

AU Pharmacy Research Building - Structural Works

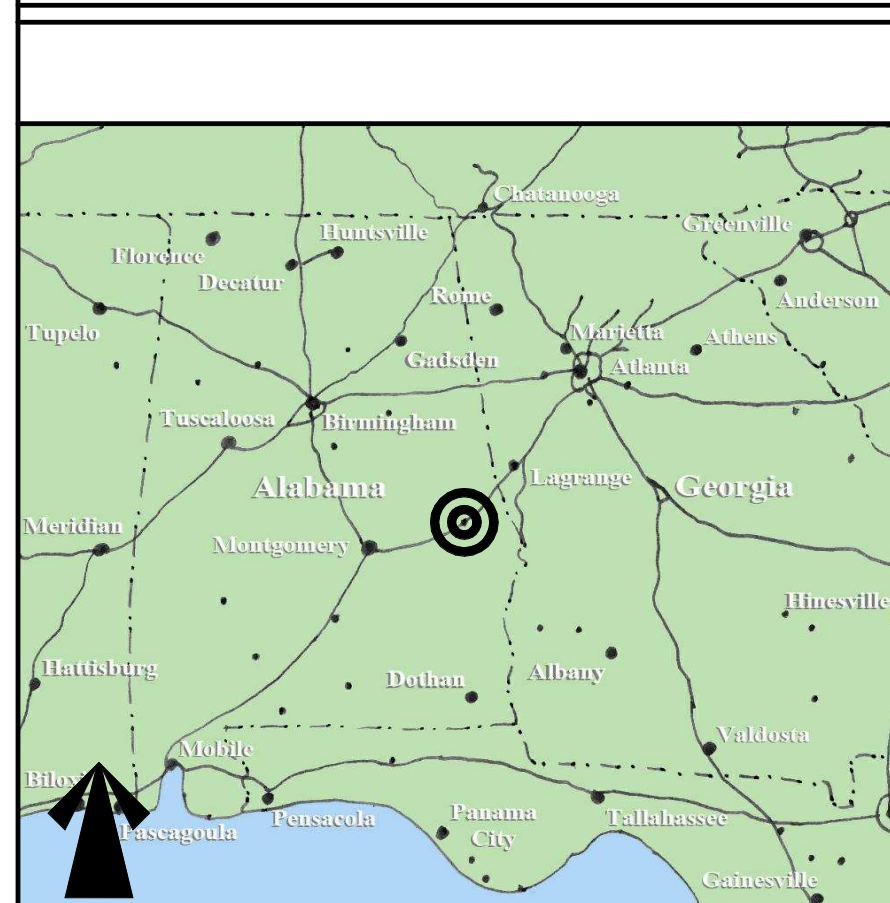
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Prepared For



FACILITIES DIVISION

Prepared By LBYP, Inc.



"Safety is our first priority. Think Safety. Act Safely."

Before you dig call

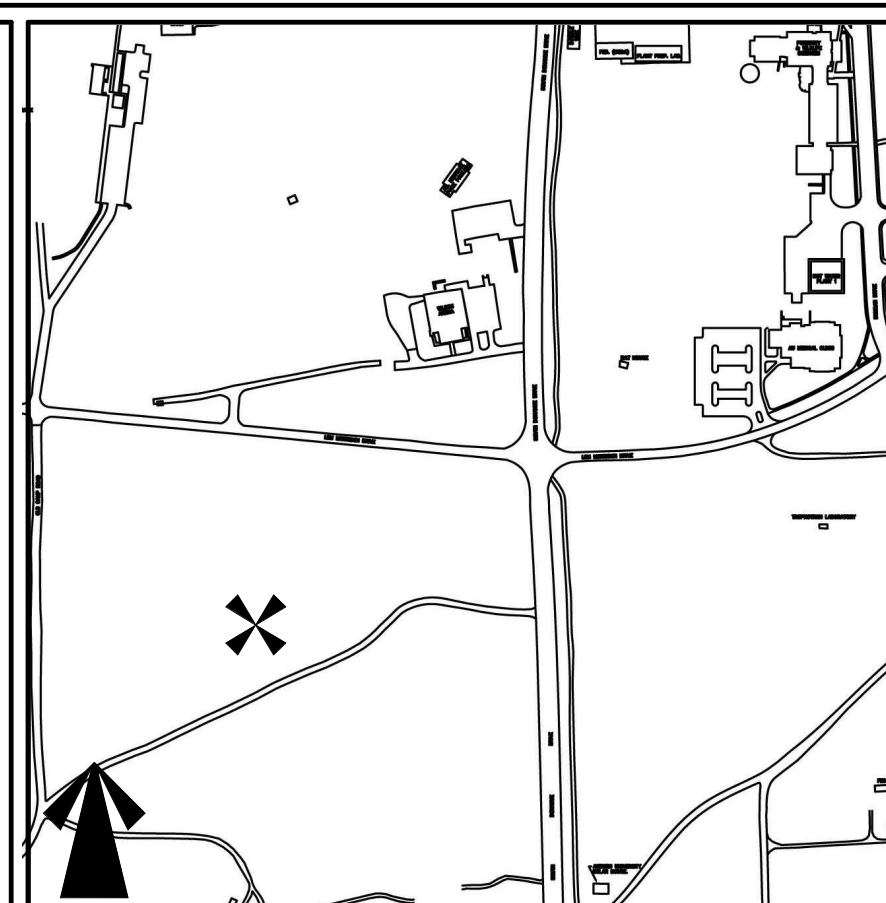
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Abbreviations

ABOVE FINISH FLOOR	- AFF	JOINT	- JT
ADDITIONAL	- ADDNL	JOIST(S)	- JST(S)
ADJACENT	- ADJ	JOIST GIRDER	- JG
AIR CONDITIONER	- A/C		
AIR HANDLING UNIT	- AHU	KIPS (1000 LBS)	- K
ALTERNATE	- ALT	KIPS PER LINEAL FOOT	- KLF
ANCHOR	- ANC	KIPS PER SQUARE INCH	- KSI
ANCHOR ROD	- AR	KIPS PER SQUARE FOOT	- KSF
AND	- &		
APPROVED	- APPRV	LIGHTWEIGHT CONCRETE	- LWT CONC
APPROXIMATE	- APPROX	LIVE LOAD	- LL
ARCHITECTURAL	- ARCH	LONGITUDINAL	- LONG.
ARCHITECTURALLY EXPOSED	- AESS	LONG LEG HORIZONTAL	- LLH
STRUCTURAL STEEL		LONG LEG VERTICAL	- LLV
AT (WHEN INDICATING SPACING ONLY)	- @	MANUFACTURE(R)	- MFR
		MASONRY	- MAS
BACK TO BACK	- B TO B	MASONRY OPENING	- MO
BALANCE	- BAL	MATERIAL	- MATL
BASEMENT	- BSMT	MAXIMUM	- MAX
BASE PLATE	- BSPL	MECHANICAL	- MECH
BEAM	- BM	MEZZANINE	- MEZZ
BEARING	- BRG	MIDDLE	- MID
BELOW FINISH FLOOR	- BFF	MINIMUM	- MIN
BETWEEN	- BTWN	MISCELLANEOUS	- MISC
BLOCK	- BLK	MOMENT	- M
BLOCKING	- BLKG	MOMENT CONNECTION(S)	- MC
BOTTOM	- BOT		
BOTTOM CHORD EXTENSION	- BCX	NEAR FACE	- NF
BRICK	- BRK	NEAR SIDE	- NS
BRIDGING	- BRDG	NOMINAL	- NOM
BUILDING	- BLDG	NOT IN CONTRACT	- NIC
		NOT TO SCALE	- NTS
		NUMBER	- NO. or #
CAST IN PLACE	- CIP		
CENTER	- CTR	ON CENTER	- OC
CENTERLINE	- CL	OPENING(S)	- OPNG(S)
CENTER TO CENTER	- C TO C	OPPOSITE	- OP
CHANNEL	- C	OUTSIDE FACE	- O.F.
CLEAR OR CLEARANCE	- CLR	OUTSIDE DIAMETER	- OD
COLUMN	- COL	OUTSTANDING LEG	- OSL
COMPLETE JOINT PENETRATION	- CJP		
COMPRESSION	- COMP	PARALLEL	- PAR.
CONCRETE	- CONC	PARTITION(S)	- PARTN(S)
CONCRETE MASONRY UNIT	- CMU	PENETRATION	- PEN
CONNECTION(S)	- CONN(S)	PERMANENT	- PERM
CONTINUOUS	- CONT	PERPENDICULAR	- PERP
CONTRACTOR	- CONTR	PLATE	- PL
CONSTRUCTION	- CONST	PLUMBING	- PLBG
CONTROL JOINT	- CJ	PNEUMATIC	- PNEU
CORNER	- COR	POST-TENSION	- PT
COORDINATE	- COORD	POUNDS	- LBS
COVER PLATE	- COV PL	POUNDS PER LINEAL FOOT	- PLF
		POUNDS PER SQUARE INCH	- PSF
DEGREE	- DEG or °	POUNDS PER SQUARE FT	- PSF
DEGREE CELSIUS	- C	POUNDS PER CUBIC YARD	- PCY
DEGREE FAHRENHEIT	- F	POUNDS PER CUBIC INCH	- PCI
DETAIL	- DET	PRECAST CONCRETE	- PC
DEAD LOAD	- DL	PREENGINEERED METAL BUILDING	- PEMB
DIAGONAL	- DIA	PREFABRICATED	- PREFAB
DIAMETER	- DIA or Ø	PRELIMINARY	- PRELIM
DIMENSION(S)	- DIM(S)	PRESSURE INJECTED FOOTING	- PIF
DRAWING(S)	- DWG(S)	PROJECTION	- PROJ
DRILLED PIER	- DP		
DOUBLE	- DBL	RADIUS	- R
DOUBLE EXTRA STRONG	- XXS	REFERENCE	- REF
DOWEL(S)	- DWL(S)	REINFORCED CONC PIPE	- RCP
DOWN	- DN	REINFORCING	- REINF
		REQUIRED	- REOD
EACH	- EA	RISER	- RIS
EACH FACE	- EF	ROOF	- RF
EACH WAY	- EW	ROOF DRAIN	- RD
EDGE OF DECK	- EOD	ROOF TOP UNIT	- RTU
EDGE OF SLAB	- EOS	ROOM	- RM
ELECTRICAL	- ELEC	ROUND	- RND
ELEVATION	- EL		
ELEVATOR	- ELEV	SCHEDULE	- SCHED
EMBEDMENT	- EMBED.	SECTION	- SECT
ENGINEER	- ENGR	SHEAR	- V
EQUAL	- EQ	SHEET	- SHT
EQUIPMENT	- EQUIP.	SIMILAR	- SIM
EXISTING	- EXIST.	SPACE	- SP
EXPANSION	- EXP	SPECIFICATION(S)	- SPEC(S)
EXPANSION ANCHOR	- EXP ANC	SPECIFIED	- SPEC'D
EXPANSION JOINT	- EXP	SQUARE	- SQ
EXTENSION	- EXTN	STANDARD	- STD
EXTERIOR	- EXT	STEEL	- STL
EXTRA STRONG	- XS	STIFFENER	- STIFF.
		STRAIGHT	- STR
FABRICATOR	- FABR	STIRRUPS	- STIR.
FACE TO FACE	- F TO F	STRUCTURE OR STRUCT'L	- STRUCT
FACE OF STUD	- FOS	SYMMETRICAL	- SYM
FAR SIDE	- FS	SUPPORT(S)	- SUPT(S)
FASTENER	- FAS		
FIELD VERIFY	- FV	TEMPERATURE	- TEMP
FINISH(ED)	- FIN.	TENSION	- T
FINISHED FLOOR	- FF	THICK	- THK
FLANGE	- FLG	TONGUE AND GROOVE	- T&G
FLOOR	- FLR	TOP AND BOTTOM	- T&B
FLOOR DRAIN	- FD	TOP CHORD EXTENSION	- TCX
FOOT	- FT	TOP OF BEAM	- TOB
FOOTING	- FTG	TOP OF FOOTING	- TOF
FOUNDATION	- FDN	TOP OF GRADE BEAM	- TOGB
FRAMING	- FRMG	TOP OF JOIST	- TOJ
		TOP OF PIER	- T.O.P.
GAGE OR GAUGE	- GA	TOP OF PILE CAP	- T.O.C.
GALVANIZED	- GALV	TOP OF STEEL	- TOS
GENERAL	- GEN	TOP OF WALL	- TOW
GENERAL CONTRACTOR	- GC	TREAD	- TR
GOVERNMENT	- GOVT	TYPICAL	- TYP
GRADE	- GR		
GRADE BEAM	- GRB	UNLESS NOTED	- U.N.
GROUND	- GRD		
		VERTICAL	- VERT
HARD ROCK	- HD RK		
HEADED STUD(S)	- H STUD(S)	WATERPROOFING	- WPGF
HEIGHT	- HT	WATERSTOP	- WS
HIGH STRENGTH	- HS	WELDED WIRE REINFORCEMENT	- WWR
HOOK	- HK	WIND LOAD	- WL
HORIZONTAL	- HORZ	WIND MOMENT CONNECTION	- WC
		WINDOW	- WDW
INFORMATION	- INFO	WITH	- W/
INSIDE DIAMETER	- ID	WITHOUT	- W/O
INSIDE FACE	- I.F.	WOOD	- WD
INTERIOR	- INT	WORK POINT	- WP
INTERMEDIATE	- INTM	WEIGHT	- WT
		WIDE FLANGE	- WF

1. GENERAL

1.1.	THE STRUCTURAL DRAWINGS AND SPECIFICATIONS ARE A PORTION OF THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR AND SUBCONTRACTORS SHALL REFERENCE AND COORDINATE WITH ALL OTHER DISCIPLINES' DRAWINGS. ANY DISCREPANCIES OR OMISSIONS SHALL BE REPORTED TO THE STRUCTURAL ENGINEER AND ARCHITECT.
1.2.	DESIGN CRITERIA:
A.	CODES AND SPECIFICATIONS:
1.	GENERAL BUILDING CODE: INTERNATIONAL BUILDING CODE, 2009 EDITION.
2.	DESIGN LOAD CRITERIA: MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, AMERICAN SOCIETY OF CIVIL ENGINEERS, ASCE 7
3.	CONCRETE: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, AMERICAN CONCRETE INSTITUTE, ACI 318.
4.	STRUCTURAL STEEL: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC 360.
5.	STEEL DECK: STEEL DECK INSTITUTE DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, ROOF DECKS AND CELLULAR METAL FLOOR DECK WITH ELECTRICAL DISTRIBUTION.
6.	COLD-FORMED METAL FRAMING: NORTH AMERICAN SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS, AMERICAN IRON AND STEEL INSTITUTE.
7.	MASONRY: BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530-05. SPECIFICATION FOR MASONRY STRUCTURES, ACI 530.1
B.	DESIGN LOADS (PSF):
1.	DEAD LOADS: ANY CHANGES IN CONSTRUCTION MATERIALS FROM THOSE SHOWN ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS SHALL BE REPORTED BY THE CONTRACTOR TO THE STRUCTURAL ENGINEER FOR VERIFICATION OF LOAD-CARRYING CAPACITY OF THE STRUCTURE.
2.	LIVE LOADS: ROOF (REDUCIBLE)-----20 FLOORS-----80+15 CORRIDORS ABOVE 1ST FLOOR-----80 MECHANICAL ROOM (NON-REDUCIBLE)-----125 STAIRS, EXITWAYS-----100 LIVE LOAD REDUCTIONS HAVE BEEN APPLIED IN ACCORDANCE WITH THE BUILDING CODE, UNLESS NOTED. PARTITION LIVE LOAD OF 15 PSF HAS BEEN ADDED WHERE NOTED "+15" ABOVE.
3.	SNOW LOAD: GROUND SNOW LOAD (Pg)-----5.0 FLAT-ROOF SNOW LOAD (Pf)-----3.2 SNOW EXPOSURE FACTOR (Ce)-----0.9 SNOW LOAD IMPORTANCE FACTOR (Is)-----1.0 THERMAL FACTOR (Ct)-----1.0
4.	WIND LOADS: BASIC WIND SPEED (3 -- SECOND GUST)-----95 MPH WIND IMPORTANCE FACTOR (Iw)-----1.0 BUILDING CATEGORY-----II WIND EXPOSURE CATEGORY-----C INTERNAL PRESSURE COEFFICIENT-----0.18 WALL COMPONENT AND CLADDING WIND PRESSURE-SEE DRAWINGS
5.	SEISMIC LOADS: SEISMIC IMPORTANCE FACTOR (Ie)-----1.0 MAPPED SPECTRAL RESPONSE ACCELERATIONS: Ss-----0.160 S1-----0.070 SITE CLASS-----D SITE COEFFICIENTS: Fa-----1.6 Fv-----2.4 DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS: Sds-----0.171 Sd1-----0.112 SEISMIC DESIGN CATEGORY-----B BASIC SEISMIC-FORCE-RESISTING SYSTEM: STEEL SYSTEM NOT SPECIFICALLY DESIGNED FOR SEISMIC RESISTANCE. DESIGN BASE SHEAR-----139 KIPS
	SEISMIC RESPONSE COEFFICIENT (Cs)-----0.0567 RESPONSE MODIFICATION FACTOR(R)-----3.0 OVER-STRENGTH FACTOR (ao)-----3.0 DEFLECTION AMPLIFICATION FACTOR (Cd)-----3.0 ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE METHOD
1.3.	CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO FABRICATION/CONSTRUCTION. NOTIFY STRUCTURAL ENGINEER AND ARCHITECT OF ANY DISCREPANCIES PRIOR TO FABRICATION/CONSTRUCTION.
1.4.	INSPECTIONS/OBSERVATIONS:
A.	SPECIAL INSPECTIONS ARE REQUIRED FOR THIS PROJECT IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE. REFER TO PROJECT SPECIFICATIONS AND DRAWINGS.
B.	STRUCTURAL OBSERVATION BY STRUCTURAL ENGINEER'S OFFICE.
1.	STRUCTURAL OBSERVATION IS VISUAL OBSERVATION OF THE IN-PLACE STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS AT THE TIME OF THE OBSERVATION.
2.	CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER AND ARCHITECT, PER THE SCHEDULE STATED BELOW, WHEN SUCH ITEMS HAVE PROGRESSED TO THE POINT WHERE THEY WILL BE IN PLACE AND READY FOR REVIEW. FAILURE TO NOTIFY MAY REQUIRE REMOVAL OF COMPLETED CONSTRUCTION.
	NOTIFY PRIOR TO THE FOLLOWING SCHEDULED TASKS REQUIRED DAYS NOTIFICATION
	FIRST FOUNDATION POUR-----2 DAYS EACH ELEVATED SLAB POUR-----2 DAYS COVERING METAL ROOF DECK-----2 DAYS
C.	OBSERVATION BY THE STRUCTURAL ENGINEER'S OFFICE DOES NOT REPLACE INSPECTIONS AND TESTING BY THE TESTING AGENCY OR SPECIAL INSPECTOR.

General Notes

1.5.	SUBMITTALS:
A.	REVIEW OF SHOP DRAWINGS AND OTHER SUBMITTALS BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTING TO THE STRUCTURAL ENGINEER. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. ALL SHOP DRAWINGS MUST BE REVIEWED AND "APPROVED" BY THE CONTRACTOR PRIOR TO SUBMITTAL.
B.	HARDCOPY SHOP DRAWING SUBMITTALS: SUBMIT ALL SHOP DRAWINGS ON THREE PRINTS ONLY. ONE PRINT WILL BE RETURNED TO THE CONTRACTOR. ALL PRINTS REQUIRED BY THE CONTRACTOR ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE AFTER APPROVED SHOP DRAWINGS ARE RETURNED. IF ADDITIONAL PRINTS ARE SUBMITTED, THEY WILL BE RETURNED UNMARKED.
C.	ELECTRONIC SHOP DRAWING SUBMITTALS: SUBMIT ALL ELECTRONIC SHOP DRAWINGS IN .PDF FORMAT. REVIEWED SHOP DRAWINGS WILL BE RETURNED IN .PDF FORMAT. ALL PRINTS REQUIRED BY THE CONTRACTOR ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MADE AFTER APPROVED SHOP DRAWINGS ARE RETURNED.
D.	RESUBMITTED SHOP DRAWINGS: RESUBMITTED SHOP DRAWINGS SHALL HAVE ALL CHANGES SINCE THE PREVIOUS SUBMISSION IDENTIFIED BY CLOUDING OR OTHER CLEAR COMMUNICATION. RE-REVIEWED SHOP DRAWINGS WILL ONLY BE REVIEWED FOR IDENTIFIED CHANGES.
E.	SHOP DRAWINGS: THE CONTRACTOR SHALL SUBMIT FOR STRUCTURAL ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS. ITEMS MARKED (*) SHALL HAVE SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED. ITEMS MARKED (#) SHALL BE SUBMITTED FOR STRUCTURAL ENGINEER'S RECORD ONLY.
1.	CONCRETE MIX DESIGNS
2.	CONCRETE REINFORCING
3.	STRUCTURAL STEEL (*)
4.	STEEL STAIRS (*)
5.	ELEVATORS (#)
6.	STEEL DECK
7.	COLD-FORMED METAL FRAMING (*)
8.	SHOP FABRICATED COLD-FORMED METAL ROOF TRUSSES (*)
F.	DESIGN CALCULATIONS: THE CONTRACTOR SHALL SUBMIT FOR STRUCTURAL ENGINEER'S RECORD, DESIGN CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED FOR THE FOLLOWING ITEMS.
1.	STRUCTURAL STEEL CONNECTIONS
2.	STEEL STAIRS
3.	COLD-FORMED METAL FRAMING
4.	SHOP FABRICATED COLD-FORMED METAL ROOF TRUSSES
1.6.	ALL DETAILS SHOWN ARE TYPICAL. SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS, UNLESS NOTED.
1.7.	THE CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
1.8.	CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS/ROOFS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT LOADS DO NOT EXCEED THE DESIGN LIVE LOAD.
2.	FOUNDATION
2.1.	GEOTECHNICAL REPORT: FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT BY BUILDING & EARTH, TITLED "REPORT OF SUBSURFACE EXPLORATION AND GEOTECHNICAL EVALUATION PROJECT NO.AU15118 DATED DECEMBER 15, 2015". THE CONTRACTOR SHALL OBTAIN A COPY OF THE GEOTECHNICAL REPORT FROM THE OWNER AND FOLLOW ALL REQUIREMENTS AND RECOMMENDATIONS.
2.2.	MAXIMUM ALLOWABLE BEARING PRESSURE PER GEOTECHNICAL REPORT: 3000 PSF.
2.3.	ALL FOUNDATION BEARING SURFACES SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE TO ENSURE THEIR COMPLIANCE WITH PRESSURES NOTED. ALL FOOTING ELEVATIONS ARE ESTIMATED AND MAY BE ADJUSTED IN THE FIELD BY THE GEOTECHNICAL ENGINEER.
2.4.	COMPACTED FILL SHALL MEET THE REQUIREMENTS NOTED IN THE GEOTECHNICAL REPORT.
2.5.	BACKFILL FOR FOUNDATION AND RETAINING WALLS SHALL BE A FREE DRAINING GRANULAR MATERIAL. BACKFILL SHALL BE COMPACTED SUFFICIENTLY TO PREVENT SUBSIDENCE OF SURFACE ADJACENT TO WALL. THE GRANULAR MATERIAL SHALL BE PLACED IN A 45 DEGREE WEDGE EXTENDING FROM THE BASE OF THE FOOTING.
2.6.	FOUNDATION AND RETAINING WALLS SHALL NOT BE BACKFILLED UNTIL CONCRETE HAS ATTAINED THE REQUIRED 28 DAY COMPRESSIVE STRENGTH.
3.	CONCRETE
3.1.	CONCRETE OPERATIONS SHALL COMPLY WITH ACI STANDARDS.
3.2.	MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS (PSI), TYPE OF CONCRETE, MAXIMUM W/C (WATER/CEMENTITIOUS MATERIALS RATIO), AIR CONTENT, SLUMP AND CONCRETE USE:
	STRENGTH TYPE W/C AIR SLUMP USE
	4500 NORMAL WT. 0.45 1-3% 3" TO 5" SLAB ON GRADE
	3000 NORMAL WT. 0.57 --- 3" TO 5"
	3000 NORMAL WT. 0.57 --- 3" TO 5" CONCRETE ON METAL DECK
	3000 NORMAL WT. 0.57 4-6% 3" TO 5" UNLESS NOTED
3.3.	REINFORCING BARS: ASTM A615 GRADE 60.
3.4.	WELDED WIRE REINFORCEMENT (WWR): ASTM A195. MINIMUM LAP AND EMBEDMENT TO BE THE GREATER OF ONE CROSS WIRE SPACING PLUS 2" OR 6".
3.5.	REINFORCING STEEL SHOWN IN SECTIONS AND DETAILS ARE A SCHEMATIC INDICATION THAT REINFORCING EXISTS. SEE SCHEDULES, SECTION NOTES AND GENERAL NOTES FOR ACTUAL REINFORCING REQUIRED.
3.6.	REINFORCING BAR PLACING ACCESSORIES IN ACCORDANCE WITH ACI MANUAL OF STANDARD PRACTICE. WHERE CONCRETE IS EXPOSED IN FINISHED BUILDING, PROVIDE ACCESSORIES WITH RUSTPROOF LEGS. WHERE CONCRETE IS SAND-BLASTED OR BUSH-HAMMERED, PROVIDE ACCESSORIES OF STAINLESS STEEL.
3.7.	DETAIL REINFORCEMENT IN ACCORDANCE WITH ACI 315. REINFORCEMENT SHALL NOT BE WELDED UNLESS NOTED OR APPROVED BY THE STRUCTURAL ENGINEER.
3.8.	ALL SPLICES SHALL BE CLASS "B" TENSION LAP SPLICE, UNLESS NOTED.
3.9.	ALL REINFORCING MARKED "CONTINUOUS" SHALL BE SPLICED WITH CLASS "B" TENSION LAP SPLICE, UNLESS NOTED.
3.10.	CONCRETE COVERAGE OF REINFORCEMENT, UNLESS NOTED: FOOTINGS-----2" TOP & 3" BOTTOM & SIDES PEDESTALS-----1-1/2" CLEAR OF TIES FOUNDATION RETAINING WALLS-----2" BOTH FACES SUMP AND PIT WALLS-----2" BOTH FACES CONCRETE SURFACES CAST AGAINST EARTH-----3"
3.11.	PEDESTAL AND WALL VERTICAL REINFORCING: DOWEL TO FOUNDATION WITH HOOKED BARS OF SAME SIZE AND SPACING AS VERTICAL REINFORCING.
3.12.	FOR CONCRETE WALLS WITH A SINGLE LAYER OF REINFORCING, REINFORCING TO BE CENTERED IN WALL UNLESS NOTED.
3.13.	EARTH SUPPORTED SLABS: 4" THICK, REINFORCED WITH 6X6 W2.9/W2.9 WWR AT MID-DEPTH OF SLAB, UNLESS NOTED.
4.	STRUCTURAL STEEL
4.1.	FABRICATE AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".
4.2.	THE STEEL FRAME IS "NON-SELF-SUPPORTING". ADEQUATE TEMPORARY SUPPORT MUST BE PROVIDED BY THE CONTRACTOR UNTIL THE LATERAL LOAD RESISTANCE AND STABILITY OF THE COMPLETED STRUCTURE IS IN PLACE. LATERAL LOAD RESISTANCE AND STABILITY OF THE BUILDING IN THE COMPLETED STRUCTURE IS PROVIDED AS FOLLOWS:
A.	ROOF DIAPHRAGM: STEEL ROOF DECKING
B.	FLOOR DIAPHRAGM: COMPOSITE STEEL DECK AND CONCRETE.
C.	COLLECTOR ELEMENTS/DIAG STRUTS: AS NOTED.
D.	LATERAL LOAD RESISTING SYSTEM: STEEL BRACED FRAMES.
4.3.	STRUCTURAL STEEL: ASTM A992 FOR WIDE FLANGE BEAMS AND COLUMNS; ASTM A36 FOR CHANNELS, STIFFENER PLATES, BASE PLATES, COLUMN CAP PLATES, BEAM CONNECTION PLATES AND STEEL ANGLES.
4.4.	HOLLOW STRUCTURAL SECTIONS: ASTM A500, GRADE B.
4.5.	WELDED CONNECTIONS: E70XX ELECTRODES, MINIMUM SIZE FILLET WELD 3/16".
4.6.	HEADED ANCHOR RODS: ASTM F1554 GRADE 55 WELDABLE ANCHOR AND HEAVY HEX NUT, UNLESS INDICATED.
4.7.	SHEAR CONNECTORS: ASTM A108, GRADE 1015 THROUGH 1020, HEADED-STUD TYPE, COLD FINISHED CARBON STEEL; AWS D1.1, TYPE B.
4.8.	BOLTED CONNECTIONS: BEARING TYPE A325-N IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". BOLTS THROUGH 4" WIDE BEAM FLANGES SHALL BE 5/8" DIAMETER. OTHER BOLTS SHALL BE 3/4" DIAMETER. USE SNUG TIGHT BEARING CONNECTIONS FOR ALL BOLTED CONNECTIONS.
4.9.	BOLTS SHOWN IN SECTIONS AND DETAILS ARE A SCHEMATIC INDICATION THAT BOLTS MAY BE USED. ACTUAL NUMBER, UNLESS SPECIFIED, TO BE IN ACCORDANCE WITH AISC.
4.10.	ALL STRUCTURAL STEEL CONNECTIONS NOT SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS SHALL BE DESIGNED BY THE CONTRACTOR TO RESIST FORCES INDICATED. THE CONTRACTOR'S CONNECTION DESIGN SHALL BE UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. LBVD CAN CONTRACT WITH THE CONTRACTOR TO PROVIDE CONNECTION DESIGN SERVICES IF REQUESTED.
4.11.	DESIGN CALCULATIONS FOR THE CONNECTIONS SHALL BE PROVIDED BY THE CONTRACTOR AND DESIGNED BY A PROFESSIONAL ENGINEER. CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED AND SUBMITTED FOR THE FILES OF THE ARCHITECT AND STRUCTURAL ENGINEER. THE CONNECTION DESIGNER'S ENGINEERING SEAL ON THE DESIGN CALCULATIONS SHALL REPRESENT THAT THE CONNECTIONS INDICATED ON THE SHOP DRAWINGS HAVE BEEN REVIEWED AND ARE IN ACCORDANCE WITH THE SUBMITTED DESIGN CALCULATIONS. SHOP DRAWINGS CONTAINING CONNECTIONS FOR WHICH CALCULATIONS HAVE NOT BEEN RECEIVED OR REQUIRED CONNECTION INFORMATION IS NOT PROVIDED WILL BE RETURNED UNCHECKED AS AN INCOMPLETE SUBMITTAL.
4.12.	REQUIRED CONNECTION INFORMATION SHALL BE SHOWN AT EACH DETAILED CONNECTION ON THE SUBMITTAL DRAWINGS AS FOLLOWS:
A.	DESIGN REACTION.
B.	CALCULATION PAGE NUMBER.
C.	CONNECTION CAPACITY.
4.13.	ALL NON-COMPOSITE BEAM CONNECTIONS SHALL BE "SIMPLE SHEAR CONNECTIONS", UNLESS NOTED. WHERE BEAM REACTIONS AND/OR DESIGN FORCES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS, THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT A REACTION EQUAL TO ONE-HALF THE TOTAL UNIFORM LOAD CAPACITY FROM THE MAXIMUM TOTAL UNIFORM LOAD TABLE MULTIPLIED BY A FACTOR OF 1.2 FOR GIVEN SHAPE, SPAN, AND GRADE OF STEEL.
4.14.	ALL COMPOSITE BEAM CONNECTIONS SHALL BE "SIMPLE SHEAR CONNECTIONS" UNLESS NOTED. WHERE BEAM REACTIONS AND/OR DESIGN FORCES ARE NOT SHOWN ON THE STRUCTURAL DRAWINGS THE CONNECTIONS SHALL BE DESIGNED TO SUPPORT A REACTION EQUAL TO ONE-HALF THE TOTAL UNIFORM LOAD CAPACITY FROM THE MAXIMUM TOTAL UNIFORM LOAD TABLE MULTIPLIED BY A FACTOR OF 1.6.
4.15.	TO THE REACTION LISTED ABOVE, ADD ANY LOADS OR REACTIONS OF MEMBERS SUPPORTED BY THE BEAM WITHIN THREE FEET OF BEAM END AND THE VERTICAL COMPONENTS OF FORCES IN BRACE MEMBERS FRAMING INTO THE BEAM.
4.16.	WHERE BEAM REACTIONS ARE SHOWN ON THE DRAWINGS, THE CONNECTIONS SHALL DEVELOP THE REACTIONS SHOWN. WHERE CONNECTIONS ARE SUBJECT TO ECCENTRICITY, SUCH ECCENTRICITY SHALL BE TAKEN INTO ACCOUNT WHEN DESIGNING AND DETAILING THE CONNECTION.
4.17.	WHERE STEEL BEAMS ARE CONTINUOUS OVER COLUMNS, PROVIDE WEB STIFFENER PLATES EACH SIDE OF BEAM WEB, OF THICKNESS EQUAL TO BEAM FLANGE THICKNESS, LOCATED IN ALIGNMENT WITH COLUMN WEB, FLANGES OR CENTER LINE OF TUBES AND PIPE COLUMNS.
4.18.	FABRICATE BRACING MEMBERS WITH SUFFICIENT DRAW TO PREVENT SAGGING.
5.	STEEL DECK
5.1.	DECK PROPERTIES AND ATTACHMENTS SHALL BE IN ACCORDANCE WITH THE STEEL DECK INSTITUTE.
5.2.	DECK SHALL BE CONTINUOUS OVER THREE OR MORE SPANS.
5.3.	DO NOT SHORE DECK.
5.4.	ROOF DECK: WIDE RIB TYPE "WR", STEEL ROOF DECK, 22 GAGE, 1-1/2" DEEP, GALVANIZED. SHEET STEEL FOR DECK SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI.

