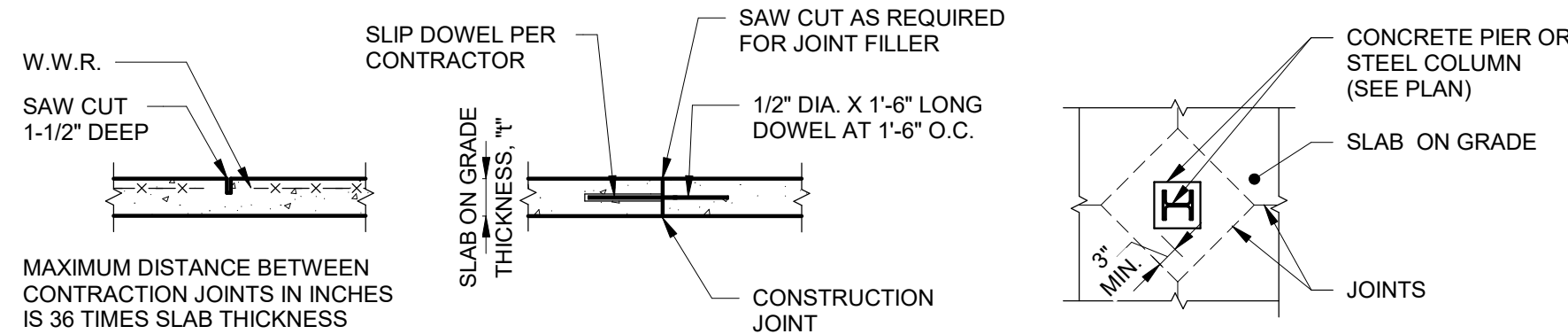
SUPERSTRUCTURE  
SECTIONS

A3C  
COLLABORATIVE ARCHITECTURE

115 1/2 E. LIBERTY STREET  
ANN ARBOR, MI 48104  
T: (734) 663 - 1910  
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Sheet  
S4.02



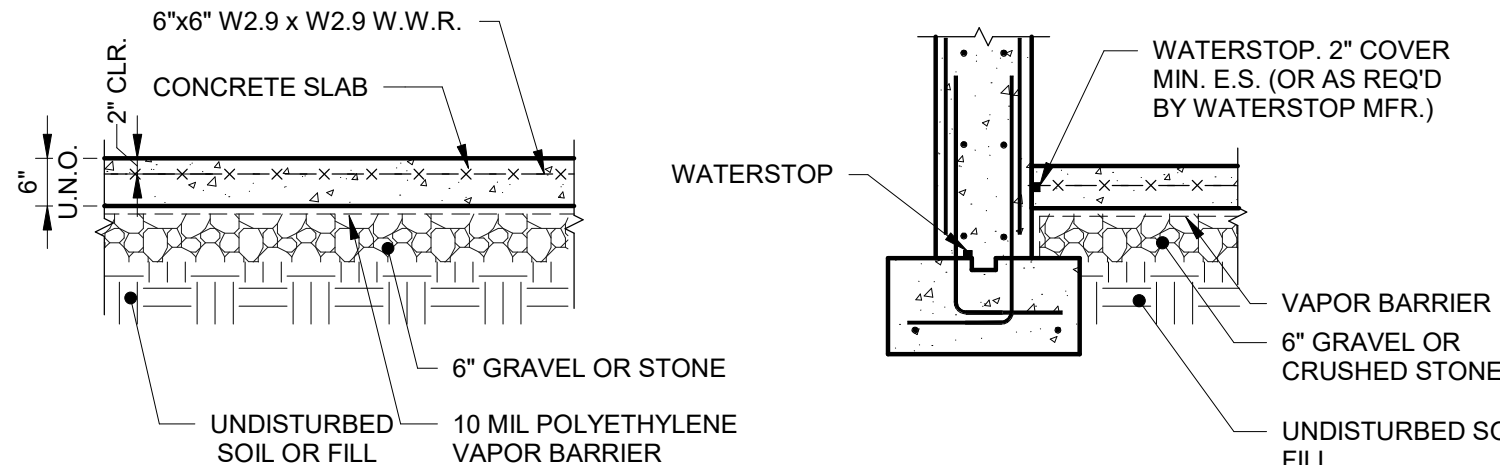


SAWED CONTRACTION JOINT

CONSTRUCTION JOINT

ISOLATION JOINT AT COLUMN

ADDITIONAL REINFORCEMENT  
AT ALL RE-ENTRANT CORNERS

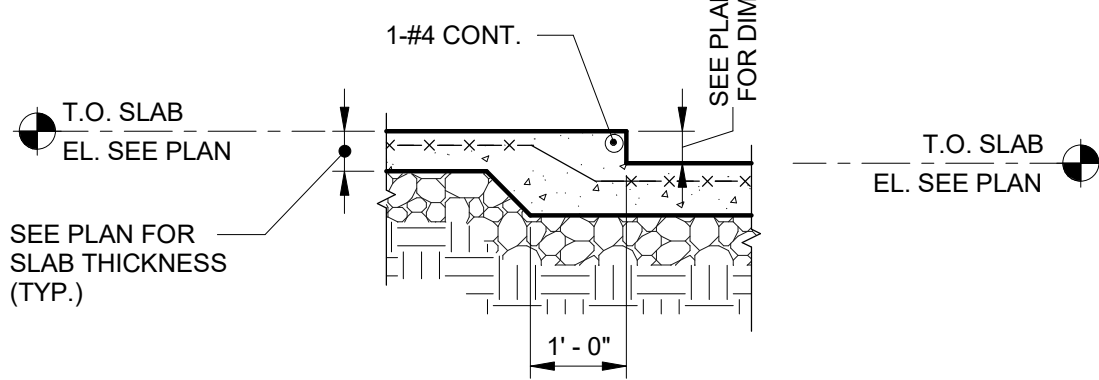


SLAB ON GRADE

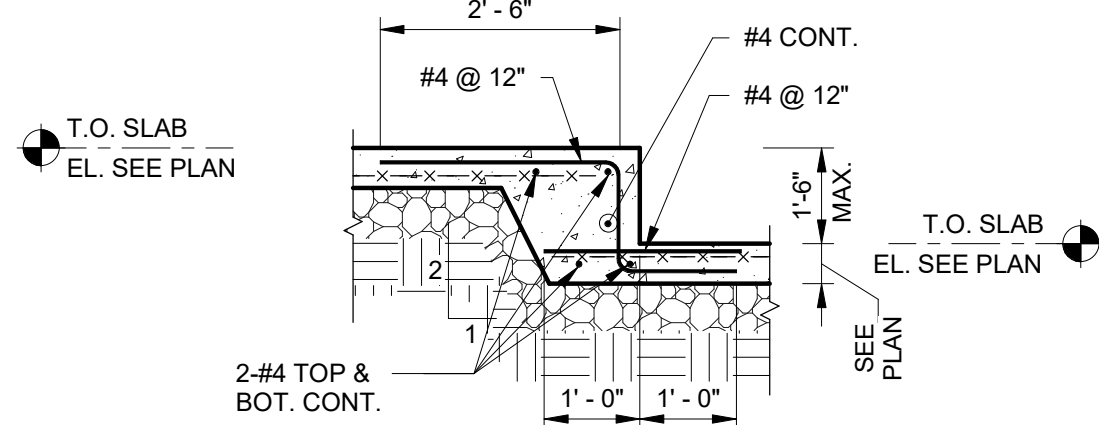
SLAB-ON-GRADE & WALL INTERFACE

NOTES:

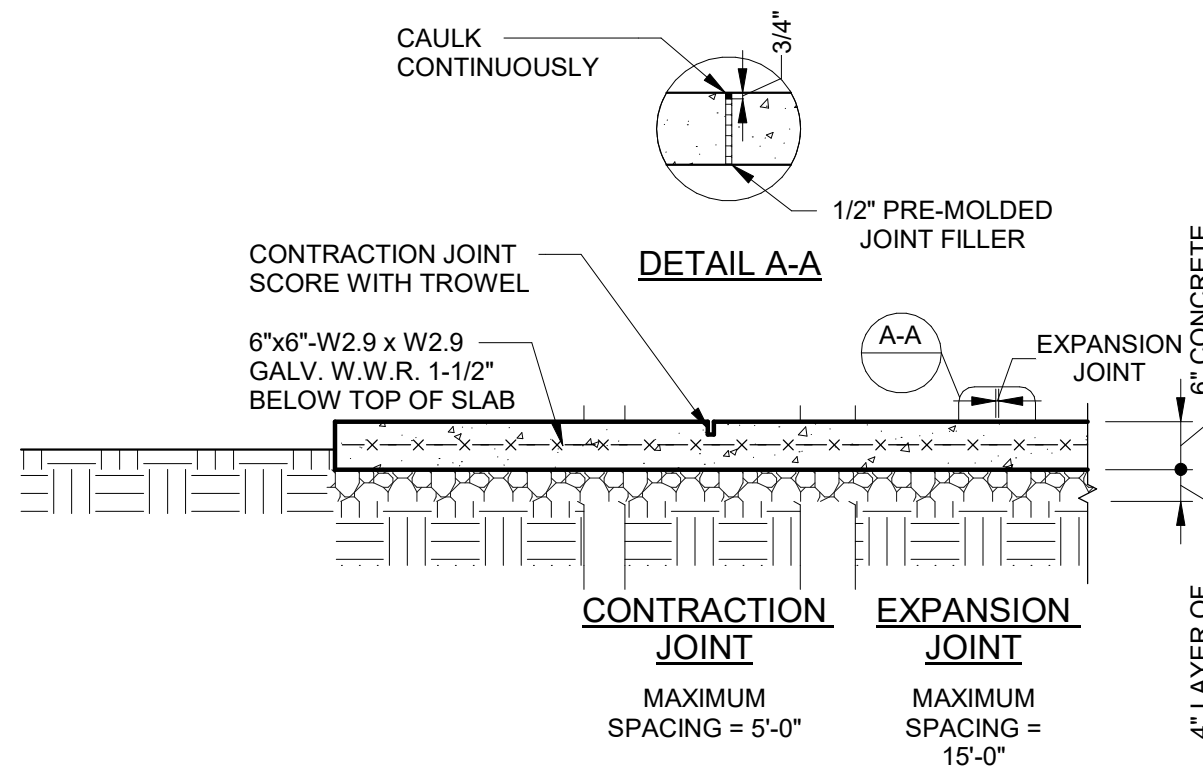
1. SLAB ON GRADE SHALL BE PLACED IN ALTERNATING STRIPS WHERE EACH SINGLE STRIP DOES NOT EXCEED 36 TIMES SLAB THICKNESS WIDTH IN INCHES. ALTERNATIVELY, LARGE BLOCK PLACEMENTS WITH INTERIOR CONTRACTION JOINTS ARE ACCEPTABLE IF THE CONTRACTION JOINTS ARE MADE IN BOTH DIRECTIONS AT SPECIFIED INTERVALS IN A TIMELY MANNER.
2. SAWED CONTRACTION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING IN INCHES OF 36 TIMES THE SLAB THICKNESS. JOINTS SHALL BE SAWED NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED.
3. GRAVEL OR CRUSHED STONE BASE SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.



STEP LESS THAN OR EQUAL TO SLAB THICKNESS



STEP GREATER THAN SLAB THICKNESS



NOTES:

1. UNDISTURBED SOIL OR FILL COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT REMOVE ORGANIC MATERIAL.
2. BROOM FINISH UNLESS NOTED OTHERWISE.

TYPICAL SLAB ON GRADE

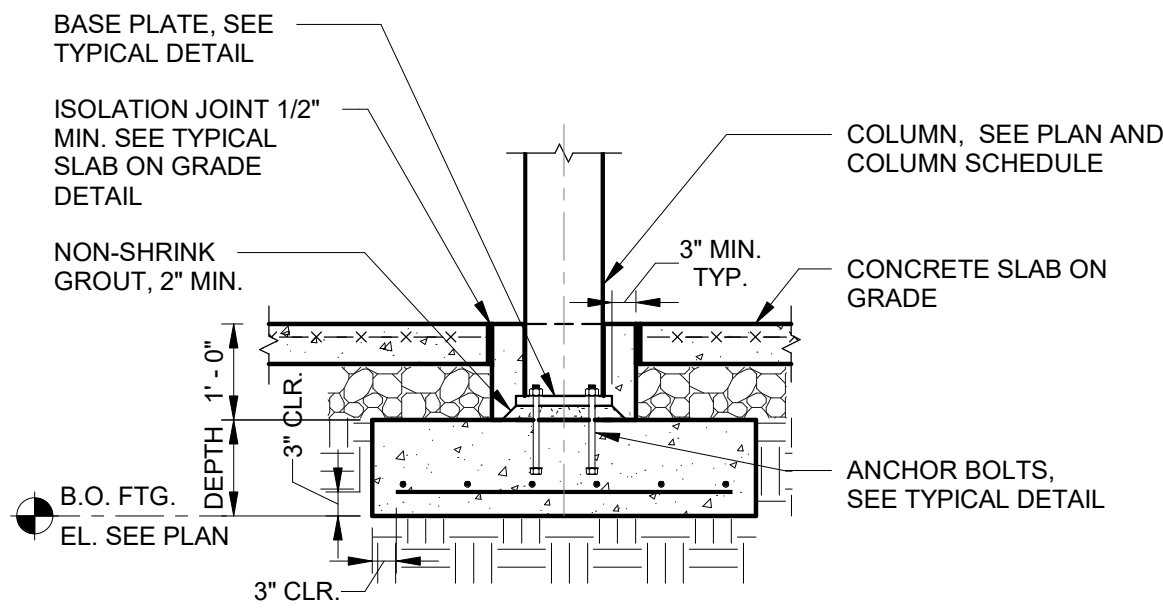
N.T.S.

TYPICAL STEP IN SLAB ON GRADE

N.T.S.

TYPICAL EXTERIOR PAVING

N.T.S.

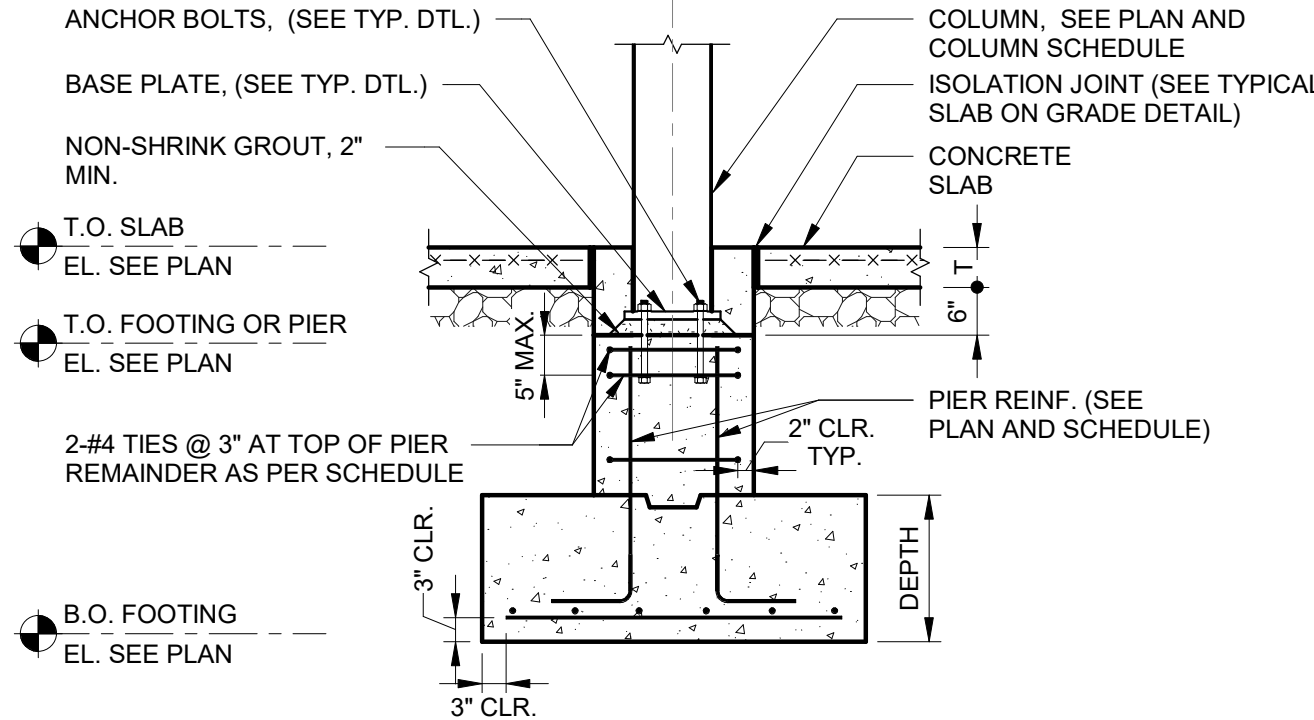


NOTES:

1. FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL WITH A MINIMUM BEARING CAPACITY AS SPECIFIED IN THE GENERAL NOTES.
2. FOR SIZE, DEPTH AND REINFORCING SEE FOOTING SCHEDULE.

TYPICAL SPREAD FOOTING AT STEEL COLUMN

N.T.S.

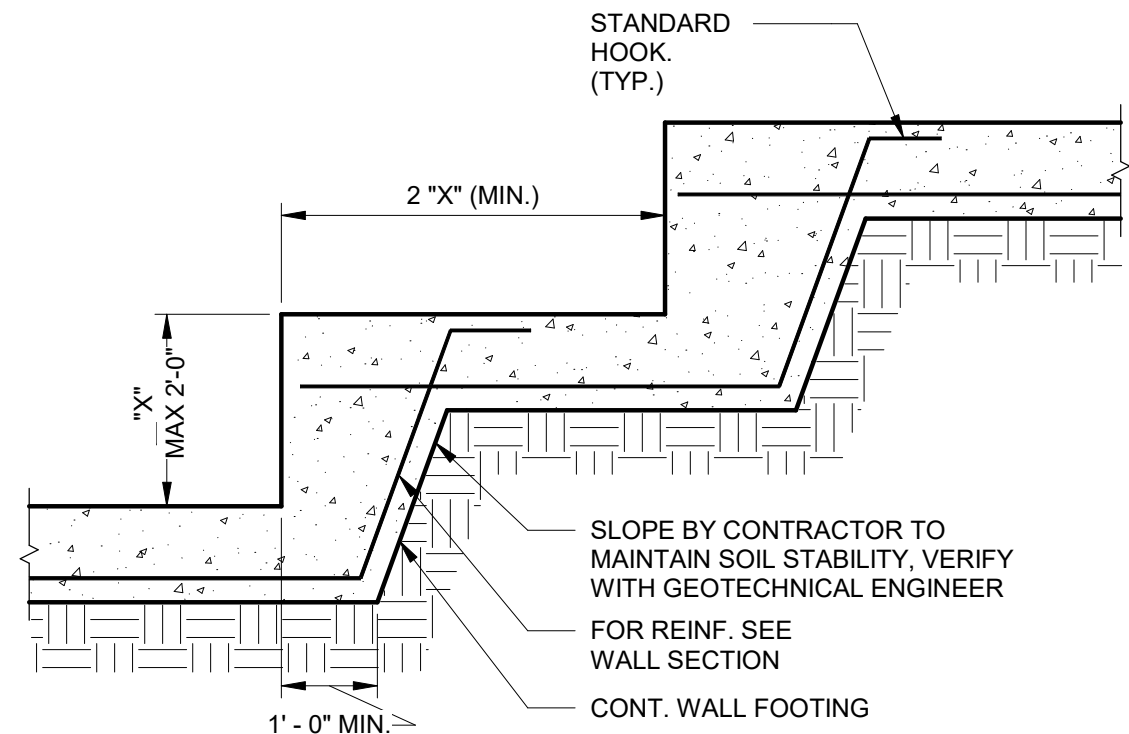


NOTES:

1. PIER SIZE TO BE 3\"/>
2. SEE PLAN AND FOOTING SCHEDULE FOR FOOTING SIZE AND REINFORCING.
3. IF PIER HEIGHT IS LESS THAN 2'-6\"/>
4. T = SLAB THICKNESS - SEE PLANS.
5. FOR TIES AND ADDITIONAL INFORMATION SEE \"TYPICAL DETAIL CONCRETE COLUMN\".

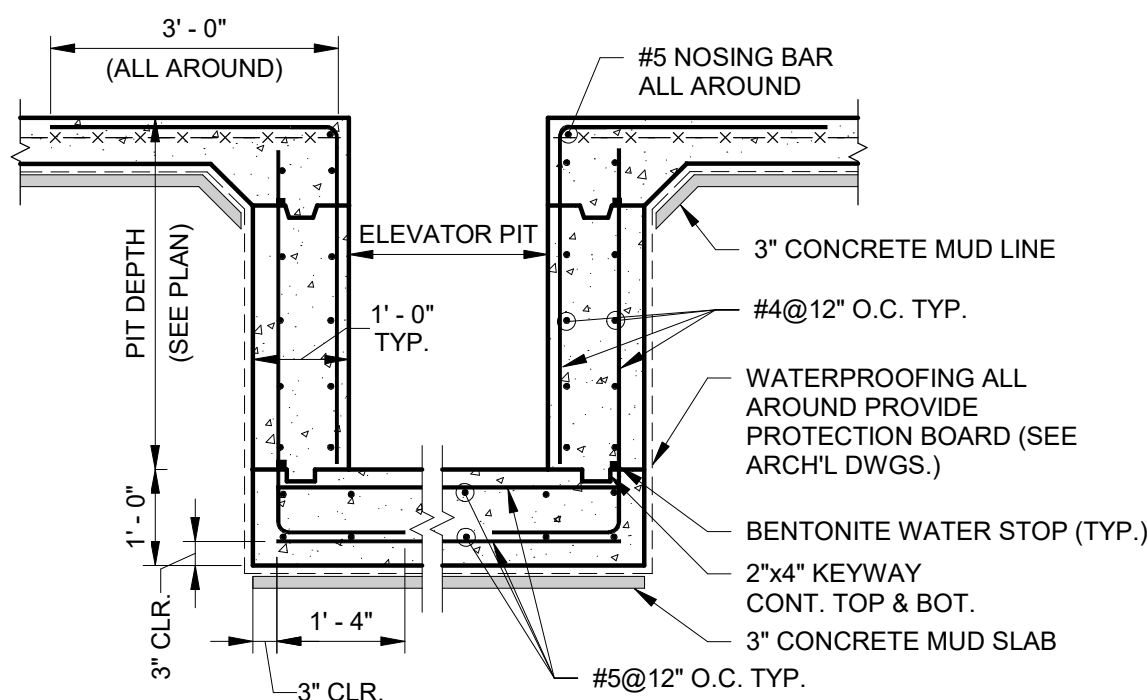
TYPICAL PIER & FOOTING AT STEEL COLUMN

N.T.S.



