1. STRUCTURAL NOTES

1.1. ANY DISCREPANCY FOUND AMONG THE DRAWINGS, SPECIFICATIONS, THESE NOTES, AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ARCHITECT AND THE STRUCTURAL ENGINEER, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY SHALL BE DONE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE DIMENSIONS AMONG ALL DRAWINGS PRIOR TO PROCEEDING WITH ANY WORK OR FABRICATION. THE CONTRACTOR IS RESPONSIBLE FOR ALL ERECTION BRACING, FORMWORK AND TEMPORARY CONSTRUCTION SHORING.

1.2. BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE CONTRACTOR WARRANTS THAT:

1.2.1. THE CONTRACTOR AND ALL SUBCONTRACTORS THEY INTEND TO USE (INCLUDING AGENTS AND SUPPLIERS) HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS AND STRUCTURAL NOTES AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE PURPOSE INTENDED.

1.2.2. THE CONTRACTOR HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND FROM THEIR OWN INVESTIGATIONS, THEY HAVE SATISFIED THEMSELF AS TO THE NATURE AND LOCATION OF THE WORK, AS TO THE CHARACTER, QUALITY, AND QUANTITIES OF MATERIAL AND DIFFICULTIES TO BE ENCOUNTERED, AS TO THE EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK AND AS TO THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY IN ANY WAY AFFECT THE WORK OR ITS PERFORMANCE.

1.2.3. THE CONTRACTOR AND ALL WORKERS THEY INTEND TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE DRAWINGS AND DOCUMENTS BID UPON.

1.2.4. NEITHER THE CONTRACTOR NOR ANY OF THEIR EMPLOYEES, AGENTS, INTENDED SUPPLIERS, OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER OR THEIR EMPLOYEES OR AGENTS, INCLUDING THE ARCHITECT OR ENGINEERS, IN ASSEMBLING THE BID FIGURES.

1.2.5. THE REQUIREMENTS CONTAINED WITHIN THIS SECTION SUPERSEDE REQUIREMENTS AND/OR RECOMMENDATIONS CONTAINED IN THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDING AND BRIDGES", AS WELL AS CASE DOCUMENT 962-D "A GUIDELINE ADDRESSING COORDINATION AND COMPLETENESS OF STRUCTURAL CONSTRUCTION DOCUMENTS"

1.2.6. THE CONTRACTOR AND ALL SUBCONTRACTORS THEY INTEND TO USE ARE AWARE OF AND ACKNOWLEDGE THAT CLOSE COORDINATION AMONG ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER TRADE DRAWINGS IS REQUIRED.

1.2.7. THE CONTRACTOR AND ALL SUBCONTRACTORS THEY INTEND TO USE SHALL RECOGNIZE THAT THE PROJECT CONTRACT DOCUMENTS INCLUDE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL AND OTHER TRADE DRAWINGS AND SPECIFICATIONS

1.2.8. CONTRACTOR AND ALL SUBCONTRACTORS ACKNOWLEDGE THAT CLOSE COORDINATION BETWEEN DISCIPLINES INCLUDED WITHIN THE CONTRACT DOCUMENTS IS NECESSARY. ELEMENTS THAT WILL REQUIRE CLOSE COORDINATION BY THE CONTRACTOR INCLUDE (BUT ARE NOT LIMITED TO):