ISSUED FOR STEEL FRAMING (BEAMS, COLUMNS, AND BRACING ONLY), AND CONCRETE FOUNDATIONS.



Facilities Division
1161 West Sanford Avenue
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Safety is our first priority.
Think Safety. Act Safely.

Rev	Phase	Date
	IFC SET	01.21.16



14-193
Goodwyn Mills & Coward, INC
Drawn by: NCT

Abbreviations and General Notes
AU Pharmacy Research Building - Structural Works
14-193

Abbreviations and General Notes

DRAWN BY	
CHECKED BY	
DATE	12-21-15
FILE NUMBER	
PROJECT NUMBER	14-193
SHEET NUMBER	

S1.1

General Notes (Cont.)

- 5.5. COLD-FORMED METAL FRAMING, SUSPENDED CEILINGS, LIGHT FIXTURES AND DUCTS OR OTHER UTILITIES SHALL NOT BE SUPPORTED BY THE METAL ROOF DECK.
- 5.6. COMPOSITE FLOOR DECK:
- A. 3" THICK CONCRETE SLAB ON STEEL COMPOSITE FLOOR DECK. DECK SHALL CONFORM TO 3", 18 GAGE, GALVANIZED, AS MANUFACTURED BY VULCRAFT OR APPROVED EQUAL, (TOTAL THICKNESS= 6"). SHEET STEEL FOR DECK SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI
- B. REINFORCE SLAB WITH 6X6 W2.1/W2.1 WWR SUPPORTED BY "UPPER CONTINUOUS HIGH CHAIRS" OVER BEAMS AND GIRDERS TO MAINTAIN 1" COVERAGE OF WWR.
- C. DECK SHALL BE WELDED TO SUPPORTS WITH A 5/8" DIAMETER PUDDLE WELD OR EQUIVALENT AT ALL EDGE RIBS PLUS A SUFFICIENT NUMBER OF INTERIOR RIBS TO PROVIDE A MAXIMUM AVERAGE SPACING OF 12 INCHES. THE MAXIMUM SPACING BETWEEN ADJACENT POINTS OF ATTACHMENT SHALL NOT EXCEED 18 INCHES.
- D. IF STUDS ARE BEING APPLIED THROUGH THE DECK ONTO STRUCTURAL STEEL, THE STUD WELDS CAN BE USED TO REPLACE THE PUDDLE WELDS ON A ONE-FOR-ONE BASIS.
- E. DECK UNITS WITH SPANS GREATER THAN FIVE FEET SHALL HAVE SIDE LAPS AND PERIMETER EDGES FASTENED AT MIDSPAN OR 36" O.C. - WHICHEVER IS SMALLER.
- F. STEEL BEAMS WILL DEFLECT ± 1' DURING CONCRETE PLACEMENT. CONTRACTOR TO PROVIDE ADDITIONAL CONCRETE DURING PLACEMENT TO PROVIDE A LEVEL FINISHED FLOOR.
- 5.7. SHEAR CONNECTORS: 3/4" DIAMETER, 4 1/2" LONG (AFTER WELD), HEADED STUDS ASTM A108. SPACE UNIFORMLY ALONG MEMBER WHERE SINGLE VALUE IS GIVEN. SPACE UNIFORMLY ALONG PART OF MEMBER BETWEEN SUPPORTED BEAMS, OR COLUMN AND BEAM, WHERE MORE THAN ONE VALUE IS GIVEN. MAXIMUM CONNECTOR SPACING SHALL NOT EXCEED 8 TIMES THE TOTAL SLAB THICKNESS NOR 36". MINIMUM SPACING OF SHEAR CONNECTORS SHALL BE 3' PERPENDICULAR TO MEMBER AND 4-1/2" PARALLEL TO MEMBER. MINIMUM SPACING OF SHEAR CONNECTORS APPLIED IN RIBS OF STEEL DECK SHALL BE 3" IN EACH DIRECTION.
- 5.8. DO NOT ALLOW EXTRANEOUS MATERIALS AND SYSTEMS TO BE INCORPORATED INTO REFERENCED TESTED FIRE-RATED DESIGN ASSEMBLIES (TYPICALLY U.L. DESIGNS). THIS INCLUDES CASTING EMBEDDED CONDUITS AND PIPING IN CONCRETE SLABS ON METAL DECK. REFER TO THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ASSEMBLY DESCRIPTIONS.

6. COLD-FORMED METAL TRUSSES

- 6.1. STRUCTURAL PROPERTIES OF TRUSS MEMBERS SHALL BE COMPUTED IN ACCORDANCE WITH AISI "NORTH AMERICAN SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" (2001).
- 6.2. THE COLD-FORMED METAL TRUSS SYSTEM ENGINEER SHALL DESIGN THE COMPLETE TRUSS SYSTEM. THE TRUSS SYSTEM IS AN ASSEMBLAGE OF TRUSSES AND TRUSS GIRDERS, TOGETHER WITH ALL BRACING, CONNECTIONS AND OTHER STRUCTURAL ELEMENTS AND ALL SPACING AND LOCATIONAL CRITERIA, THAT, IN COMBINATION, FUNCTION TO SUPPORT THE LOADS APPLICABLE TO THE STRUCTURE.
- 6.3. COLD-FORMED METAL TRUSS ERECTION PLANS AND CALCULATIONS SHALL BE SUBMITTED FOR THE FILES OF THE STRUCTURAL ENGINEER. CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.
- 6.4. TRUSS MANUFACTURER SHALL DESIGN FOR THE FOLLOWING SUPERIMPOSED LOADS:
- TOP CHORD DEAD LOAD -----10 PSF
BOTTOM CHORD DEAD LOAD -----10 PSF
TOP CHORD LIVE LOAD -----20 PSF
- 6.5. DEFLECTION LIMITS: DESIGN TRUSS SYSTEM TO WITHSTAND DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:
- A. ROOF TRUSSES: VERTICAL DEFLECTION OF 1/360 FOR LIVE LOADS AND 1/240 FOR TOTAL LOADS OF THE SPAN.
- 6.6. DESIGN ROOF TRUSSES TO RESIST THE WIND UPLIFT LOADING IN ACCORDANCE WITH THE BUILDING CODE.
- 6.7. IN ADDITION TO THE ABOVE LOADS, COLD-FORMED METAL TRUSSES SHALL BE DESIGNED FOR CONCENTRATED LOADS HUNG FROM OR SUPPORTED ON TRUSSES. REFER TO MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS FOR LOADING INFORMATION AND LOCATION. LOADING AS REQUIRED BY OTHER SUBCONTRACTORS, SUCH AS FIRE PROTECTION, SHALL BE COORDINATED BY THE CONTRACTOR.
- 6.8. ALL TEMPORARY AND PERMANENT BRACING MEMBERS AND CONNECTIONS REQUIRED FOR COLD-FORMED METAL TRUSSES SYSTEM SHALL BE DETAILED ON THE TRUSS MANUFACTURER'S ERECTION PLANS.
- 6.9. TEMPORARY BRACING SHALL NOT IMPOSE ANY FORCE ON THE SUPPORTING STRUCTURE. PERMANENT BRACING FORCES SHALL BE TRANSFERRED TO THE ROOF DIAPHRAGM BY THE BRACING DESIGN PROVIDED BY THE TRUSS MANUFACTURER.
- 6.10. TRUSS SYSTEM CONNECTIONS TO THE STRUCTURE AND DIAPHRAGM SHEAR TRANSFER TO THE STRUCTURE ARE THE DESIGN RESPONSIBILITY OF THE TRUSS SYSTEM ENGINEER AND SHALL BE DETAILED ON THE TRUSS MANUFACTURER'S ERECTION PLANS.

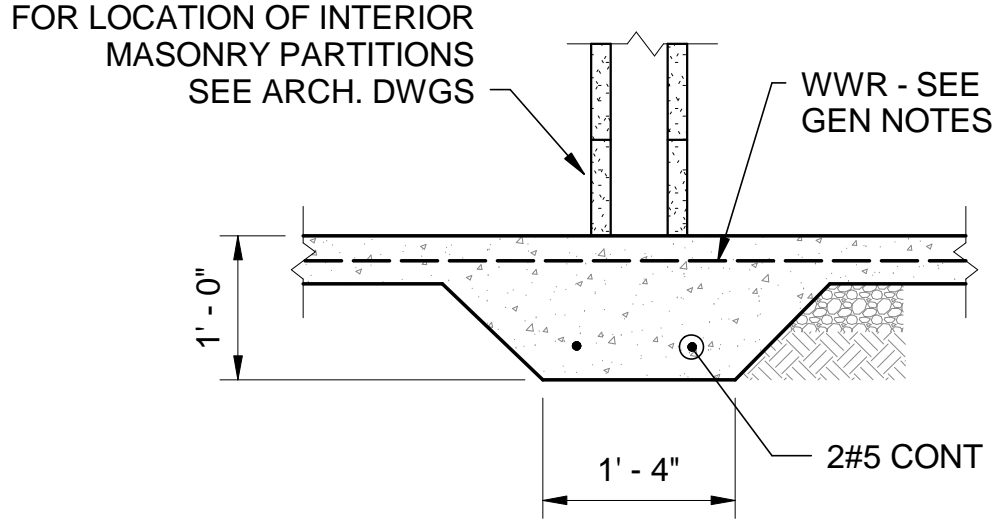
7. COLD-FORMED METAL FRAMING

- 7.1. DESIGN OF COLD-FORMED METAL FRAMING COMPONENTS AND ACCESSORIES IS THE RESPONSIBILITY OF THE COLD-FORMED METAL FRAMING MANUFACTURER. COLD-FORMED METAL FRAMING INCLUDES ANY BUILDING COMPONENT WHICH UTILIZES LIGHT GAGE STEEL FRAMING MEMBERS, THEIR CONNECTION TO EACH OTHER AND THEIR CONNECTION TO THE BUILDINGS PRIMARY STRUCTURAL FRAME.
- 7.2. ANY COLD-FORMED MEMBER SIZES NOTED ARE FOR PRELIMINARY PRICING INFORMATION ONLY. THE COMPLETE DESIGN OF COLD-FORMED METAL FRAMING SYSTEM AND PREPARATION OF ERECTION DRAWINGS ARE BY THE ENGINEER RESPONSIBLE FOR THEIR DESIGN.
- 7.3. SUBMIT THE FOLLOWING:
- A. PRODUCT DATA: FOR EACH TYPE OF COLD-FORMED METAL FRAMING PRODUCT AND ACCESSORY UTILIZED.
- B. SHOP DRAWINGS: SHOW LAYOUT, SPACINGS, SIZES, THICKNESS, AND TYPES OF COLD-FORMED METAL FRAMING; FABRICATIONS; AND FASTENING AND ANCHORAGE DETAILS, INCLUDING MECHANICAL FASTENERS. SHOW REINFORCING CHANNELS, OPENING FRAMING, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, SPLICES, ACCESSORIES, CONNECTION DETAILS, AND ATTACHMENT TO ADJOINING WORK.
- C. CALCULATIONS: COLD-FORMED METAL FRAMING DESIGN CALCULATIONS FOR THE FILES OF THE STRUCTURAL ENGINEER AND ARCHITECT. CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED.

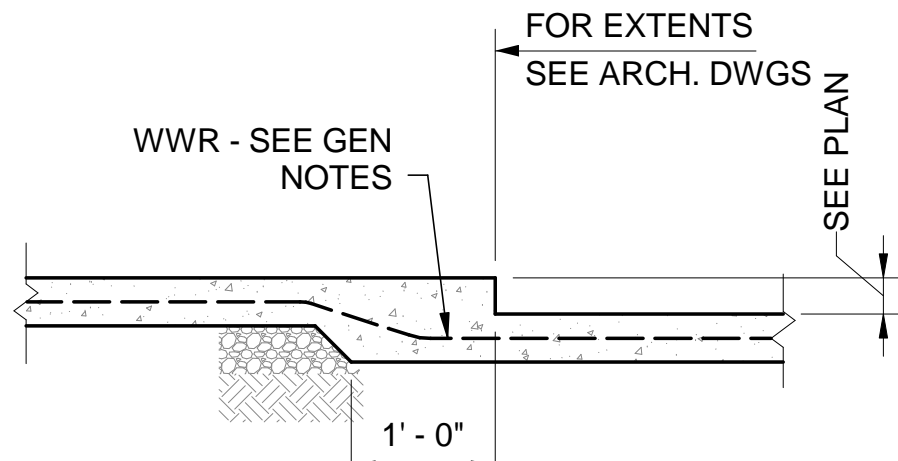
- 7.4. PROVIDE COLD-FORMED METAL FRAMING CAPABLE OF WITHSTANDING DESIGN LOADS WITHIN LIMITS AND UNDER CONDITIONS INDICATED.
- A. DESIGN LOADS AS INDICATED IN PART 1 OF THESE GENERAL NOTES.
- B. DEFLECTION LIMITS: DESIGN FRAMING SYSTEMS TO WITHSTAND DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:
1. EXTERIOR NON-LOAD-BEARING FRAMING: HORIZONTAL DEFLECTION OF 1/600 OF THE WALL HEIGHT.
- 7.5. DESIGN CURTAIN WALL FRAMING SYSTEM TO ACCOMMODATE LIVE LOAD DEFLECTION OF PRIMARY BUILDING STRUCTURE AS FOLLOWS:
- A. UPWARD AND DOWNWARD MOVEMENT OF 3/4 INCH

8. MASONRY

- 8.1. MASONRY CONSTRUCTION SHALL CONFORM TO ACI 530 AND ACI 530.1 SPECIFICATIONS.
- 8.2. SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (F'm): 1500 PSI AT 28 DAYS.
- 8.3. SPECIFIED COMPRESSIVE STRENGTH OF GROUT (F'g): 2500 PSI AT 28 DAYS.
- 8.4. MORTAR: TYPE S OR M.
- 8.5. ALL MASONRY SHALL BE RUNNING BOND, UNLESS NOTED.
- 8.6. ALL BLOCK CELLS AND CAVITIES BELOW GRADE SHALL BE FILLED WITH CONCRETE OR GROUT.
- 8.7. MINIMUM REINFORCING LAP SPLICE OF 48 BAR DIAMETERS.
- 8.8. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND DETAILS OF MASONRY CONTROL JOINTS.
- 8.9. WHEN REINFORCING IS SPECIFIED, PROVIDE AT EACH SIDE OF CONTROL JOINTS, OPENINGS AND WALL ENDS. REINFORCING TO BE CENTERED IN WALL UNLESS NOTED.
- 8.10. ADEQUATE TEMPORARY BRACING OF CMU WALLS MUST BE PROVIDED BY THE CONTRACTOR UNTIL REQUIRED CONNECTIONS OR ELEMENTS ARE IN PLACE.



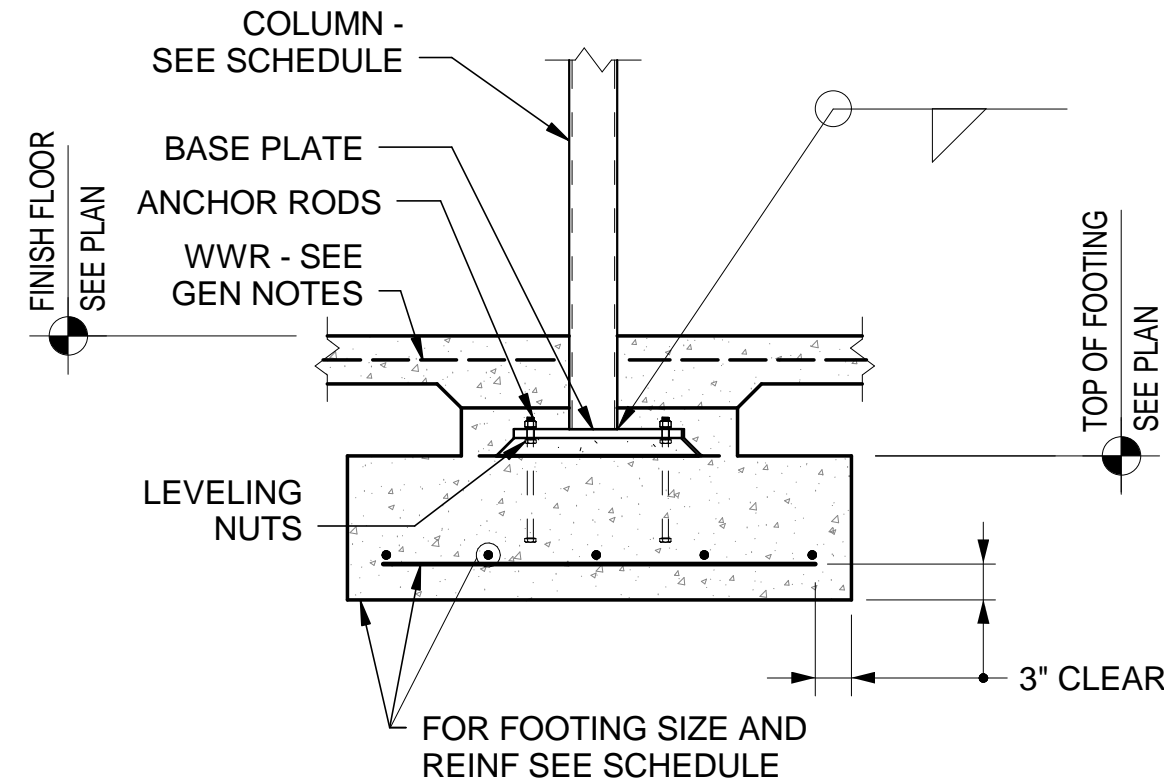
Thickened Slab on Grade Detail



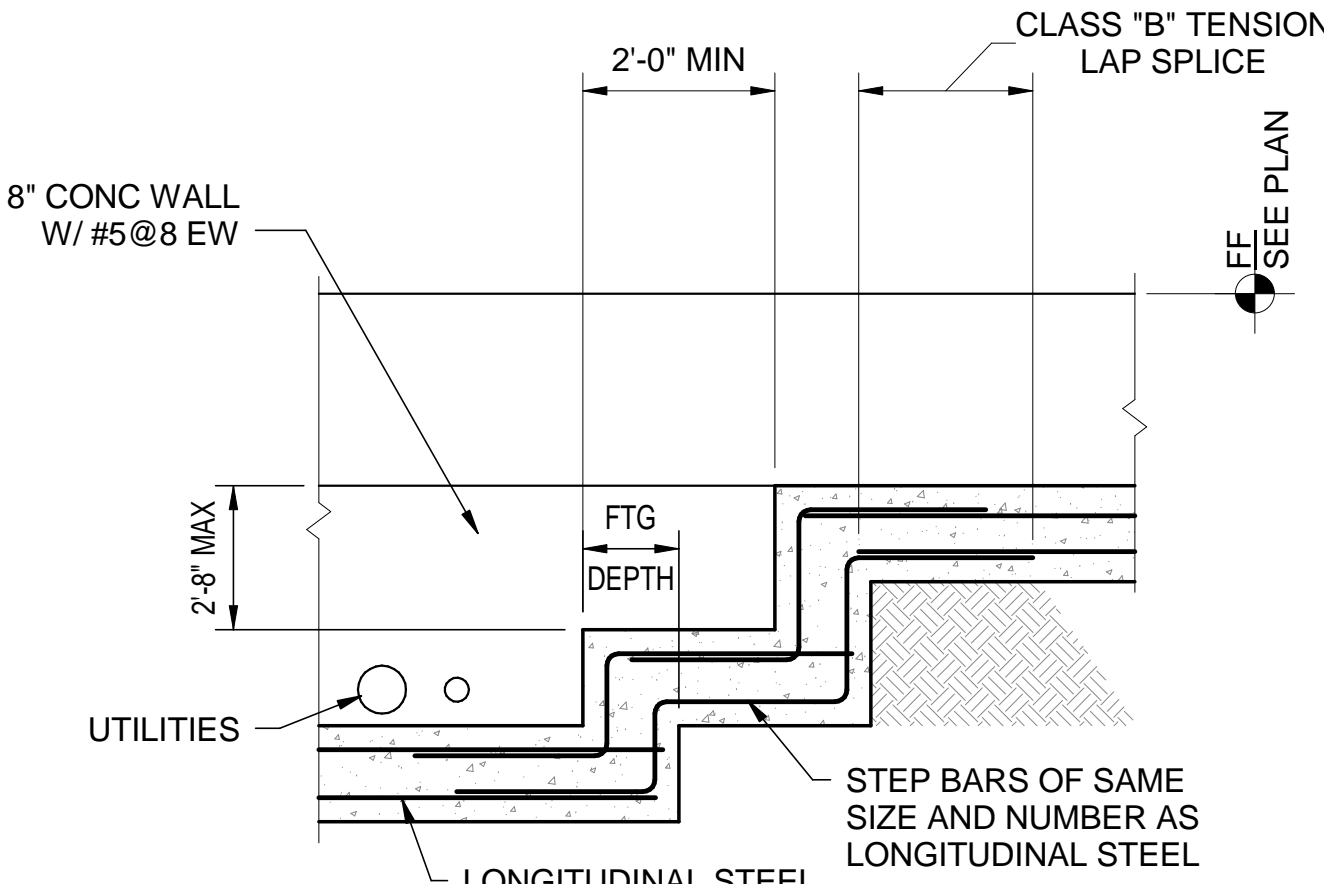
Depressed Slab on Grade Detail

Tension Lap Splice Lengths								
BAR SIZE	f _C = 3000				f _C = 4500			
	TOP BARS		OTHER BARS		TOP BARS		OTHER BARS	
	A	B	A	B	A	B	A	B
#3	22"	28"	17"	22"	18"	23"	14"	18"
#4	29"	37"	22"	29"	24"	30"	18"	24"
#5	36"	47"	28"	36"	29"	38"	23"	29"
#6	43"	56"	33"	43"	35"	46"	27"	35"
#7	63"	81"	48"	63"	51"	66"	39"	51"
#8	72"	93"	55"	72"	59"	76"	45"	59"

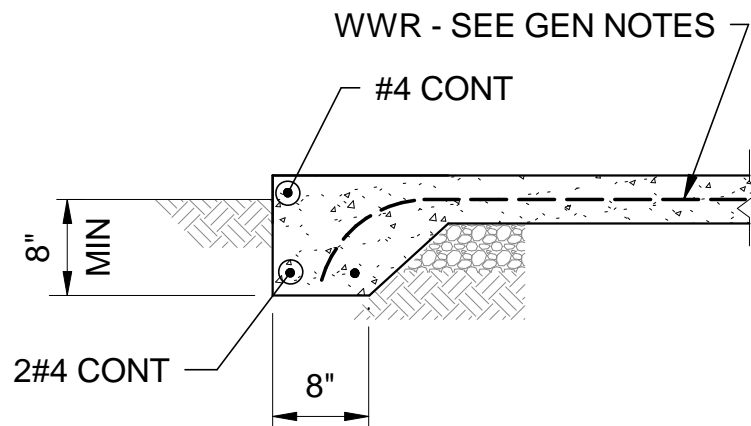
1. WHEN LAP SPLICING BARS OF DIFFERENT SIZES, THE LAP LENGTH IS DETERMINED BY THE SMALLER BAR, BUT SHALL NOT BE LESS THAN THE "CLASS A" SPLICE LENGTH OF THE LARGER BAR.
2. TOP BARS ARE HORIZONTAL REINFORCEMENT WITH MORE THAN 12" OF CONCRETE CAST BELOW THE REINFORCEMENT.