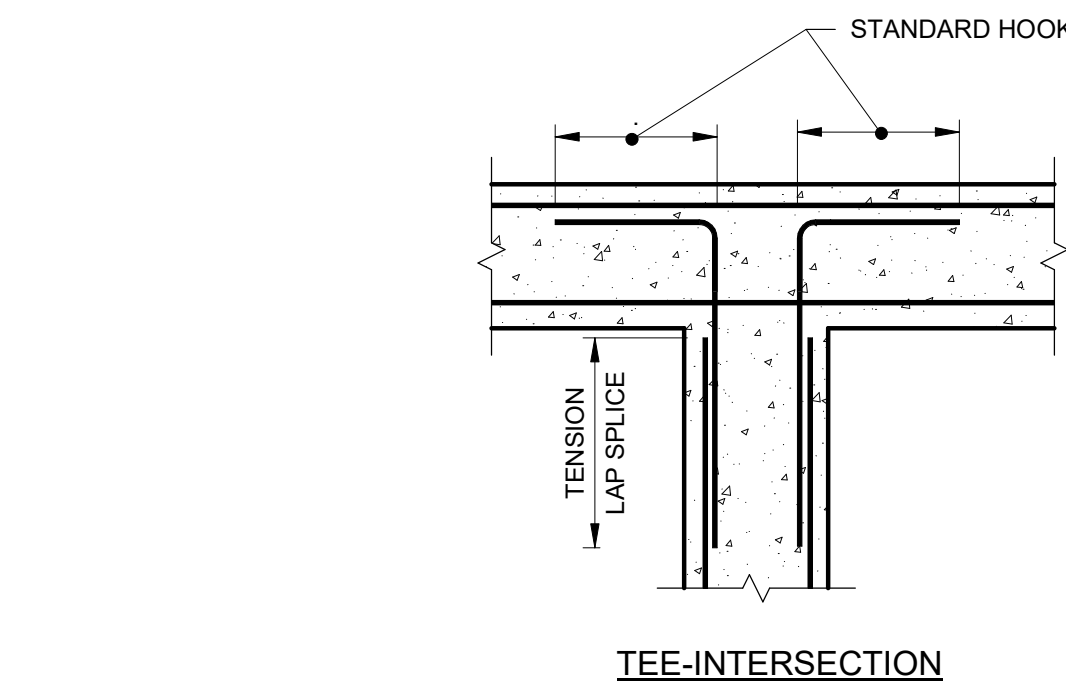
TYPICAL STEPPED WALL FOOTING

N.T.S.

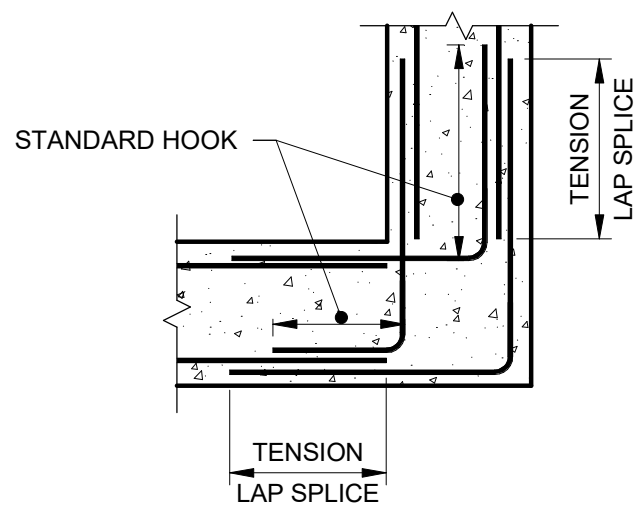


TYPICAL ELEVATOR PIT (EXTERIOR WATERPROOFING)

N.T.S.



TEE-INTERSECTION

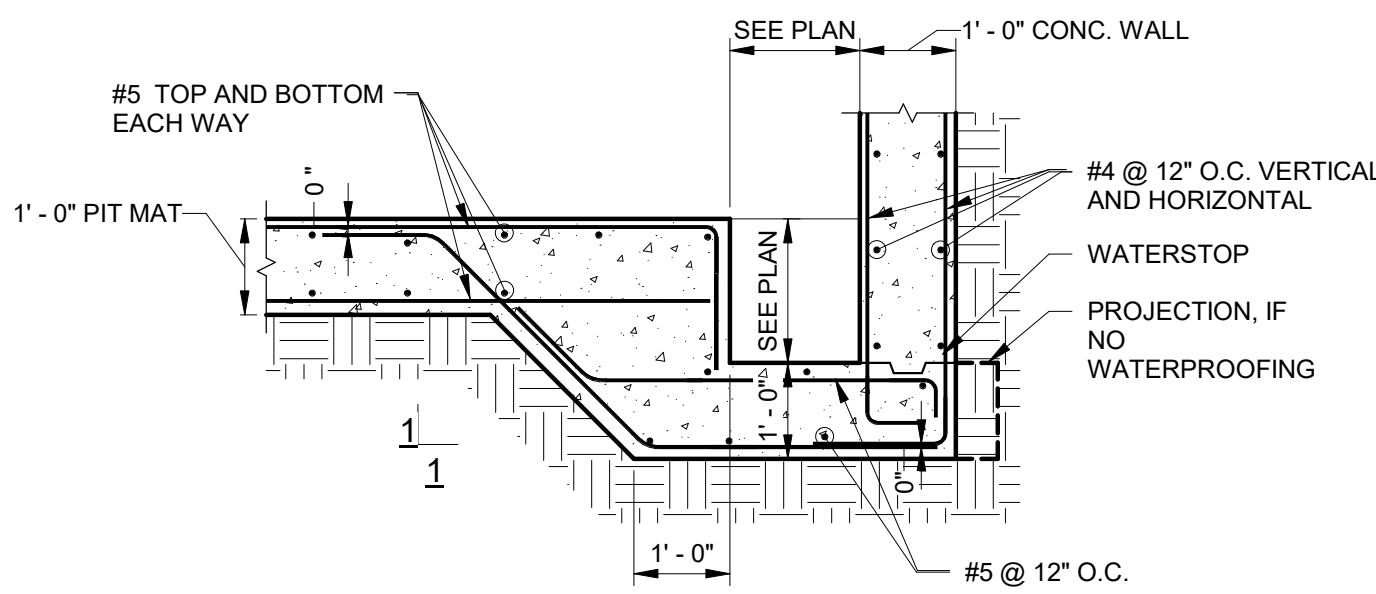


CORNER

NOTE: FOR TENSION LAP SPLICE LENGTH AND DEVELOPMENT LENGTH SEE TABLE.

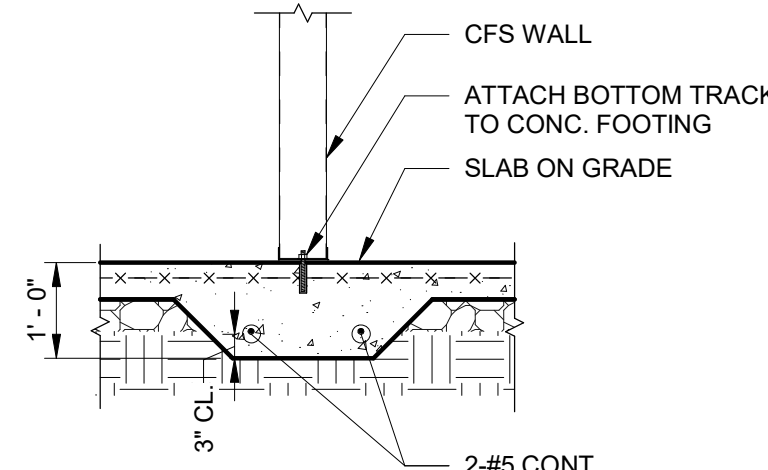
TYPICAL HORIZONTAL REINFORCEMENT AT  
CORNERS & JUNCTIONS OF WALLS AND BEAMS

N.T.S.



TYPICAL ELEVATOR SUMP PIT

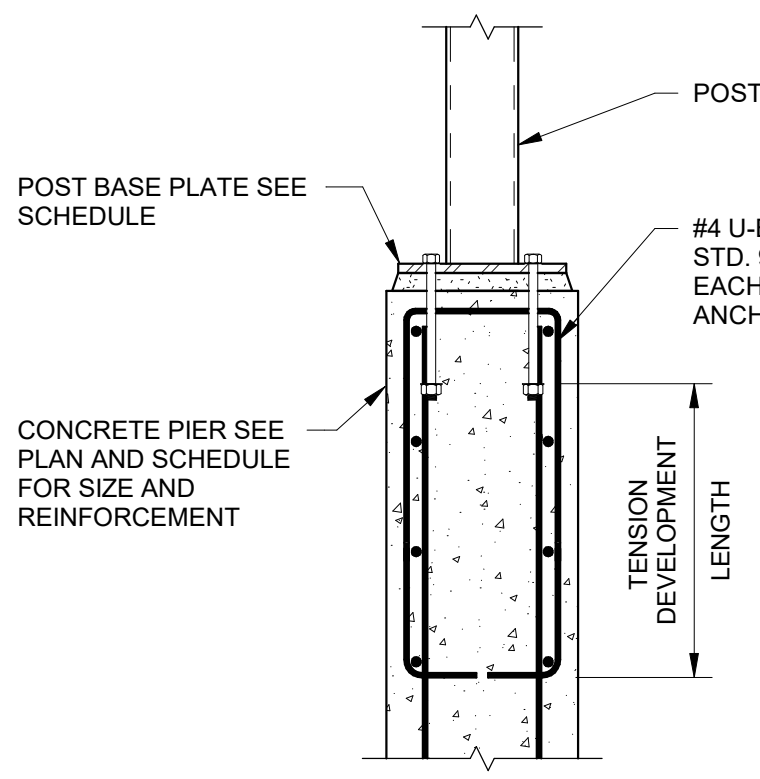
N.T.S.



NOTE: SEE TYPICAL SLAB ON GRADE DETAIL FOR ADDITIONAL INFORMATION

TYPICAL SUPPORT FOR CFS  
PARTITIONS AT SLAB ON GRADE

N.T.S.



TYPICAL TENSION REINFORCEMENT  
AT CONCRETE PIERS

N.T.S.

Project Number 21018

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24

Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

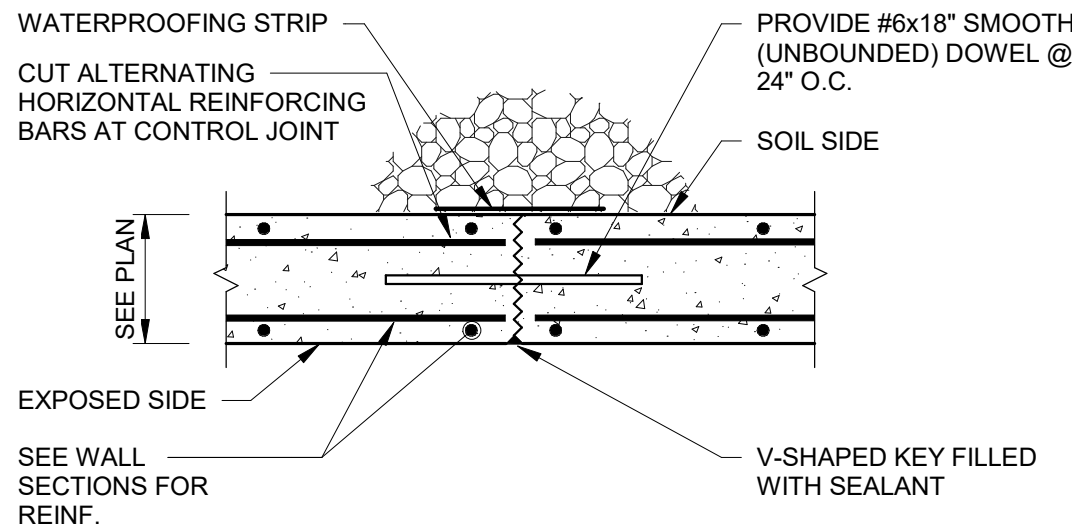
TYPICAL DETAILS

Sheet

S5.01

SILMAN PROJECT #20145



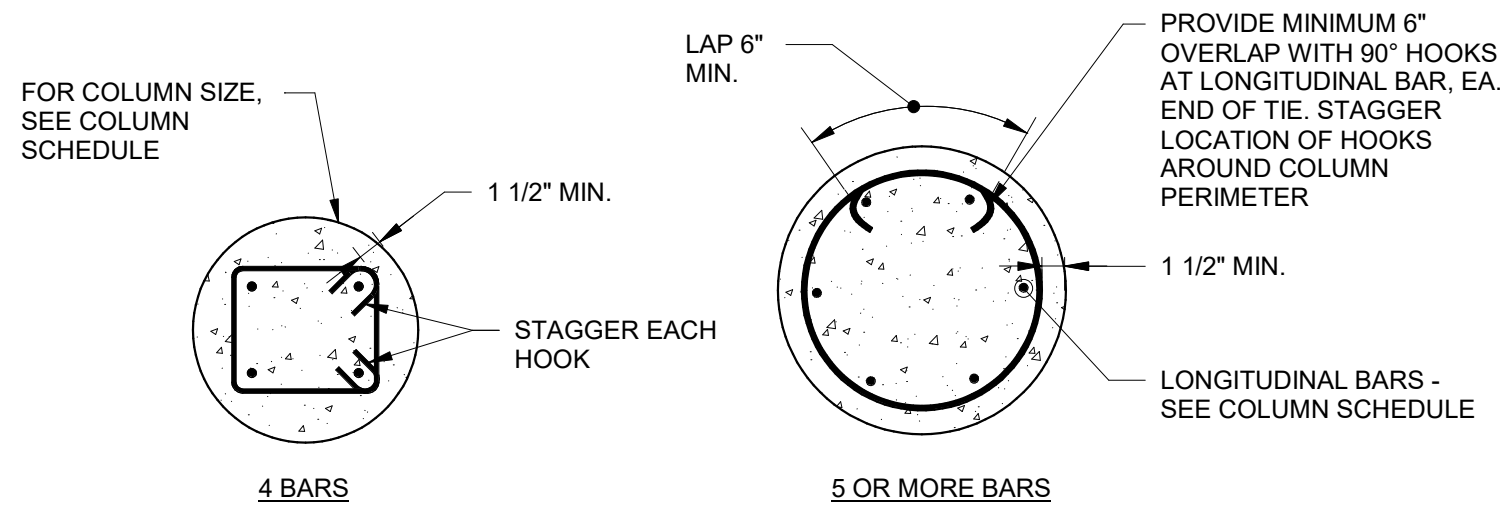


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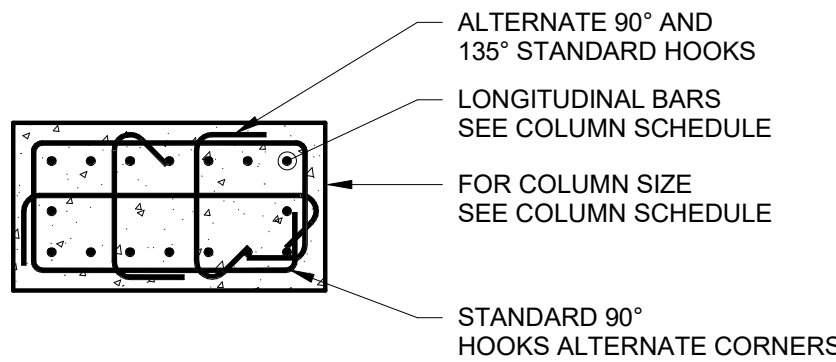
1. PROVIDE CONTROL JOINTS AT A MAXIMUM OF 20 FEET O.C. AND AT ALL CORNERS.
2. SEE TYPICAL WALL DETAIL AND ARCH. FOR WATERPROOFING AND DRAINAGE REQUIREMENTS

TYPICAL CONTROL JOINT IN CONCRETE WALL

N.T.S.



ROUND COLUMNS



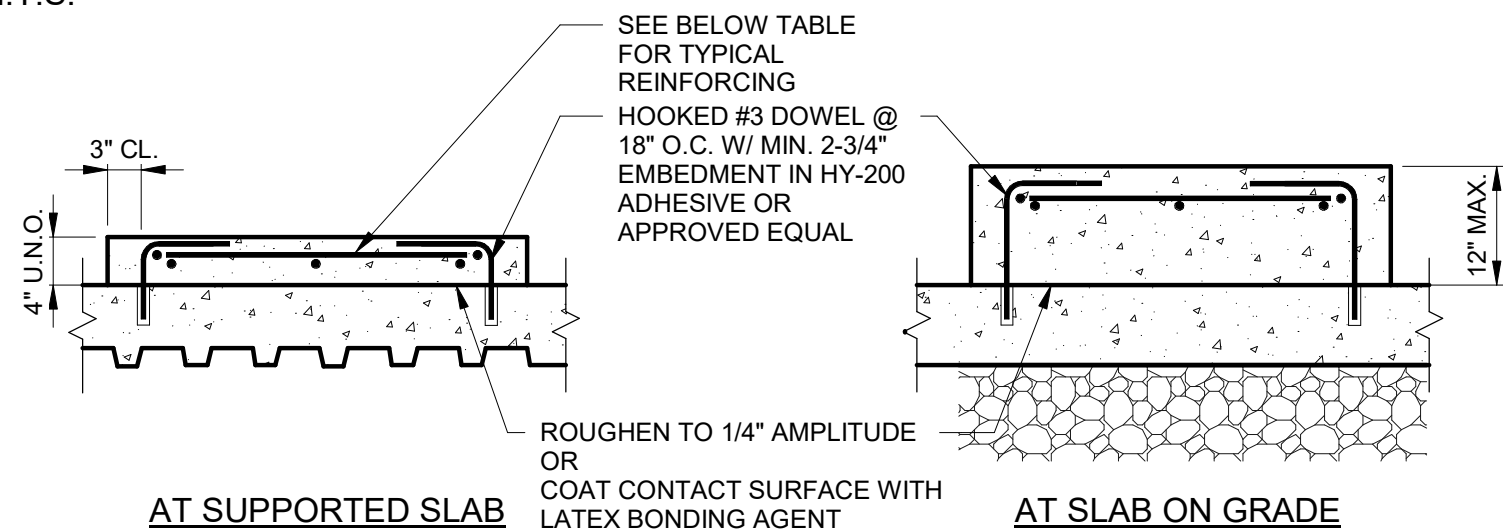
SQUARE/RECTANGULAR COLUMNS

NOTES:

1. TIE SIZE: #3 TIES FOR LONGITUDINAL BARS UP TO #9 AND #4 TIES FOR LONGITUDINAL BARS #10, #11, #14 & #18.
2. TIE SPACING NO GREATER THAN:  
A. 16x DIAMETER OF LONGITUDINAL BARS  
B. 48x DIAMETER OF TIES  
C. MINIMUM DIMENSION OF COLUMN
3. FOR RECTANGULAR/SQUARE COLUMNS, EVERY CORNER AND ALTERNATE LONGITUDINAL BAR SHALL HAVE LATERAL SUPPORT PROVIDED BY CORNER OF A TIE HAVING AN INCLUDED ANGLE OF NOT MORE THAN 135 DEGREES. NO BAR SHALL BE MORE THAN 6" CLEAR FROM SUCH A Laterally SUPPORTED BAR ON EITHER SIDE.

TYPICAL CROSS-SECTION OF CONCRETE COLUMN

N.T.S.



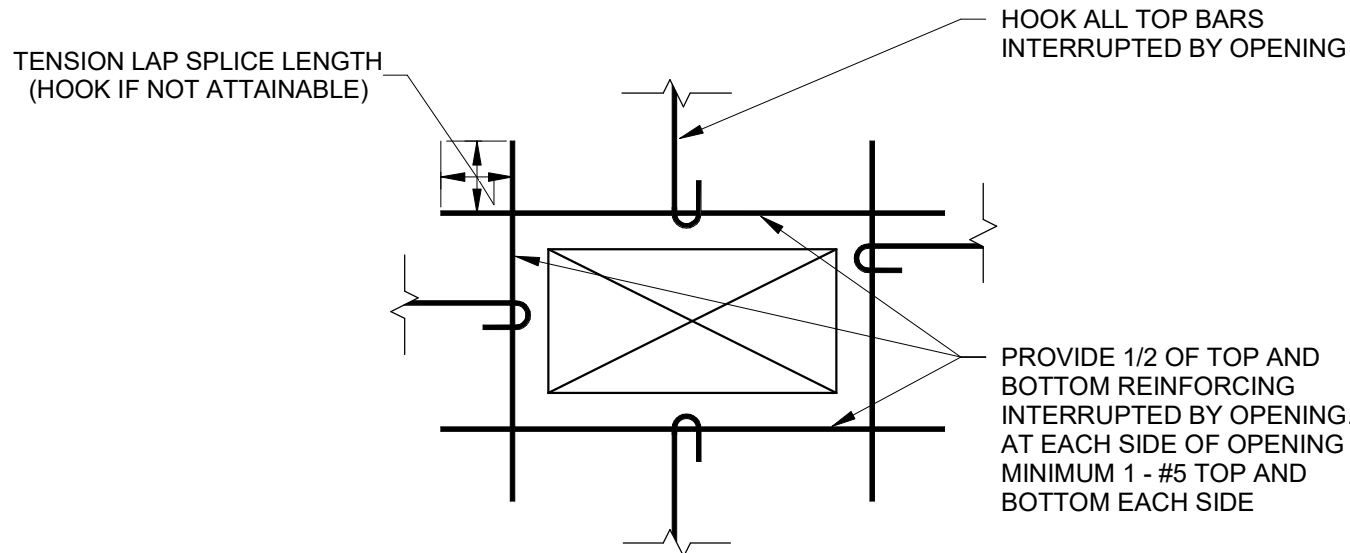
EQUIPMENT PAD TEMPERATURE AND SHRINKAGE REINFORCING	
PAD THICKNESS	REINFORCING
4"-5"	#3 @ 12" O.C. EACH WAY
6"-9"	#4 @ 12" O.C. EACH WAY
10"-12"	#5 @ 12" O.C. EACH WAY

NOTES:

1. FOR SIZE AND LOCATION SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. CONCRETE FOR PADS SHALL BE NORMAL WEIGHT WITH  $f_c = 4,000$  PSI.

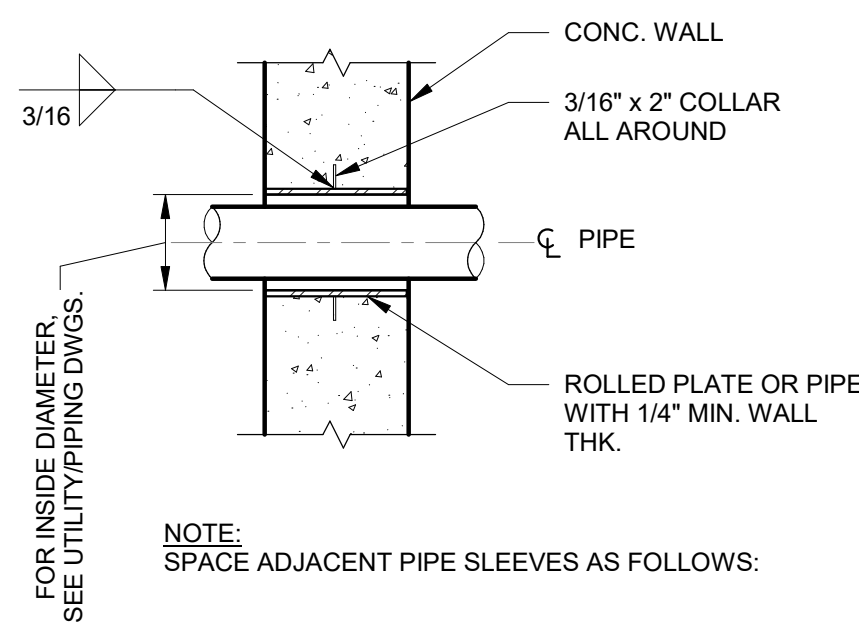
TYPICAL EQUIPMENT PAD

N.T.S.



TYPICAL ADDITIONAL REINFORCEMENT AT OPENING IN FRAMED SLAB

N.T.S.