A. VERIFICATION OF ALL DIMENSIONS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS

B. DETERMINATION OF ALL COLUMN LOCATIONS

C. DETERMINATION OF TOP OF FLOOR, TOP OF STEEL, WALL PLATE AND/OR TOP OF BEAM ELEVATIONS

D. DETERMINATION OF TOP OF FOOTING ELEVATIONS AND FOOTING STEP LOCATIONS

E. MECHANICAL/ELECTRICAL EQUIPMENT LOCATIONS AND WEIGHTS

F. LOCATION AND SIZE OF ALL MECHANICAL/ ELECTRICAL PENETRATIONS THROUGH WALLS AND FLOORS/ ROOFS

G. COORDINATION WITH DESIGNERS/ SUPPLIERS OF PRE-ENGINEERED COMPONENTS (JOISTS, TRUSSES, STAIRS, ETC.)

1.2.9. THE CONTRACTOR ACKNOWLEDGES THAT TEMPORARY SHORING AND/OR BRACING MAY BE REQUIRED TO COMPLETE THE PROJECT. DESIGN AND IMPLEMENTATION OF TEMPORARY SHORING AND/OR BRACING DURING CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.2.10. THE CONTRACTOR AND ALL SUBCONTRACTORS THEY INTEND TO USE SHALL MAKE CONSIDERATION FOR, AND INCLUDE MONIES FOR THE ABOVE IN THE PREPARATION OF THEIR BIDS.

1.2.11. THE CONTRACTOR SHALL NOT SCALE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATIONS OF ELEMENTS NOTED ABOVE.

1.2.12. ELECTRONIC COPIES OF THE STRUCTURAL DRAWINGS (PDF'S, CAD DRAWINGS OR BIM MODELS) MAY BE PROVIDED TO THE CONTRACTOR FOR THEIR USE. THESE FILES MAY BE PROVIDED AT THE REQUEST OF THE CONTRACTOR FOR THEIR CONVENIENCE ONLY. THE CONTRACTOR AGREES THAT THESE FILES SHALL NOT SUPERSEDE INFORMATION SHOWN ON THE ORIGINAL BID/ CONSTRUCTION DOCUMENTS. THE CONTRACTOR AGREES TO HOLD THE STRUCTURAL ENGINEER HARMLESS FOR ANY ERRORS OR DISCREPANCIES CONTAINED WITHIN THESE ELECTRONIC FILES.

1.2.13. THE B/D FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN OR VERBAL REPRESENTATIONS.

1.3. CODES

1.3.1. ALL METHODS, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE (IBC) AS AMENDED AND ADOPTED BY THE LOCAL BUILDING AUTHORITY.

1.3.2. ALL REFERENCES TO OTHER CODES, STANDARDS AND SPECIFICATIONS, (ACI, ASTM, ETC.), SHALL BE FOR THE EDITION CURRENTLY REFERENCED BY IBC AS AMENDED AND ADOPTED BY THE LOCAL BUILDING AUTHORITY.

1.4. DESIGN CRITERIA

1.4.1. UNIFORM LOADS:

LOCATION	LIVE LOAD	DEAD LOAD
ROOF SOLAR READINESS ZONE **	25 PSF (SNOW*)	ACTUAL +4 PSF +175 PSF (INVERTER)
RESIDENTIAL (PRIVATE ROOMS AND CORRIDORS)	40 PSF	ACTUAL
RESIDENTIAL (PUBLIC ROOMS AND CORRIDORS)	100 PSF	ACTUAL
STAIRS AND EXITS	100 PSF	ACTUAL
DECKS AND BALCONIES [1.5X OCCUPANCY SERVED, NOT EXCEEDING 100 PSF]	60 PSF	ACTUAL
MECHANICAL ROOMS	50 PSF	ACTUAL
STORAGE	125 PSF	ACTUAL
PARKING GARAGE (PASSENGER VEHICLES)	40 PSF OR 3000# WHEEL	ACTUAL
HANDRAILS AND GUARDS	50 PLF OR 200# CONCENTRATED LOAD	

* THIS IS NOT A GROUND SNOW LOAD

** SOLAR READINESS ZONE PER WA STATE ENERGY CODE, COMMERCIAL PROVISIONS, CHAPTER 51-11C WAC.

WHERE LIVE LOADS OF COMMERCIAL OR INDUSTRIAL BUILDINGS EXCEED 50 PSF, SUCH DESIGN LOADS SHALL BE POSTED IN THAT PART OF EACH STORY IN WHICH THEY APPLY

1.4.2. SNOW LOADS PER IBC SECTION 1608 AND CHAPTER 7 OF ASCE 7:

GROUND SNOW LOAD (P_g):	25.0 PSF
FLAT ROOF SNOW LOAD (P_f):	25.0 PSF
SNOW EXPOSURE FACTOR (C_e):	1.0
SNOW IMPORTANCE FACTOR (I_s):	1.0
THERMAL FACTOR (C_t):	1.0

1.4.3. CONCENTRATED LOADS: ALL MANUFACTURERS OF PRE-ENGINEERED COMPONENTS OF SYSTEMS SHALL LOCATE, COORDINATE, VERIFY WEIGHTS, ETC., OF MECHANICAL UNITS OR OTHER CONCENTRATED LOADS AND DESIGN THEIR SYSTEM FOR THESE LOADS.