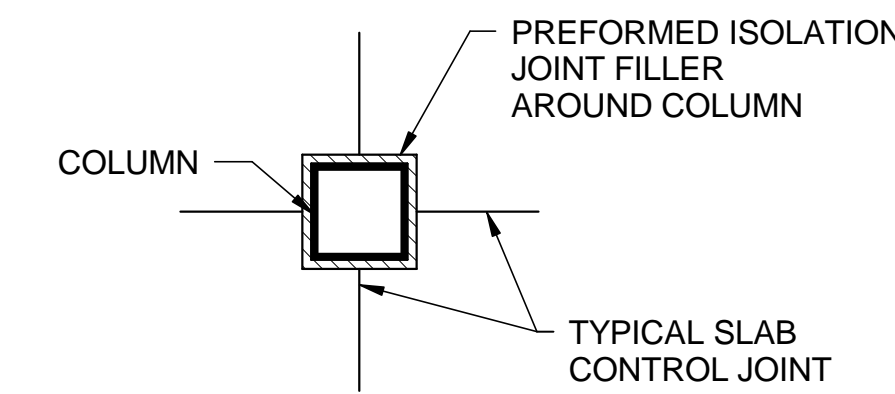
Column Base and Footing Detail



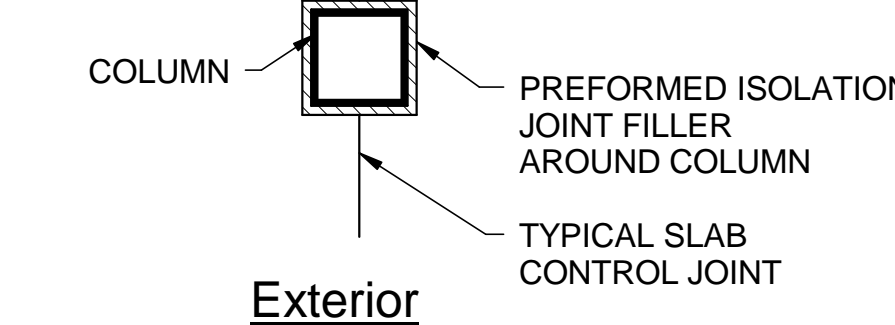
Footing Step Detail



Slab Edge Detail

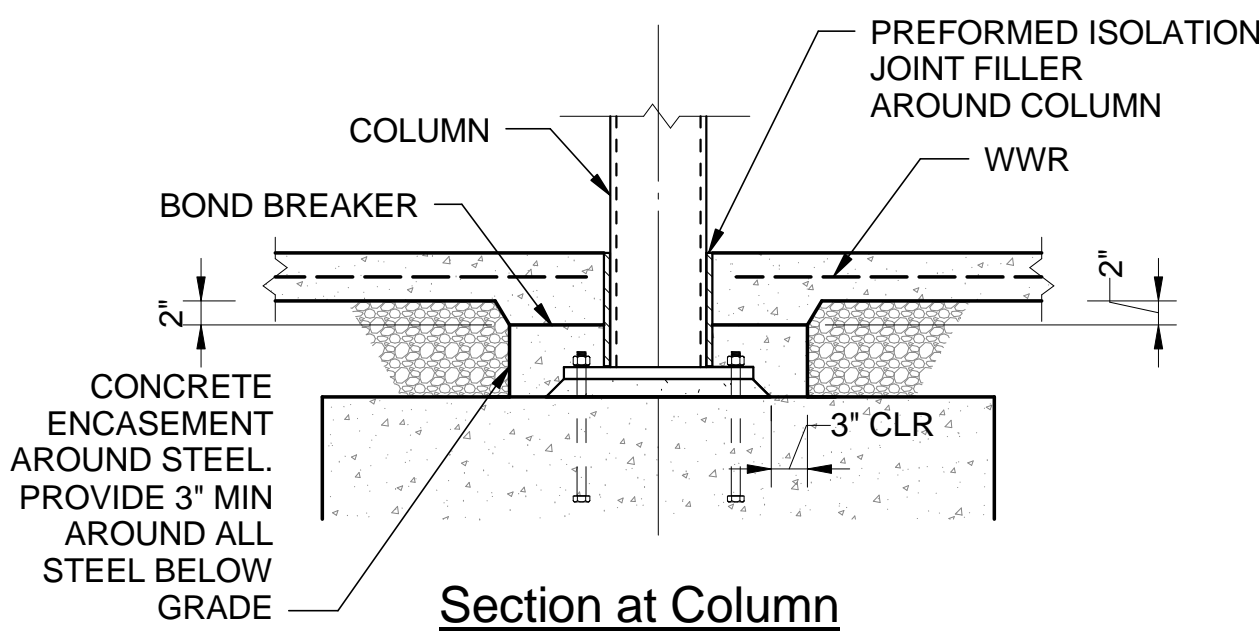


Interior



Exterior

Isolation Joint Detail

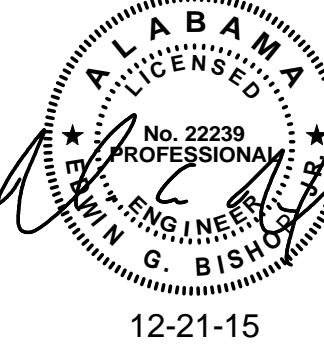


Section at Column

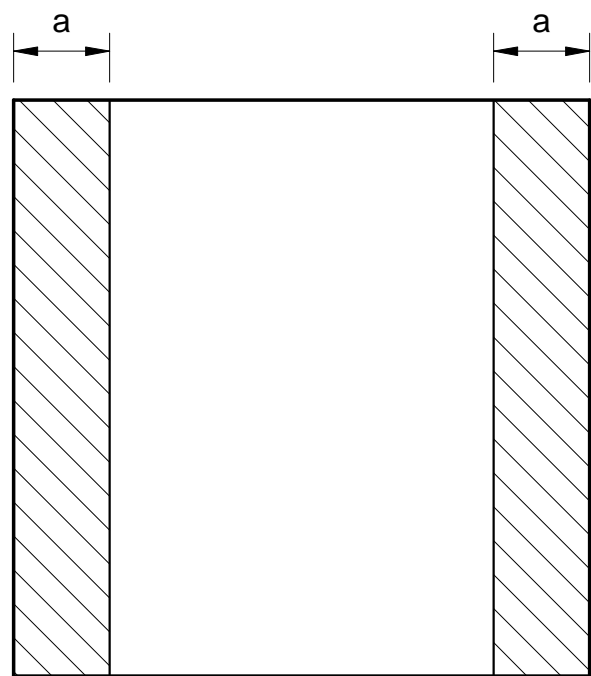
Column/Slab-Joint Detail

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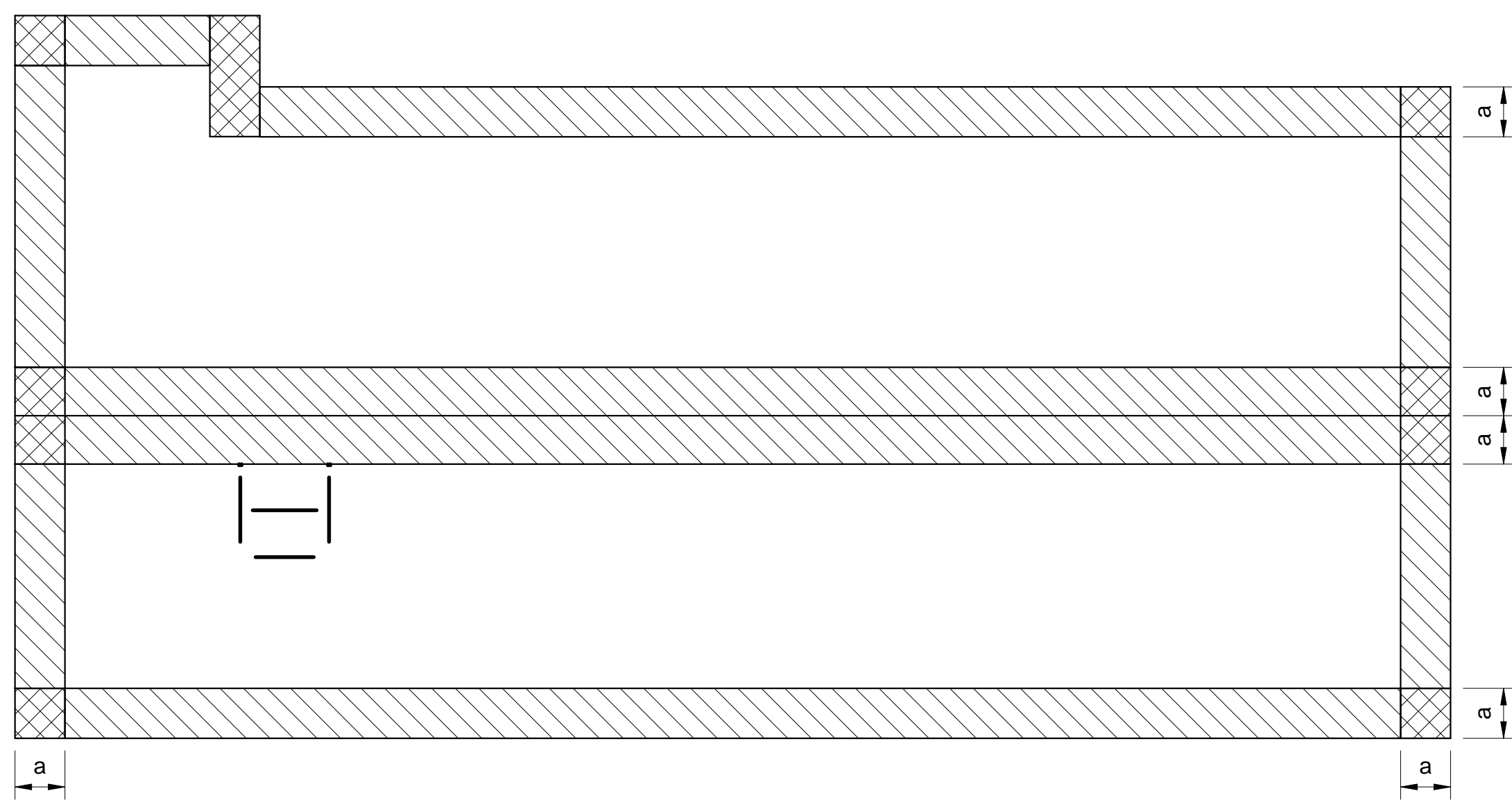


Components and Cladding Net Design Wind Pressures			
ZONE	EFFECTIVE WIND AREA (SQ FT)	MAX +VE PRESSURE (PSF)	MAX -VE PRESSURE (PSF)
ZONE 1 ROOF INTERIOR ZONE	10	14.9	-23.7
	20	13.6	-23.0
	50	11.8	-22.1
	≥100	10.5	-21.5
ZONE 2 ROOF EDGE ZONE	10	14.9	-41.2
	20	13.6	-37.9
	50	11.8	-33.5
	≥100	10.5	-30.2
ZONE 3 ROOF CORNER ZONE	10	14.9	-60.9
	20	13.6	-56.9
	50	11.8	-51.7
	≥100	10.5	-47.7
ZONE 4 WALL INTERIOR ZONE	10	25.8	-28.0
	20	24.7	-26.9
	50	23.2	-25.4
	100	21.9	-24.1
ZONE 5 WALL EDGE ZONE	10	19.3	-21.5
	20	19.3	-21.5
	50	19.3	-21.5
	100	19.3	-21.5
WIDTH OF EDGE STRIP, a= 7.0 ft			
INTERNAL PRESSURE COEFFICIENT = ±0.18			



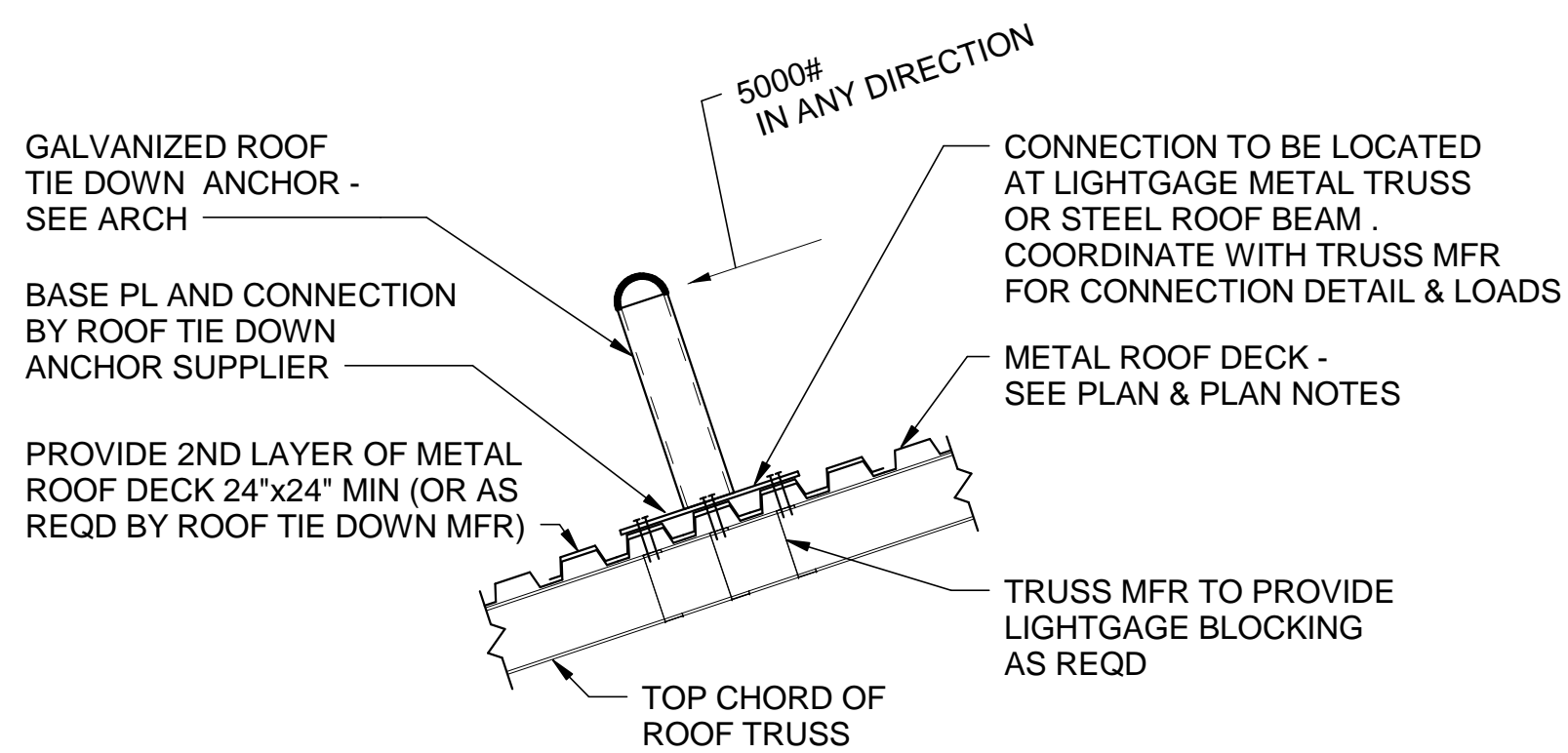
WALL ELEVATIONS

- ZONE 4: INTERIOR ZONE
- ZONE 5: EDGE ZONE

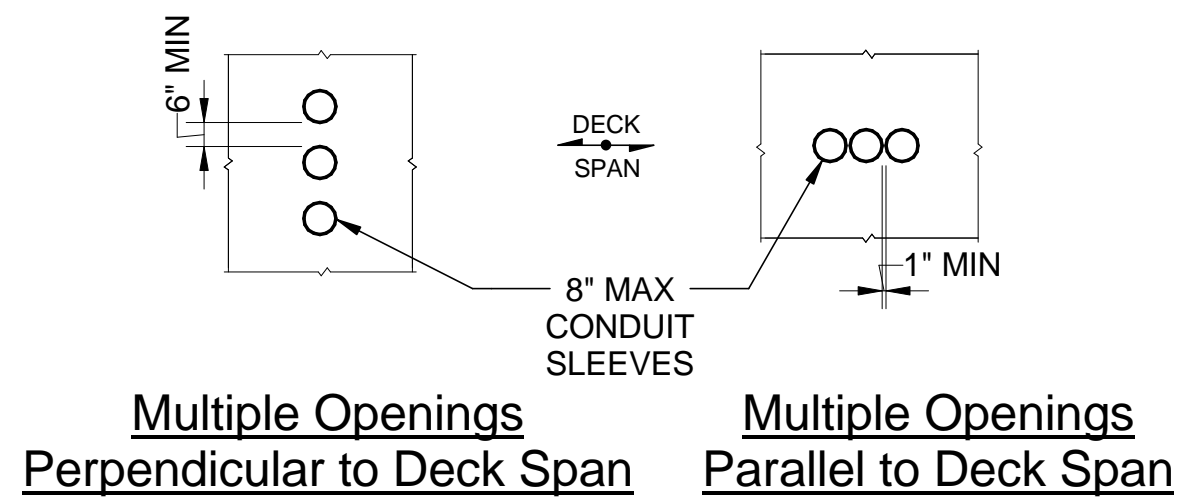


ROOF PLAN

- ZONE 1: INTERIOR ZONE
- ZONE 2: EDGE ZONE
- ZONE 3: CORNER ZONE

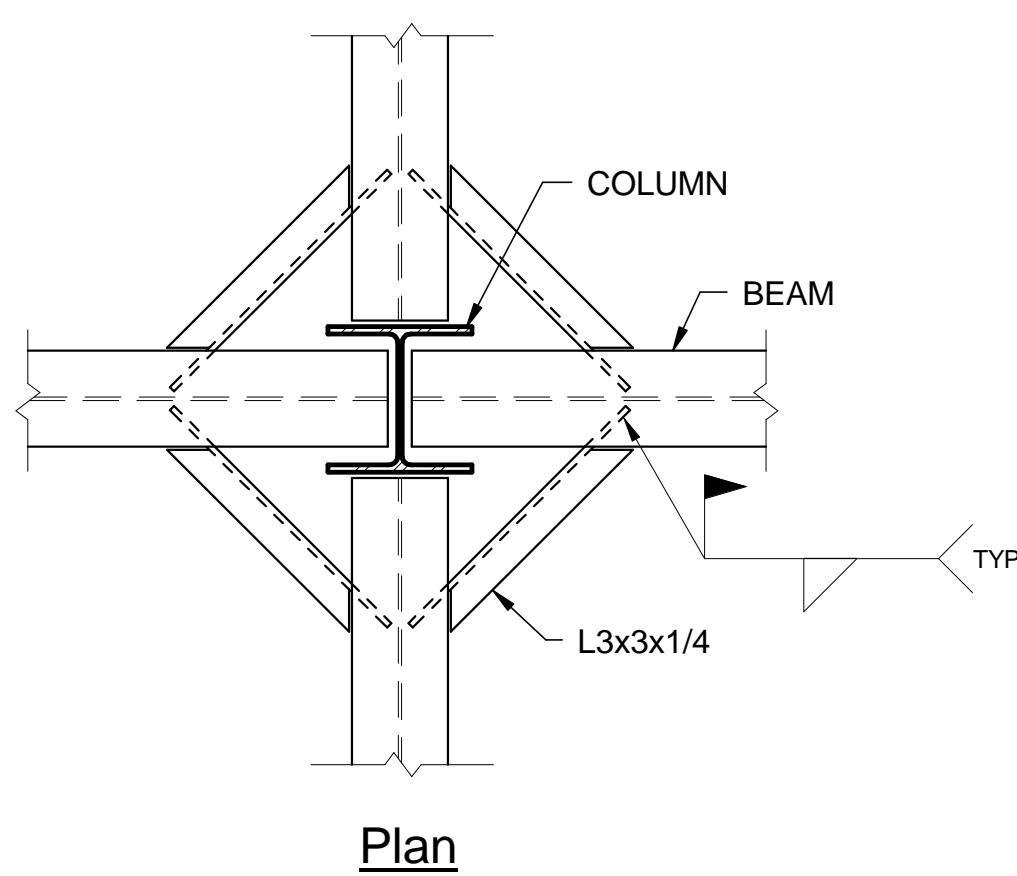


Typical Roof Tie Down Anchor Detail

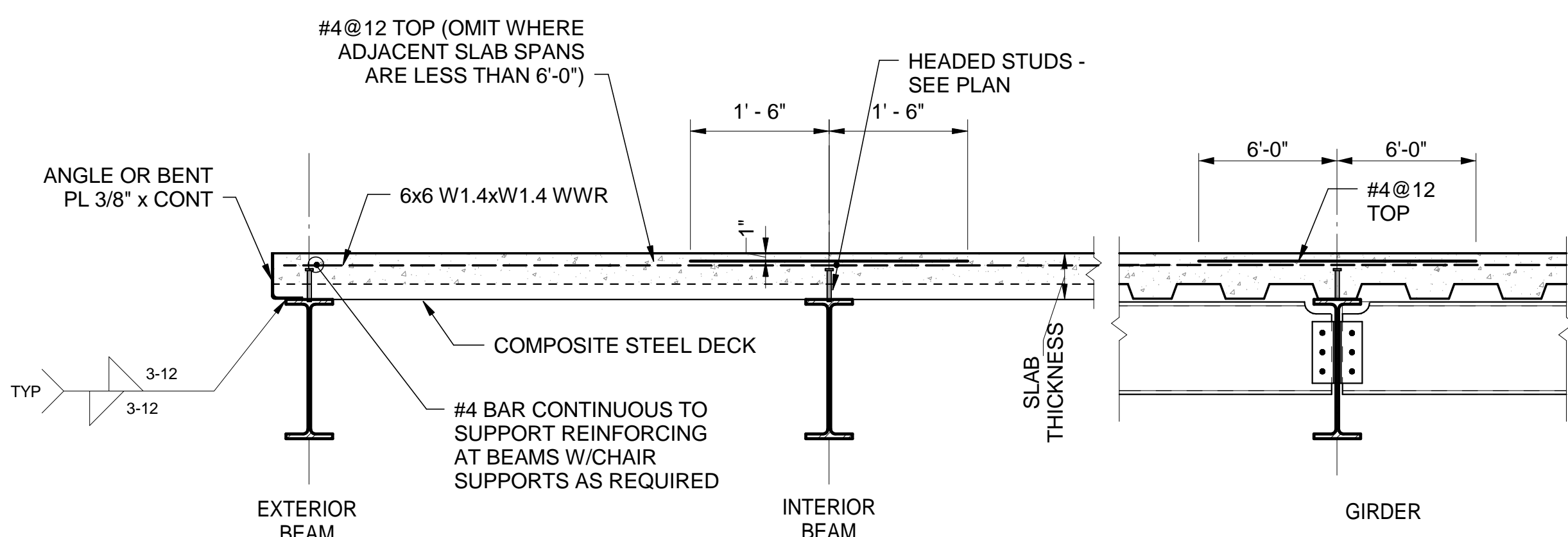


Composite Slab Sleeve Penetration Detail

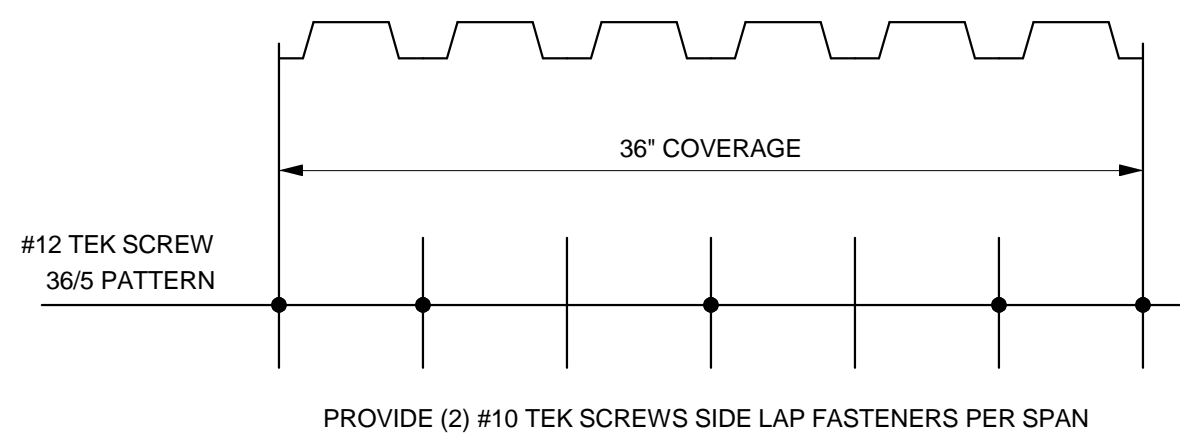
- NOTES:
1. DETAIL APPLIES TO SLAB PENETRATIONS UP TO 8" IN DIAMETER.
 2. NO MORE THAN 3 CONSECUTIVE CORES ALLOWED. IF MORE THAN 3 CORES INSTALLED, USE COMPOSITE SLAB OPENING TYPICAL DETAIL OR CONTACT STRUCTURAL ENGINEER FOR REVIEW.