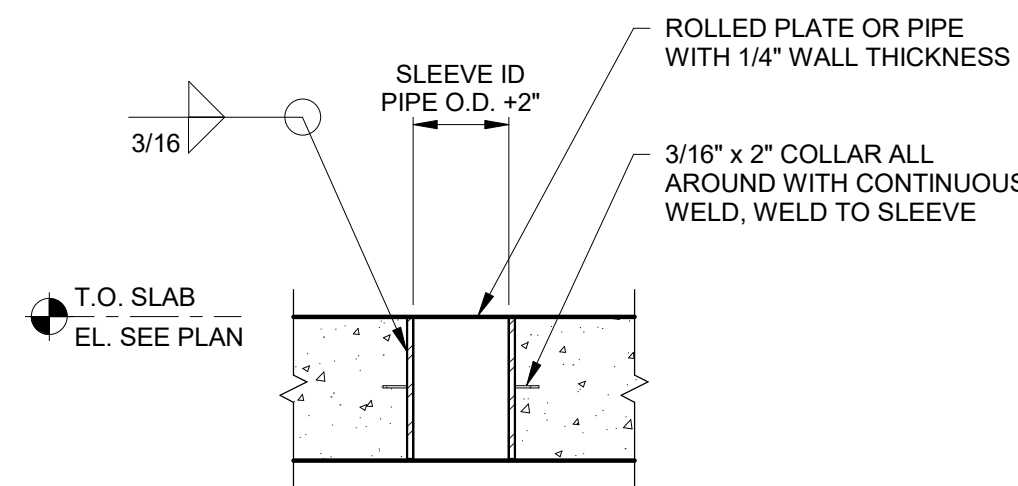
NOTE:

SPACE ADJACENT PIPE SLEEVES AS FOLLOWS:

PIPE DIAMETER (OUTSIDE DIA.)	CLEAR DISTANCE BETWEEN EDGES OF PIPE OPENINGS
DIA. $\leq 6"$	CLEAR DIST. = PIPE DIA.
6" < DIA. $\leq 12"$	CLEAR DIST. = 6"
12" < DIA. $\leq 24"$	CLEAR DIST. = WALL THICKNESS

TYPICAL PIPE SLEEVE IN CONCRETE WALL

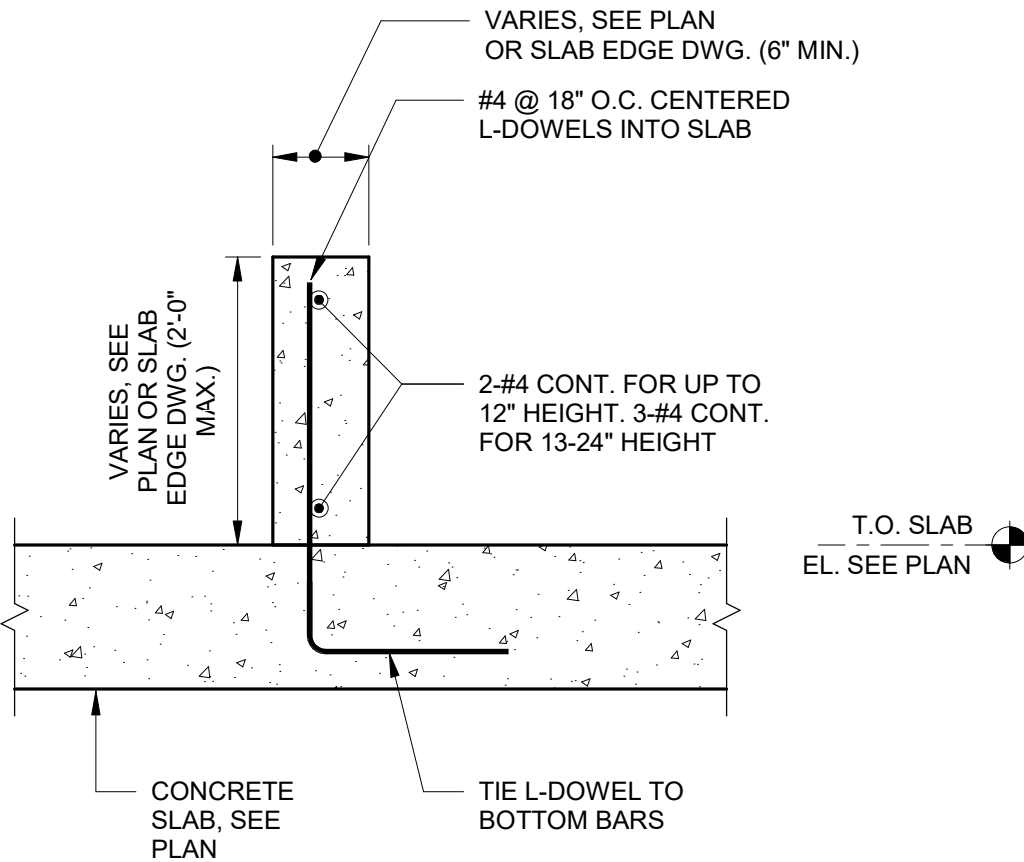
N.T.S.



NOTE: PROVIDE CLEAR SPACE BETWEEN PIPE AND/ OR OPENINGS A MINIMUM 6" OR PIPE SLEEVE DIAMETER APART (WHICHEVER IS GREATER.)

TYPICAL PIPE SLEEVE IN CONCRETE SLAB

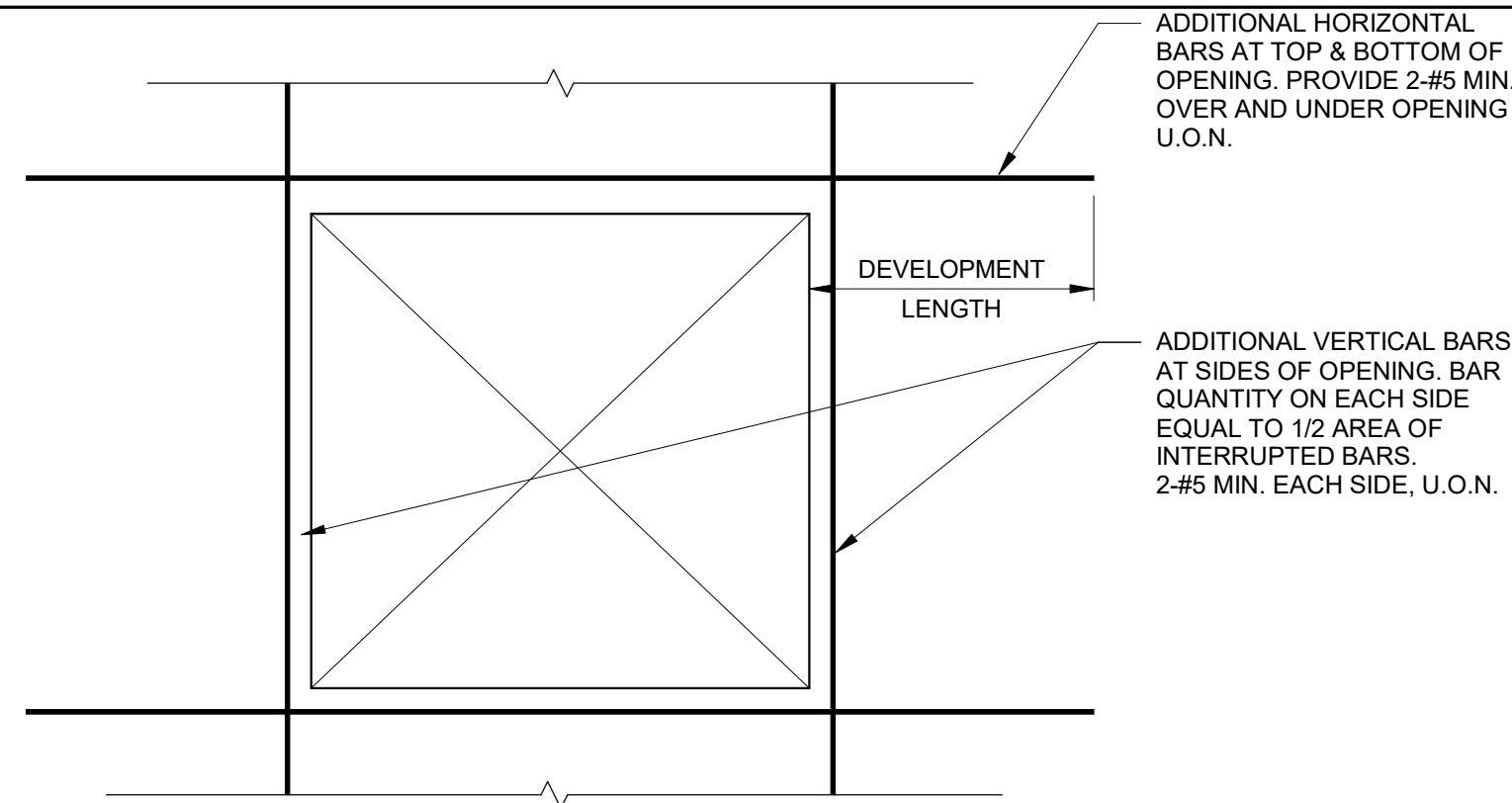
N.T.S.



NOTE: SLAB REINF. NOT SHOWN FOR CLARITY

TYPICAL CONCRETE CURB DETAIL AT CAST-IN-PLACE CONCRETE SLAB

N.T.S.

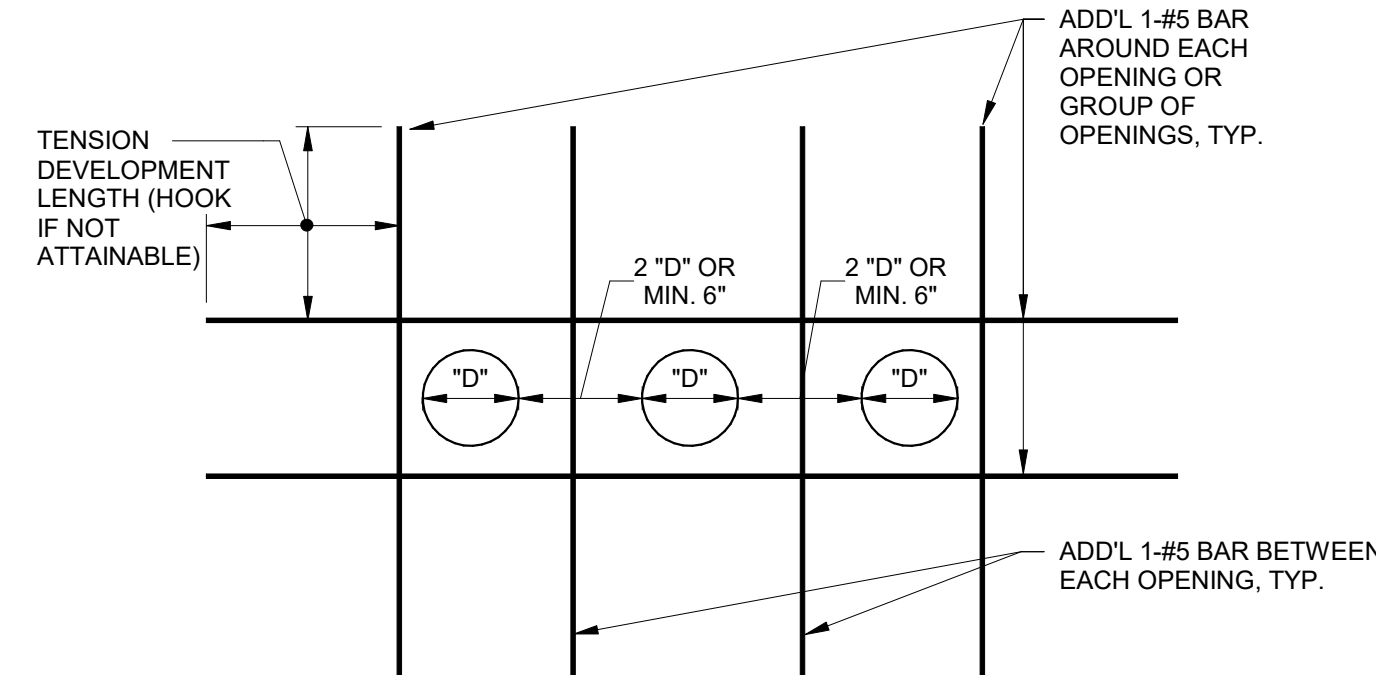


NOTES:

1. HOOK ALL BARS INTERRUPTED BY OPENING.
2. HORIZONTAL BARS TO EXTEND DEVELOPMENT LENGTH BEYOND OPENING, VERTICAL BARS TO BE FULL STORY HEIGHT.
3. PROVIDE REINFORCING SHOWN IN THIS DETAIL U.O.N. IN SHEAR WALL SCHEDULE, SHEAR WALL DETAILS, SHEAR WALL ELEVATIONS ETC.

TYPICAL OPENING IN CONCRETE WALL

N.T.S.

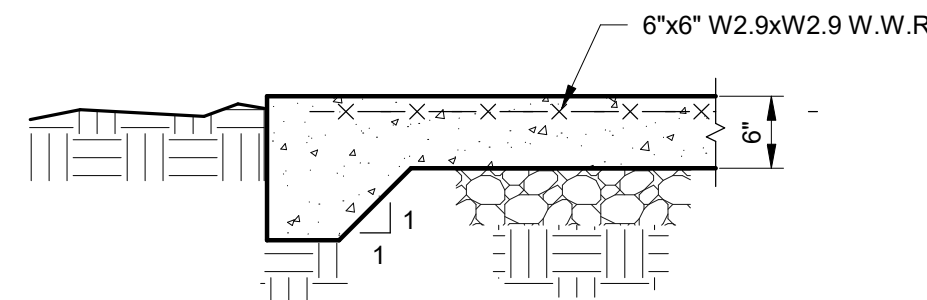


NOTES:

1. LIMIT 3 PENETRATIONS IN A ROW IN ANY DIRECTION.
2. COORDINATE WITH TYPICAL DETAIL FOR FORMED CONCRETE SLAB PIPE SLEEVE.
3. SHOULD PENETRATIONS BE CUT AFTER CONCRETE IS POURED. CONTRACTOR TO SUBMIT PLAN SHOWING ALL PROPOSED CORE DRILLING LOCATIONS TO E.O.R. FOR APPROVAL. CONTRACTOR TO USE NDE METHODS TO LOCATE REBAR PRIOR TO CUTTING SLAB.

TYPICAL SLAB PENETRATION WITH SLEEVE DIAMETER LESS THAN 6"

N.T.S.



NOTES:

1. FOR SIZE AND LOCATION SEE ARCHITECTURAL AND MECHANICAL DRAWINGS.
2. CONCRETE FOR PADS SHALL BE NORMAL WEIGHT WITH  $f_c = 4000$  PSI
3. THREADED RODS TO BE 3/8"  $\phi$  A-36 STEEL IN EXPANSION INSERTS @ 18" O.C. HY-200 ADHESIVE OR APPROVED EQUAL.

TYPICAL EQUIPMENT PAD ON GRADE (EXTERIOR)

N.T.S.

Project Number 21018

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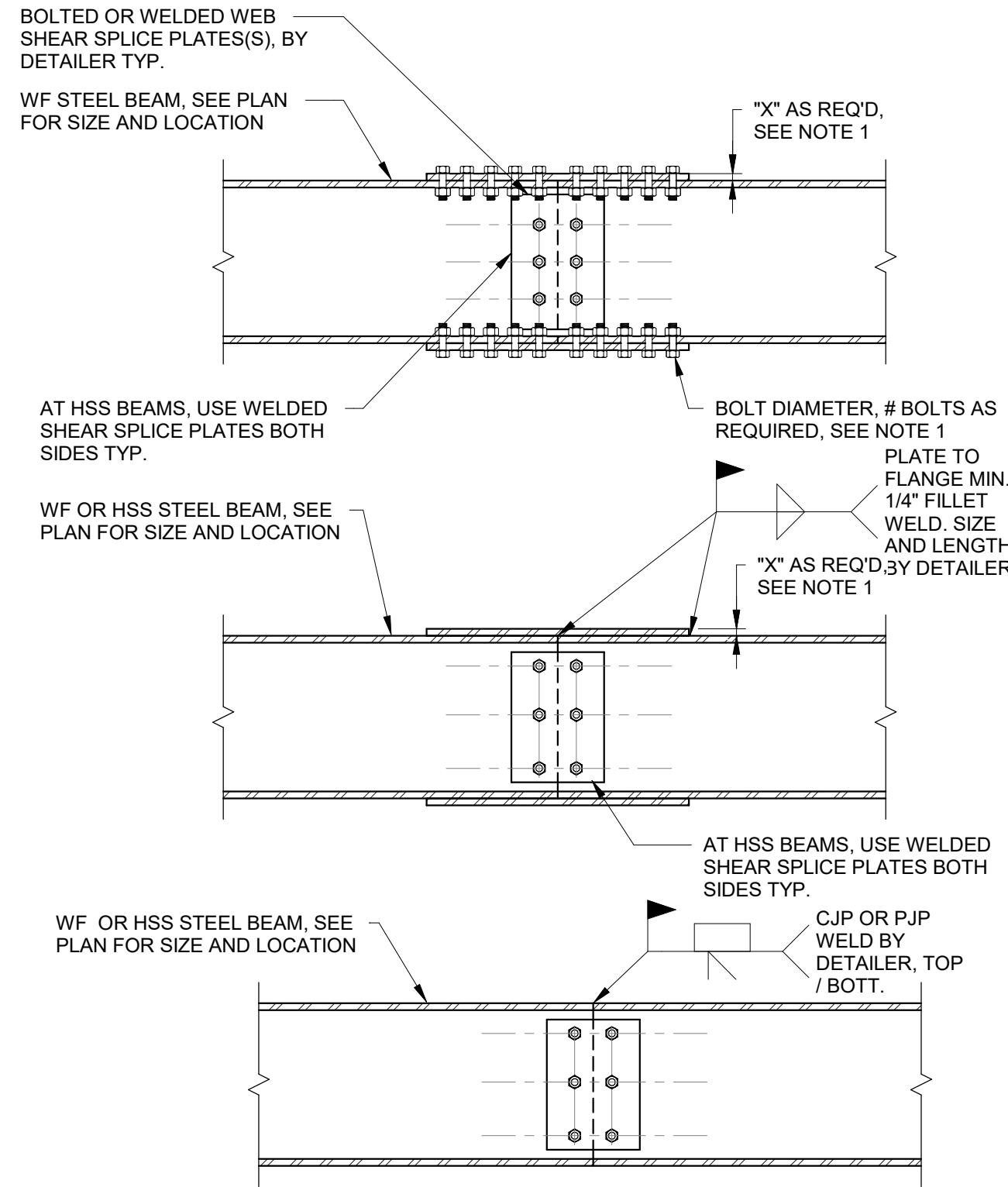
City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

TYPICAL DETAILS

Sheet

S5.02



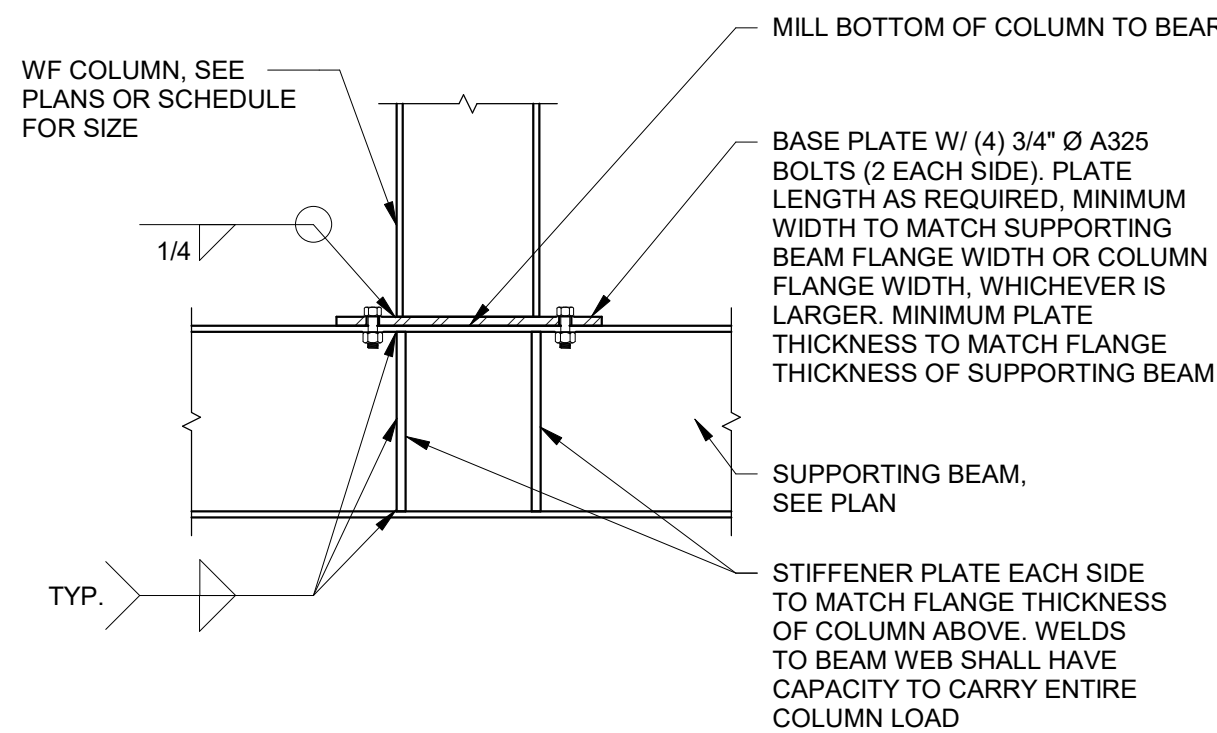


NOTES:

1. FLANGE AND WEB SPLICE CONNECTIONS TO BE SELECTED OR ENGINEERED BY DETAILER TO DEVELOP THE FULL CAPACITY OF THOSE BEAM ELEMENTS SIDE OF JOINT.
2. COORDINATE AND SUBMIT SPLICE LOCATIONS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
3. ALL STEEL CONNECTIONS ARE SUBJECT TO SPECIAL INSPECTION INCLUDING ULTRASONIC TESTING OF PJP OR CJP GROOVE WELDS.

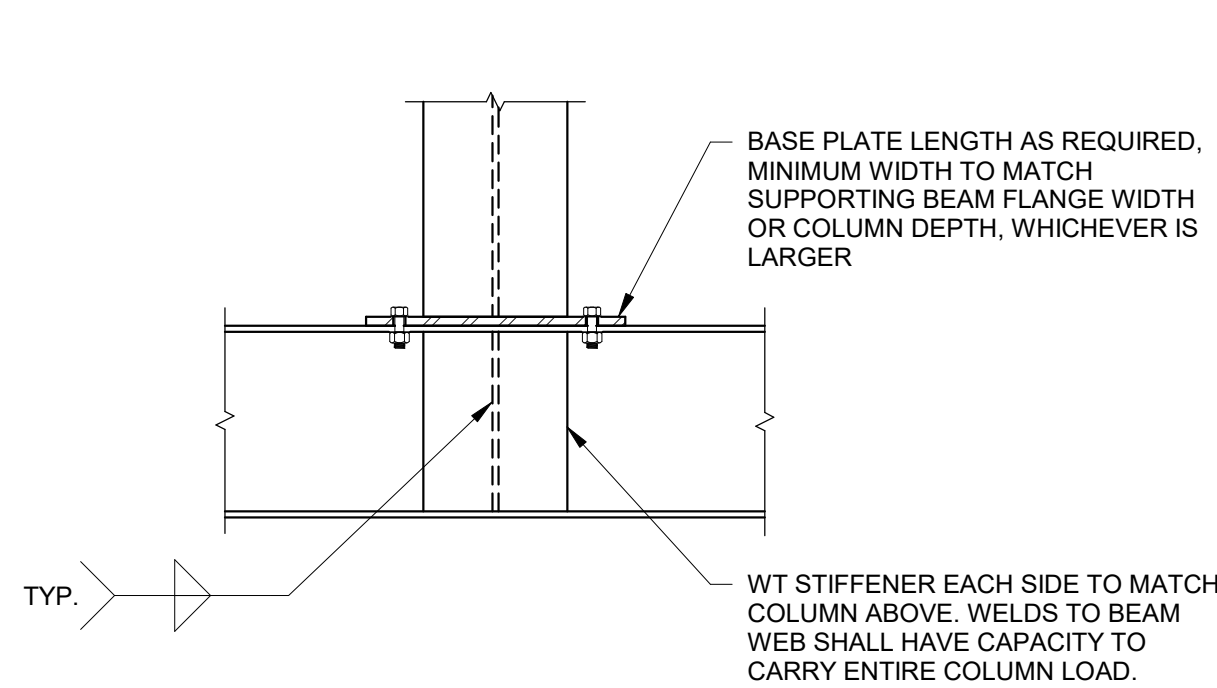
TYPICAL STEEL BEAM SPLICE

N.T.S.