1.4.4. WIND LOADS (PER IBC SECTION 1609 AND ASCE 7 CHAPTERS 26 THRU 30):

BASIC WIND SPEED (V):	98 MPH
RISK CATEGORY	II
WIND EXPOSURE:	B
APPLICABLE INTERNAL PRESSURE COEFFICIENT:	+/-0.18
ENCLOSED STRUCTURE	
TOPOGRAPHIC FACTOR (K_{zt})	1.0

COMPONENTS AND CLADDING: ULTIMATE DESIGN WIND PRESSURES TO BE USED FOR THE DESIGN OF EXTERIOR COMPONENT AND CLADDING MATERIALS IS AS FOLLOWS:

ZONE:1	+16.0/-26.1 PSF (10 SQ FT)
ZONE:2e	+16.0/-35.9 PSF (10 SQ FT)
ZONE:2r	+16.0/-35.9 PSF (10 SQ FT)
ZONE:3	+16.0/-35.9 PSF (10 SQ FT)
ZONE:4	+19.5/-21.1 PSF (10 SQ FT)
ZONE:5	+19.5/-26.1 PSF (10 SQ FT)

1.4.5. SEISMIC LOADS (PER IBC SECTION 1613 AND ASCE 7 CHAPTERS 11 THRU 13):

RISK CATEGORY:	II
SEISMIC IMPORTANCE FACTOR (I_E):	1.00
S_s:	1.257
S_1:	0.434
SITE CLASS:	C
S_{DS}:	1.006
S_{D1}:	0.434
SEISMIC DESIGN CATEGORY:	D
DESIGN BASE SHEAR:	$V = C_s \times W$
SEISMIC RESPONSE COEFFICIENT (C_S):	0.154 (STEEL SW) 0.200 (CONC SW)
ANALYSIS PROCEDURE USED:	TWO STAGE ANALYSIS PER ASCE 7-16 12.2.3.2 USING EQUIVALENT LATERAL FORCE PROCEDURE

SEISMIC FORCE-RESISTING SYSTEM	RESPONSE MODIFICATION COEFFICIENT, R	OVERSTRENGTH FACTOR, Ω_0
A. BEARING WALL SYSTEMS:		
1. SPECIAL REINFORCED CONCRETE SHEAR WALLS	5	2 ½
16. LIGHT-FRAMED (CFS) WALLS SHEATHED WITH STEEL SHEETS	6 ½	3

NOTE: TABULATED OVERSTRENGTH FACTOR HAS BEEN REDUCED IN ACCORDANCE WITH ASCE 7 TABLE 12.2-1 FOOTNOTE B FOR STRUCTURES WITH FLEXIBLE DIAPHRAGMS.

1.5. STATEMENT OF SPECIAL INSPECTIONS

SEE STATEMENT OF SPECIAL INSPECTION AND TESTING SHEETS S0.3 AND S0.4.

1.6. SHOP DRAWINGS

1.6.1. SUBMIT SHOP DRAWINGS TO THE ARCHITECT/ENGINEER FOR THE FOLLOWING:

A. CONCRETE MIX DESIGN SUBMITTALS

B. REINFORCING STEEL

C. STRUCTURAL AND MISCELLANEOUS STEEL INCLUDING WELD INSERTS AND ANCHORS

D. STEEL ROOF DECK

E. CONCRETE/MASONRY COORDINATION DRAWINGS

F. PRE-ENGINEERED STEEL STAIRS AND GUARDRAILS *

G. CONCRETE POST-TENSIONING SYSTEM

H. CONCRETE STUDRAIL REINFORCING

I. DIMENSIONED PENETRATION DRAWINGS FOR PT SLABS

* DEFERRED SUBMITTALS: PRE-ENGINEERED ITEMS SHALL BE SUBMITTED TO THE BUILDING OFFICIAL AFTER REVIEW BY THE ENGINEER OR RECORD AS A DEFERRED SUBMITTAL.