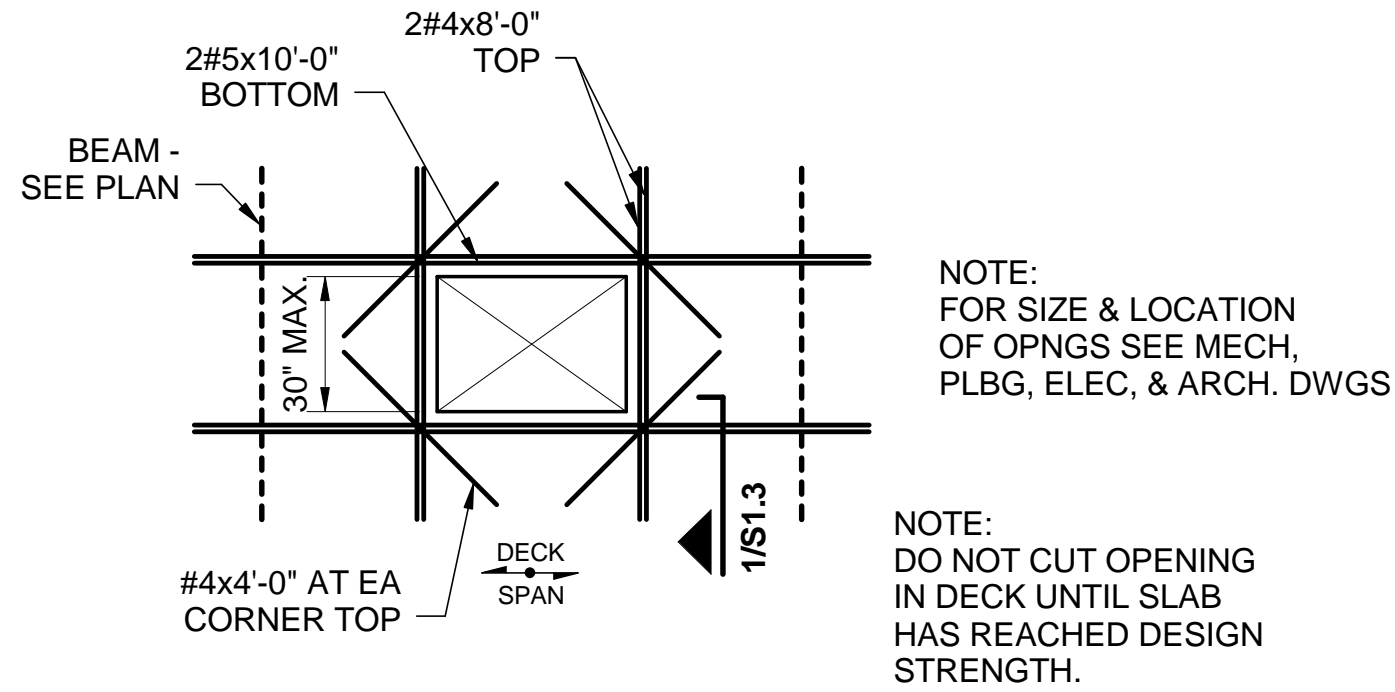
Deck Support Detail



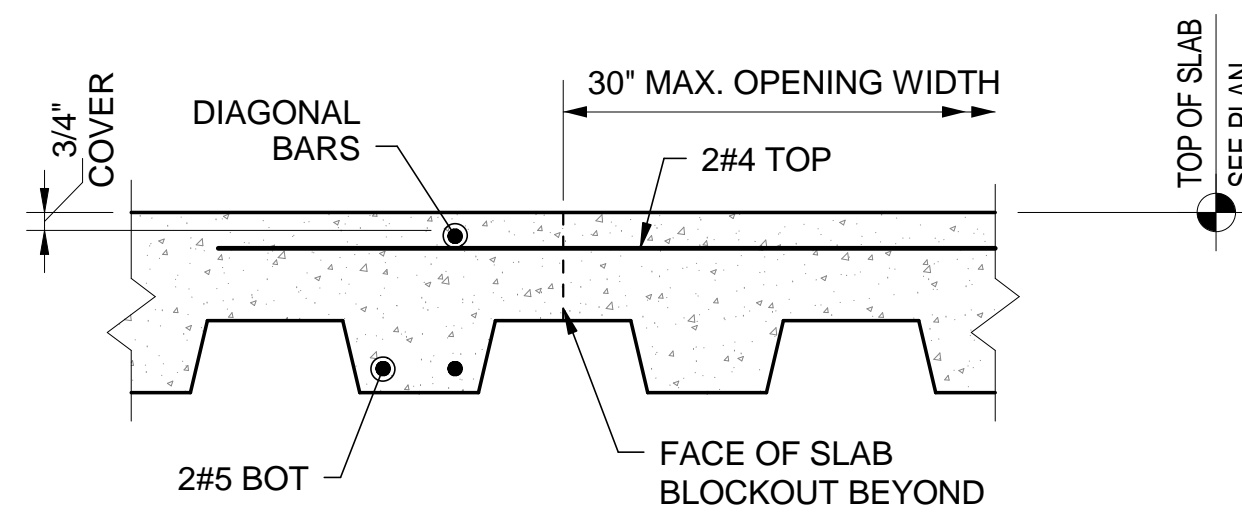
Composite Slab/Deck Details



Roof Deck Attachment Pattern Layouts

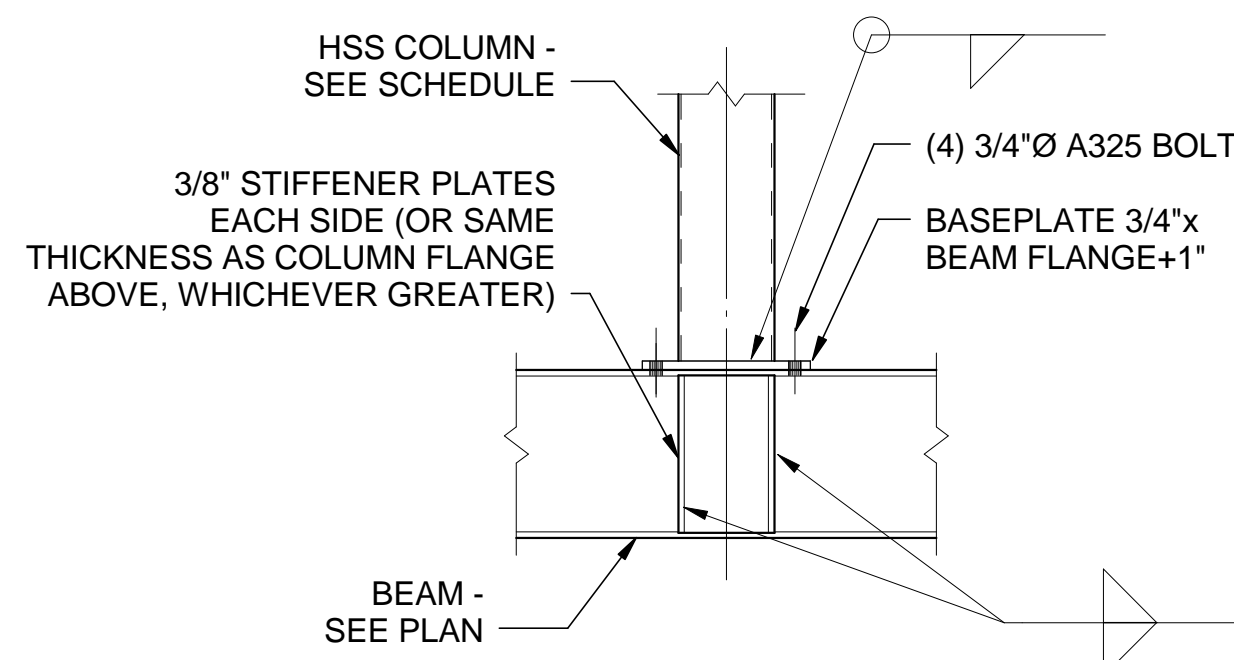


Composite Slab Opening Detail

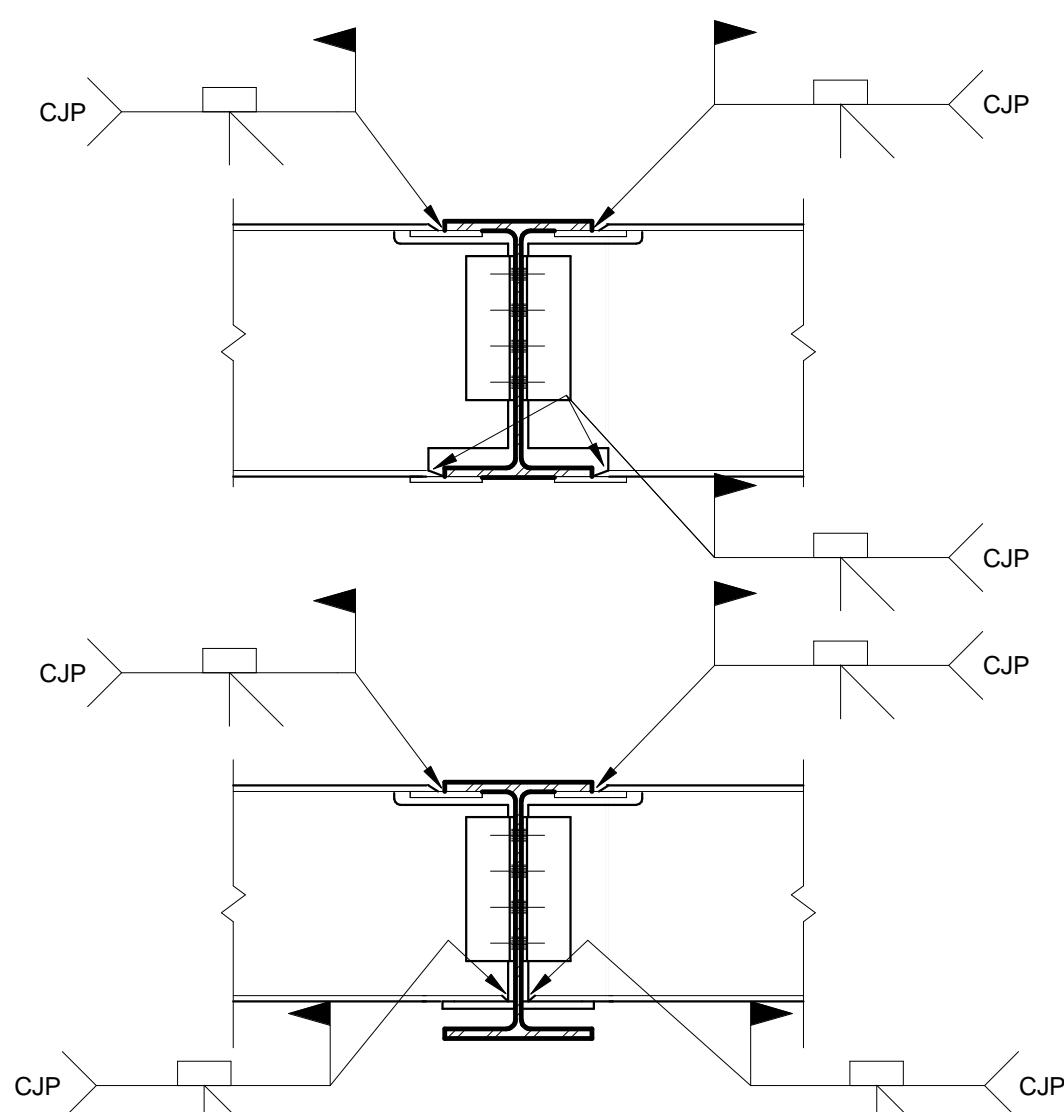


1 Composite Slab

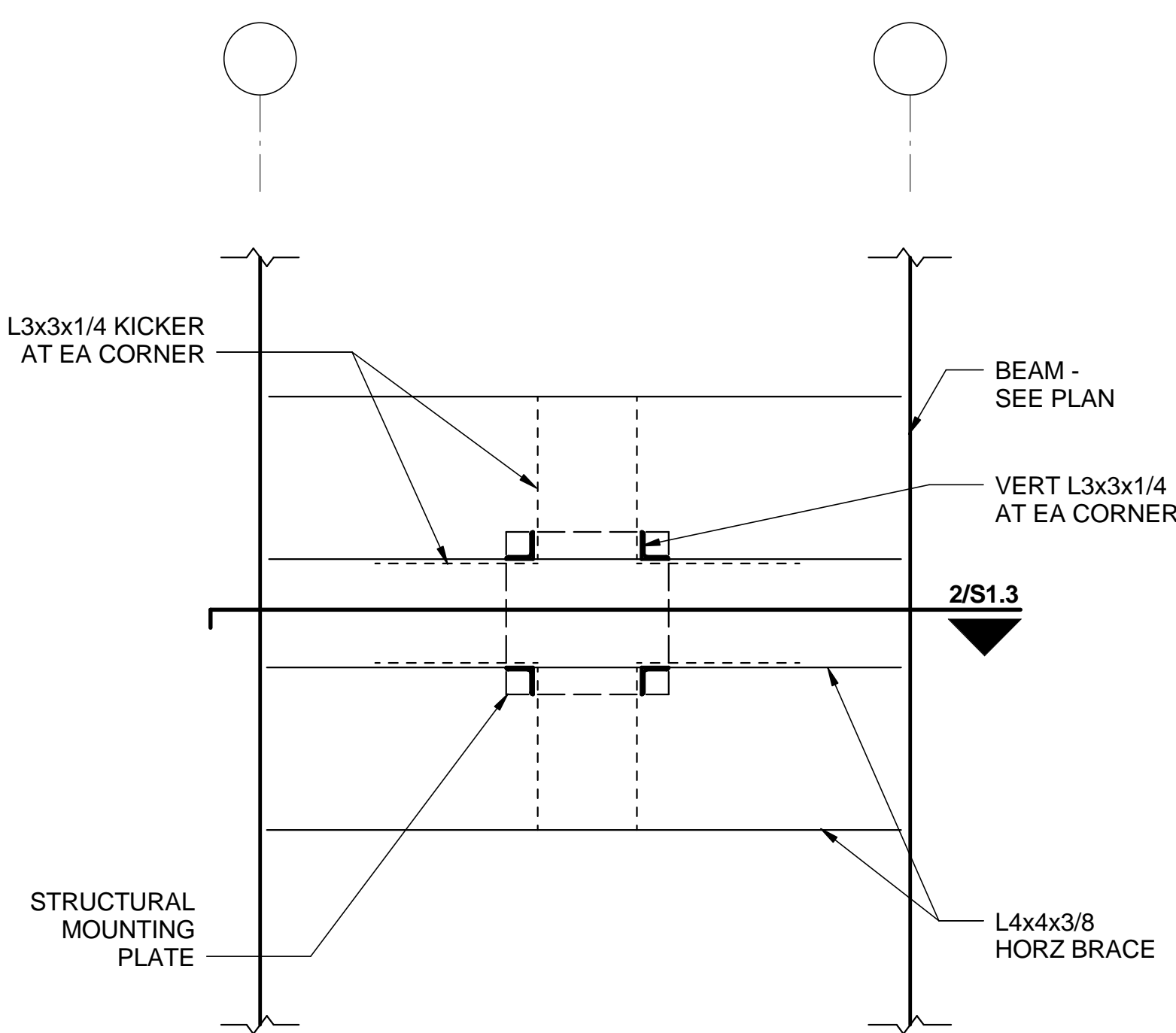
S1.3 1 1/2" = 1'-0"



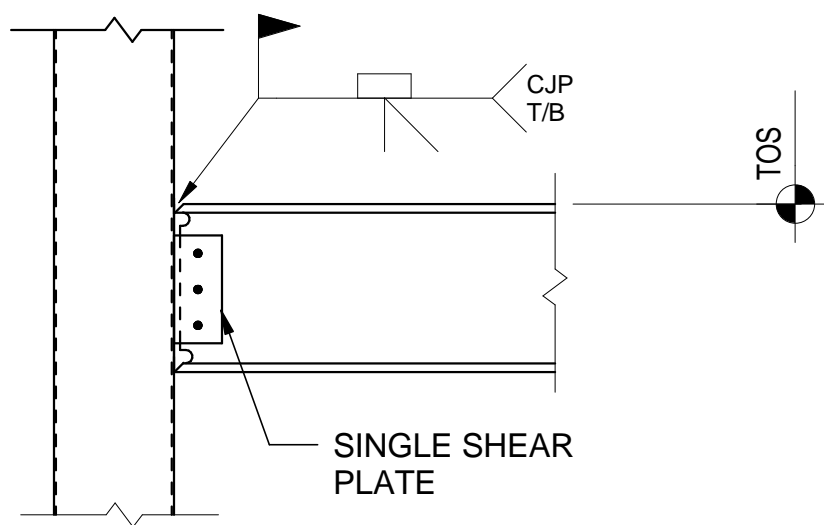
Column Transfer Detail



Moment Connection Details

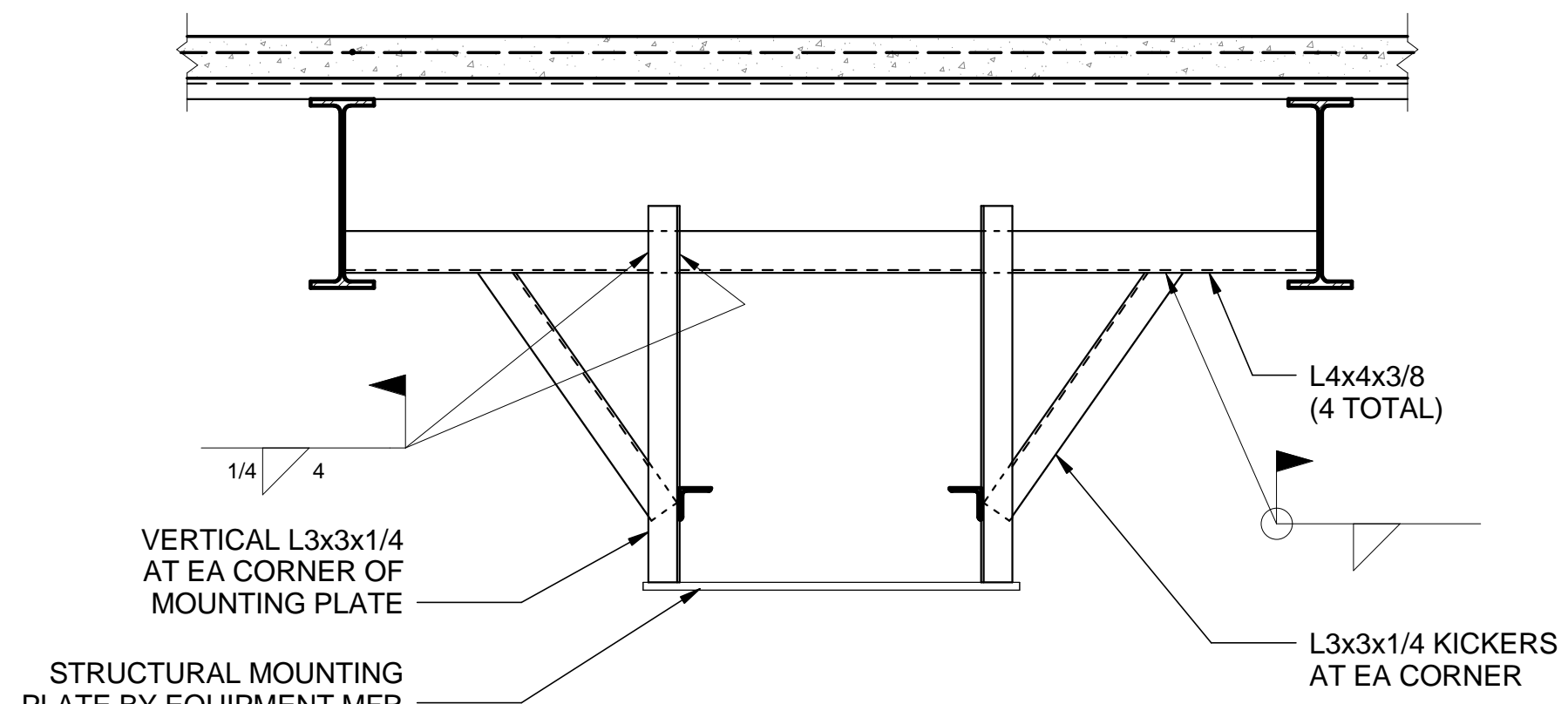


Surgical Column Support Detail



WF Beam - HSS Column Welded Moment Connection

- NOTES:
1. SEE PLAN FOR MOMENT CONNECTION LOCATIONS.
 2. CONNECTION DESIGNER TO CHECK CONCENTRATED LOADS ON SUPPORTING MEMBER.



2 Section

S1.3 3/4" = 1'-0"

ISSUED FOR STEEL FRAMING (BEAMS, COLUMNS, AND BRACING ONLY), AND CONCRETE FOUNDATIONS.

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1	IFC SET	01.21.16

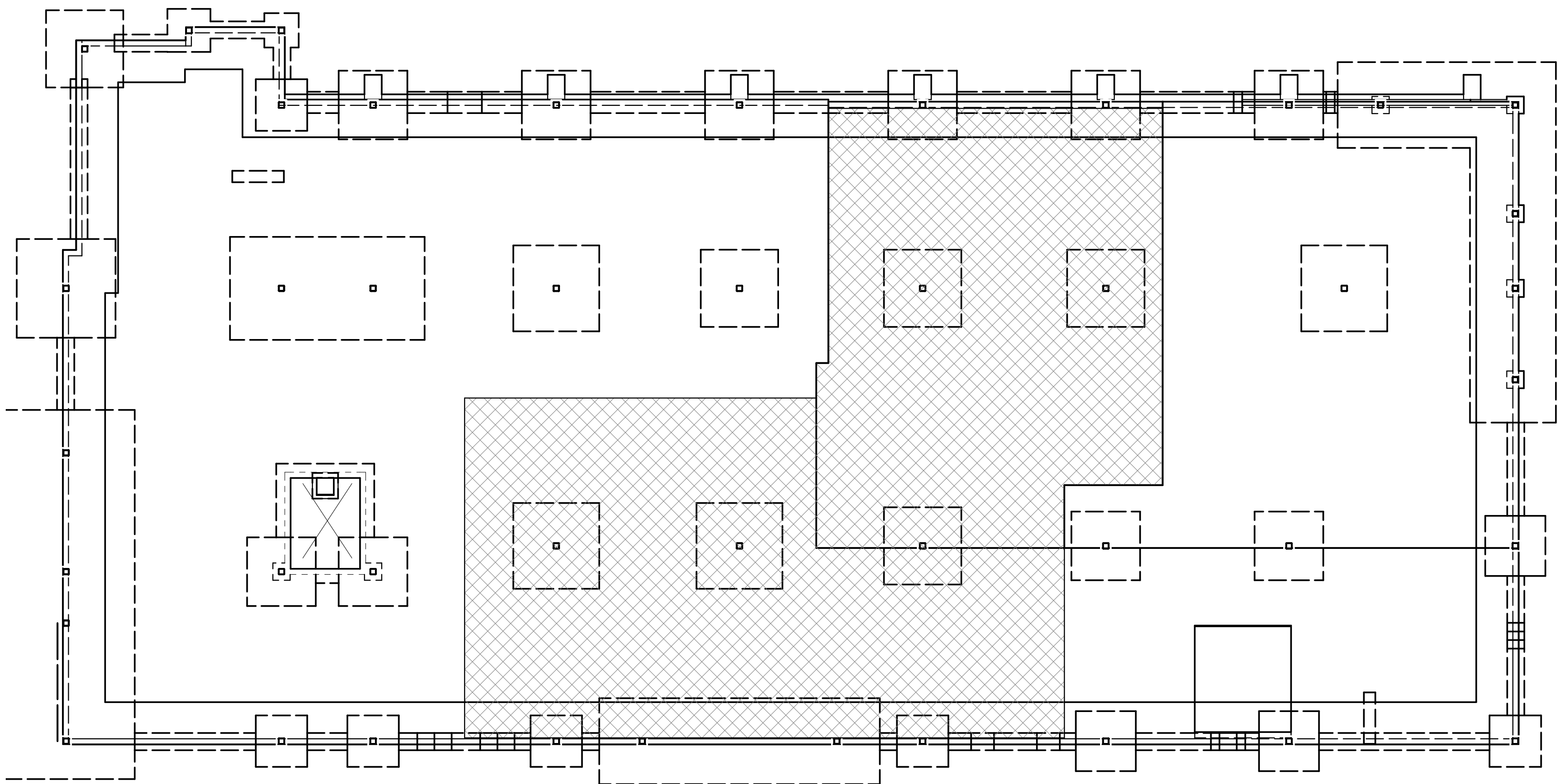
Typical Details		
DRAWN BY		
CHECKED BY		
DATE	12-21-15	
FILE NUMBER		
PROJECT NUMBER	14-193	
SHEET NUMBER		

Schedule of Special Inspections				
Item	Inspection / Test / Certification	C or P	Extent / Comments	Agent
1.00	Fabricators			
1.01	Review the quality control procedures of the following fabricators for completeness and adequacy relative to the fabricator's scope of work: steel fabricator, lightgage truss fabricator.	Periodic		1
1.02	The following fabricators, if registered and approved by the building official, may submit "Certificates of Compliance" at the completion of their scope of work that fabricated items were constructed in accordance with the approved construction documents: steel fabricator, joist fabricator, lightgage truss fabricator.	Periodic		1
2.00	Soils and Foundations			
2.01	Verify bearing capacities of soils beneath footings.	Periodic	As recommended in approved soils report and specified in earthwork specifications.	1
2.02	Verify site preparation prior to beginning fill placement. Verify fill material type, placement method, lift thickness, and compaction of fill material. Verify in-place density of compacted fill.	Periodic	As recommended in approved soils report and specified in earthwork specifications.	1
3.00	Concrete Construction			
3.01	Spread footings are excepted from the inspections, but not materials testing, listed below.			1
3.02	Continuous footings are excepted from the inspections, but not materials testing, listed below.			1
3.03	Slabs on grade are excepted from the inspections, but not materials testing, listed below.			1
3.04	Concrete foundation walls are excepted from the inspections, but not materials testing, listed below.			1
3.05	Inspection and testing of concrete cast on composite metal deck is required and shall be performed in accordance with the Schedule of Special Inspections and the specifications.			1
3.06	Inspect concrete formwork except as noted above for proper dimensions. Verify that construction joints are properly keyed. Verify that slab recesses, if any, have been installed.	Periodic	Prior to each pour.	1
3.07	Inspect reinforcing steel except as noted above for installation including size, spacing and bar clearances. Verify that lap splices and embedment lengths are per the construction documents. Verify that dowels for work above are properly aligned and spaced to match other work.	Periodic	Prior to each pour.	1
3.08	Inspect bolts	Periodic	For each pour. Do not submit reports to Building Official.	1
3.09	Inspect bolts to be installed in concrete prior to and during placement of concrete.	Continuous	During placement and concreting operations.	1
3.10	Verify that correct concrete mix is being used on each pour.	Periodic	For each pour.	1
3.11	Sample all concrete for strength tests and test concrete for slump, air content, temperature, and other tests.	Continuous	During placement operations. Reference concrete specifications for specific tests and frequencies.	1
3.12	Inspect concrete placement except as noted above.	Continuous		1
3.13	Inspect all concrete curing operations as noted in the extents column.	Periodic	Monitor during hot, cold and windy conditions. Reference concrete specifications.	1
3.14	Measure floor and slab flatness and levelness according to ASTM E 1155	Periodic	For each pour. Do not submit reports to Building Official.	1
4.00	Masonry Construction			
4.01	Inspect proportions of site prepared mortar and grout. Inspect construction of mortar joints. Inspect reinforcement for correct size and spacing. Inspect work for correct location and type of embeds and anchor bolts. Inspect work for size and location of structural elements.	Periodic	At beginning of masonry construction and every 5000 square feet of masonry thereafter.	1
4.02	Inspect grouting operations to ensure compliance with code and construction documents.	Continuous	During grouting.	1
4.03	Inspect masonry cells and cleanouts prior to placement of grout. Inspect placement of all grout.	Continuous	During grouting.	1
4.04	Inspect protection of masonry during cold weather and hot weather.	Periodic	During periods with temperatures below 40 degrees or above 90 degrees.	1
4.05	Inspect preparation of grout specimens, mortar specimens and / or prisms.	Continuous	During preparation of all specimens.	1
4.06	Verify compliance with all required inspection provisions of the construction documents and approved submittals.	Periodic	As required for duration of project.	1

Item	Inspection / Test / Certification	C or P	Exempt / Comments	Agent
5.00	Steel Construction			
5.01	Inspect high-strength bolts, nuts and washers: a. Identify markings to conform to ASTM standards specified in the construction documents. b. Inspect manufacturer's certificate of compliance.	Periodic	Reference project specifications and ASTM material specifications; AISC 335, (Sect A3.4); AISC LRFD (Sect A3.3).	1
5.02	Inspect high-strength bolting: Bearing-type connections.	Periodic		1
5.03	Inspect and verify structural steel material: a. Identification markings to conform to ASTM standards specified in the approved construction documents. b. Manufacturers' certified mill test reports.	Periodic	Confirm that materials meet applicable ASTM specifications noted in construction documents.	1
5.04	Inspect and verify weld filler materials: a. Identification markings to conform to AWS specification in the approved construction documents. b. Manufacturer's certificate of compliance required.	Periodic	Confirm that materials meet applicable ASTM specifications noted in construction documents.	1
5.05	Inspect welding: Structural Steel: 1) Complete and partial penetration groove 2) Multipass fillet welds. 3) Single-pass fillet welds > 5/16	Continuous	Per specifications and AWS D1.1	1
5.06	Inspect welding: Structural Steel: 1) Single-pass fillet welds ≤ 5/16 " 2) Floor and deck welds.	Periodic	Per specifications and AWS D1.1	1
5.07	Inspect steel frame joint details for compliance with approved construction documents: a. Details such as bracing and stiffening. b. Member locations. c. Application of joint details at each connection.	Periodic	Inspect complete frame.	1
6.00	Architectural / MEP Components			
6.01	Observe installation of exterior and interior architectural wall panels.			1
6.02	Observe anchoring of veneers to the building structure.		Inspect veneers same as other required for other masonry.	1
	Inspection Agents: EOR = Engineer of Record 1 = Approved Testing Agency			
	Note: The inspection and testing agent(s) shall be engaged by the Owner or the Owner's Agent, and not by the Contractor or Subcontractor whose work is to be inspected or tested. Any conflict of interest must be disclosed to the Building Official prior to commencing work. The qualifications of the Inspection Agent(s) may be subject to the approval of the Building Official.			