PARALLEL WEB CONDITION

SEE PERPENDICULAR CONDITION FOR BALANCE OF INFORMATION

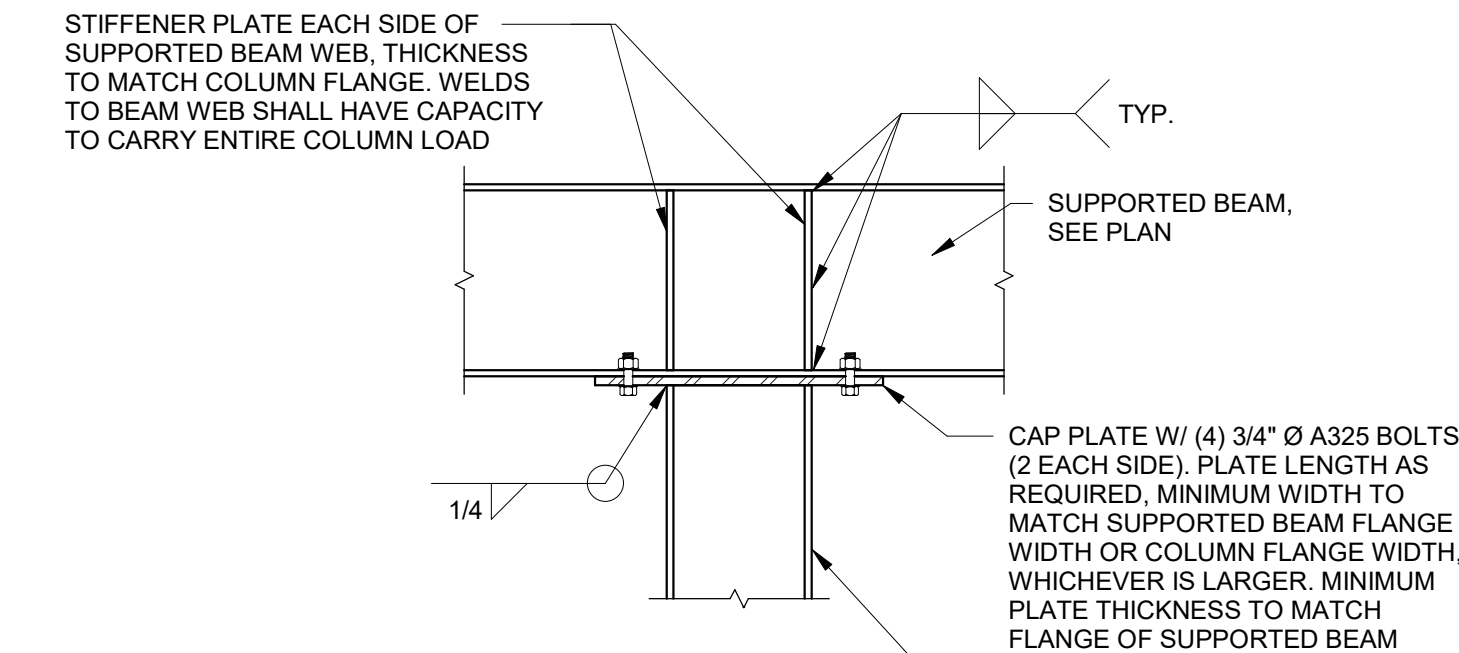


PERPENDICULAR WEB CONDITION

SEE PARALLEL CONDITION FOR BALANCE OF INFORMATION

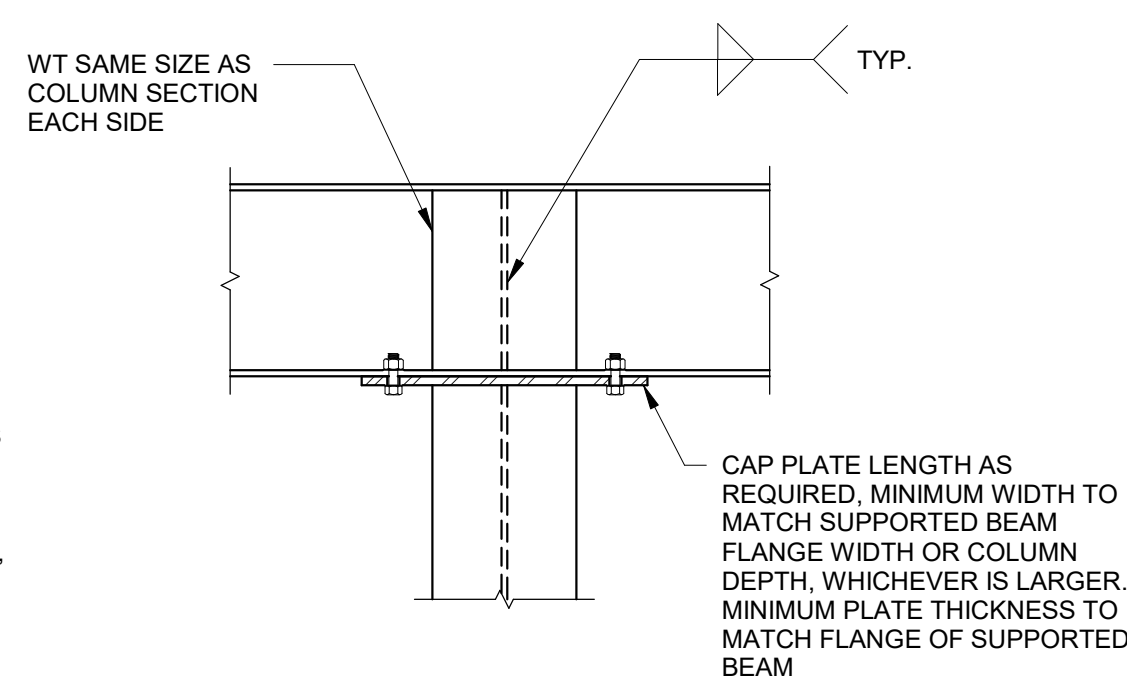
TYPICAL BEAM-SUPPORTED WIDE FLANGE COLUMN

N.T.S.



PARALLEL WEB CONDITION

SEE PERPENDICULAR CONDITION FOR BALANCE OF INFORMATION

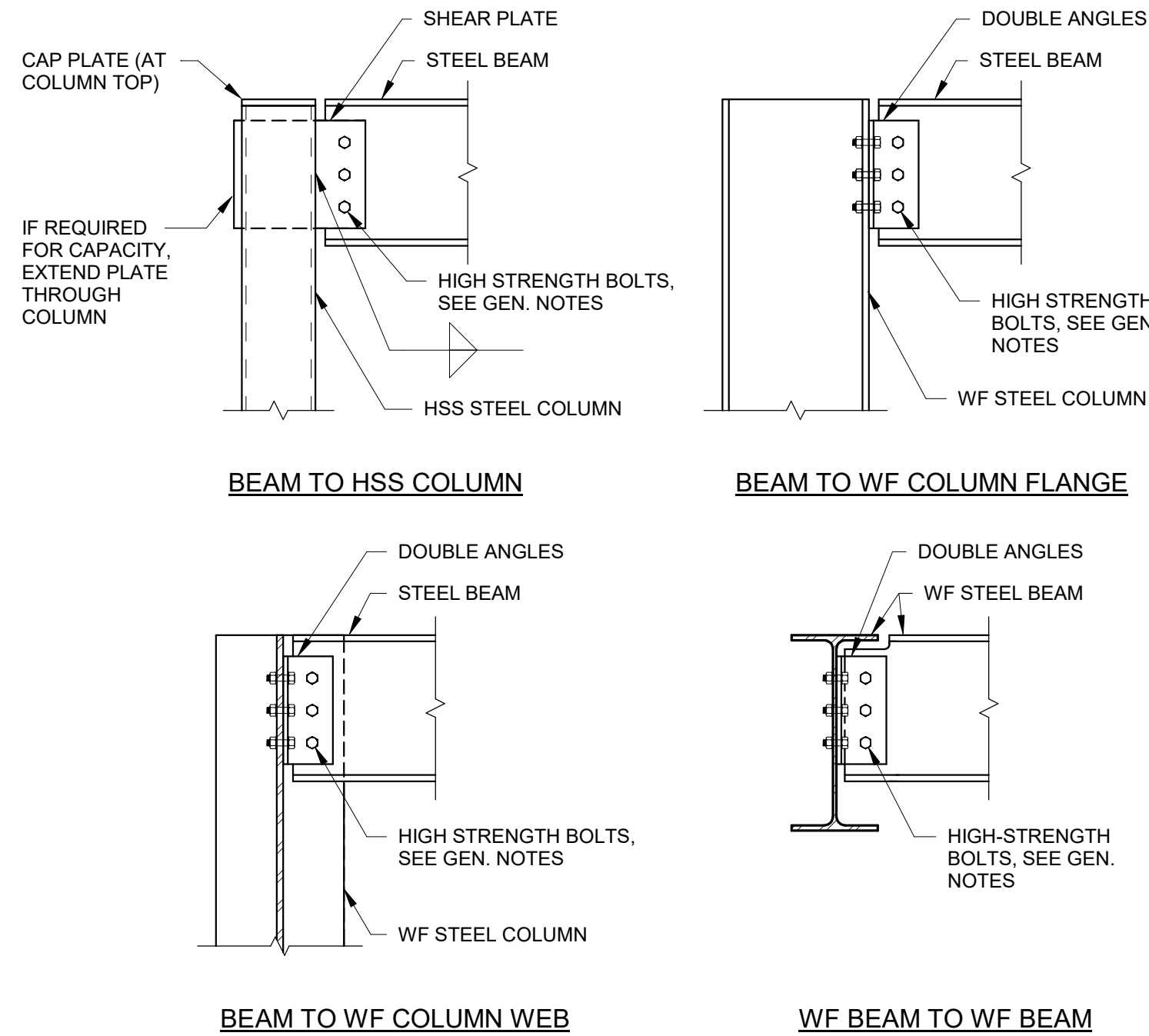


PERPENDICULAR WEB CONDITION

SEE PARALLEL CONDITION FOR BALANCE OF INFORMATION

TYPICAL BEAM CONTINUOUS OVER WIDE FLANGE COLUMN

N.T.S.

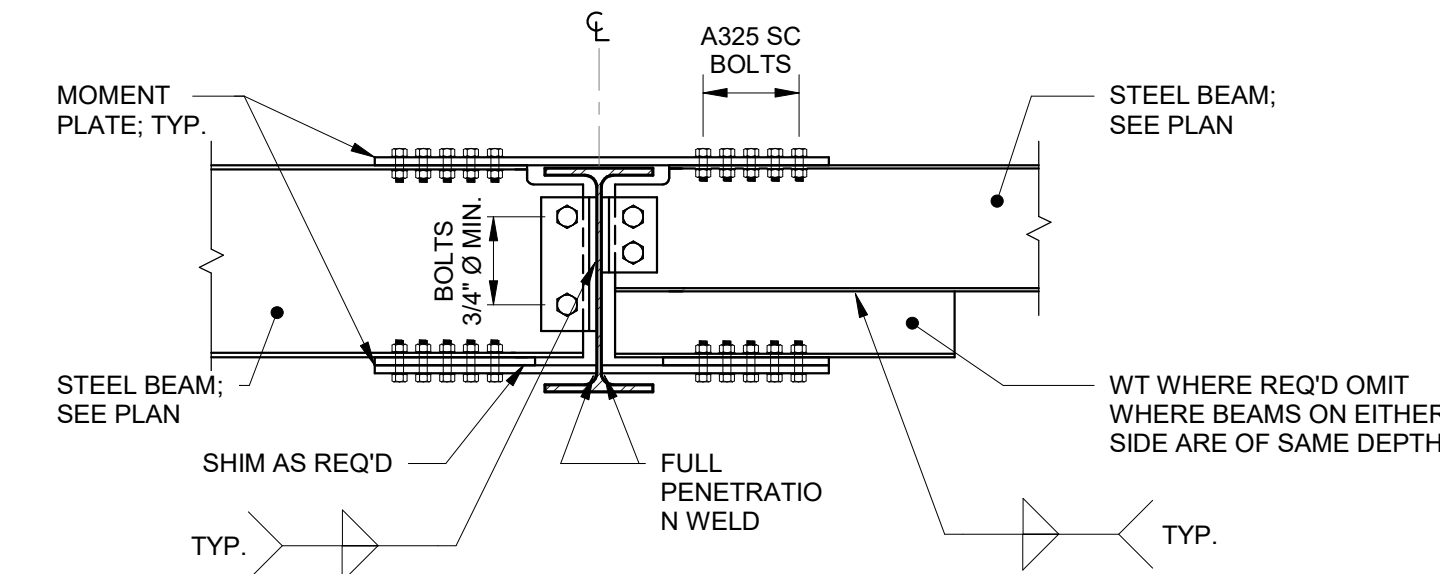


NOTES:

1. CONNECTION DETAILS SHOWN ABOVE ARE SCHEMATIC ONLY. THE CONTRACTOR MAY SUBMIT ALTERNATE DETAILS FROM THOSE SHOWN ABOVE, BUT IN ANY CASE THE CONTRACTOR IS RESPONSIBLE FOR PRODUCING STEEL SHOP DRAWINGS IN ACCORDANCE WITH THE PROJECT GENERAL NOTES AND AISC GUIDELINES. CALCULATIONS SHALL BE SUBMITTED AS REQUIRED IN THE GENERAL NOTES AND ELSEWHERE IN THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL DETAIL THE PROJECT CONNECTIONS FOR THE LOADS AS INDICATED IN THE CONTRACT DOCUMENTS, PER AISC GUIDELINES. THE SCHEMATIC DETAILS ABOVE ARE NOT SUGGESTIVE OF SPECIFIC CAPACITIES. THE NUMBER AND SIZE OF BOLTS, SIZE AND LENGTH OF WELDS, AND SIZE OF STEEL PIECES MUST BE DETERMINED PER AISC GUIDELINES AND THE CONTRACT DOCUMENTS.
3. PROVIDE FULL DEPTH CONNECTIONS AT ALL PERIMETER BEAM CONNECTIONS AND AT BEAM CONNECTIONS TO PERIMETER BEAMS, UNLESS OTHERWISE NOTED.

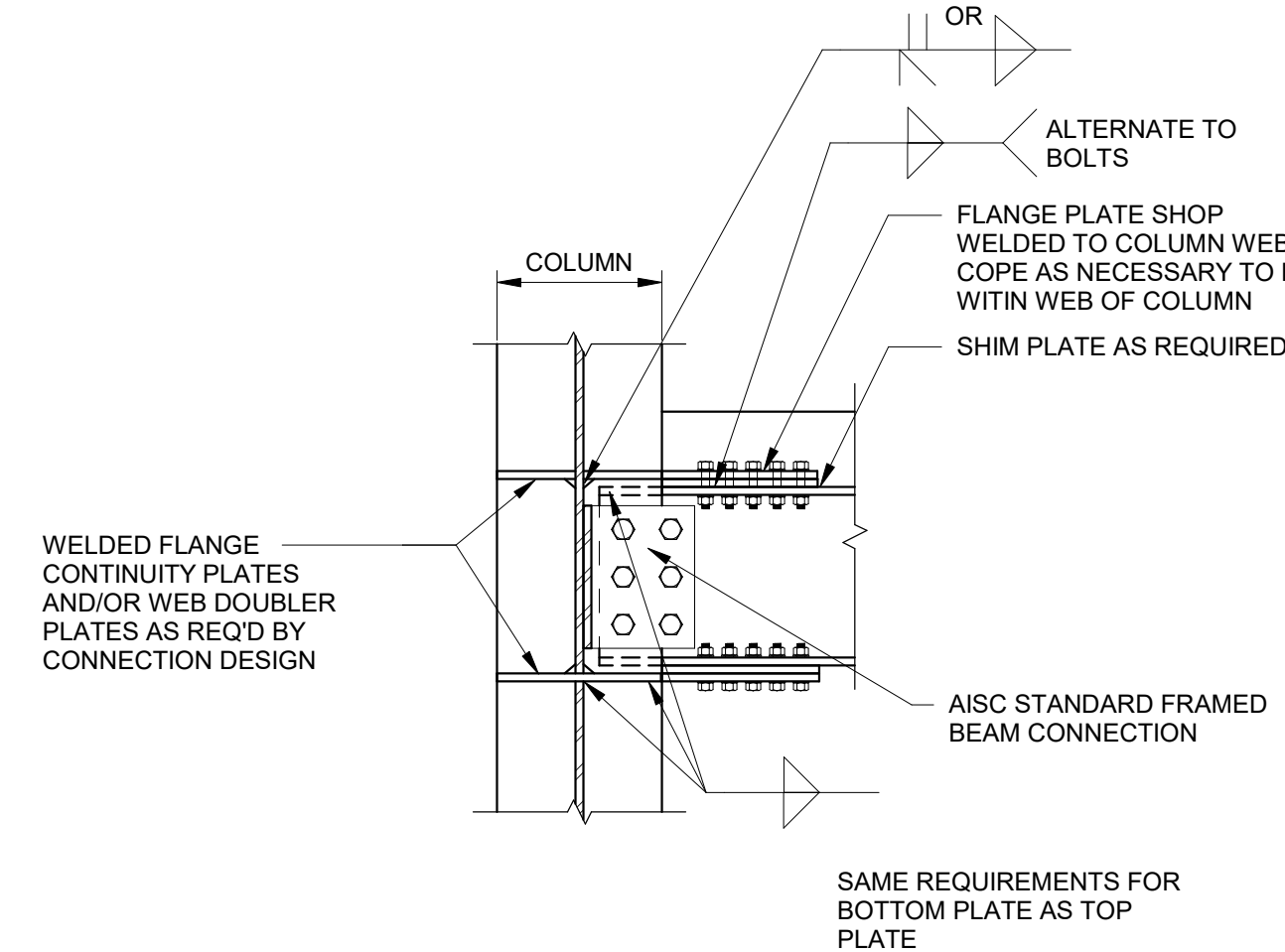
TYPICAL SUGGESTED SHEAR CONNECTIONS AT GRAVITY LOADS ONLY

N.T.S.



TYPICAL BEAM-TO-BEAM MOMENT CONNECTION

N.T.S.

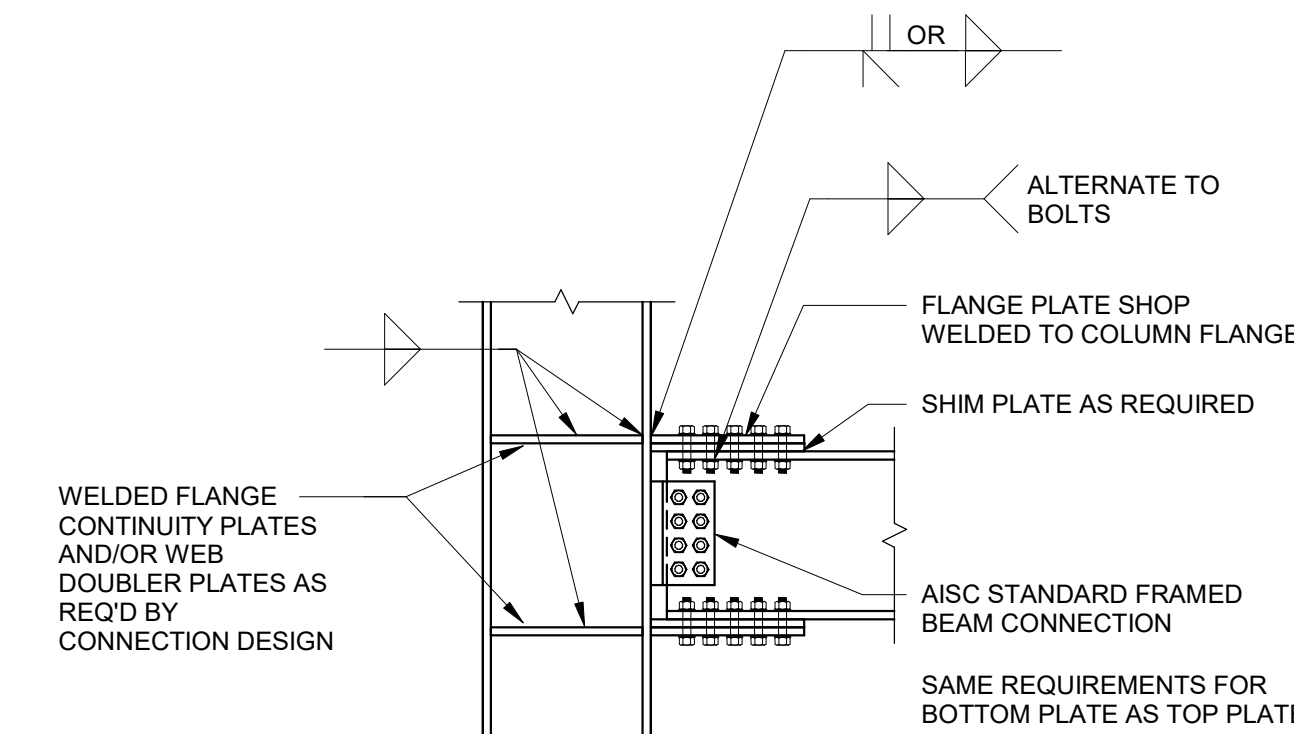


NOTE:

1. CONNECTION DETAILS SHOWN ABOVE ARE SCHEMATIC DETAILS ONLY. CONTRACTOR SHALL DETAIL MOMENT CONNECTIONS BASED ON NOTE 4, IN ACCORDANCE WITH CODES AND "R" VALUE GIVEN HEREIN, AND SHALL PROVIDE SIGNED AND SEALED CALCULATIONS FOR FULL CONNECTIONS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
2. ALL BOLTS TO BE PRE-TENSIONED HIGH STRENGTH BOLTS. ALL FAYING SURFACES SHALL BE PREPARED AS REQUIRED FOR CLASS A OR BETTER SLIP CRITICAL JOINTS. THE DESIGN SHEAR STRENGTH OF BOLTED JOINTS IS PERMITTED TO BE CALCULATED AS THAT FOR BEARING TYPE JOINTS.
3. PROVIDE BOLTED CONNECTION IN WEB FOR BEAM REACTION PER GENERAL NOTES OR FRAME ELEVATIONS OF PLAN.
4. 4A - SEE TYPICAL LATERAL FRAME ELEVATION LEGEND FOR INFORMATION ON CONNECTION DESIGN FORCES. PROVIDE CONTINUITY AND/OR DOUBLER PLATES IF NECESSARY.
5. 4B - DESIGN CONNECTION FOR FULL PLASTIC CAPACITY OF BEAM AND VERIFY PANEL ZONE STRENGTH OF COLUMN IS NOT EXCEEDED. PROVIDE CONTINUITY AND/OR DOUBLER PLATES IF NECESSARY.

TYPICAL COLUMN WEB MOMENT CONNECTION (R=3)

N.T.S.