1.6.2. SHOP DRAWING REVIEW NOTES

A. ENGINEER OF RECORD SHALL REVIEW SHOP DRAWINGS FOR GENERAL CONFORMANCE WITH THE PROJECT CONSTRUCTION DOCUMENTS (PLANS AND SPECIFICATIONS).

B. ENGINEER OF RECORD REVIEW OF SHOP DRAWINGS SHALL NOT RELIEVE THE GENERAL CONTRACTOR OF THEIR RESPONSIBILITY FOR REVIEW OF THE SHOP DRAWINGS FOR COMPLIANCE WITH THE PROJECT REQUIREMENTS.

C. APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER OF RECORD SHALL NOT BE CONSIDERED AS A GUARANTEE BY THE ENGINEER THAT THE SHOP DRAWINGS COMPLY WITH ALL PROJECT REQUIREMENTS.

D. CONCURRENT SHOP DRAWING REVIEW SHALL ONLY BE PERMITTED IF APPROVED BY THE ARCHITECT/ENGINEER OF RECORD PRIOR TO THE START OF SHOP DRAWING REVIEW.

1.7. MISCELLANEOUS

1.7.1. VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD.

1.7.2. VERIFY SIZE AND LOCATION OF ALL OPENINGS IN THE FLOORS, ROOF AND WALLS WITH ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS.

1.7.3. CONSTRUCTION DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS OF SECTIONS OF THIS PROJECT AS APPROVED BY THE ARCHITECT/ ENGINEER.

1.7.4. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR DIMENSIONS AND LOCATIONS OF OPENINGS NOT DIMENSIONED OR SHOWN ON STRUCTURAL PLANS.

1.7.5. SEE ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND WEIGHTS OF ALL MECHANICAL AND ELECTRICAL EQUIPMENT INCLUDING HOUSEKEEPING PADS.

1.7.6. FOR PIPES, CONDUITS, DUCTS AND MECHANICAL EQUIPMENT SUPPORTED OR BRACED FROM STRUCTURE: CONFORM TO SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC., PUBLICATION "APPENDIX E: SEISMIC RESTRAINT MANUAL GUIDELINES FOR MECHANICAL SYSTEMS." ALL BRACING AND SUPPORTS SHALL BE DESIGNED FOR SEISMIC HAZARD LEVEL (SHL) B. SPRINKLER LINE ATTACHMENTS SHALL CONFORM TO NFPA PAMPHLET 13.

1.7.7. THE STRUCTURE HAS BEEN DESIGNED TO RESIST CODE REQUIRED VERTICAL AND LATERAL FORCES AFTER THE CONSTRUCTION OF ALL STRUCTURAL ELEMENTS HAS BEEN COMPLETED. STABILITY OF THE STRUCTURE PRIOR TO COMPLETION IS THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THIS RESPONSIBILITY INCLUDES BUT IS NOT LIMITED TO JOB SITE SAFETY: ERECTION MEANS, METHODS, AND SEQUENCES; TEMPORARY SHORING, FORMWORK, AND BRACING; USE OF EQUIPMENT AND CONSTRUCTION PROCEDURES.

2. SITE PREPARATION/SOIL REMEDIATION

2.1. SOIL DATA

ALLOWABLE SOIL PRESSURE 3,000 PSF. ALLOW 33-1/3% INCREASE FOR LOADS FROM WIND OR SEISMIC ORIGIN. SEE GEOTECHNICAL ENGINEERING REPORT BY TERRA ASSOCIATES, INC. DATED NOVEMBER 14, 2016. SEE GEOTECH REPORT FOR ALL SUBGRADE PREPARATION REQUIREMENTS AS WELL AS CAPILLARY BREAK AND VAPOR BARRIER RECOMMENDATIONS.