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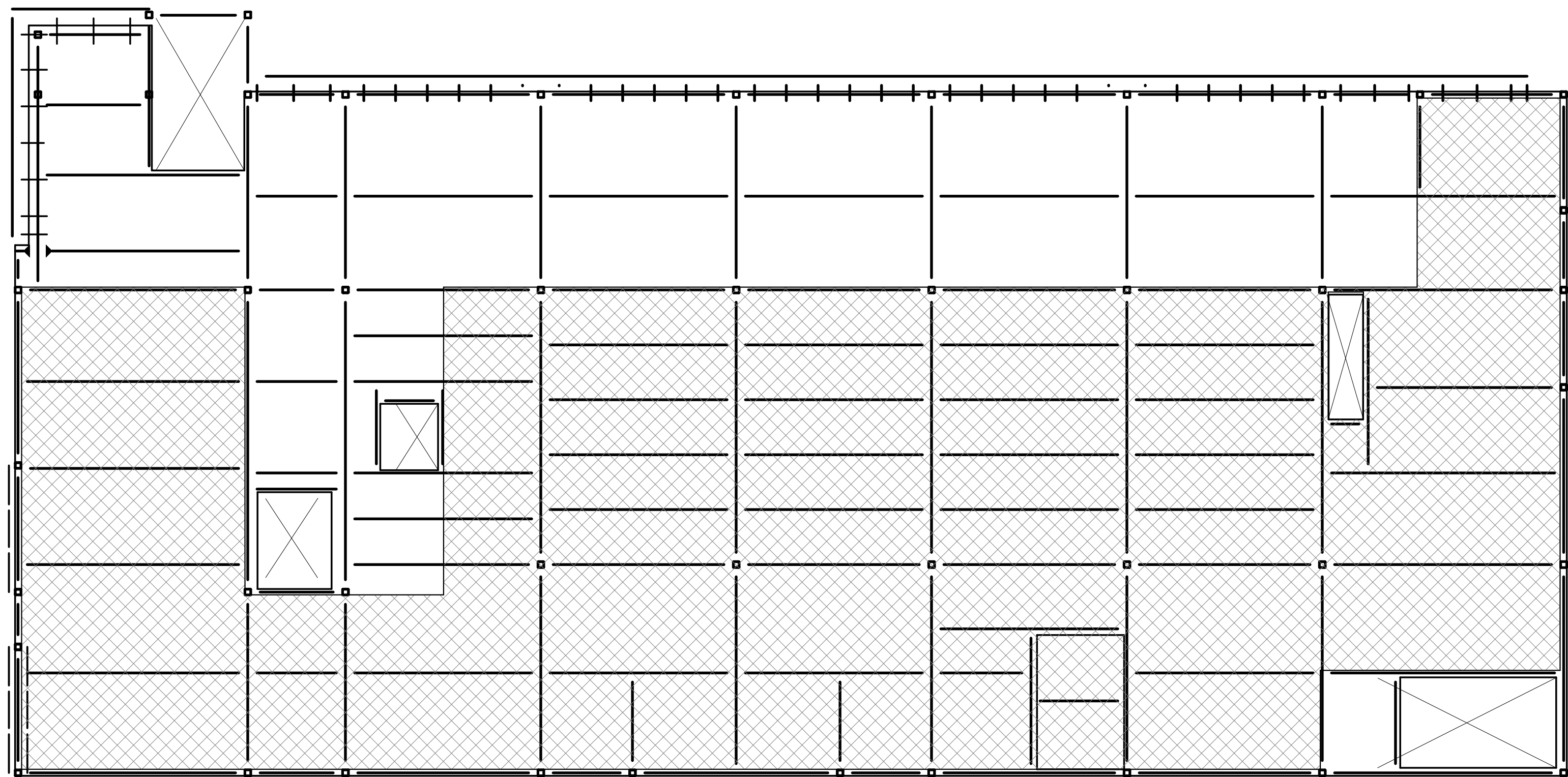




1 Vibration Map - Level 1
S1.5 3/32" = 1'-0" 5'-4" 10'-8"

Vibration Map Notes

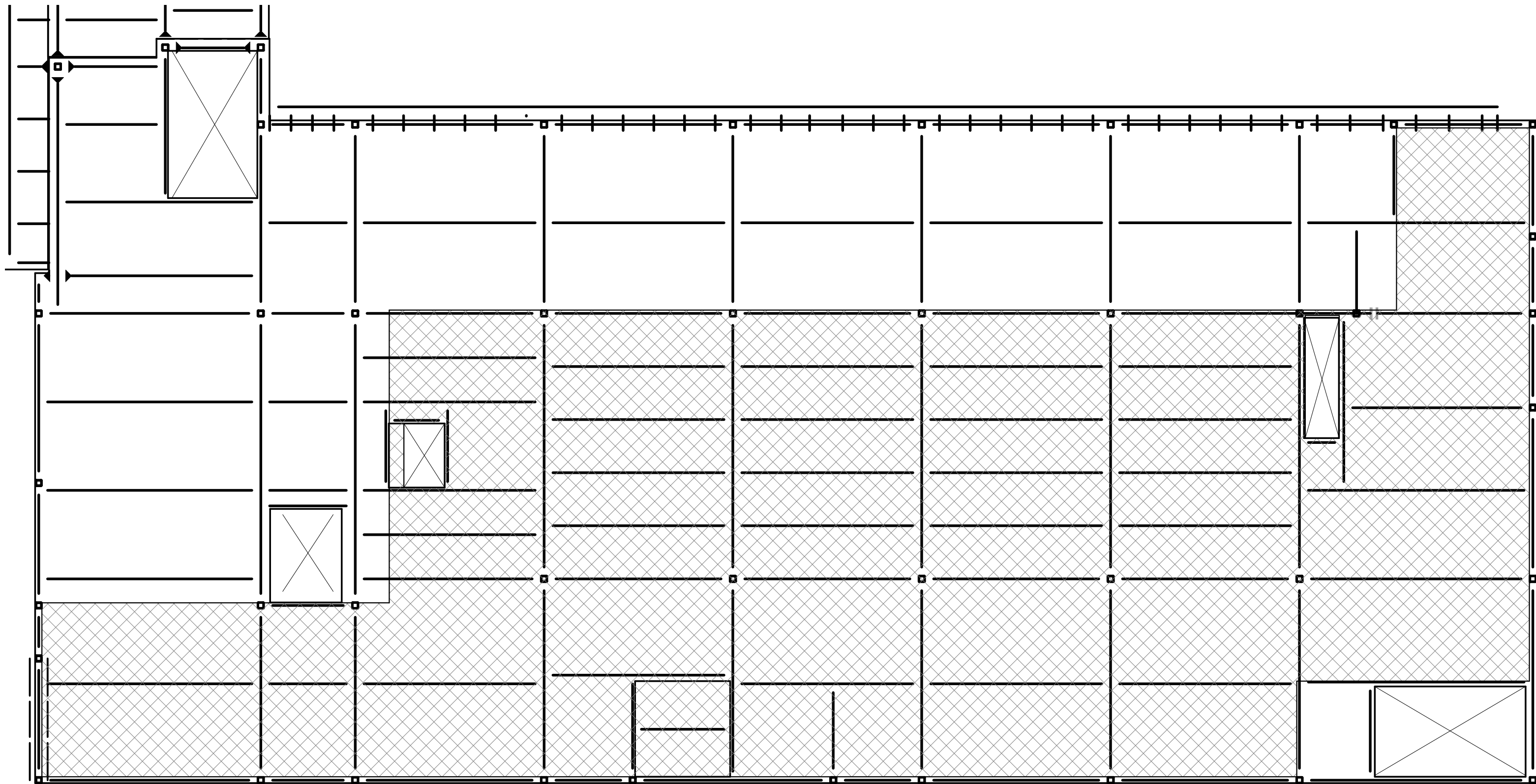
- The vibrational characteristics of the steel framing in the shaded area(s) have been evaluated for the following criteria using the AISC Design Guide #11, *design for sensitive equipment*:
 - Max Vibrational Velocity = 2,000 μ in. / sec
 - Moderate Walking = 75 Steps / min
 - Additional Dead Loads = 4.0 psf
 - Additional Live Loads = 11 psf



3 Vibration Map - Level 3
S1.5 3/32" = 1'-0" 5'-4" 10'-8"

Vibration Map Notes

- The vibrational characteristics of the steel framing in the shaded area(s) have been evaluated for the following criteria using the AISC Design Guide #11, *design for sensitive equipment*:
 - Max Vibrational Velocity = 2,000 μ in. / sec
 - Moderate Walking = 75 Steps / min
 - Additional Dead Loads = 4.0 psf
 - Additional Live Loads = 11 psf



2 Vibration Map - Level 2
S1.5 3/32" = 1'-0" 5'-4" 10'-8"

Vibration Map Notes

- The vibrational characteristics of the steel framing in the shaded area(s) have been evaluated for the following criteria using the AISC Design Guide #11, *design for sensitive equipment*:
 - Max Vibrational Velocity = 2,000 μ in. / sec
 - Moderate Walking = 75 Steps / min
 - Additional Dead Loads = 4.0 psf
 - Additional Live Loads = 11 psf

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Rev	Phase	Date
1	IFC SET	01-21-16



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Vibration Load Maps
AU Pharmacy Research Building - Structural Works
14-193

Vibration Load Maps

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CHECKED BY	
DATE	12-21-15
FILE NUMBER	
PROJECT NUMBER	14-193
SHEET NUMBER	

S1.5

ISSUED FOR STEEL FRAMING (BEAMS, COLUMNS, AND BRACING ONLY), AND CONCRETE FOUNDATIONS.

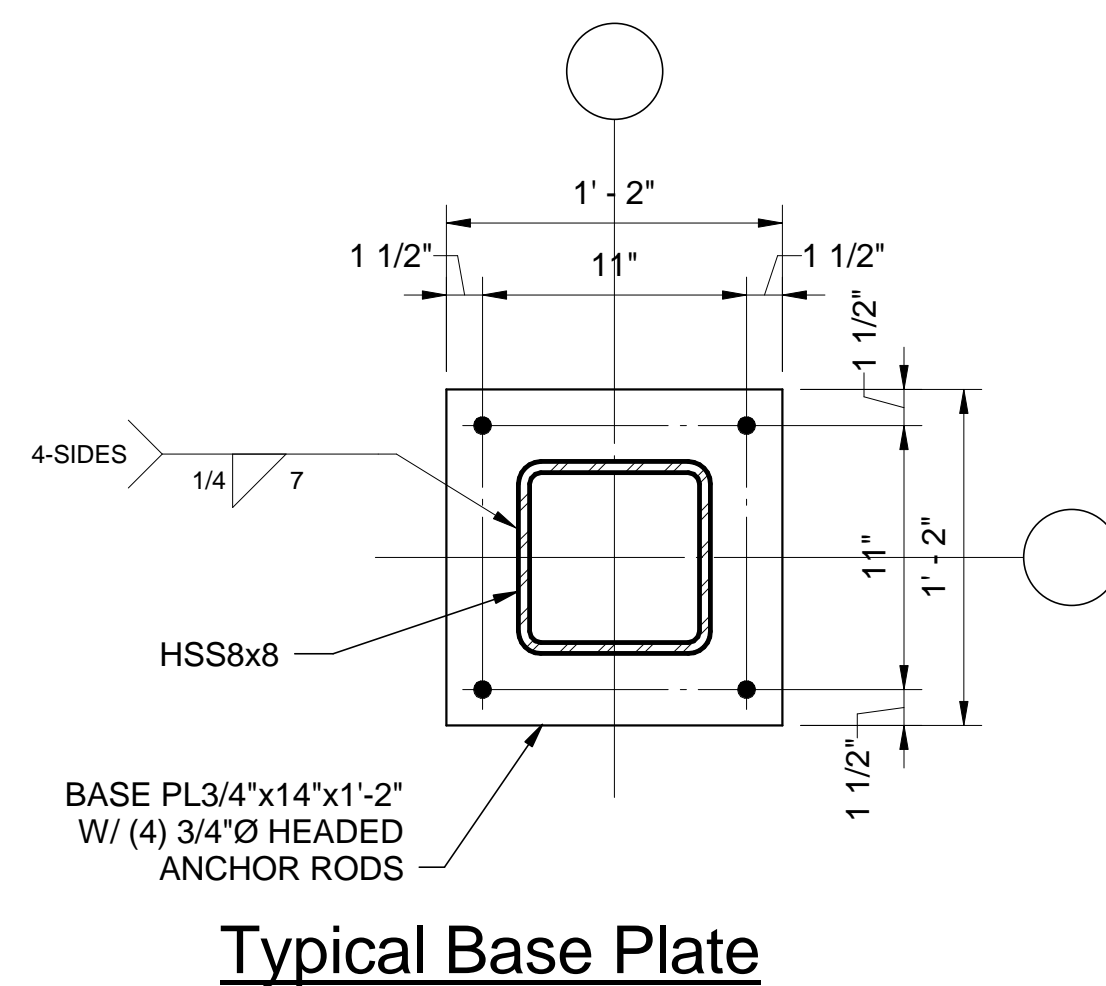


1. FINISH FLOOR (TOP OF SLAB/ELEVATION 0'-0"), UNLESS NOTED.
2. TOP OF FOOTING - 1'-4" BELOW FINISH FLOOR, UNLESS NOTED.
3. FOR SLAB ON GRADE CONSTRUCTION, SEE GENERAL NOTES AND TYPICAL DETAILS
4. FOR SLAB RECESS AND RAMP LOCATION, SEE ARCHITECTURAL DRAWINGS.
5. GENERAL CONTRACTOR SHALL COORDINATE TILE JOINT LOCATIONS WITH CONTROL JOINTS
6. FOOTING STEP ELEVATIONS AND LOCATION ARE APPROXIMATE. GENERAL CONTRACTOR SHALL COORDINATE ALL FOOTING STEPS WITH CIVIL, PLUMBING AND UTILITY DRAWINGS.

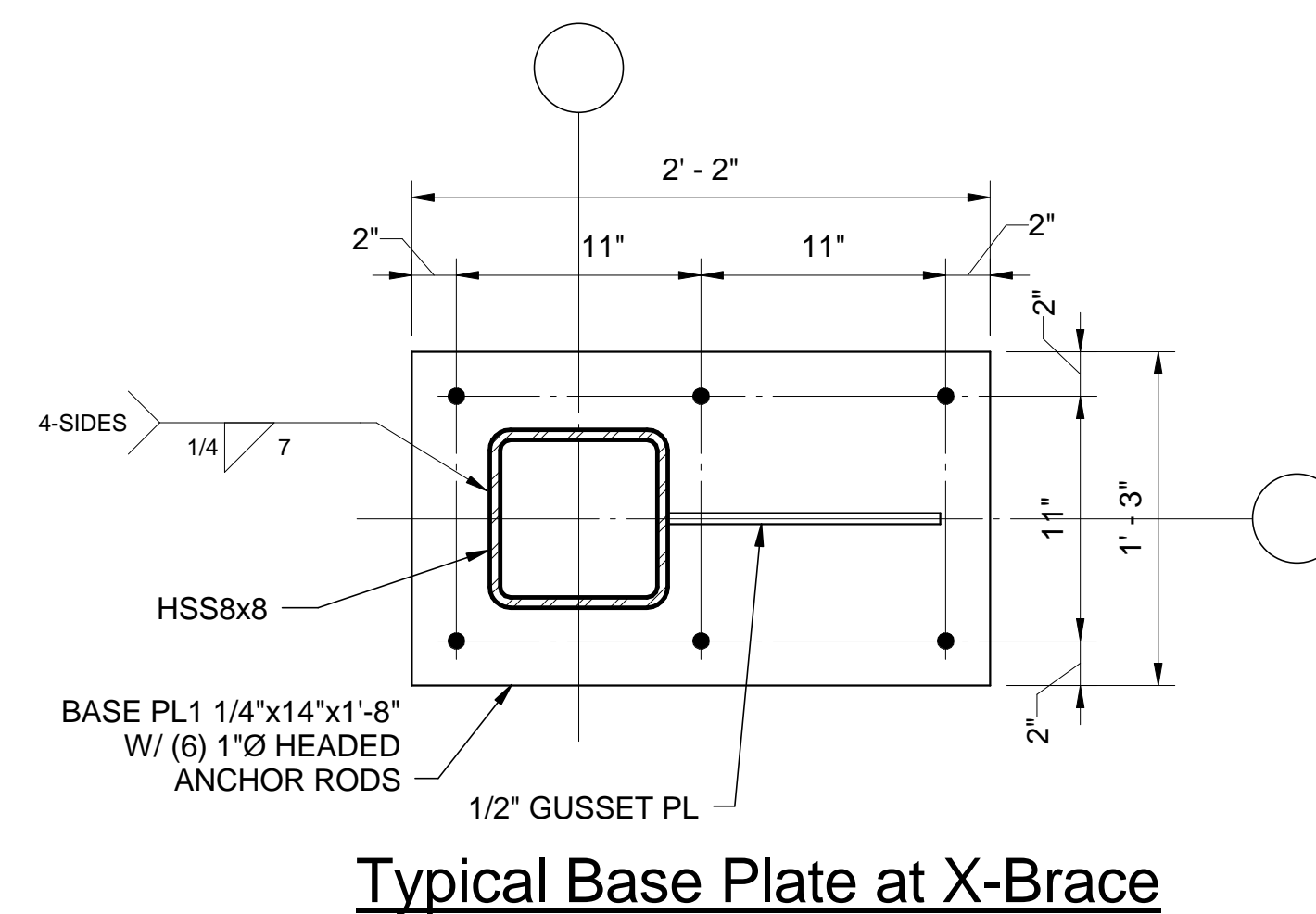
NOTES:
1. SEE BASE PLATE DETAIL AT J-1

Structural Foundation Schedule						
FOOTING DESIGNATION	LENGTH	WIDTH	THICKNESS	TOP REINF	BOTTOM REINF	NOTES
F4	4' - 0"	4' - 0"	1' - 0"	---	5#5 EW	
F5	5' - 0"	5' - 0"	1' - 0"	---	6#5 EW	
F6	6' - 0"	6' - 0"	1' - 2"	---	7#5 EW	
F7	7' - 0"	7' - 0"	1' - 6"	---	6#6 EW	
F8	8' - 0"	8' - 0"	1' - 7"	---	7#7 EW	
F9	9' - 0"	9' - 0"	2' - 0"	---	11#6 EW	
F10	10' - 0"	10' - 0"	2' - 0"	---	9#7 EW	
F11.5	11' - 6"	11' - 6"	2' - 3"	---	9#8 EW	

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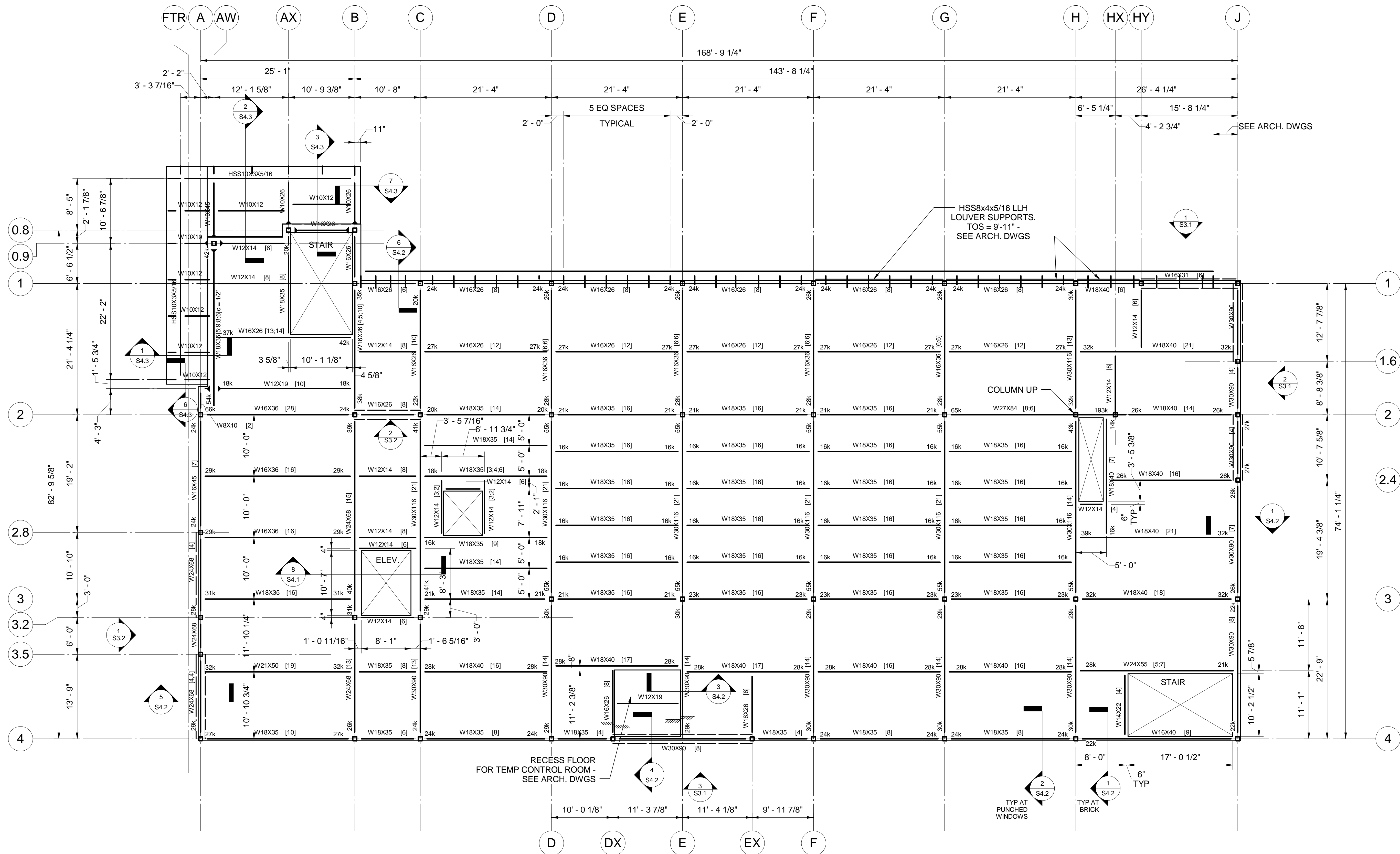


Typical Base Plate



Typical Base Plate at X-Brace

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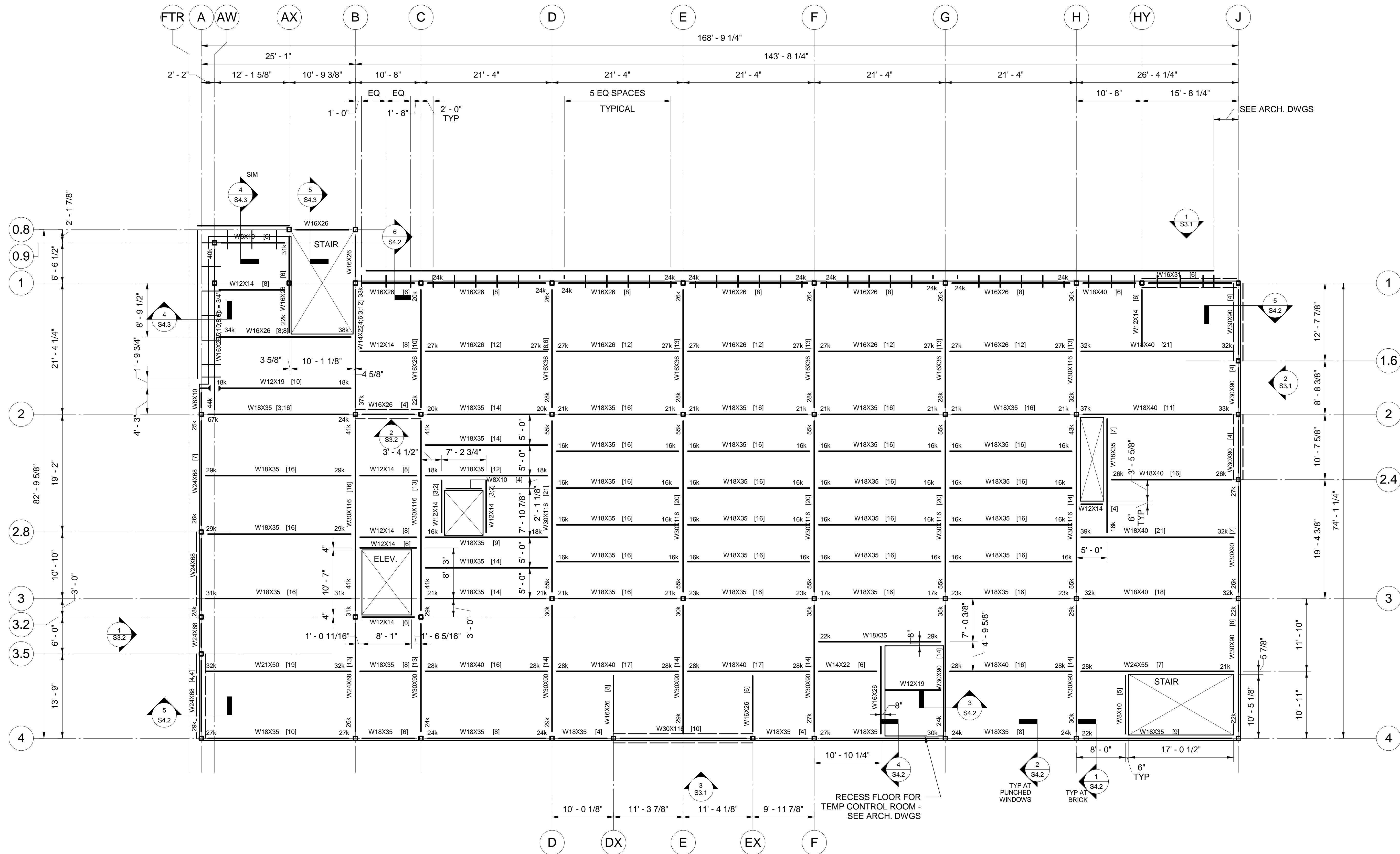


1 Second Floor Framing Plan
S2.2 1/8" = 1'-0"

1. FINISH FLOOR (TOP OF SLAB) ELEVATION 15'-4", UNLESS NOTED.
2. TOP OF STEEL -0'-6" BELOW FINISH FLOOR, UNLESS NOTED.
3. FLOOR SYSTEM: 3" CONCRETE SLAB ON 3" COMPOSITE STEEL DECK (6" TOTAL). SEE GENERAL NOTES.
4. [] INDICATES NUMBER OF 3/4" DIAMETER BY 4 1/2" HEADED STUDS SPACED UNIFORMLY ALONG MEMBER WHERE SINGLE VALUE IS GIVEN. SPACE UNIFORMLY ALONG A PART OF MEMBER BETWEEN SUPPORTED BEAMS, OR COLUMN AND BEAM, WHERE MORE THAN ONE VALUE IS GIVEN. SEE GENERAL NOTES.
5. BEAM REACTIONS ARE INDICATED AT ENDS OF BEAMS AS "XK" WHERE "X" IS THE MAGNITUDE OF THE FACTORED LOAD SHEAR REACTIONS IN KIPS. REACTIONS SHOWN ON PLANS DO NOT INCLUDE VERTICAL COMPONENT OF AXIAL FORCES IN BRACES. MINIMUM REACTION IS 15 KIPS.
6. SPACE BEAMS EQUALLY BETWEEN COLUMN CENTERLINES UNLESS NOTED.
7. COORDINATE MECHANICAL OPENINGS WITH MECHANICAL DRAWINGS AND UNIT MANUFACTURER.
8. ——— INDICATES MOMENT CONNECTION. DESIGN MOMENT CONNECTION FOR FACTORED LOAD, Mu = 45K-FT.