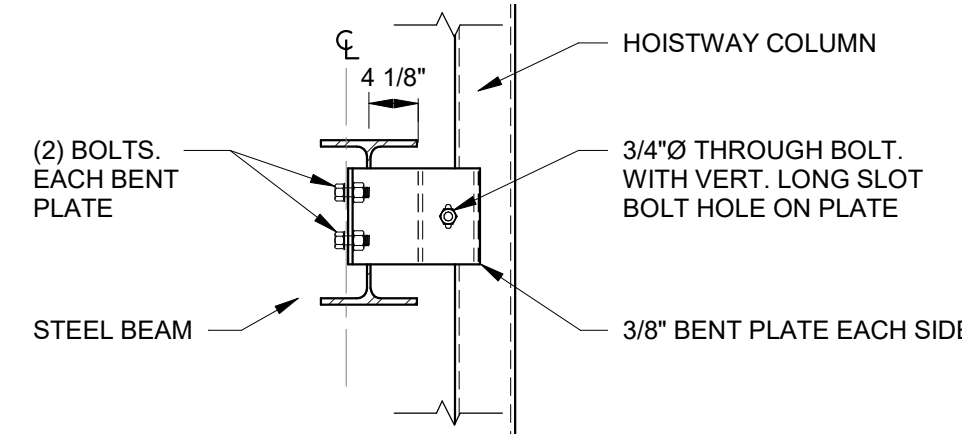


NOTES:

1. CONNECTION DETAILS SHOWN ABOVE ARE SCHEMATIC DETAILS ONLY. CONTRACTOR SHALL DETAIL MOMENT CONNECTIONS BASED ON NOTE 4, IN ACCORDANCE WITH CODES AND "R" VALUE GIVEN HEREIN, AND SHALL PROVIDE SIGNED AND SEALED CALCULATIONS FOR FULL CONNECTIONS PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
2. REFER TO GENERAL NOTES FOR BOLTED CONNECTION STANDARDS.
3. PROVIDE BOLTED SHEAR CONNECTION IN WEB FOR BEAM SHEAR REACTION PER GENERAL NOTES OR FRAME ELEVATIONS OR PLAN.
4. 4A - SEE TYPICAL LATERAL FRAME ELEVATION LEGEND FOR INFORMATION ON MOMENT CONNECTION DESIGN FORCES. PROVIDE CONTINUITY AND/OR DOUBLER PLATES IF NECESSARY.
5. 4B - DESIGN CONNECTION FOR FULL PLASTIC CAPACITY OF BEAM AND VERIFY PANEL ZONE STRENGTH OF COLUMN IS NOT EXCEEDED. PROVIDE CONTINUITY AND/OR DOUBLER PLATES IF NECESSARY.

TYPICAL CONNECTION FOR HOISTWAY COLUMNS

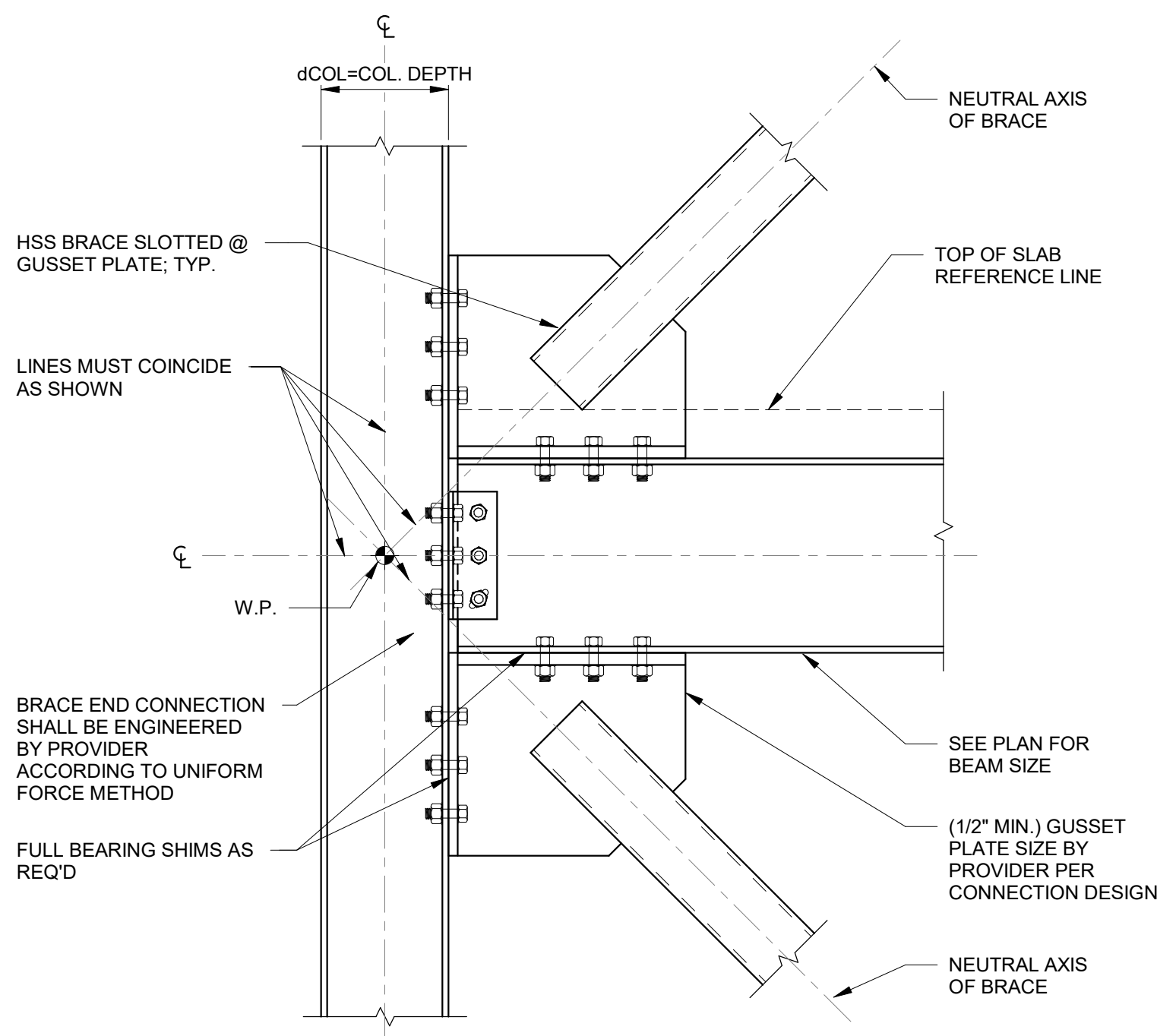
N.T.S.



TYPICAL COLUMN FLANGE MOMENT CONNECTION (R=3)

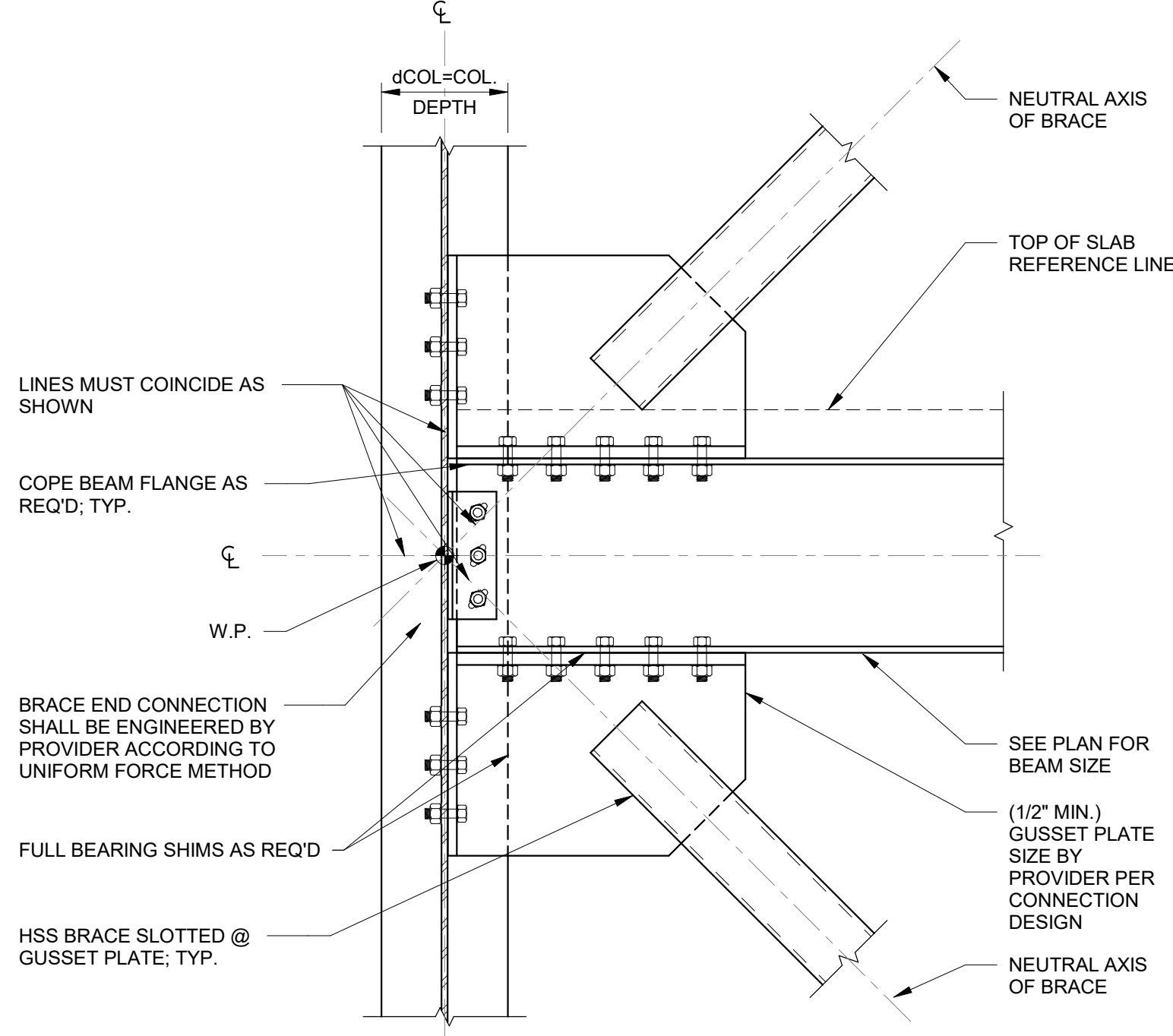
N.T.S.





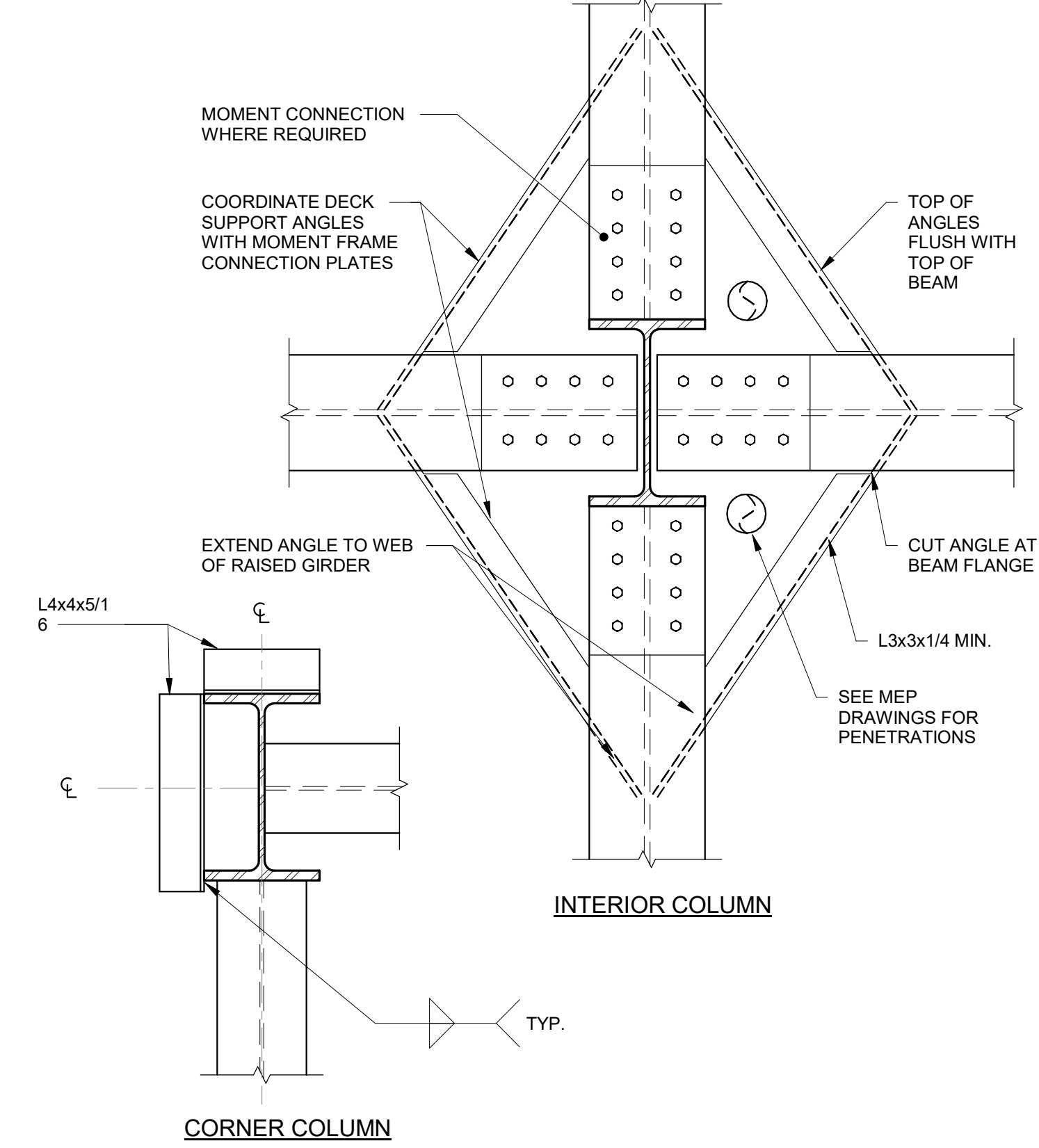
NOTE: CONNECTION DETAILS SHOWN ABOVE ARE SCHEMATIC DETAILS ONLY. CONTRACTOR SHALL DETAIL BRACE CONNECTIONS BASED ON AXIAL LOADS INDICATED IN LATERAL FRAME ELEVATIONS AND SHALL PROVIDE SIGNED AND SEALED CALCULATIONS PRIOR TO SUBMISSION OF SHOP DRAWINGS.

TYPICAL HSS LATERAL BRACE CONNECTION AT COLUMN FLANGE  
N.T.S.

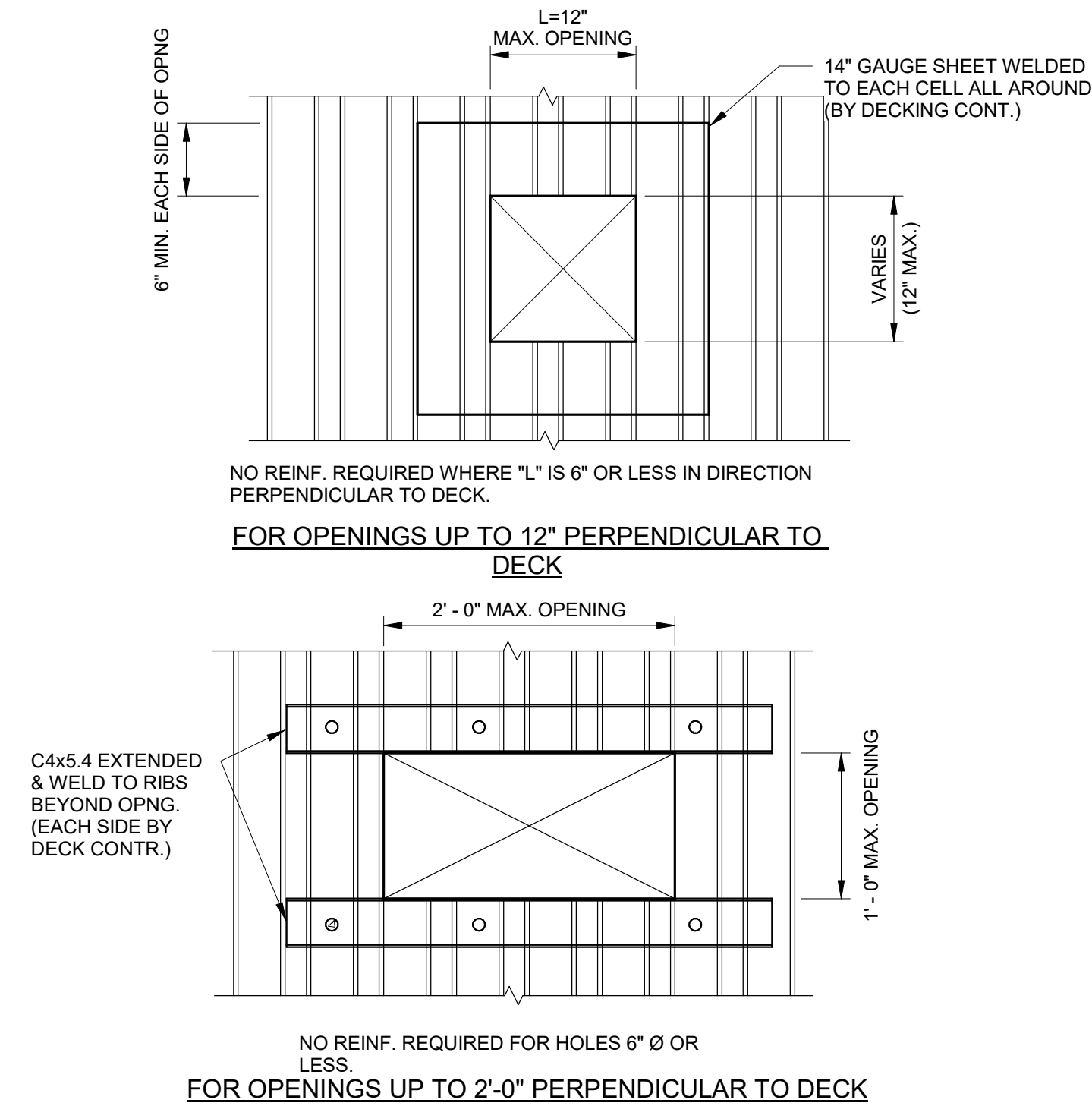


NOTE: CONNECTION DETAILS SHOWN ABOVE ARE SCHEMATIC DETAILS ONLY. CONTRACTOR SHALL DETAIL BRACE CONNECTIONS BASED ON AXIAL LOADS INDICATED IN LATERAL FRAME ELEVATIONS AND SHALL PROVIDE SIGNED AND SEALED CALCULATIONS PRIOR TO SUBMISSION OF SHOP DRAWINGS.

TYPICAL HSS LATERAL BRACE CONNECTION AT COLUMN WEB  
N.T.S.

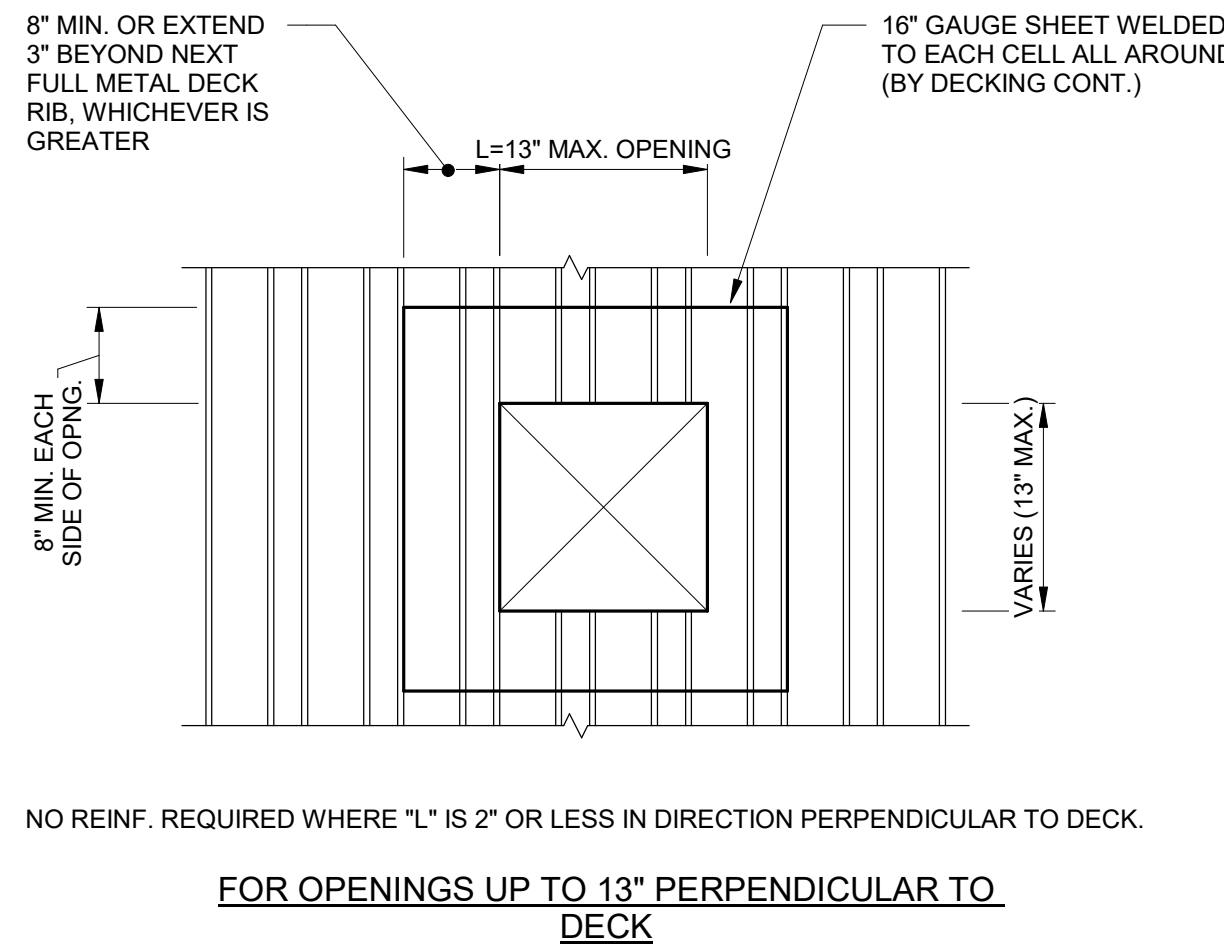


TYPICAL DECK SUPPORT AT COLUMNS (SMALL MEP PENETRATIONS)  
N.T.S.



- NOTES:
- SEE MECHANICAL AND ARCHITECTURAL DRAWINGS FOR OPENING SIZE AND LOCATION.
  - WHERE POSSIBLE; EXTEND DECK CONTINUOUSLY OVER OPENING REINFORCE, BLOCK/BOX OUT CONCRETE, AND CUT DECK WHEN OPENING IS REQUIRED.