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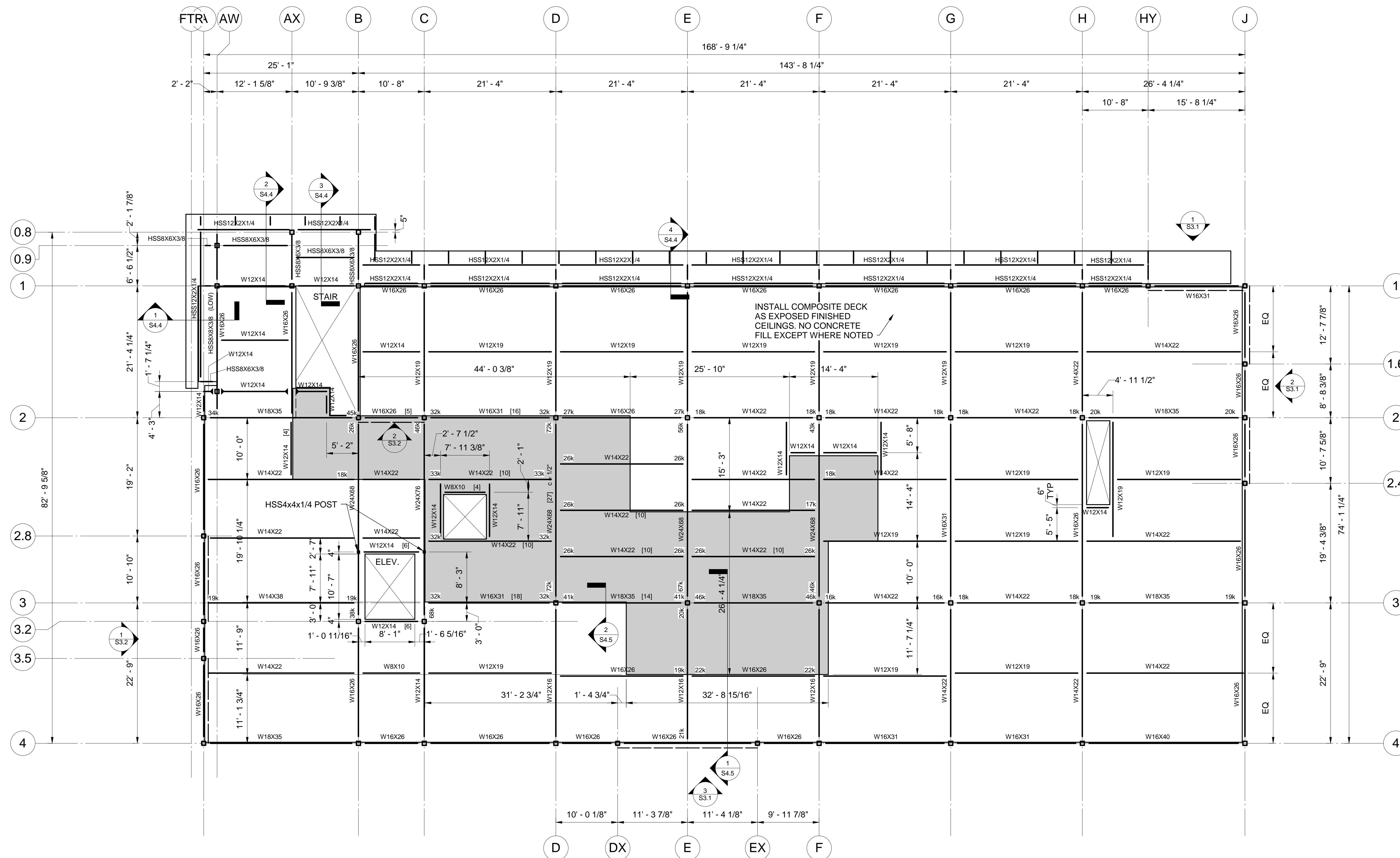
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Goodwyn Mills & Cawood, INC

Mechanical Platform Framing Plan

Mechanical Platform Framing
Plan

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PROJECT NUMBER	14
SHEET NUMBER	

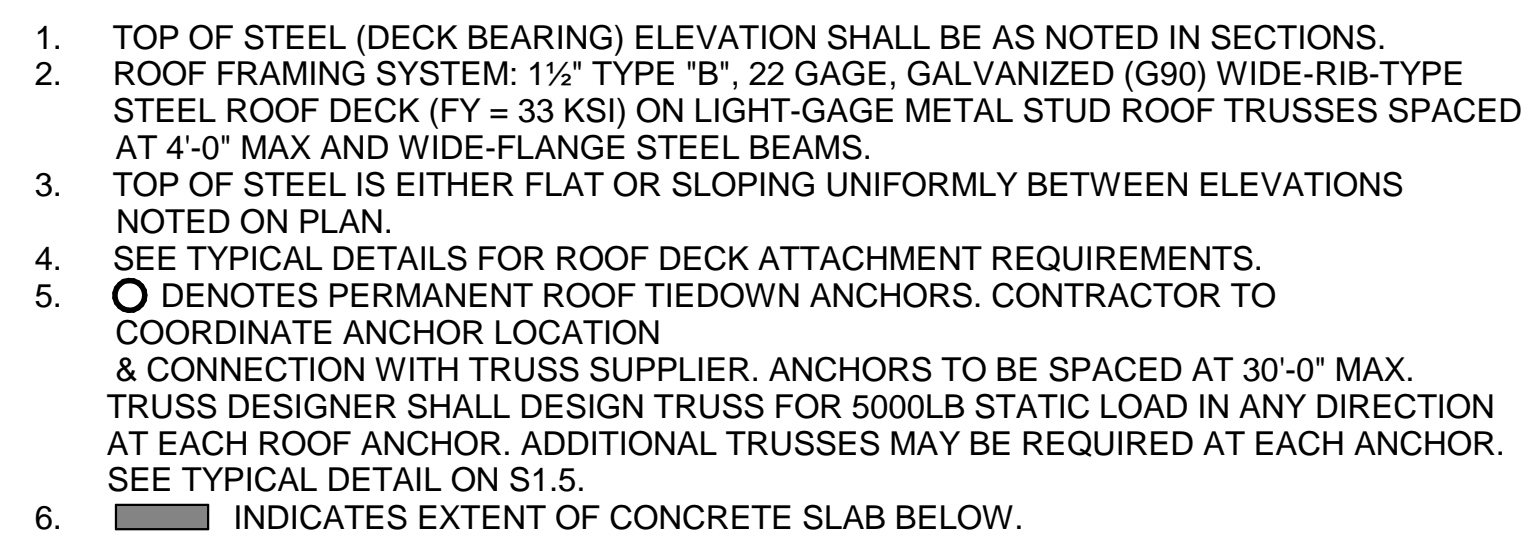
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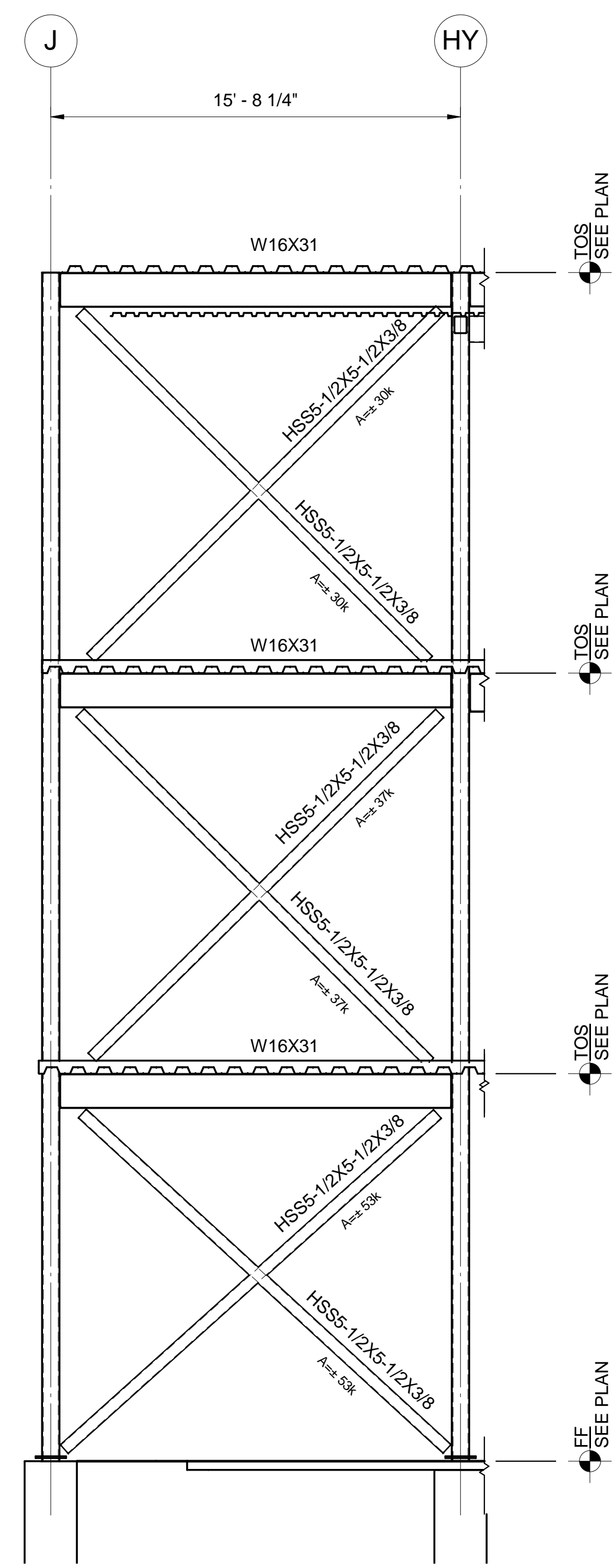
1	Mechanical Platform Framing Plan
S2.4	1/8" = 1'-0" 4' 8'

1. FINISH FLOOR (TOP OF SLAB) ELEVATION 46'-0", UNLESS NOTED.
2. TOP OF STEEL -0'-6" BELOW FINISH FLOOR, UNLESS NOTED.
3. FLOOR SYSTEM: 3" CONCRETE SLAB ON 3" COMPOSITE STEEL DECK (6" TOTAL). SEE GENERAL NOTES.
4. [] INDICATES NUMBER OF 3/4" DIAMETER BY 4 1/2" HEDGED STUDS SPACED UNIFORMLY ALONG MEMBER WHERE SINGLE VALUE IS GIVEN. SPACE UNIFORMLY ALONG A PART OF MEMBER BUT NOT OVER ENTIRE BEARING LENGTH OF COLUMN AND BEAM, WHERE MORE THAN ONE VALUE IS GIVEN. SEE GENERAL NOTES.
5. BEAM REACTIONS ARE INDICATED AT ENDS OF BEAMS AS "XK" WHERE "X" IS THE MAGNITUDE OF THE FACTORED LOAD SHEAR REACTIONS IN KIPS. REACTIONS SHOWN ON PLANS DO NOT INCLUDE VERTICAL COMPONENT OF AXIAL FORCES IN BRACES. MINIMUM REACTION IS 15 KIPS.
6. SPACE BEAMS EQUALLY BETWEEN COLUMN CENTERLINES UNLESS NOTED.
7. COORDINATE MECHANICAL OPENINGS WITH MECHANICAL DRAWINGS AND UNIT MANUFACTURER.
8. [] INDICATES EXTENT OF CONCRETE SLAB.

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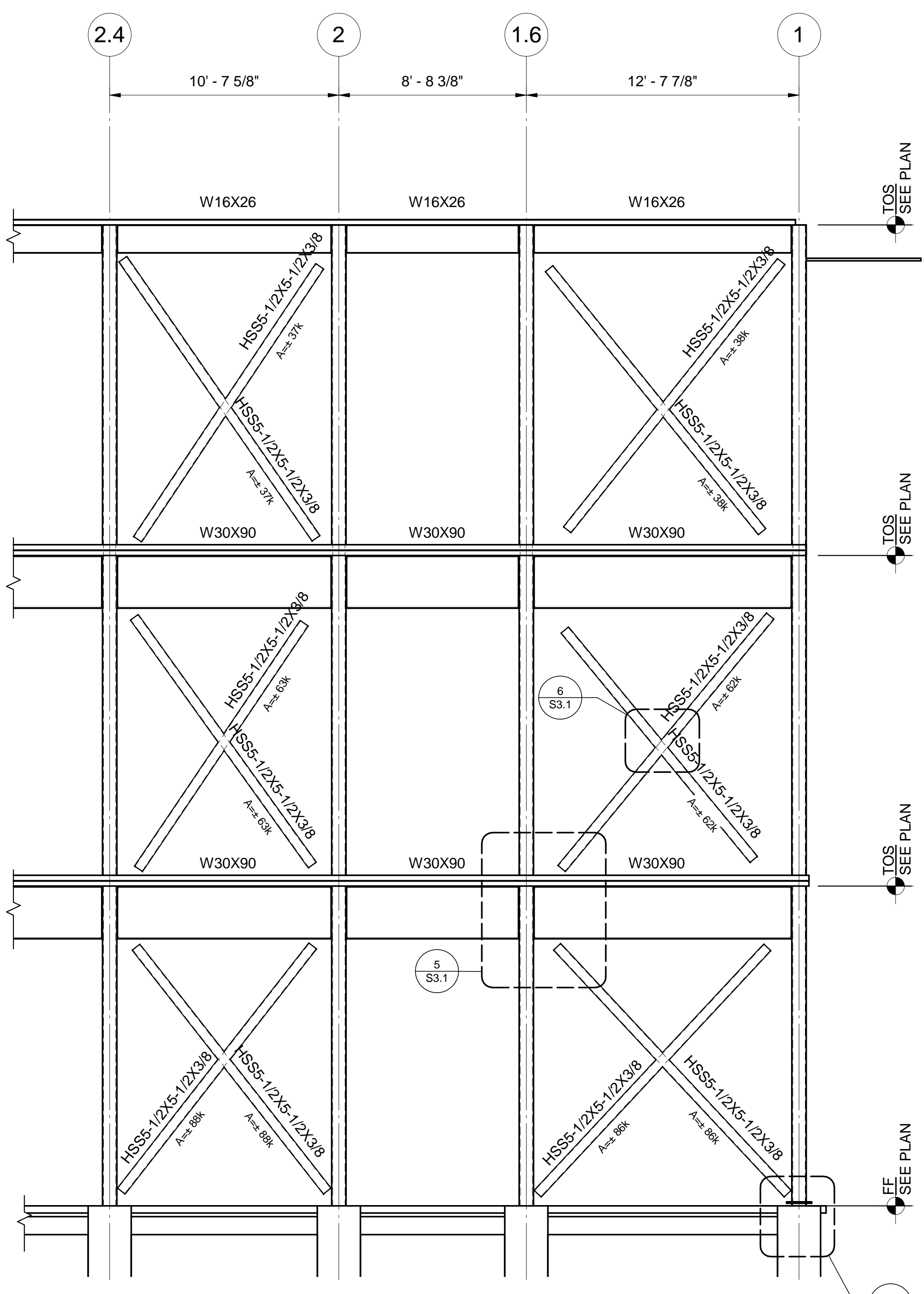


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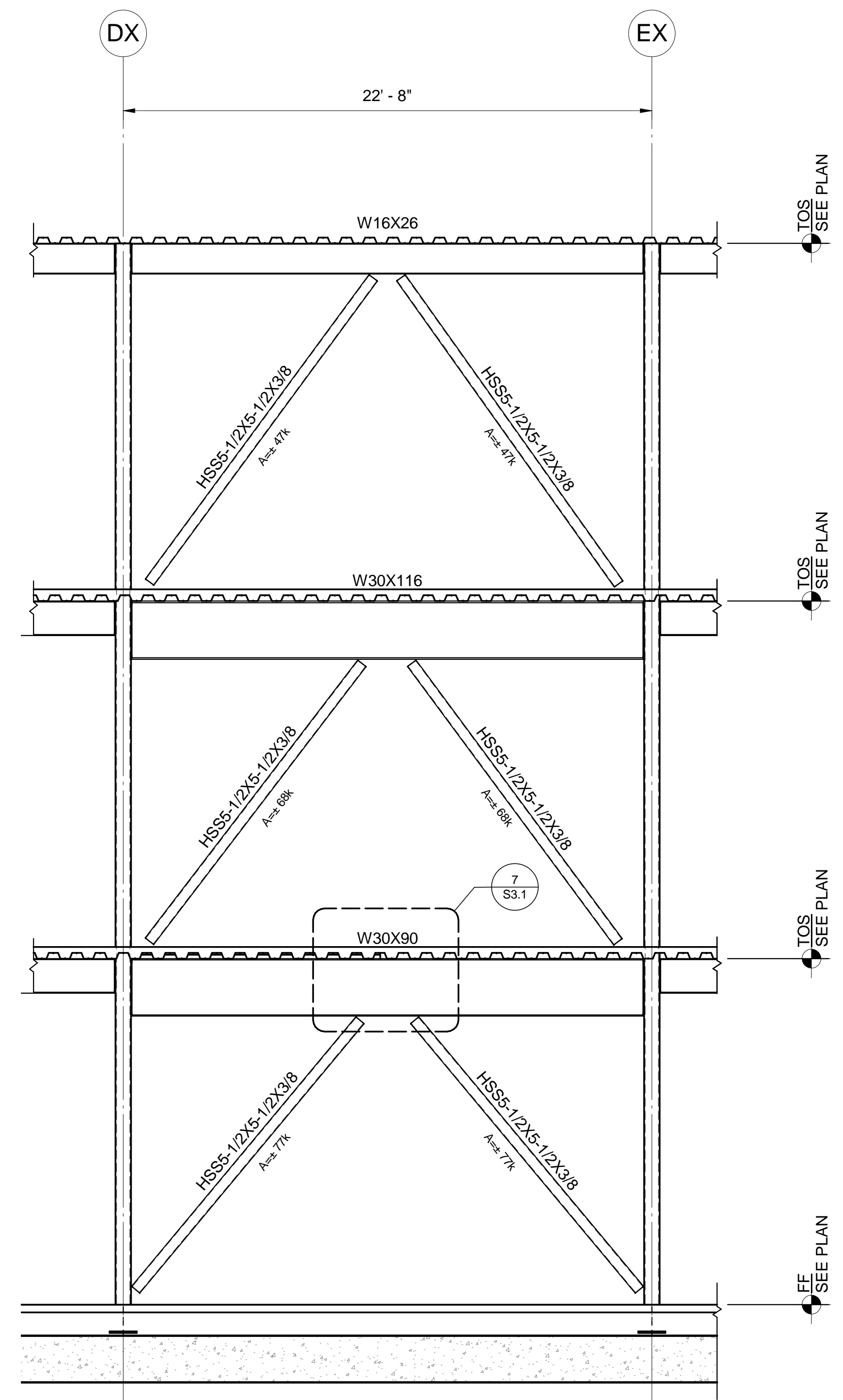
NOTE: PROVIDE ONE 5/8"Ø HOLE AT EACH END OF BRACE MEMBERS FOR INSTALLATION OF INSULATION FOAM.

1 Elevation
S3.1 1/4" = 1'-0" 2' 4'



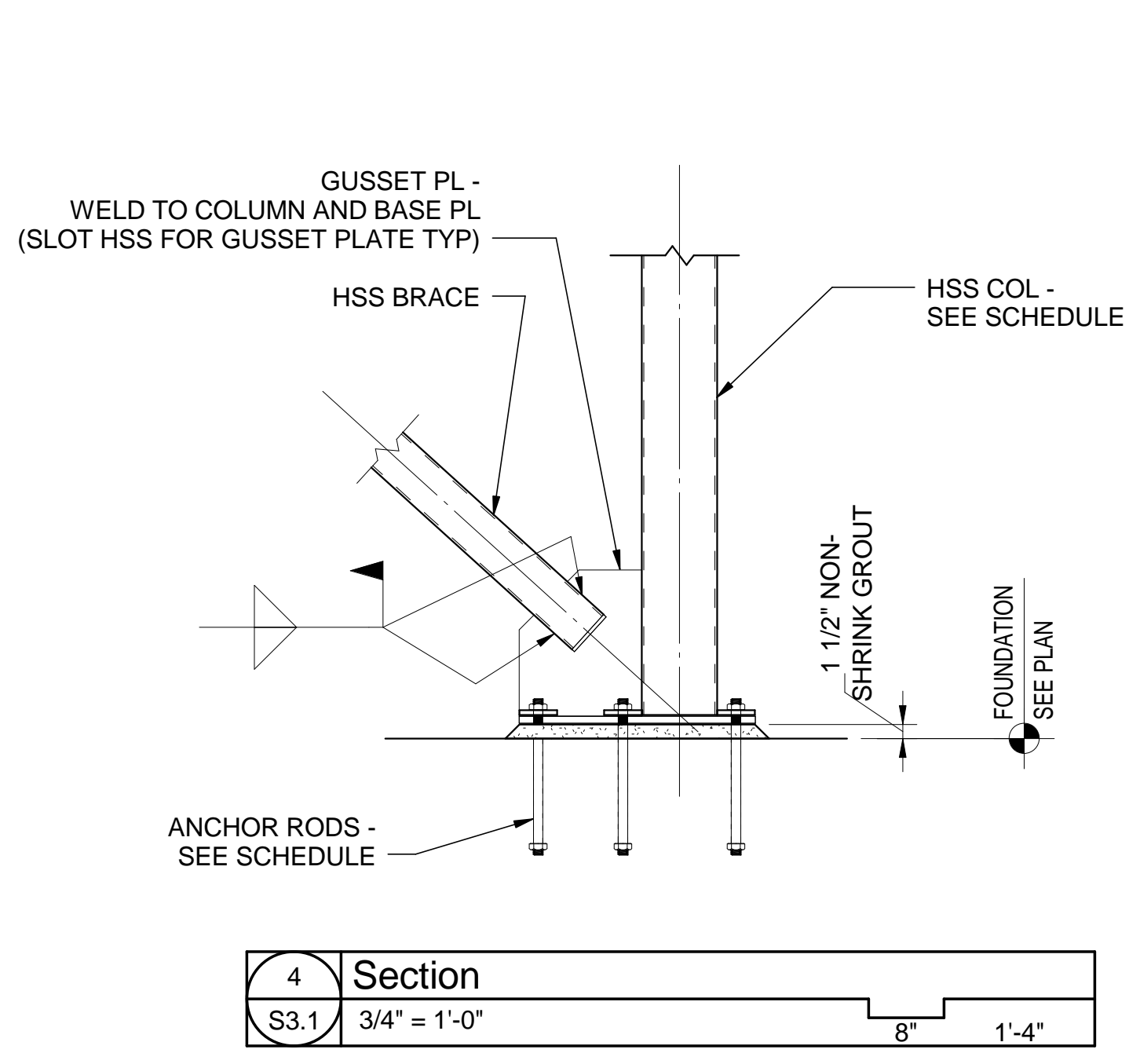
NOTE: PROVIDE ONE 5/8"Ø HOLE AT EACH END OF BRACE MEMBERS FOR INSTALLATION OF INSULATION FOAM.

2 Elevation
S3.1 1/4" = 1'-0" 2' 4'

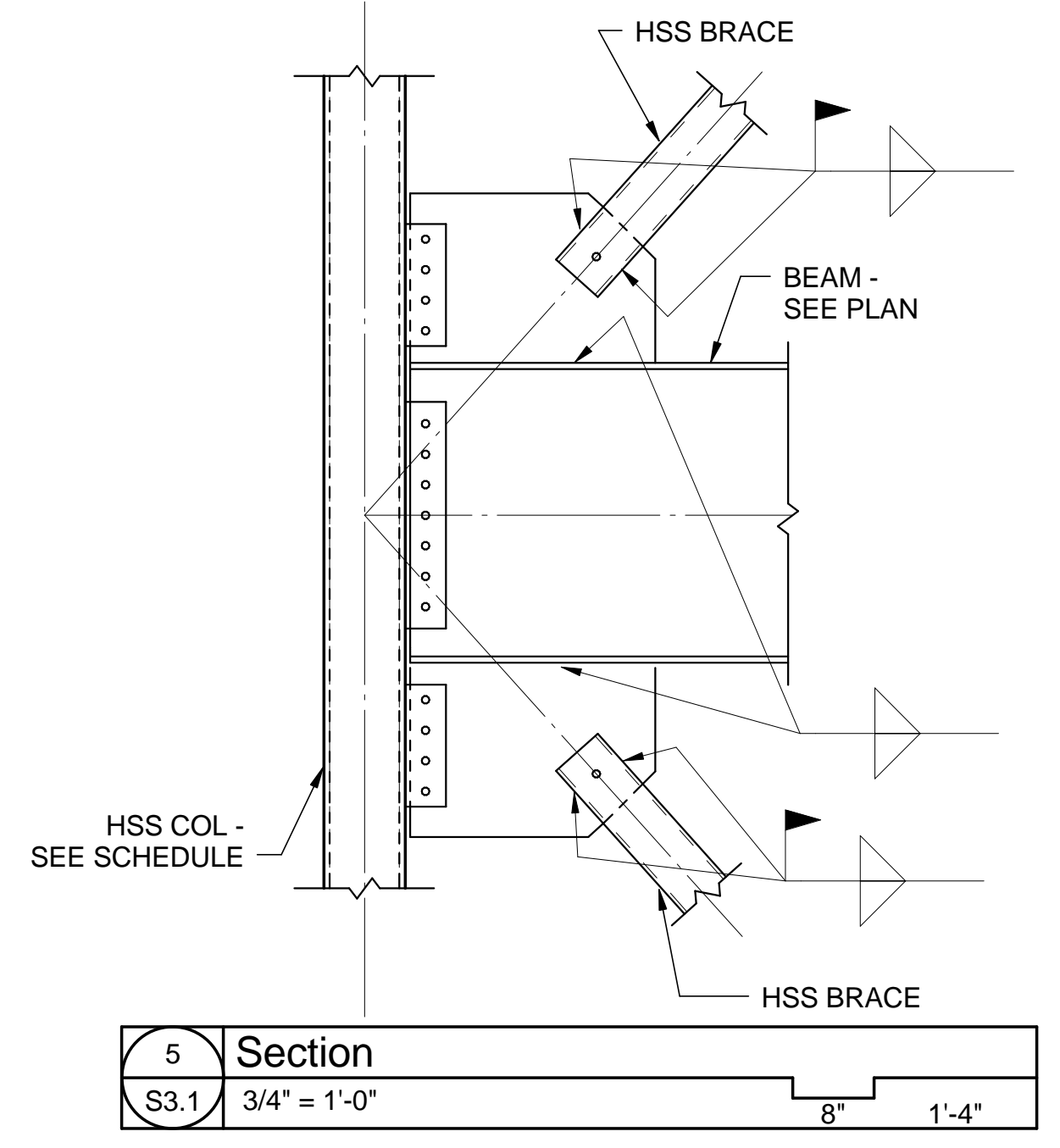


NOTE: PROVIDE ONE 5/8"Ø HOLE AT EACH END OF BRACE MEMBERS FOR INSTALLATION OF INSULATION FOAM.

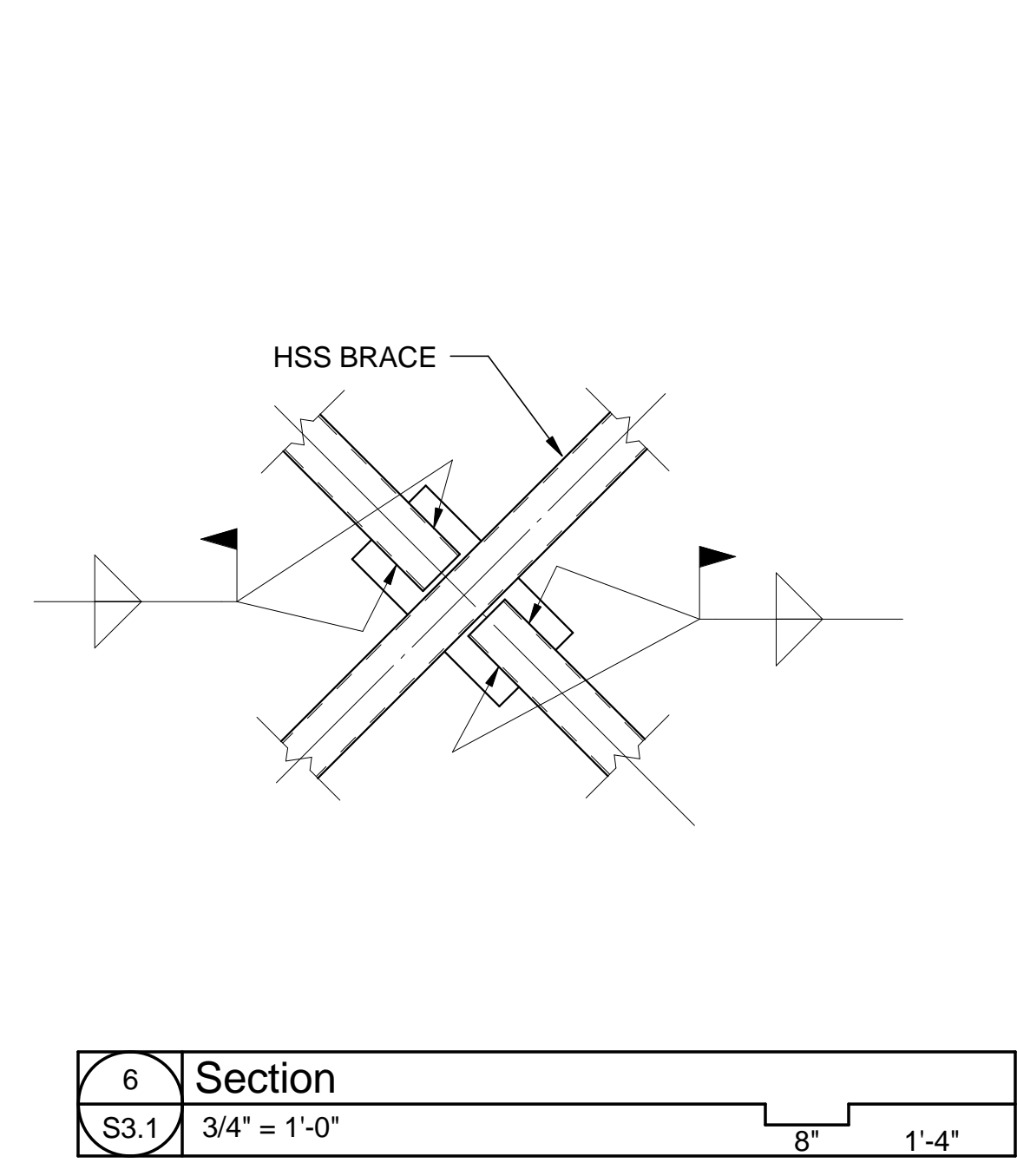
3 Elevation
S3.1 1/4" = 1'-0" 2' 4'



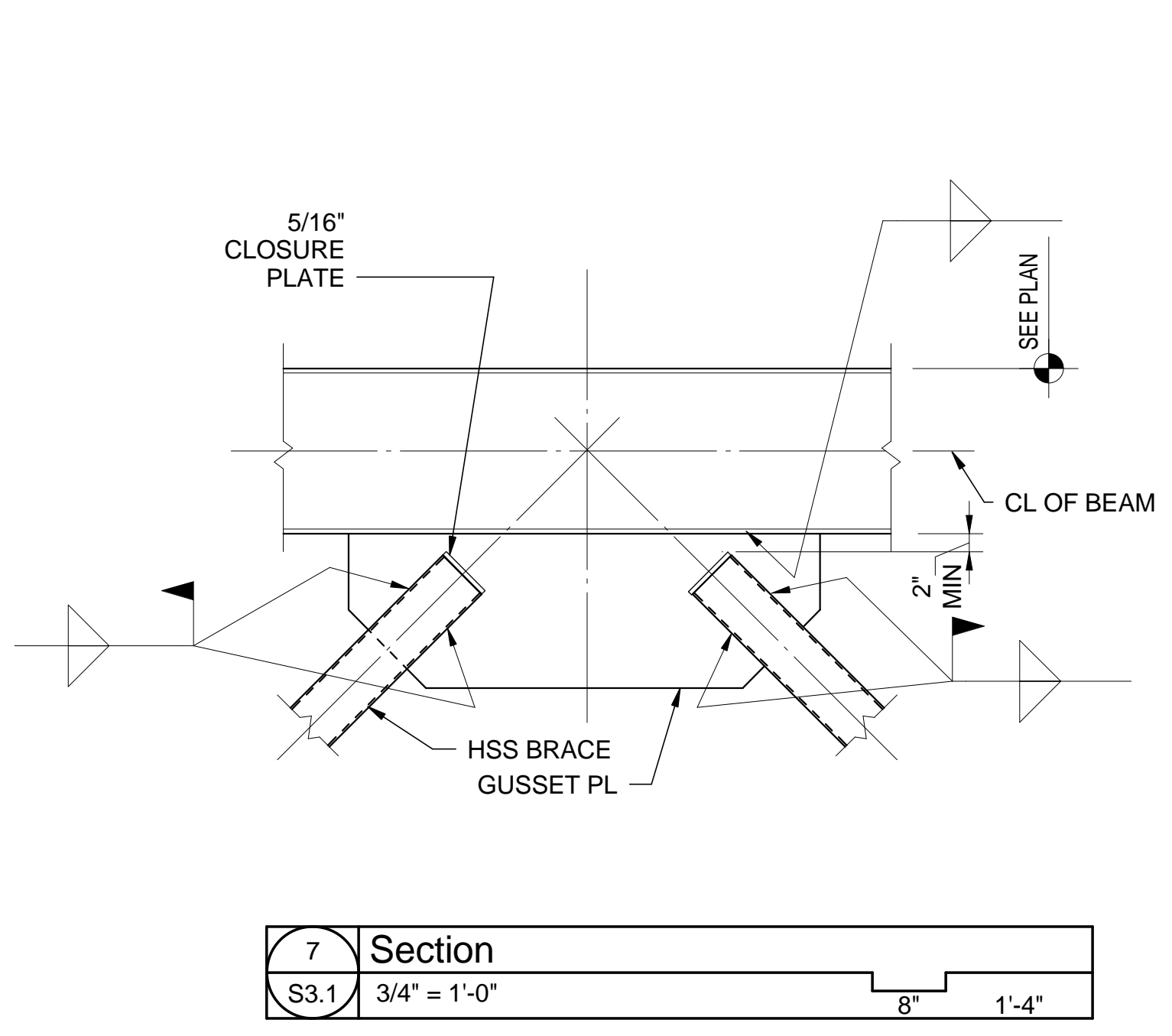
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S3.1 3/4" = 1'-0" 8" 1'-4"



5 Section
S3.1 3/4" = 1'-0" 8" 1'-4"



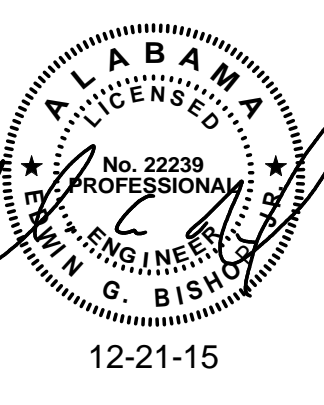
6 Section
S3.1 3/4" = 1'-0" 8" 1'-4"



7 Section
S3.1 3/4" = 1'-0" 8" 1'-4"

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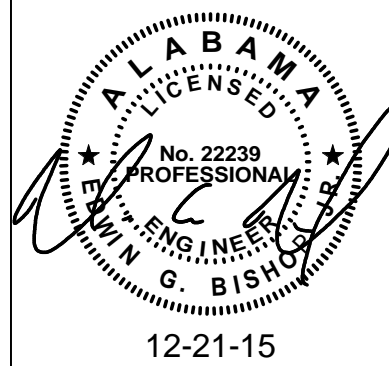


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Elevations
AU Pharmacy Research Building - Structural Works
14-193

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Checked by	
Date	12-21-15
File Number	
Project Number	14-193
Sheet Number	

S3.1

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Elevations

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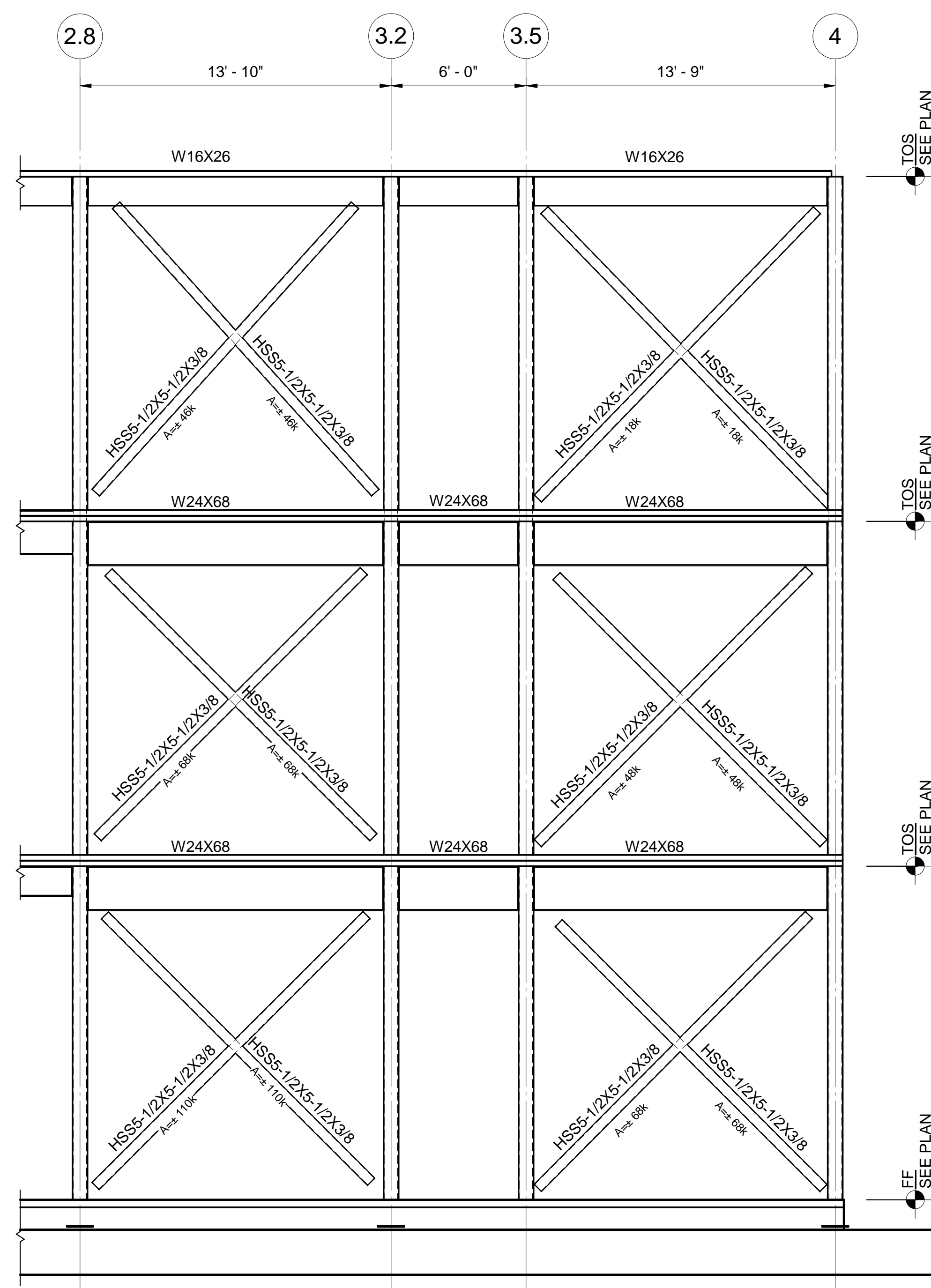
12-21-15

PROJECT

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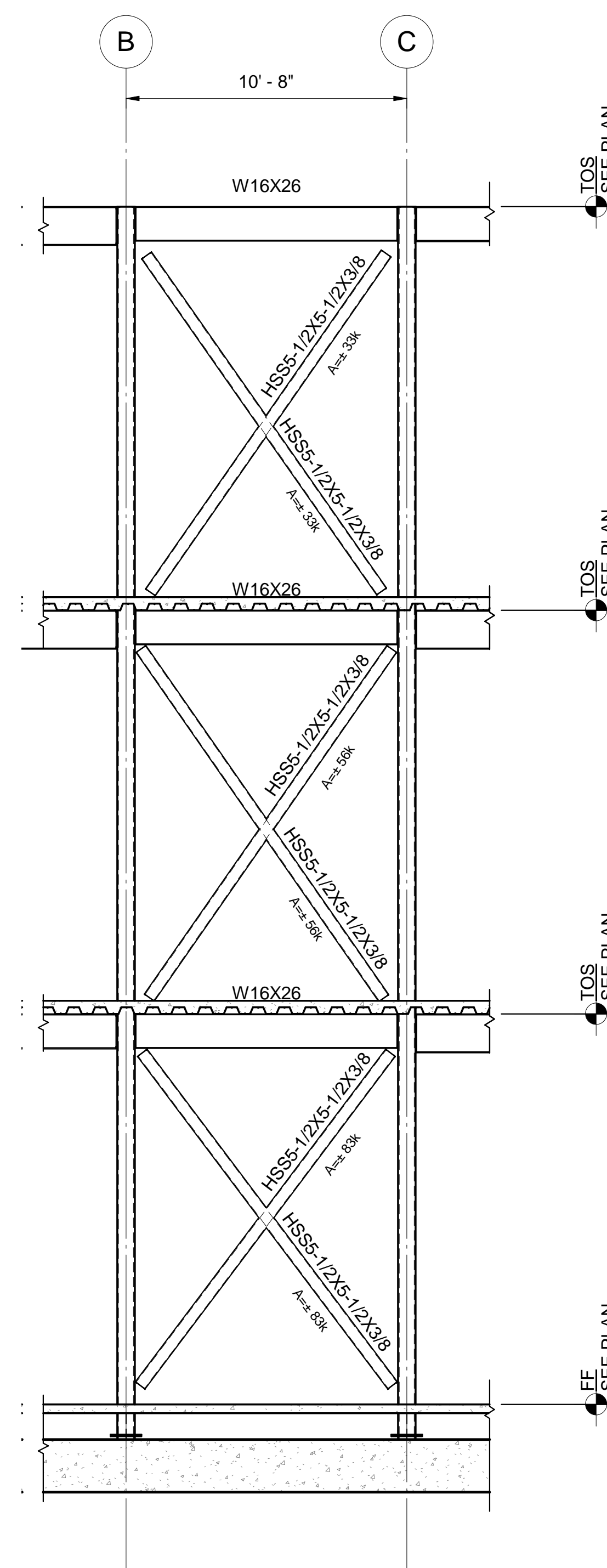
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S3.2



NOTE:
PROVIDE ONE 5/8"Ø HOLE AT
EACH END OF BRACE MEMBERS FOR
INSTALLATION OF INSULATION FOAM.

1	Elevation
S3.2	1/4" = 1'-0"



2	Elevation
S3.2	1/4" = 1'-0"

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Sections
 AU Pharmacy Research Building - Structural Works
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Sections

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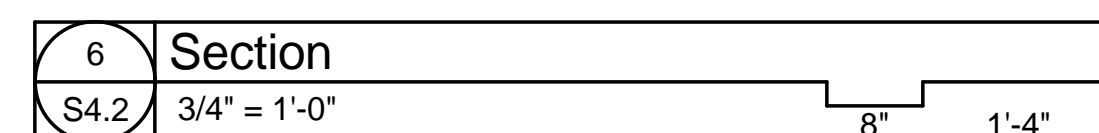
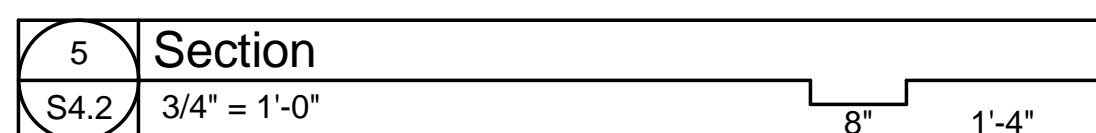
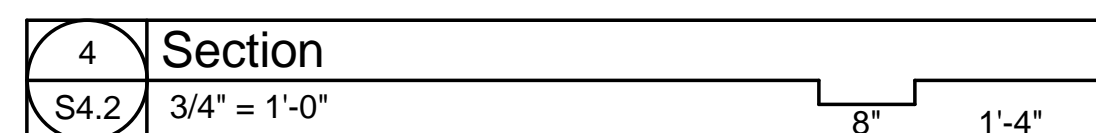
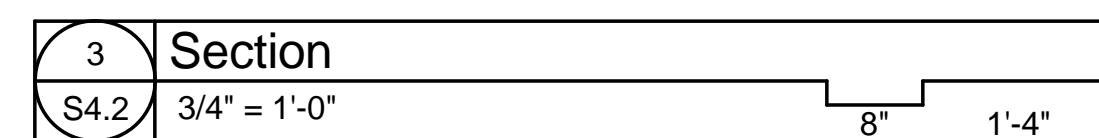
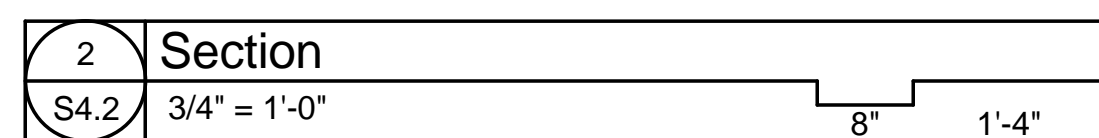
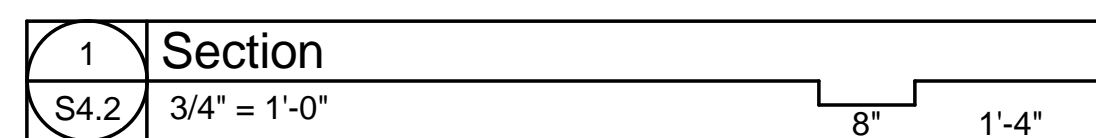
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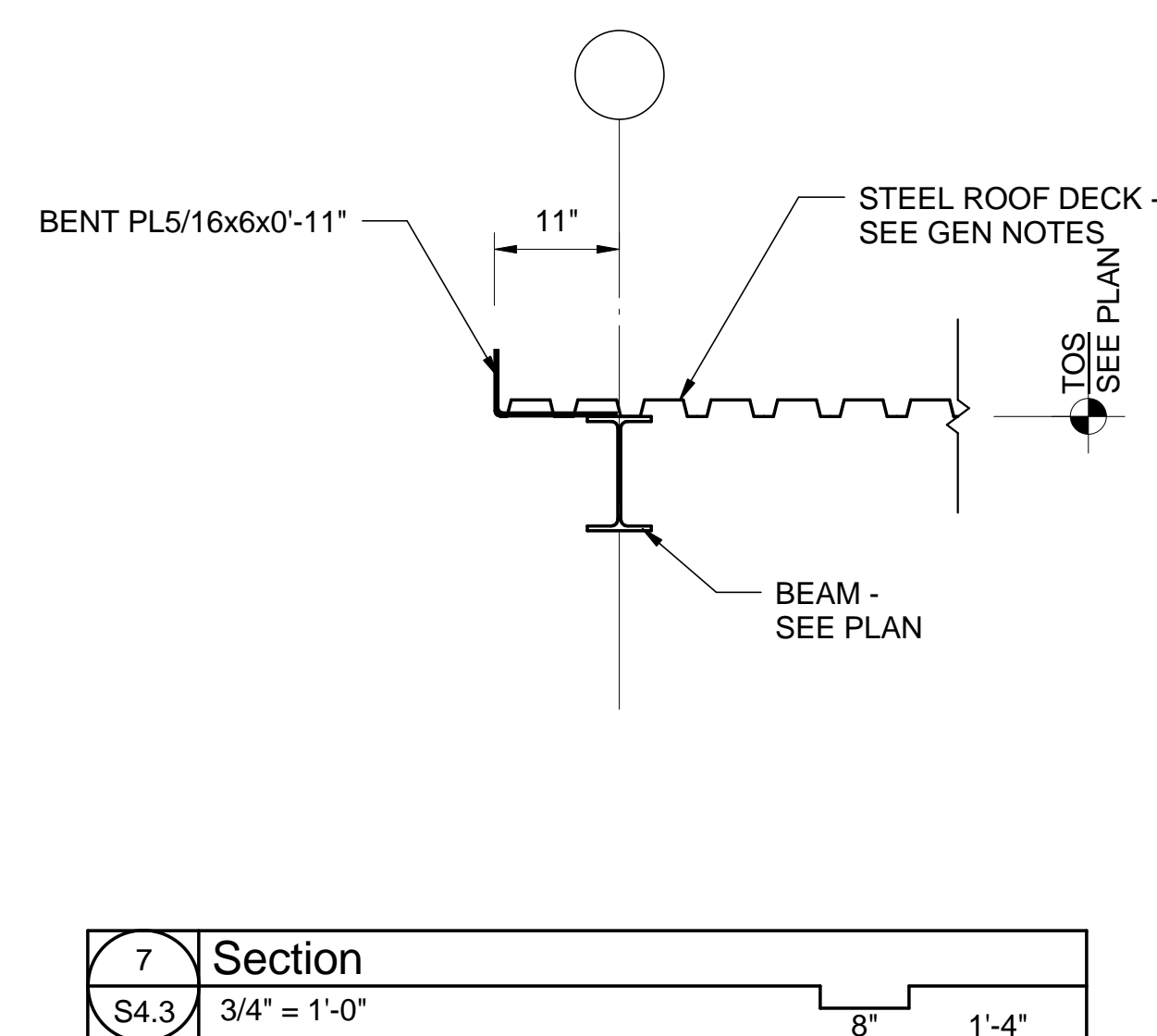
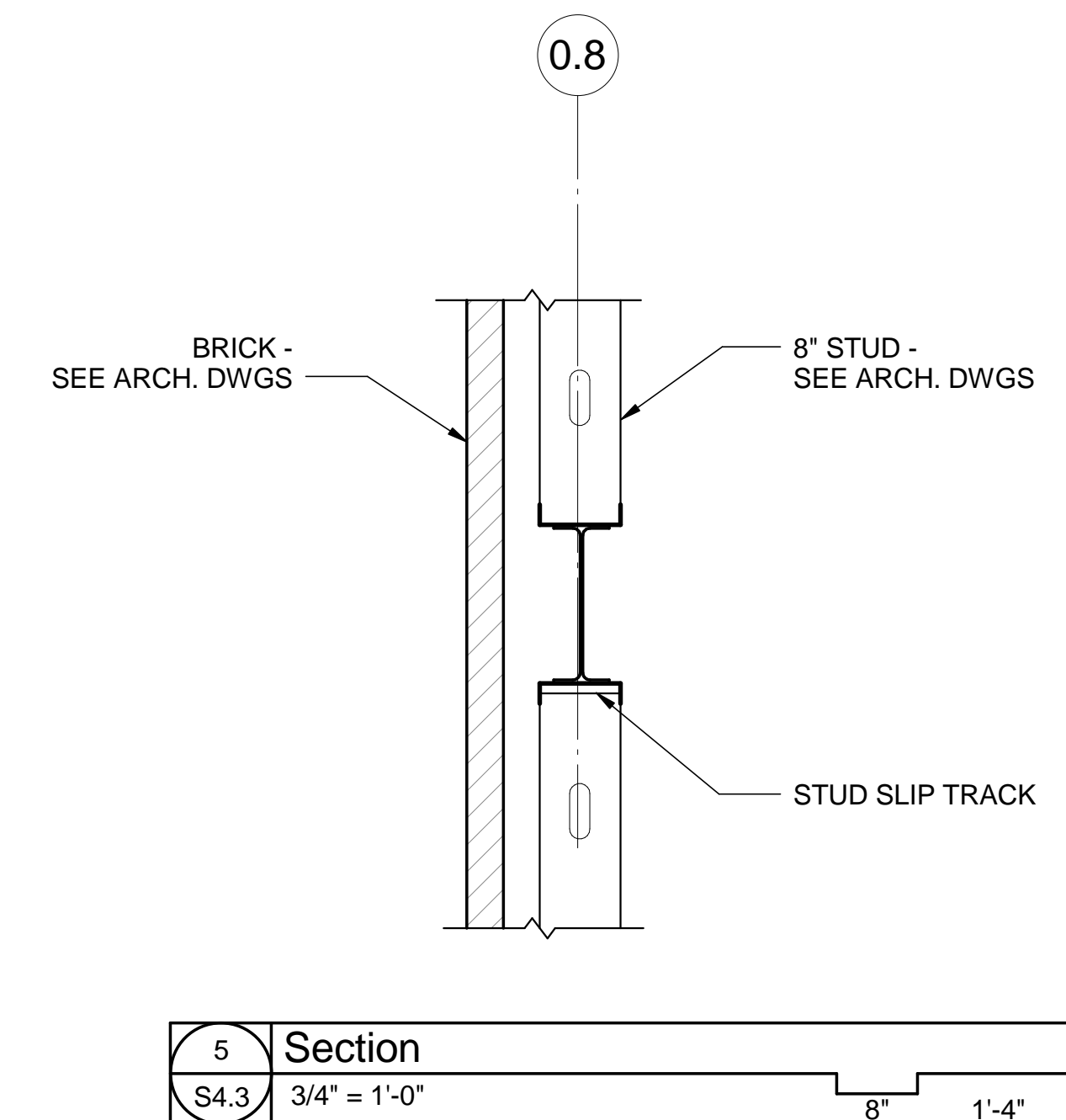
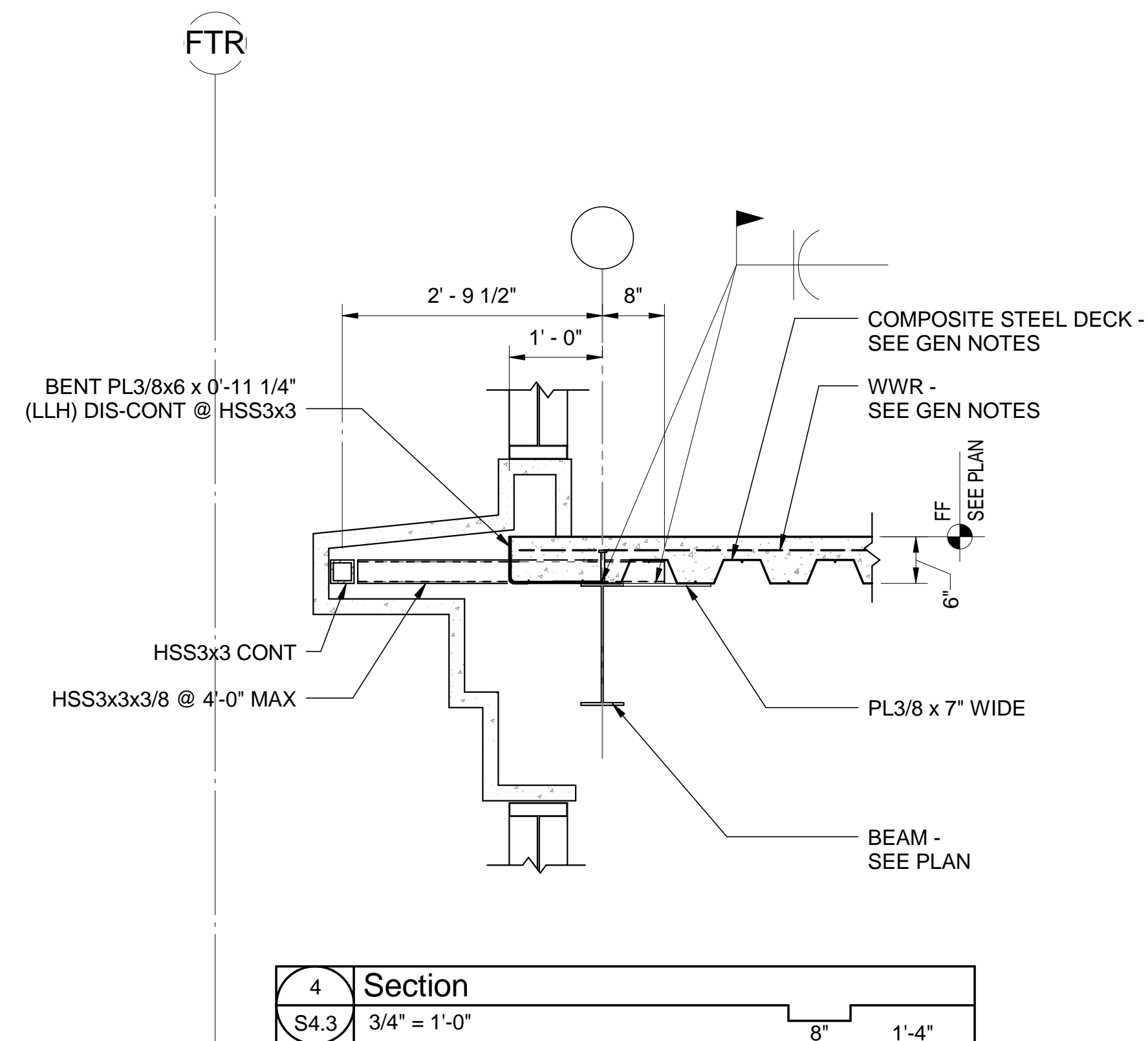
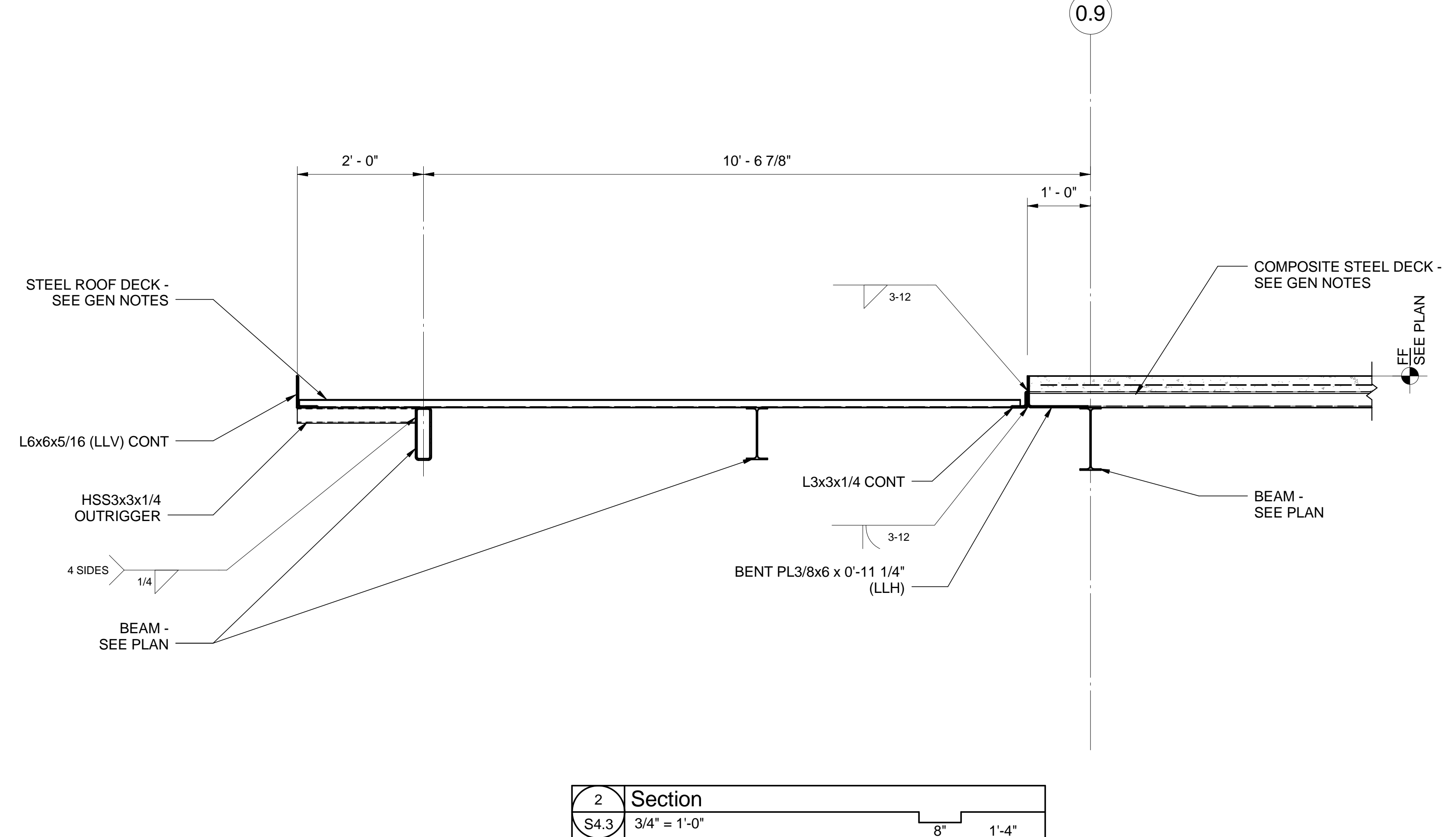
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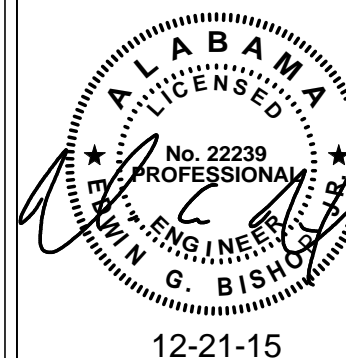
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Sections