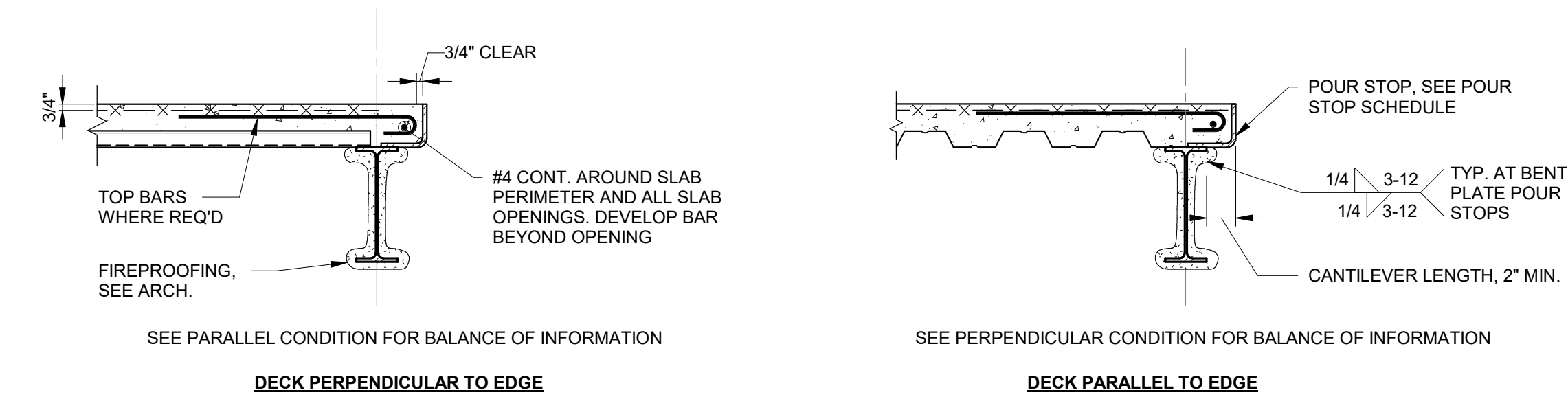
TYPICAL REINFORCEMENT FOR UNFRAMED OPENINGS  
IN COMPOSITE FLOOR DECK  
N.T.S.



- NOTES:
- SEE MECHANICAL AND ARCHITECTURAL DRAWINGS FOR OPENING SIZE AND LOCATION.
  - WHERE POSSIBLE; EXTEND DECK CONTINUOUSLY OVER OPENING, REINFORCE AND CUT DECK WHEN OPENING IS REQUIRED.

TYPICAL REINFORCEMENT FOR UNFRAMED OPENINGS  
IN ROOF DECK  
N.T.S.





POUR STOP SCHEDULE				
SLAB CANTILEVER	BENT PLATE THICKNESS	BAR SIZE	SPACING	Ld
LESS THAN 6"	POUR STOP BY DECK MANUFACTURER	--	--	--
0'-6" - 0'-11"		#4	12"	2'-0"
1'-0" - 1'-6"	5/16"	#4	12"	3'-0"
1'-7" - 1'-11"	3/8"	#5	12"	4'-0"
2'-0" - 2'-6"	1/2"	#5	12"	4'-6"

- NOTES:
- SEE ARCHITECTURAL SLAB EDGE DRAWINGS FOR TYPICAL CANTILEVER DIMENSIONS.
  - CONFIRM SLAB CANTILEVERS LARGER THAN 2'-6" WITH E.O.R.
  - BAR SIZE AND SPACING ABOVE APPLY U.O.N. IN SECTIONS
  - SLAB EDGE IS DESIGNED TO SUPPORT ONE STORY OF FACADE LOADING.
  - POUR STOP IS SIZED FOR WET WEIGHT OF CONCRETE ONLY. SLAB CANTILEVER PROVIDES BALANCE OF STRUCTURAL CAPACITY FOR PERIMETER WALLS OR FACADE. Fc NEEDS TO BE ACHIEVED BEFORE FACADE LOAD CAN BE INSTALLED.

## TYPICAL CONCRETE SLAB ON METAL DECK SLAB EDGE CONDITION

N.T.S.

DEFORMED BAR TENSION DEVELOPMENT LENGTH (Ld)										
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS										
BAR SIZE	3000 PSI CONCRETE		4000 PSI CONCRETE		5000 PSI CONCRETE		6000 PSI CONCRETE		8000 PSI CONCRETE	
	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II
#3	17	25	15	22	13	20	12	18	12	16
#4	22	33	19	29	17	26	16	24	14	21
#5	28	42	24	36	22	32	20	30	17	26
#6	33	50	29	43	26	39	24	35	21	31
#7	48	72	42	63	38	56	34	51	30	45
#8	55	83	48	72	43	64	39	59	34	51
#9	62	93	54	81	48	72	44	66	38	57
#10	70	105	61	91	54	81	50	74	43	64
#11	78	116	67	101	60	90	55	82	48	71

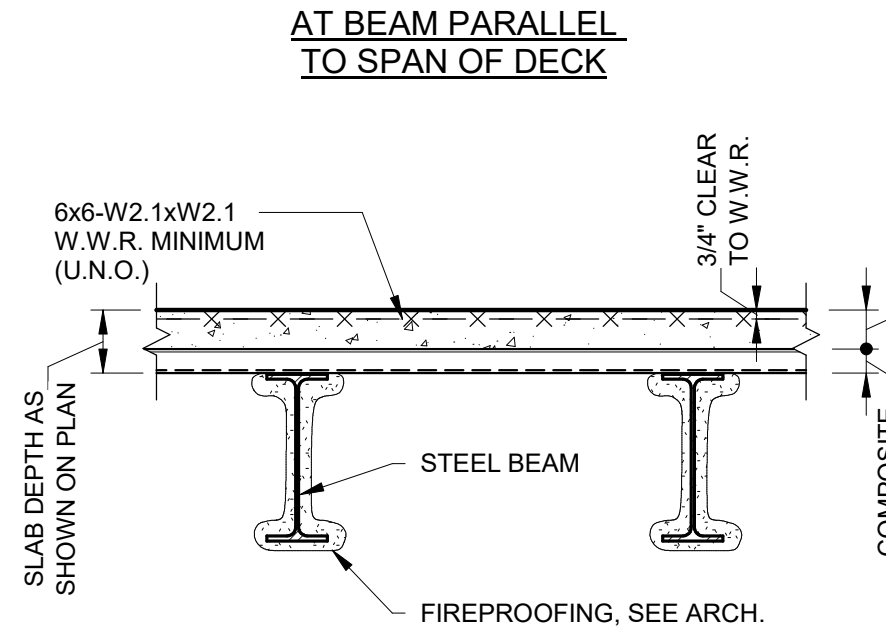
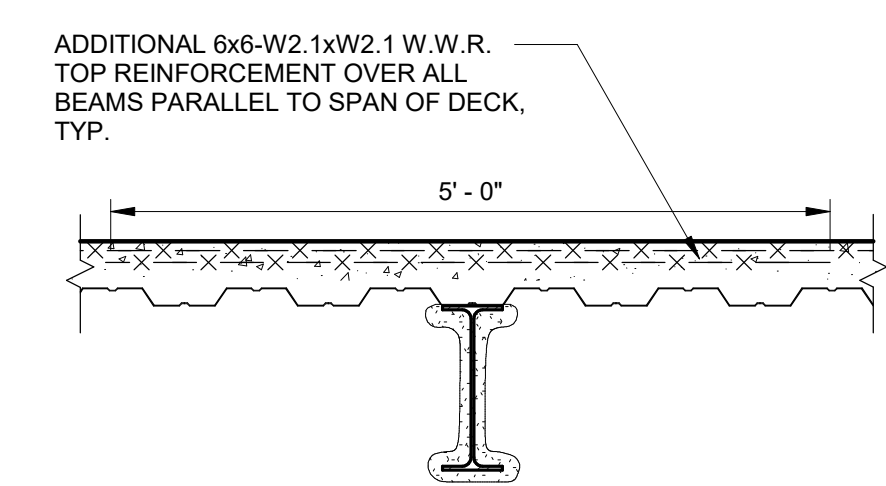
### DEFORMED TENSION BAR NOTES:

- FOR HORIZONTAL REINFORCEMENT WITH 12 INCH OR MORE FRESH CONCRETE CAST BELOW IT, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPlice LENGTH SHALL BE 1.3x THE VALUES GIVEN.
- FOR REINFORCEMENT IN LIGHTWEIGHT CONCRETE, TENSION DEVELOPMENT LENGTH/TENSION LAP LENGTH SHALL BE 1.3x THE VALUES GIVEN.
- FOR EPOXY-COATED BARS:
  - WHERE CONCRETE COVER IS LESS THAN 3x BAR DIAMETER, OR CLEAR SPACING IS LESS THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPlice LENGTH SHALL BE 1.5x THE VALUES GIVEN.
  - WHERE CONCRETE COVER IS EQUAL TO OR GREATER THAN 3x BAR DIAMETER AND CLEAR SPACING IS GREATER THAN 6x BAR DIAMETER, TENSION DEVELOPMENT LENGTH/ TENSION LAP SPlice LENGTH SHALL BE 1.2x THE VALUES GIVEN.
- CASE I APPLIES WHEN EITHER OF THE FOLLOWING SETS OF CONDITIONS ARE MET:
  - ALL THREE OF THESE:
    - CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN DB AND
    - CLEAR COVER IS NOT LESS THAN DB AND
    - STIRRUPS OR TIES ARE PROVIDED THROUGHOUT THE DEVELOPMENT LENGTH AND THE QUANTITY IS NOT LESS THAN THE CODE MINIMUM.
  - OR BOTH OF THESE:
    - CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED IS NOT LESS THAN 2DB AND
    - CLEAR COVER IS NOT LESS THAN DB
- CASE II APPLIES TO ALL OTHER CONDITIONS NOT DESCRIBED IN CASE I

DEFORMED BAR TENSION LAP SPlice - CLASS B										
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS										
BAR SIZE	3000 PSI CONCRETE		4000 PSI CONCRETE		5000 PSI CONCRETE		6000 PSI CONCRETE		8000 PSI CONCRETE	
	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II	CASE I	CASE II
#3	22	33	19	28	17	25	16	23	14	20
#4	29	43	25	37	23	34	21	31	18	27
#5	36	54	31	47	28	42	26	38	22	33
#6	43	65	37	56	34	50	31	46	27	40
#7	63	94	54	81	49	73	45	67	39	58
#8	72	107	62	93	56	83	51	76	44	66
#9	81	121	70	105	63	94	57	86	50	74
#10	91	136	79	118	71	106	64	96	56	84
#11	101	151	87	131	78	117	71	107	62	93

DEFORMED BAR COMPRESSION DEVELOPMENT LENGTH (Ldc)					
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS					
BAR SIZE	3000 PSI CONCRETE	4000 PSI CONCRETE	5000 PSI CONCRETE	6000 PSI CONCRETE	8000 PSI CONCRETE
#3	9	8	8	8	8
#4	11	10	9	9	9
#5	14	12	12	12	12
#6	17	15	14	14	14
#7	20	17	16	16	16
#8	22	19	18	18	18
#9	25	22	21	21	21
#10	28	25	23	23	23
#11	31	27	26	26	26

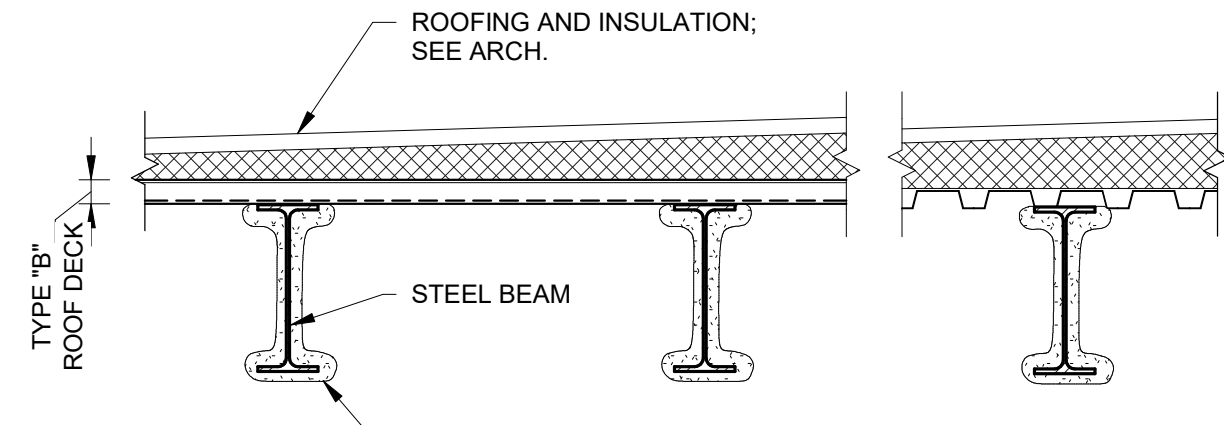
DEFORMED BAR COMPRESSION LAP SPlice					
FOR NORMAL WEIGHT STONE CONCRETE & UNCOATED BARS					
BAR SIZE	3000 PSI CONCRETE	4000 PSI CONCRETE	5000 PSI CONCRETE	6000 PSI CONCRETE	8000 PSI CONCRETE
#3	12	12	12	12	12
#4	15	15	15	15	15
#5	19	19	19	19	19
#6	23	23	23	23	23
#7	27	27	27	27	27
#8	30	30	30	30	30
#9	34	34	34	34	34
#10	39	39	39	39	39
#11	43	43	43	43	43



AT BEAM PERPENDICULAR TO SPAN OF DECK

## TYPICAL CONCRETE SLAB ON METAL DECK CONSTRUCTION

N.T.S.

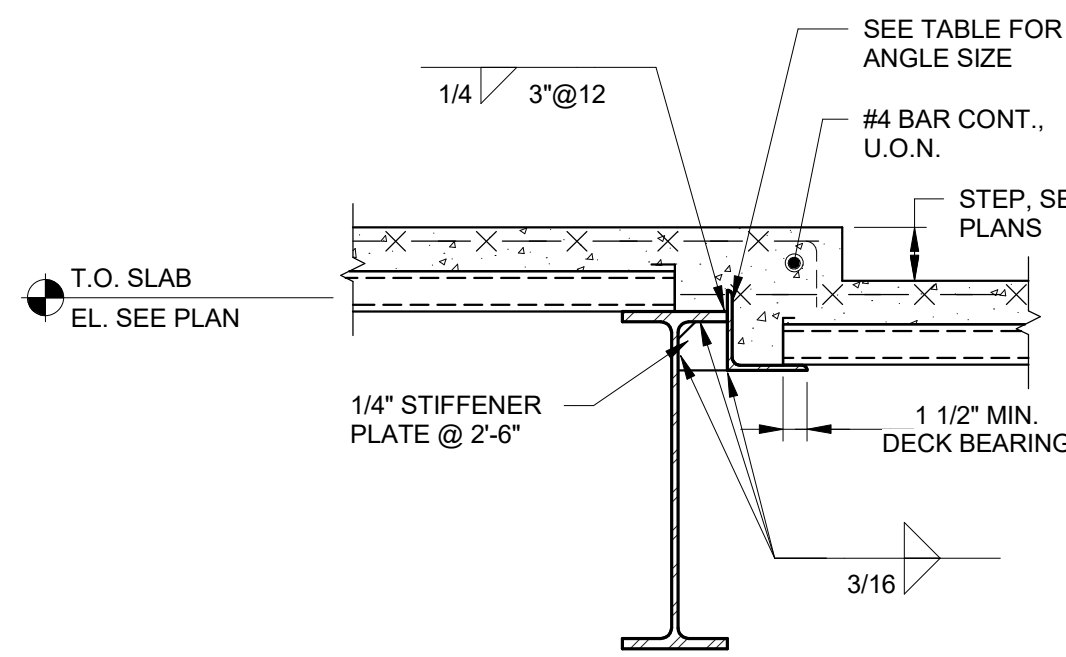


AT BEAM PERPENDICULAR TO SPAN OF DECK

AT BEAM PARALLEL TO SPAN OF DECK

## TYPICAL METAL ROOF DECK CONSTRUCTION

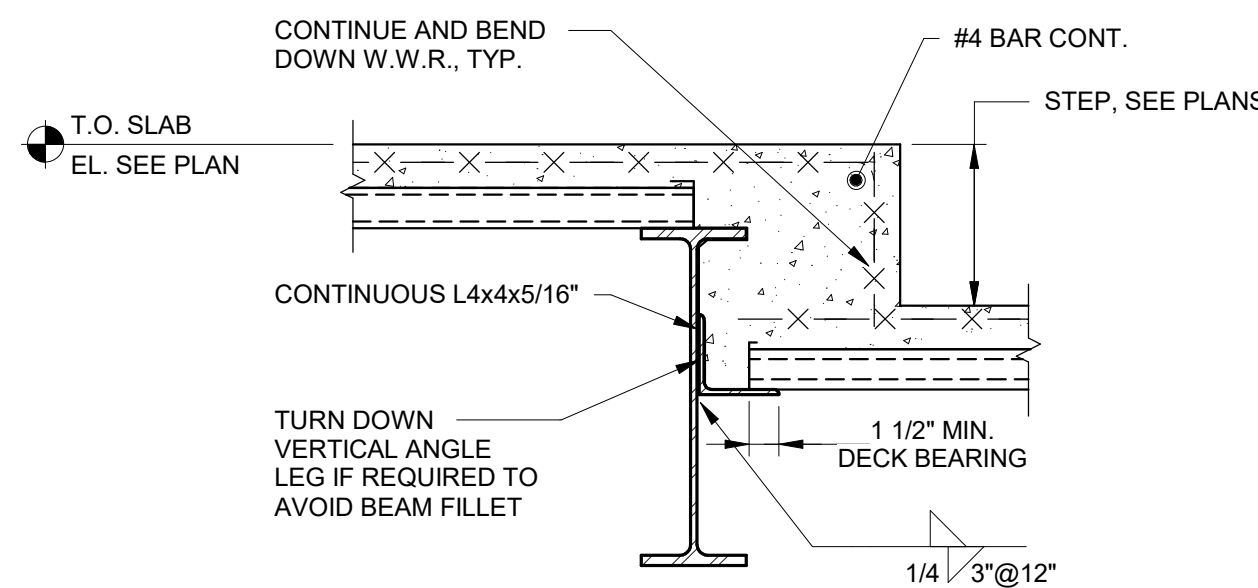
N.T.S.



STEP	ANGLE SIZE
1"	
2"	L3X3X5/16"
3"	L4X4X5/16"
4"	L5X3 1/2X5/16"
5"	L6X4X5/16"

NOTE - LONG LEG VERTICAL

### DETAIL AT SLAB STEP 5" OR LESS

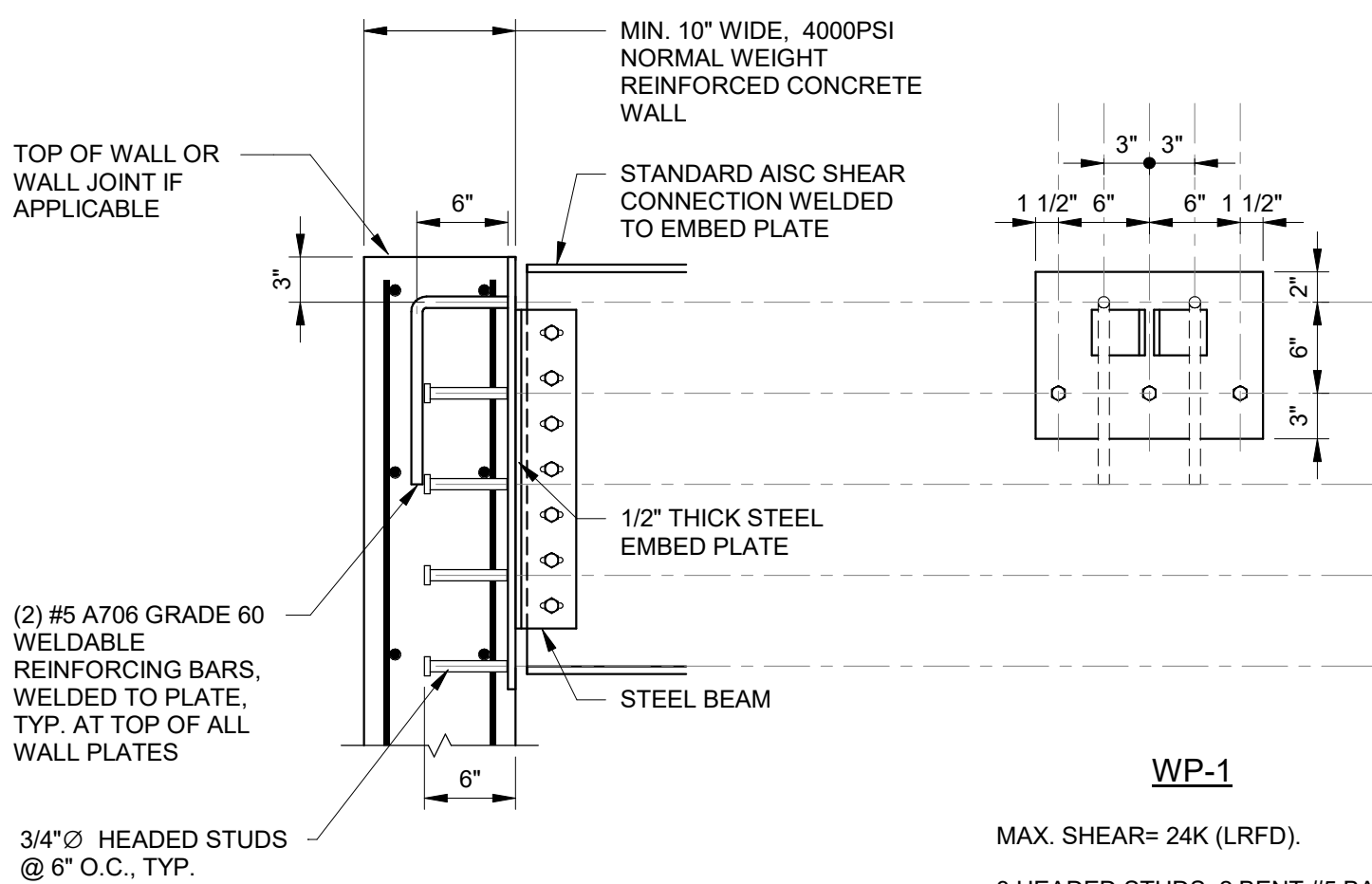


### DETAIL AT SLAB STEP GREATER THAN 5"

NOTE: FOR NOTES AND INFORMATION NOT SHOWN SEE TYPICAL FLOOR CONSTRUCTION

## TYPICAL STEP IN SLAB ON METAL DECK

N.T.S.



### SECTION VIEW

### WP-1

MAX. SHEAR= 24K (LRFD).  
3 HEADED STUDS, 2 BENT #5 BARS

NOTE: CONNECTIONS SHALL BE DESIGNED FOR SHEAR AND ECCENTRICITY, CONSIDERING THAT THE CONNECTION IS AN EXTENSION OF THE BEAMS AND GIRDERS.

## TYPICAL DETAIL OF STEEL BEAM TO CONCRETE WALL CONNECTION

N.T.S.

Project Number 21018

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24

Drawn: AD Checked: RH

City of Ann Arbor  
NEW FIRE STATION 4  
2415 S HURON PKWY  
ANN ARBOR, MI 48104

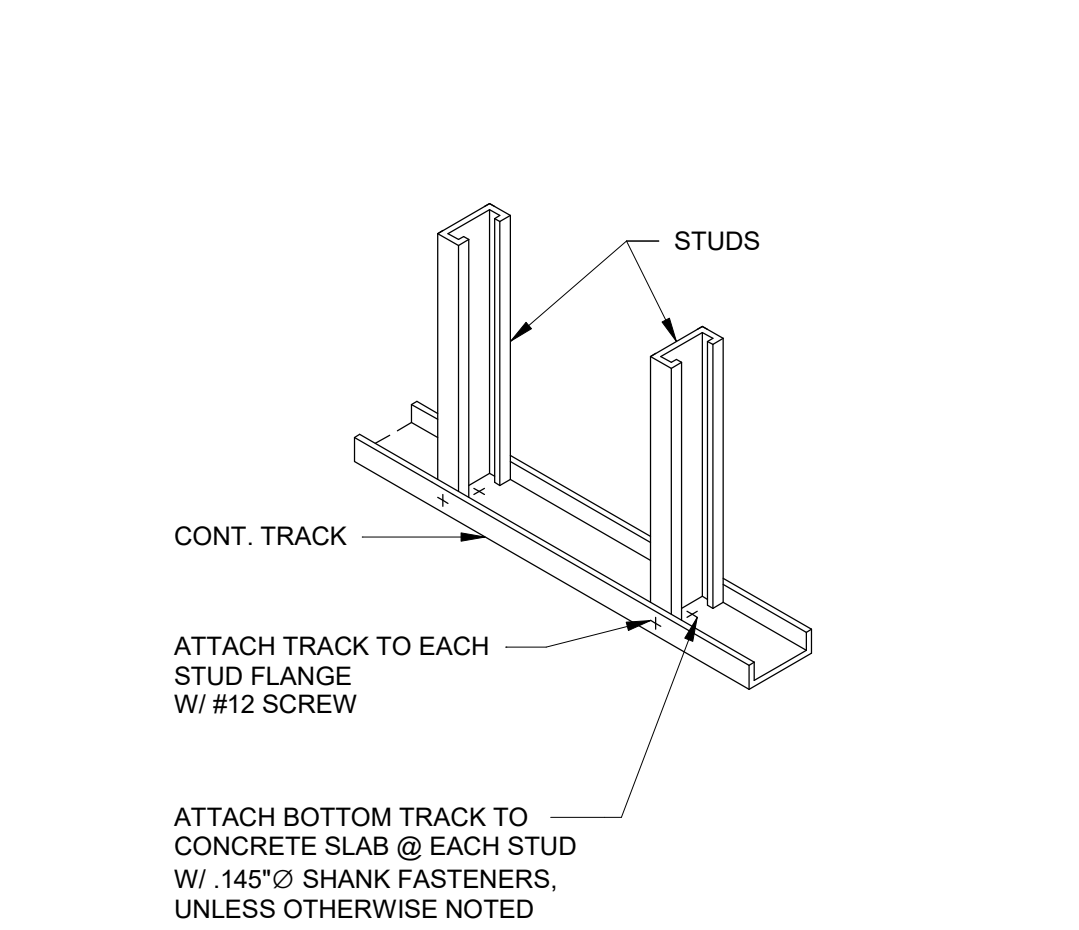
## TYPICAL DETAILS

Sheet

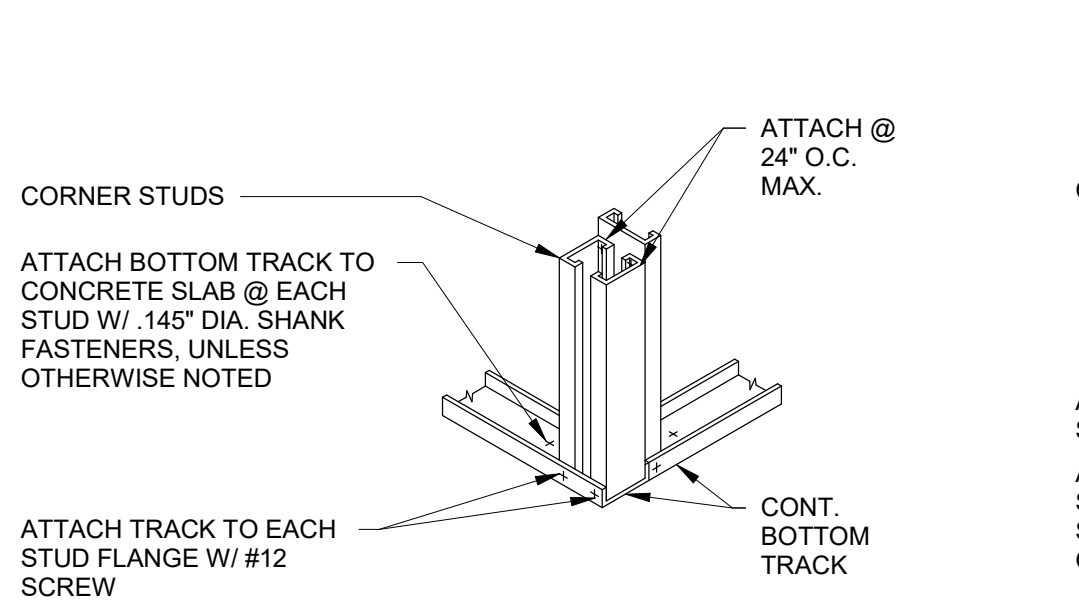
S5.05



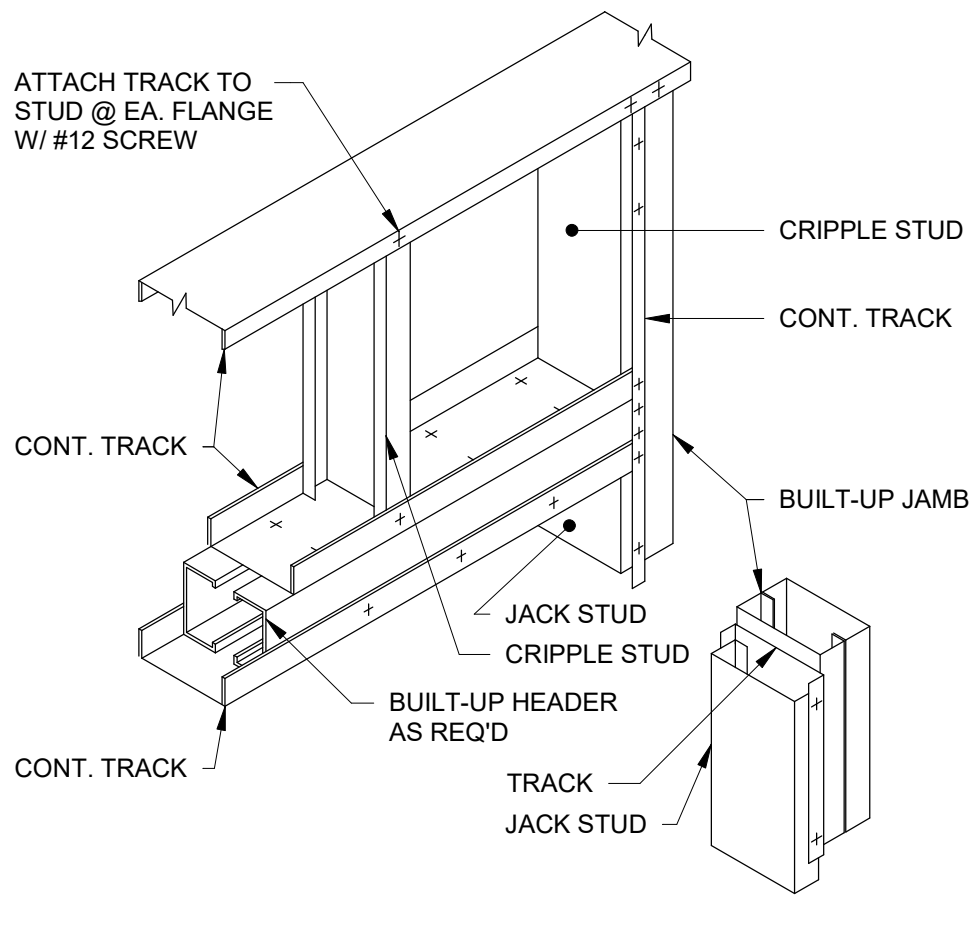
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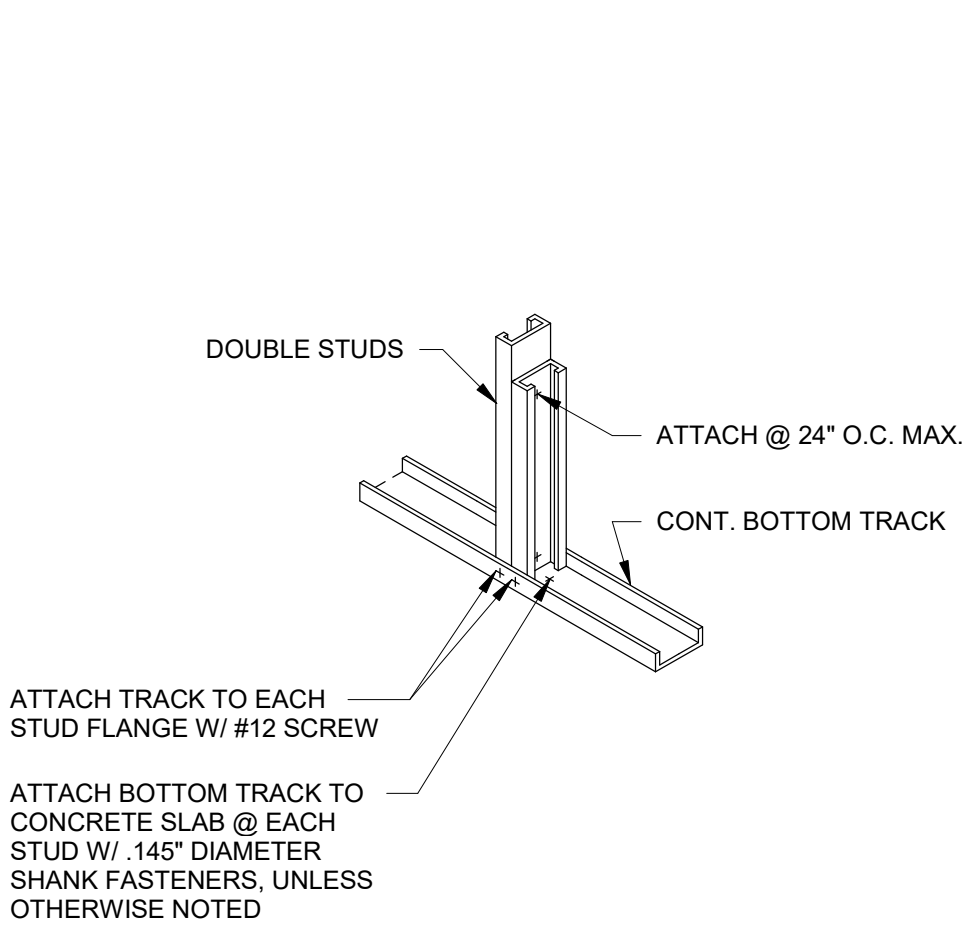
**LIGHT GAUGE BOTTOM TRACK  
TYPICAL HORIZONTAL BRIDGING DETAIL**  
N.T.S.



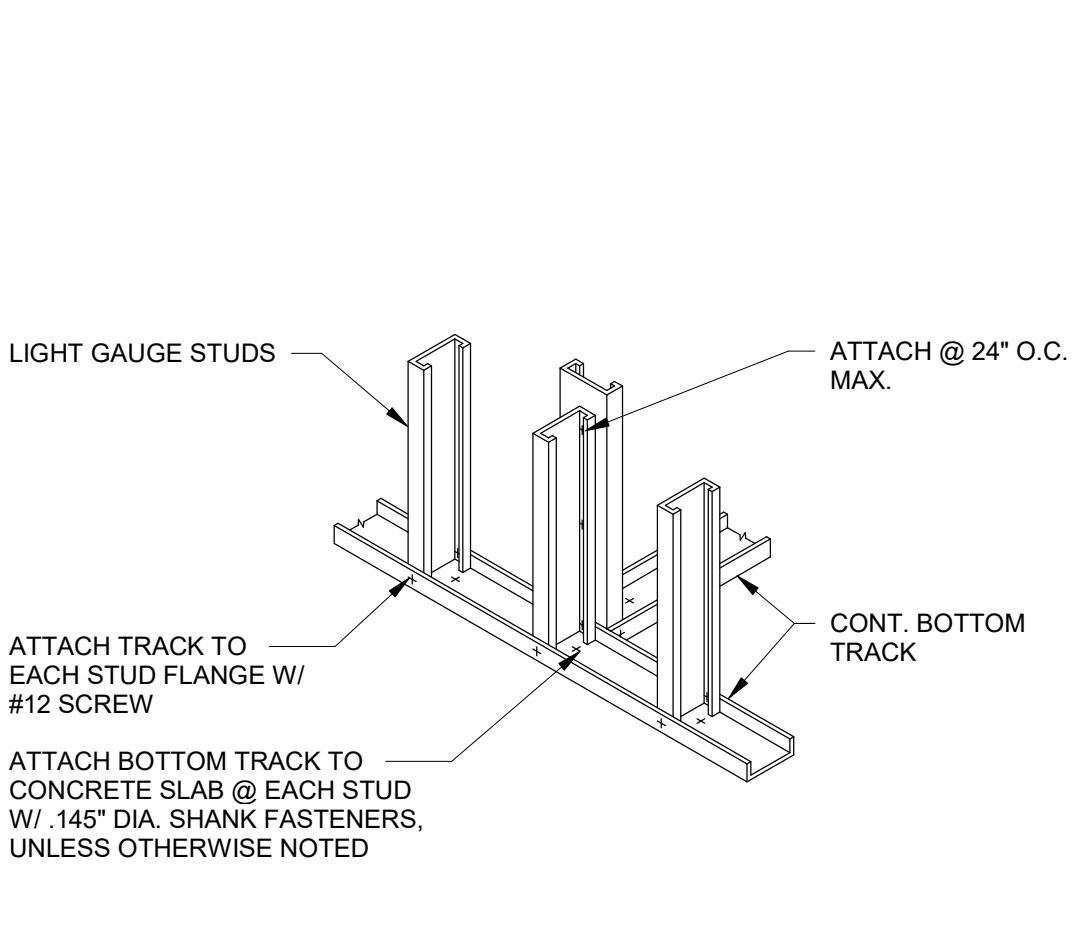
**TYPICAL BOTTOM CONNECTION AT  
LIGHT GAUGE WALL CORNER**  
N.T.S.



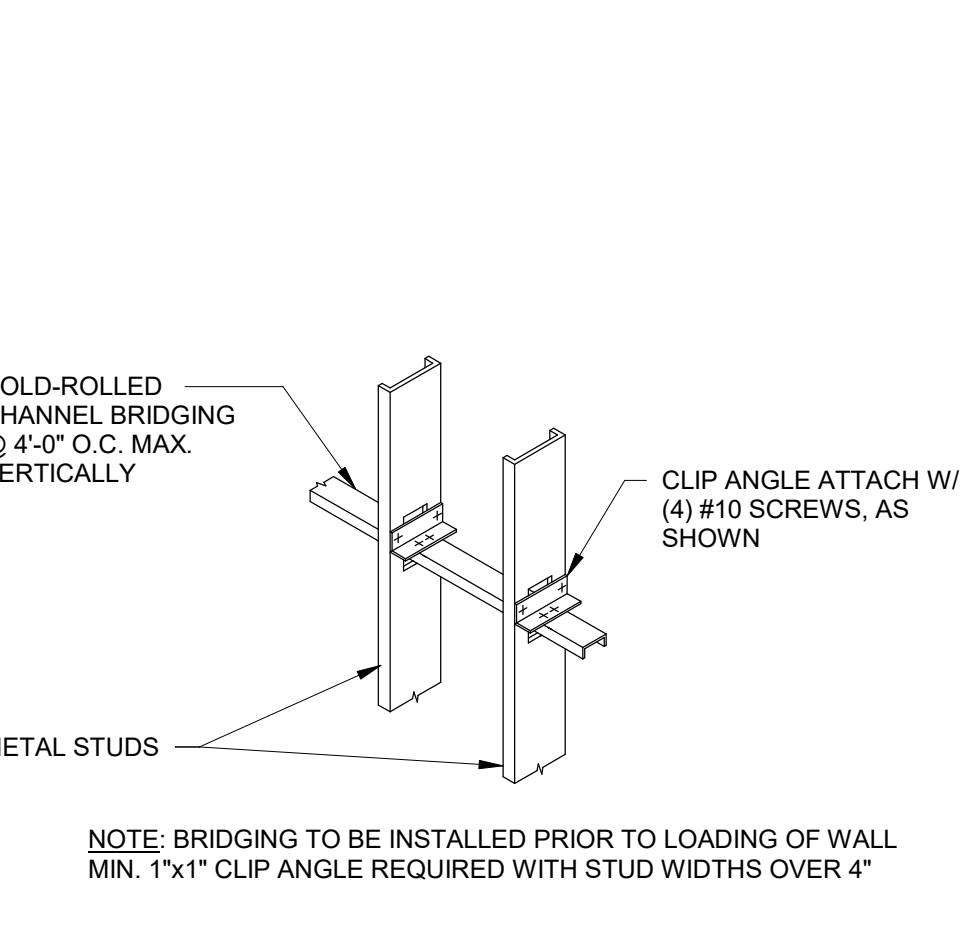
**TYPICAL BOTTOM CONNECTION AT  
DOOR/WINDOW OPENING**  
N.T.S.



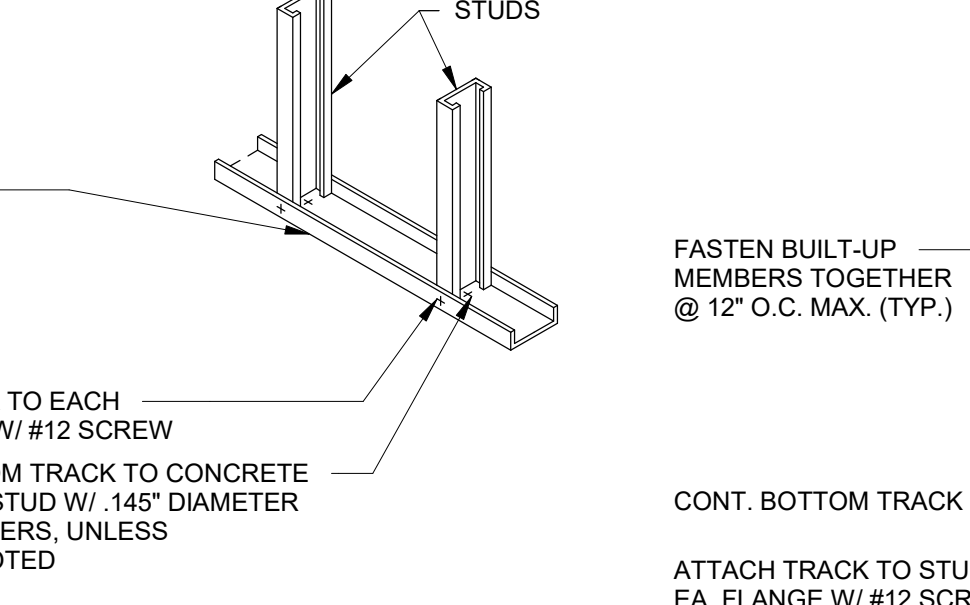
**TYPICAL BOTTOM CONNECTION AT  
DOUBLE LIGHT GAUGE STUDS**  
N.T.S.



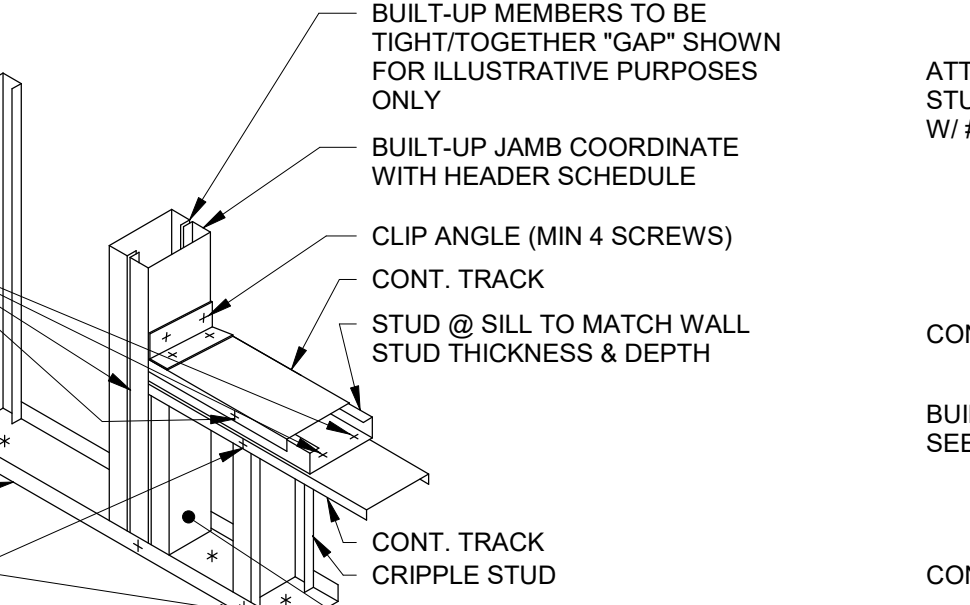
**TYPICAL BOTTOM CONNECTION AT LIGHT  
GAUGE PARTITION INTERSECTION**  
N.T.S.



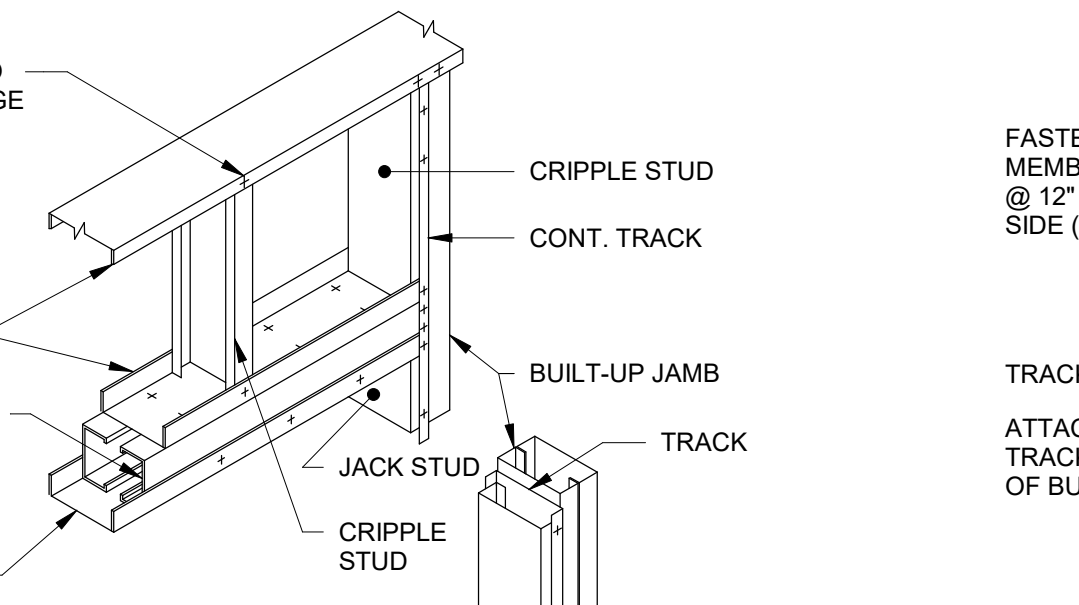
**TYPICAL HORIZONTAL BRIDGING DETAIL**  
N.T.S.