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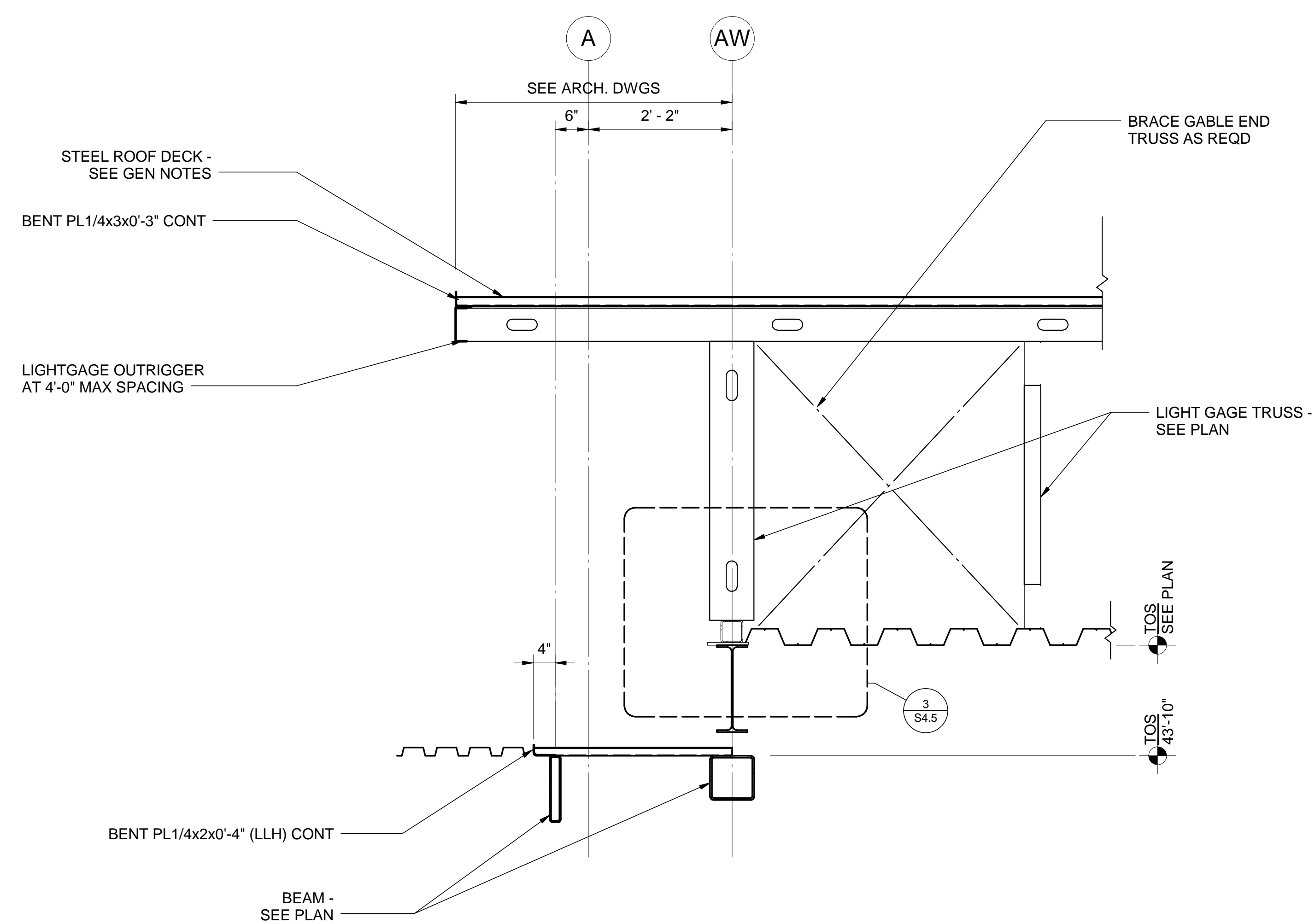
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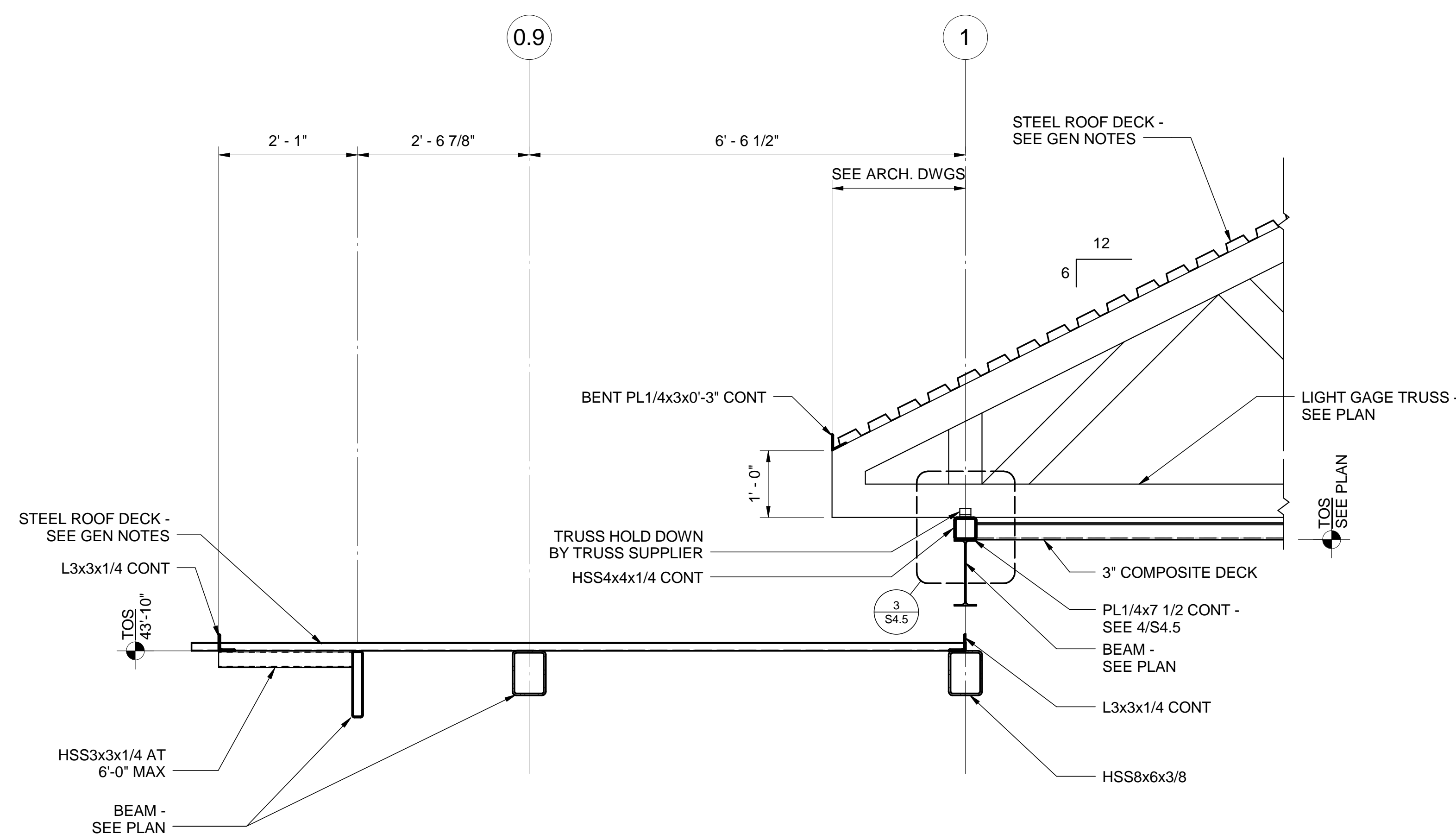
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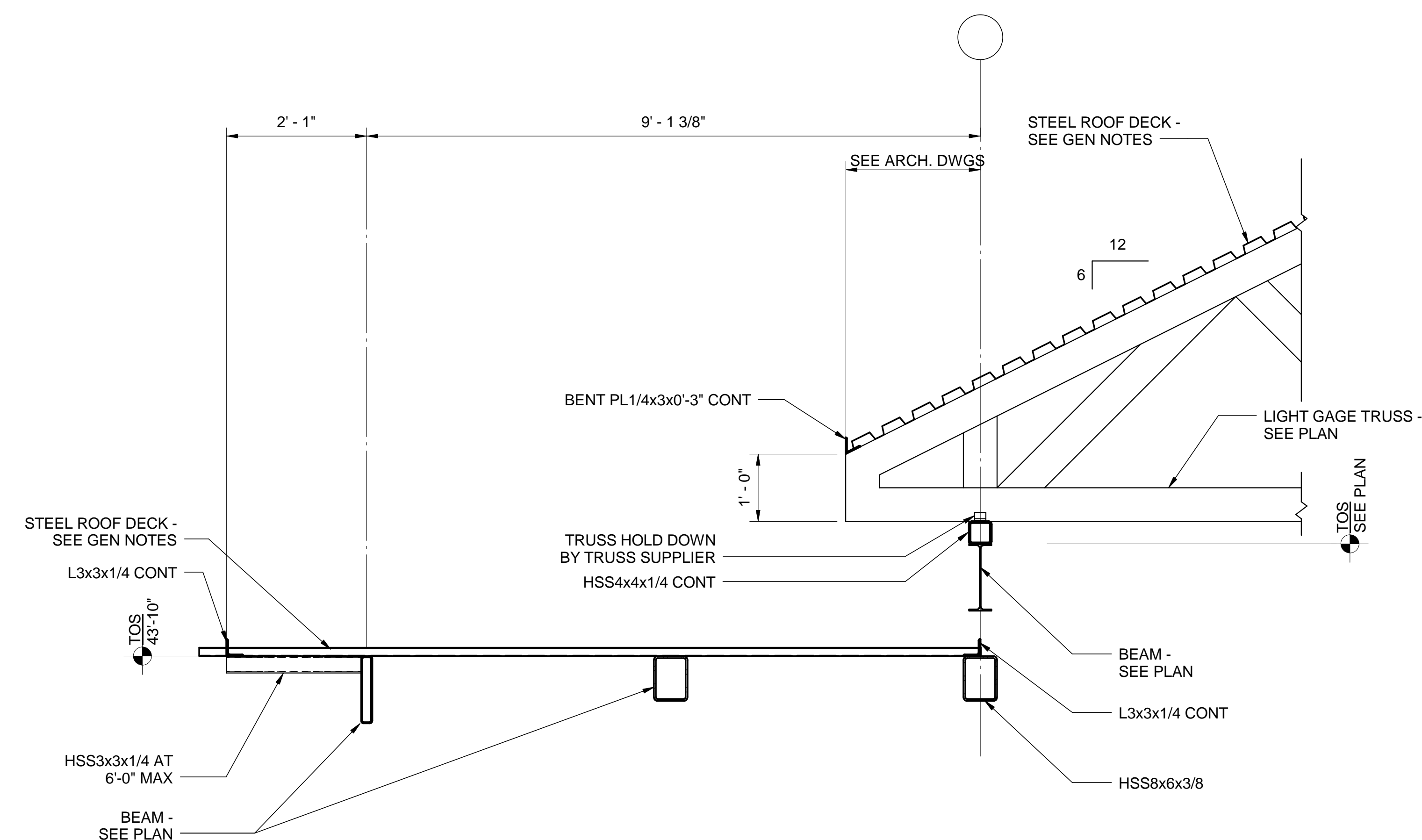
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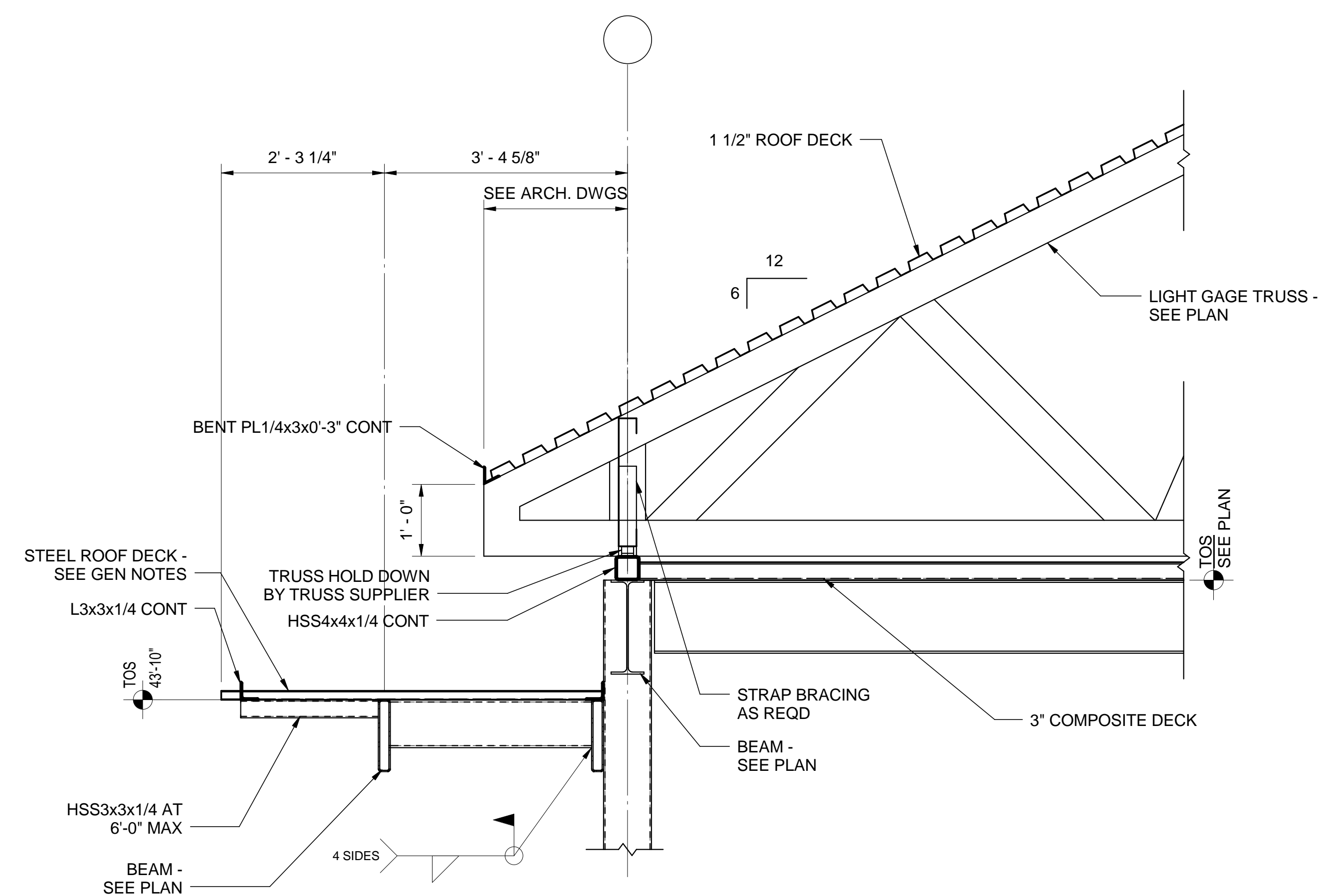
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2	Section
S4.4	3/4" = 1'-0"



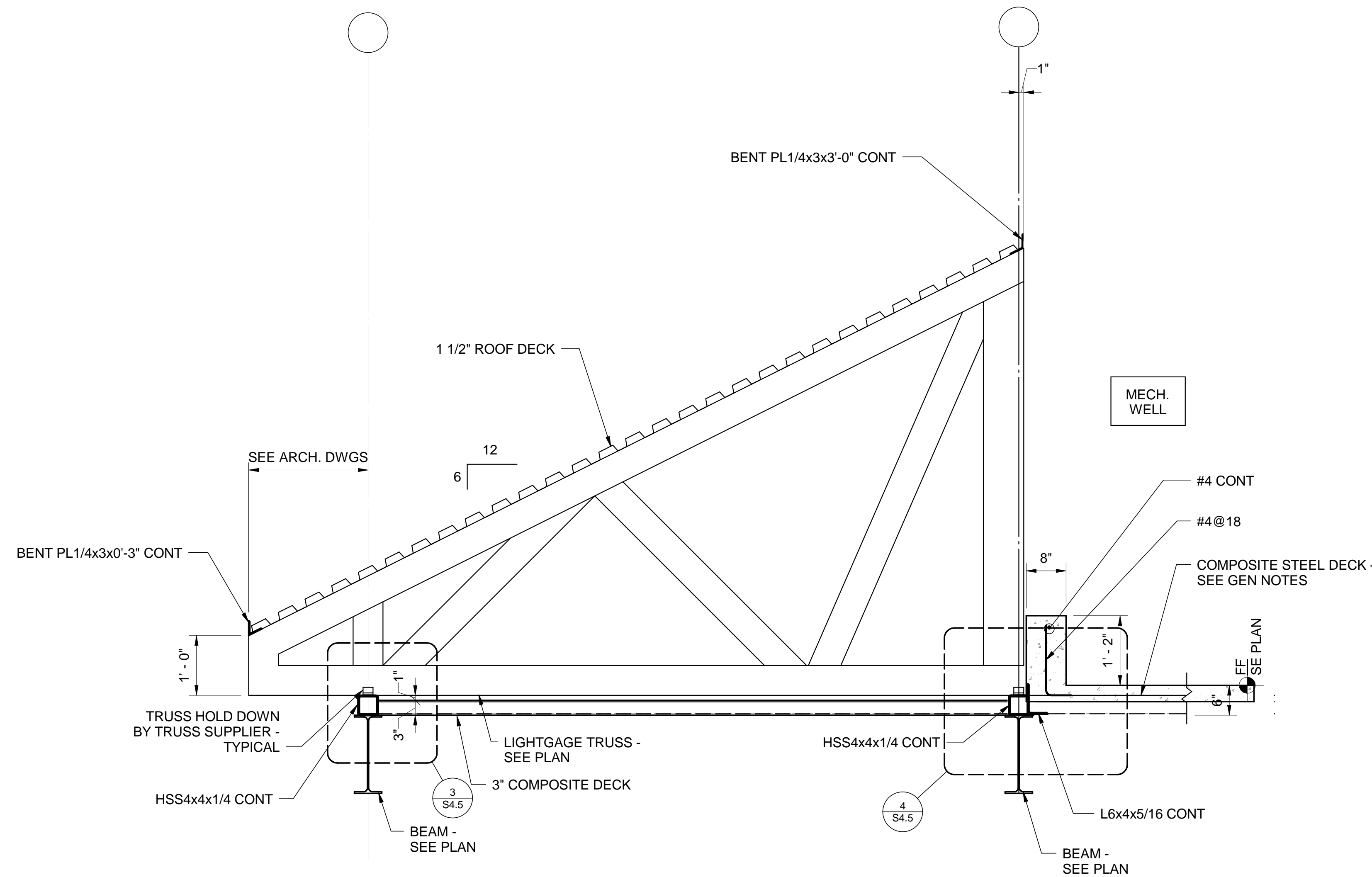
3	Section
S4.4	3/4" = 1'-0" 8" 1'-4"



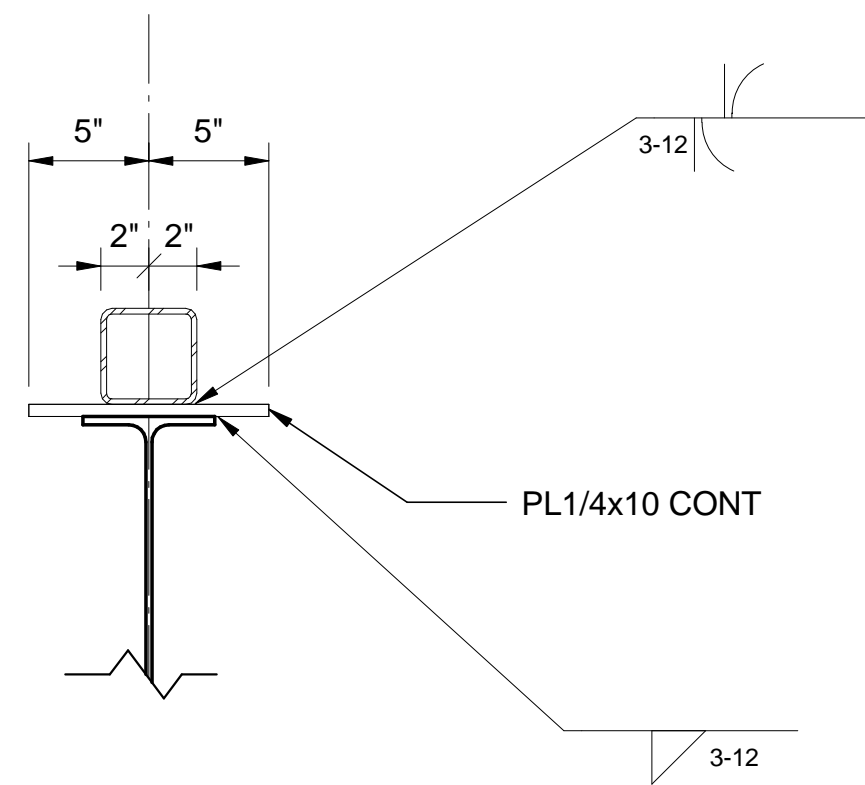
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S4.4	3/4" = 1'-0"

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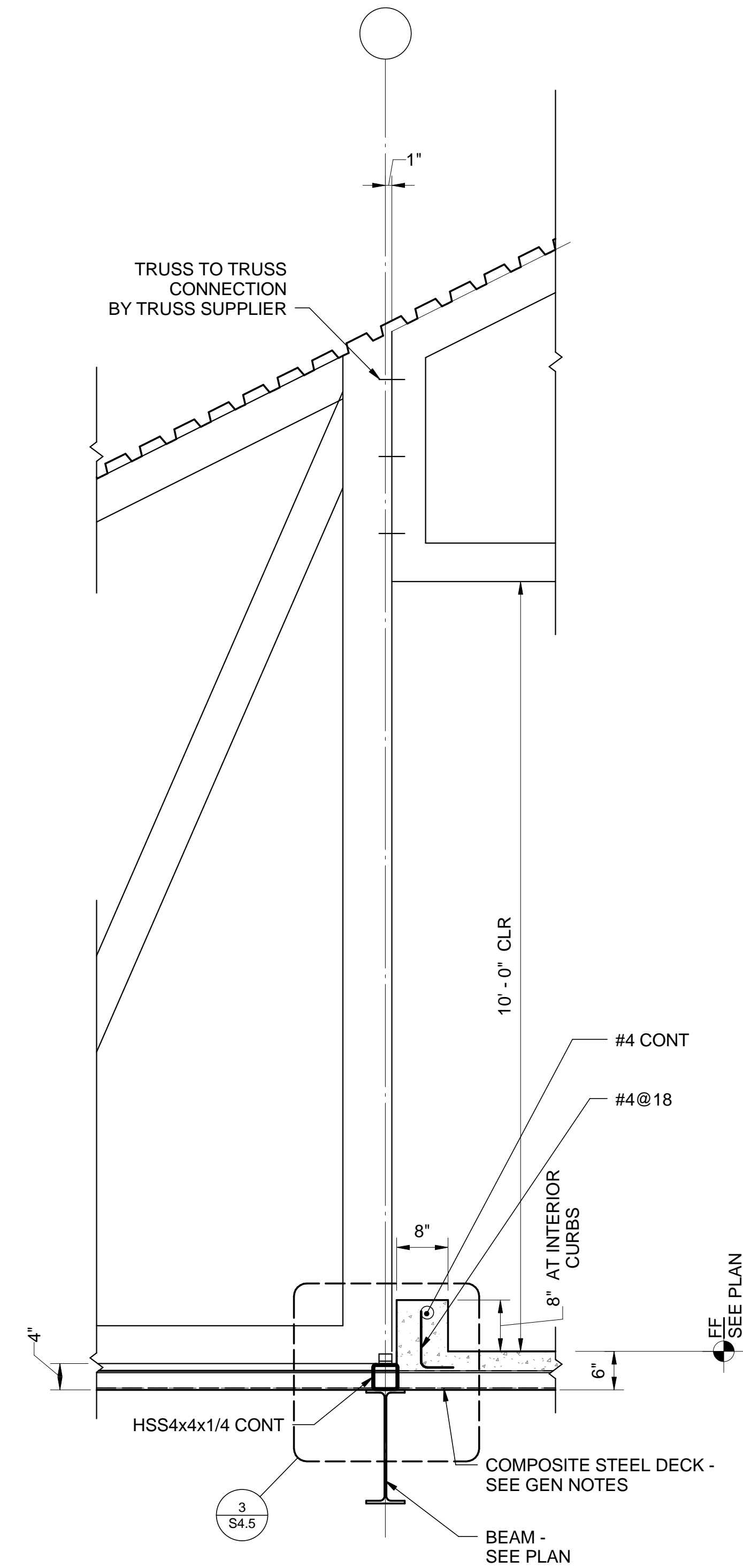
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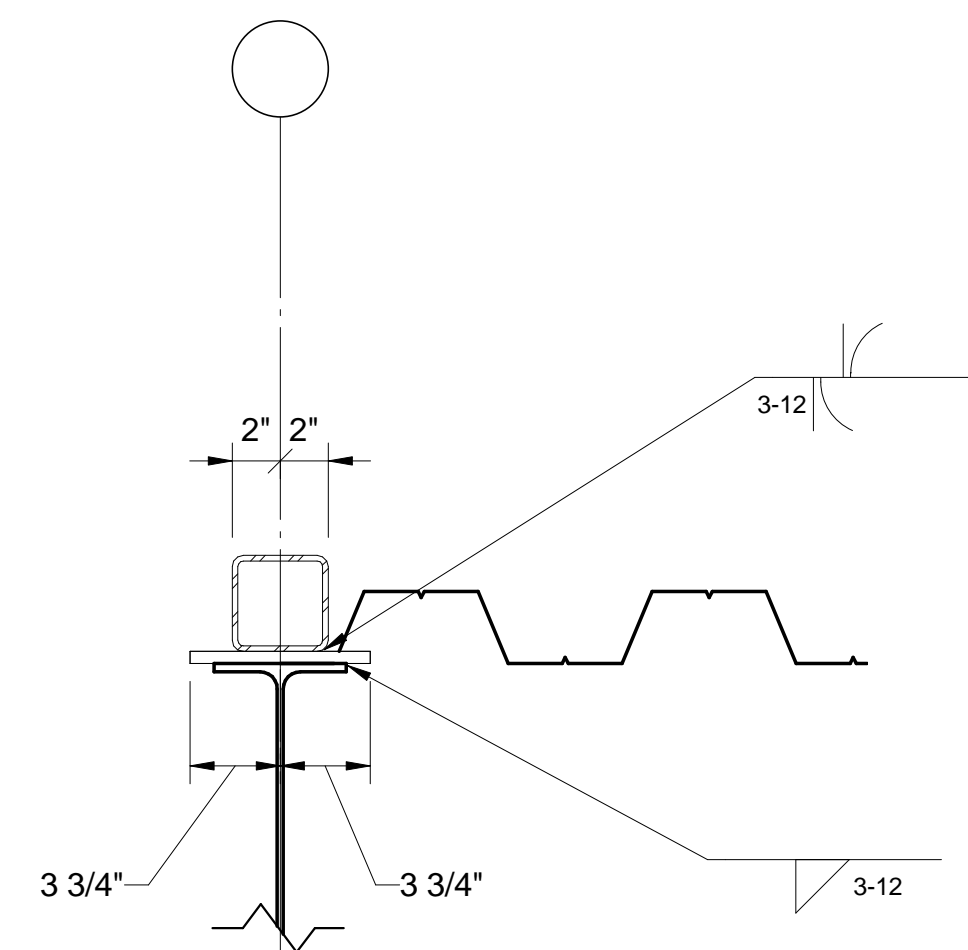
1 Section
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4 Detail
S4.5 1 1/2" = 1'-0" 8" 1'-4"



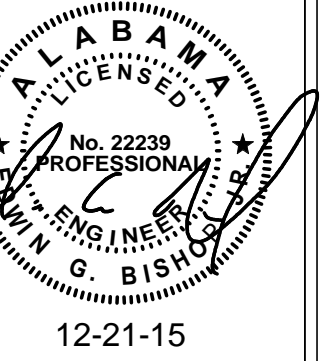
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3 Detail
S4.5 1 1/2" = 1'-0" 8" 1'-4"

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S4.5