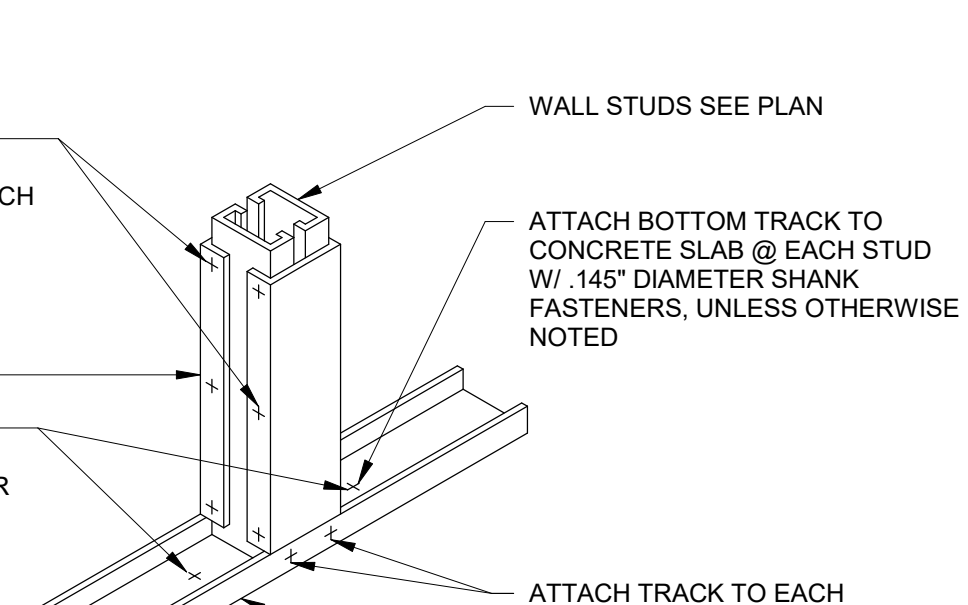
**TYPICAL CONNECTION AT LIGHT  
GAUGE BOTTOM TRACK**  
N.T.S.



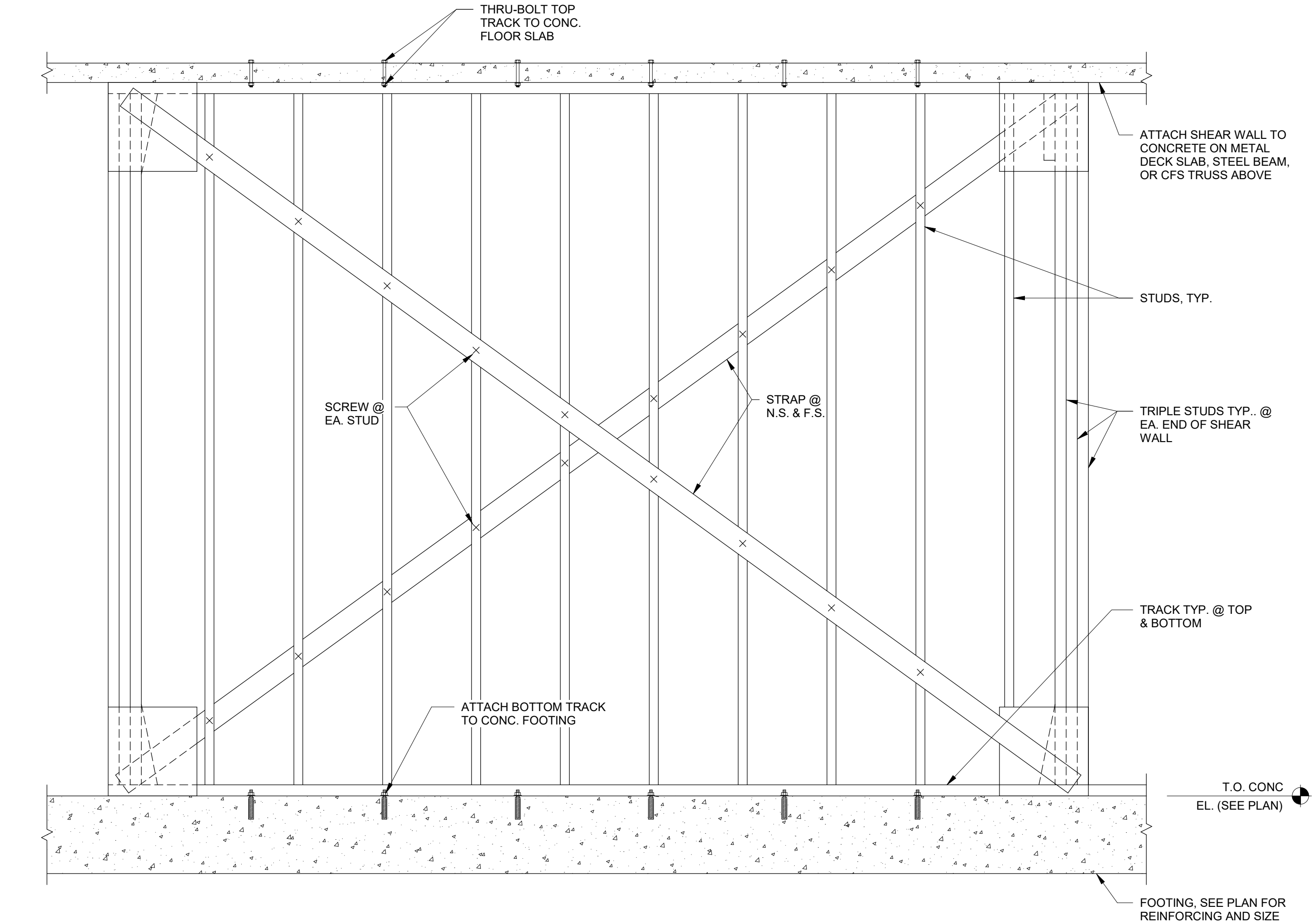
**TYPICAL SILL DETAIL AT EXTERIOR WINDOW  
OPENINGS**  
N.T.S.



**TYPICAL HEADER DETAIL AT DOOR/WINDOW  
OPENING**  
N.T.S.



**TYPICAL LIGHT GAUGE BUILT-UP MEMBER DETAIL**  
N.T.S.



**TYPICAL DETAIL CFS SHEAR WALLS**  
N.T.S.

BUILT-UP LIGHT GAUGE HEADER & JAMB SCHEDULE FOR LOAD BEARING LIGHT GAUGE STUD WALLS			
MAX. OPENING WIDTH	LIGHT GAUGE STUD BOXED HEADER SIZE	LIGHT GAUGE BUILT-UP JAMB (SEE NOTE 3)	REMARKS
4 FT	(2) 6J14	(2) 6SW16	
8 FT	(2) 12J14	(2) 6SW14	

- NOTES:**
- FASTEN BUILT-UP MEMBERS TOGETHER AT 12" O.C. MAX.
  - COORDINATE ALL WALL OPENING LOCATIONS & SIZES WITH ARCHITECTURAL DRAWINGS.
  - PROVIDE JAMB STUDS AS INDICATED, UNLESS OTHERWISE REQUIRED FOR SHEAR WALL END STUDS.



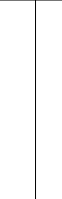




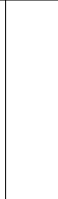












LIGHT GAUGE STUD/JOIST DESIGNATIONS					
NAME	AVAILABLE GAUGES	FLANGE WIDTH	WEB	RETURN LIP	REMARKS
CW	20-14	1 3/8"	2 1/2"-6"	3/8"	
SW	20-10	1 5/8"	2 1/2"-16"	1/2"	
J	20-10	2"	3 5/8"-16"	5/8"	

- NOTES:**
- SEE STRUCTURAL GENERAL NOTES FOR MINIMUM GRADE OF STEEL FOR COLD LIGHT GAUGE STEEL ELEMENTS.
  - INDICATES WEB DEPTH
  - INDICATES STUD GAUGE
  - INDICATES FLANGE WIDTH

**LIGHT GAUGE TABLES**  
N.T.S.

Issue	Date
DESIGN DEVELOPMENT	05/26/23
BIDS/PERMIT	08/04/23
BIDS/PERMIT	10/11/24



GRAPHICAL COLUMN SCHEDULE																																					
T.O. STEEL ROOF																																T.O. STEEL ROOF					
28' - 0"																																					28' - 0"
T.O. STEEL LOW ROOF																																	T.O. STEEL LOW ROOF				
17' - 4 1/2"	W10x54	W10x54	W12x65	HSS6x6x3/8	W10x30	W10x54	W10x54	W12x65	HSS6x6x3/8	HSS6x6x3/8	W10x30	W10x54	W10x54	W12x65	HSS6x6x3/8	HSS6x6x3/8	HSS6x6x3/8	W10x54	W10x54	W12x65	W10x33	W10x49 POST	W10x54	W10x49 POST	HSS6x6x3/8	HSS6x6x3/8	HSS6x6x3/8	W10x33	W10x33	HSS6x6x3/8			HSS6x6x3/8	17' - 4 1/2"			
T.O. STEEL @ LOW BAY																																	T.O. STEEL @ LOW BAY				
11' - 0"																																	11' - 0"				
T.O. SLAB																																	T.O. SLAB				
0"																																			0"		
Column Locations	A-2	A-2.5	A-3	A-4	A.7-4.4	A.7-5	B-2	B-3	B.1-4	B.6-4	B.7-4.4	B.7-5	C-2	C-3	C.1-2, 3, 4, 5 HOISTWAY COLUMN	HOISTWAY COLUMN	HOISTWAY COLUMN	C.9-5	D-2	D-3	D-3.8	E-2	E-2.5	E-3	F-4.3	F-5	F.1-3.1	F.1-3.4	F.1-3.8	A-x.1	B.12-x.3(11' - 1")	B.12-x.3(4' - 8")	B.12-x.3(8' - 8")	x.1-x.B	x.1-x.D		

GRAPHICAL COLUMN SCHEDULE													
T.O. STEEL ROOF													T.O. STEEL ROOF
28' - 0"													28' - 0"
T.O. STEEL LOW ROOF													T.O. STEEL LOW ROOF
17' - 4 1/2"													17' - 4 1/2"
T.O. STEEL @ LOW BAY													T.O. STEEL @ LOW BAY
11' - 0"													11' - 0"
T.O. SLAB													T.O. SLAB
0"													0"
Column Locations	x.3(-8' - 8")-x.A	x.3(-8' - 8")-x.A.4	x.3-x.B	x.3-x.C	x.3-x.D	x.4-x.A	x.4-x.A(-10' - 5 3/4")	x.4-x.A.5	x.4-x.A.9	x.4-x.B	x.4-x.C	x.4-x.D	

CONCRETE WALL FOOTING SCHEDULE							
MARK	SIZE		REINFORCEMENT				REMARKS
	WIDTH	DEPTH	TOP		BOTTOM		
			LONG WAY	SHORT WAY	LONG WAY	SHORT WAY	
WF1	2' - 0"	1' - 0"			3-#4 CONT. BARS		

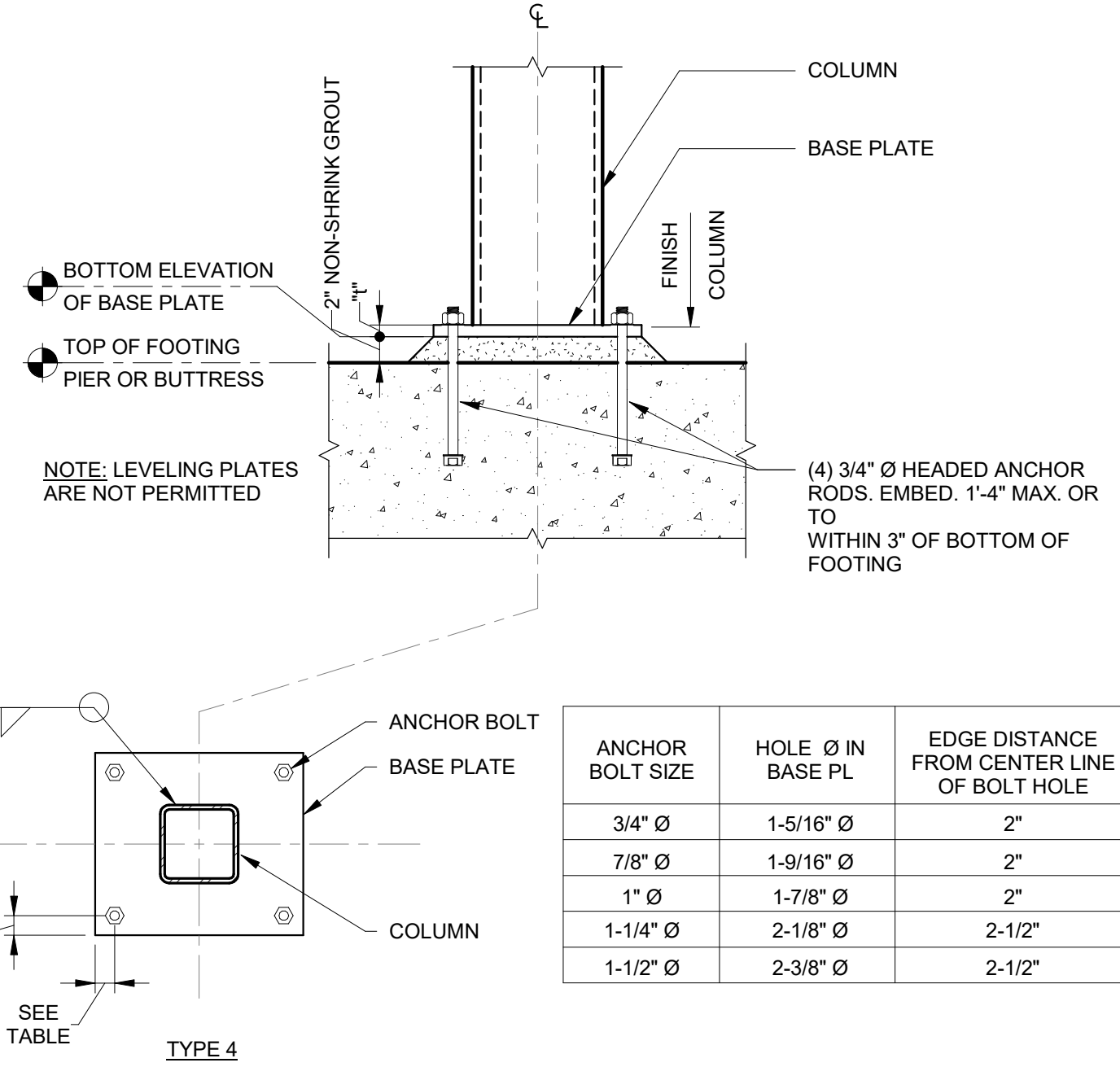
CONCRETE WALL SCHEDULE				
MARK	WIDTH	REINFORCEMENT		REMARKS
		VERTICAL	HORIZONTAL	
W8	8"	#4@12" O.C.	#4@12" O.C.	
W12	12"	#4@12" O.C. & E.S.	#4@12" O.C. & E.S.	

FOOTING SCHEDULE							
MARK	SIZE			REINFORCEMENT			
	LENGTH	WIDTH	THICKNESS	BOTTOM		TOP	
				LONG WAY	SHORT WAY	LONG WAY	SHORT WAY
F4.0	4' - 0"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F4.0x5.25	5' - 3"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F4.0x6.25	6' - 3"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F4.0x6.25A	6' - 3"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.
F4.0x7.5	7' - 6"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.
F4.5	4' - 6"	4' - 6"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F5.0	5' - 0"	5' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F5.0x3.5	3' - 6"	5' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F5.25x6.25	6' - 3"	5' - 3"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F6.0	6' - 0"	6' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.	#5@12" O.C.
F6.5	6' - 6"	6' - 6"	1' - 0"	#5@12" O.C.	#5@12" O.C.		
F8.0x4.0	8' - 0"	4' - 0"	1' - 0"	#5@12" O.C.	#5@12" O.C.		

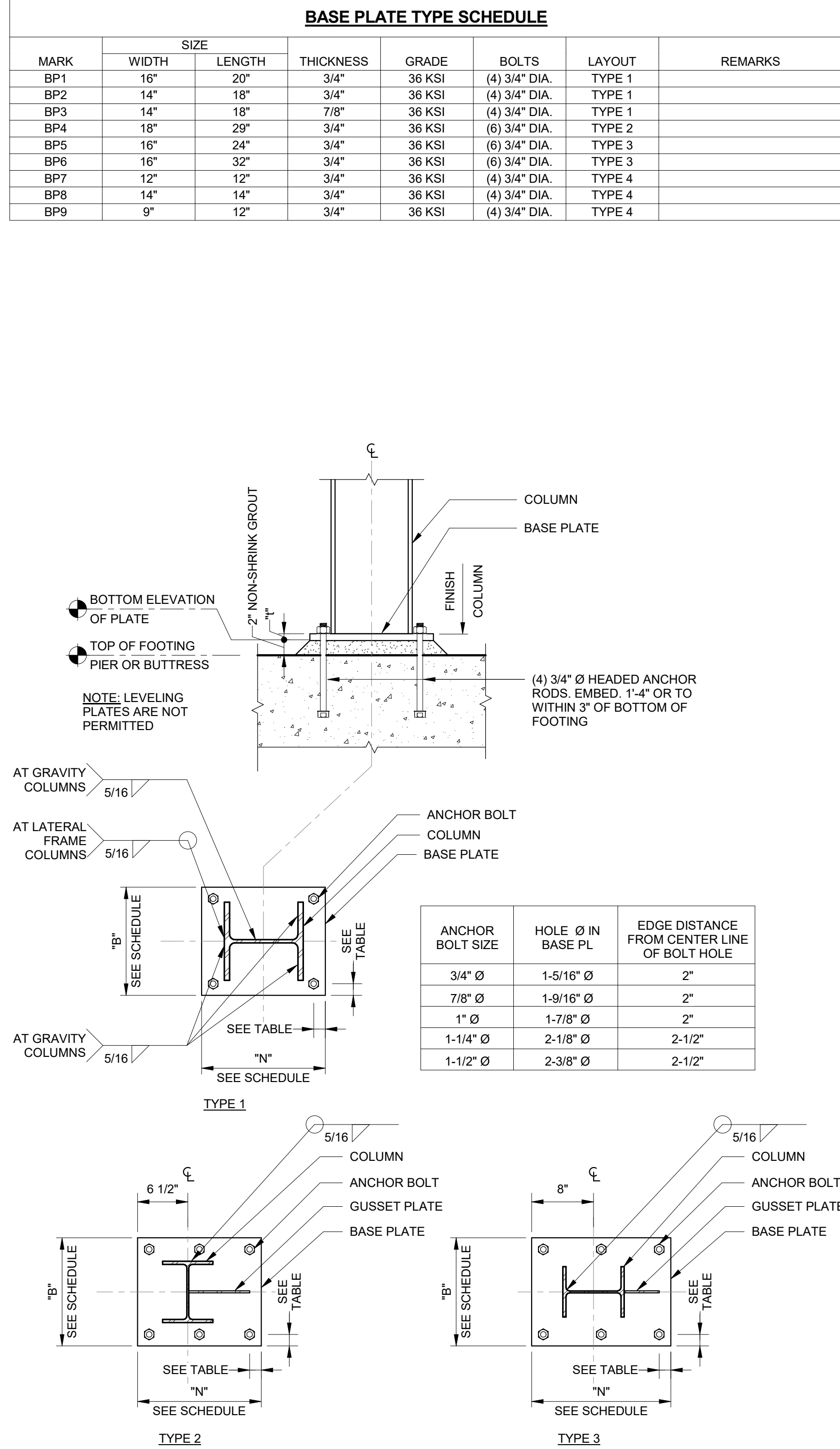
PIER SCHEDULE					
MARK	SIZE		REINFORCEMENT		
	WIDTH	LENGTH	VERTICAL BARS	CLOSED TIES	DOWEL EMBEDMENT
P1	20"	24"	16-#5	#3@8" O.C.	
P2	18"	22"	16-#5	#3@8" O.C.	
P3	22"	33"	24-#5	#3@10" O.C.	
P4	16"	16"	10-#5	#3@6" O.C.	
P5	18"	18"	12-#5	#3@8" O.C.	
P6	20"	28"	18-#5	#3@8" O.C.	
P7	20"	36"	24-#5	#3@8" O.C.	
SEE TYPICAL TENSION REINFORCEMENT AT CONCRETE PIER DETAIL					

SLAB/DECK SCHEDULE			
MARK	TOTAL DEPTH	COMPOSITION/REINFORCEMENT	
R1.5	1 1/2"	1.5" 18 GA. GALV. TYPE B ROOF DECK.	
S5.5	5 1/2"	3.5" LW CONCRETE ON 2" - 18GA VLI DECK REINFORCE W/ 6X6 W2.1 X W2.1.	
S.O.G.12	12"	12" THICK NW INTERIOR CONCRETE SLAB ON GRADE REINFORCED WITH #6 BARS @ 12" O.C. TOP AND BOT.	
S.O.G. 6	6"	6" THICK NW INTERIOR CONCRETE SLAB ON GRADE. SEE TYPICAL DETAIL.	
S.O.G. 6 EXTERIOR	6"	6" THICK NW EXTERIOR CONCRETE SLAB ON GRADE. SEE TYPICAL DETAIL.	

BASE PLATE SCHEDULE				
LOCATION MARK	COLUMN SECTION	BASE PLATE TYPE	BOTTOM OF BASE PLATE	REMARKS
A-2	W10x54	BP2	-1' - 4"	
A-2.5	W10x54	BP2	-1' - 4"	
A-3	W12x65	BP1	-1' - 4"	
A-4	HSS6x6x3/8	BP7	-0' - 10"	
A-x.1	HSS6x6x3/8	BP7	-0' - 10"	
A.7-4.4	W10x30	BP6	-1' - 10"	
A.7-5	W10x54	BP2	-0' - 10"	
B-2	W10x54	BP2	-1' - 4"	
B-3	W12x65	BP1	-1' - 4"	
B.1-4	HSS6x6x3/8	BP7	-1' - 10"	
B.6-4	HSS6x6x3/8	BP7	-1' - 10"	
B.7-4.4	W10x30	BP6	-0' - 10"	
B.7-5	W10x54	BP2	-0' - 10"	
B.12-x.3(11' - 1")	HSS6x6x3/8	BP8	-0' - 10"	
B.12-x.3(4' - 8")	HSS6x6x3/8	BP8	-0' - 10"	
B.12-x.3(8' - 8")	HSS6x6x3/8	BP8	-0' - 10"	
C-2	W10x54	BP2	-1' - 4"	
C-3	W12x65	BP1	-1' - 4"	
C.9-5	W10x54	BP2	-0' - 10"	
D-2	W10x54	BP2	-1' - 4"	
D-3	W12x65	BP1	-1' - 4"	
D-3.8	W10x33	BP3	-0' - 10"	
E-2.5	W10x54	BP2	-1' - 4"	
F-4.3	HSS6x6x3/8	BP7	-0' - 10"	
F-5	HSS6x6x3/8	BP7	-0' - 10"	
F.1-3.1	HSS6x6x3/8	BP7	-0' - 10"	
F.1-3.4	W10x33	BP5	-0' - 10"	
F.1-3.8	W10x33	BP4	-0' - 10"	
x.1-x.B	W10x33	BP2	-0' - 10"	
x.1-x.D	HSS6x6x3/8	BP7	-0' - 10"	
x.3(8' - 8")-x.A	HSS6x6x3/8	BP8	-0' - 10"	
x.3(8' - 8")-x.A.4	HSS6x6x3/8	BP8	-0' - 10"	
x.3-x.B	W10x33	BP6	-0' - 10"	
x.3-x.C	W10x33	BP2	-0' - 10"	
x.3-x.D	W10x54	BP4	-0' - 10"	
x.4-x.A	HSS6x6x3/8	BP8	-0' - 10"	
x.4-x.A(-10' - 5 3/4")	HSS6x6x3/8	BP8	-0' - 10"	
x.4-x.A.5	HSS6x6x3/8	BP8	-0' - 10"	
x.4-x.A.9	HSS6x6x3/8	BP8	-0' - 10"	
x.4-x.B	W10x33	BP6	-0' - 10"	
HOISTWAY COLUMN	HSS6x6x3/8	BP8	-0' - 10"	
HOISTWAY COLUMN	W10x54	BP2	-0' - 10"	
HOISTWAY COLUMN	HSS5x5x3/8	BP9	-0' - 10"	



TYPICAL COLUMN BASE PLATE AT PIPE OR TUBE COLUMN  
N.T.S.



TYPICAL COLUMN BASE PLATE AT WIDE FLANGE COLUMN  
N.T.S.