2.1.1. RETAINING WALL DESIGN CRITERIA:

A.	ACTIVE EARTH PRESSURE:	35 PCF
B.	AT-REST EARTH PRESSURE:	100 PSF (UNIFORM)
C.	SEISMIC EARTH PRESSURE:	8 x "H" PSF
D.	PASSIVE EARTH PRESSURE:	350 PCF *
E.	FRICTION COEFFICIENT:	0.35 *

* INCLUDES FACTOR OF SAFETY OF 1.5

2.2. EXCAVATION

EXCAVATE TO DEPTH SHOWN AND TO FIRM UNDISTURBED MATERIAL. OVER-EXCAVATIONS SHALL BE BACKFILLED WITH LEAN CONCRETE (F'c=500-1200 PSI) OR STRUCTURAL FILL AT THE CONTRACTOR'S EXPENSE. EXERCISE EXTREME CARE DURING EXCAVATION TO AVOID DAMAGE TO BURIED LINES, TANKS, AND OTHER CONCEALED ITEMS. UPON DISCOVERY, DO NOT PROCEED WITH WORK UNTIL RECEIVING WRITTEN INSTRUCTIONS FROM THE ARCHITECT. A COMPETENT REPRESENTATIVE OF THE OWNER SHALL INSPECT ALL FOOTING EXCAVATIONS FOR SUITABILITY OF BEARING SURFACES PRIOR TO PLACEMENT OF REINFORCING STEEL. PROVIDE DRAINAGE AS NECESSARY TO AVOID WATER-SOFTENED SUBGRADE.

2.3. FILL, BACKFILL AND COMPACTION

BACKFILL AGAINST WALLS SHALL NOT BE PLACED UNTIL AFTER THE REMOVAL OF ALL MATERIAL SUBJECT TO ROT OR CORROSION. ALL FILL PLACED AGAINST RETAINING WALLS OR BASEMENT WALLS SHALL BE FREE DRAINING GRANULAR MATERIAL. STRUCTURAL FILL OTHER THAN PEA GRAVEL SHALL BE GRANULAR PLACED IN 6-INCH LIFTS AND COMPACTED TO AT LEAST 95% OF ITS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 (MOD PROCTOR). PEA GRAVEL FILL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 3/8" DIAMETER.

2.4. SMALL DIAMETER STEEL PIPE PILES (PIN PILES)

2.4.1. STEEL PIPE SECTIONS (PIPE) SHALL BE ASTM A53 TYPE E OR S, GRADE A (F_y = 30 KSI), OR GRADE B (F_y = 35 KSI) FOR PIPE PILES.

2.4.2. PIPE PILE CRITERIA:

SMALL DIAMETER PILES SHALL BE DRIVEN TO REFUSAL WHICH IS DEFINED AS LESS THAN 1" OF PENETRATION UNDER 14-16 SECONDS OF CONTINUOUS DRIVING USING A PERCUSSION HAMMER DELIVERING 850 FT-LBS PER BLOW FOR 4" DIAMETER PILES.

2.4.3. PIPE SPLICING:

CONTRACTOR SHALL SUBMIT COUPLER DETAIL FOR FIELD SPLICING OF PIPE PILES UTILIZING SMALL DIAMETER STEEL PIPE INSERTS WITH DIVIDER PLATE WITH MINIMUM OF 5" EMBEDMENT ON EACH SIDE OF JOINT. TIGHT FIT IS REQUIRED WHERE SPLICES ARE NOT FIELD WELDED.

2.4.4. CONTRACTOR SHALL ASSUME AN AVERAGE PILE LENGTH OF 20 FEET FOR BIDDING PURPOSES. CONTRACTOR SHALL PROVIDE IN THEIR BID A UNIT COST FOR ADDITIONAL LENGTH OF INSTALLED PIPE PILE INCLUDING DRIVING COSTS, AND CREDIT FOR REDUCED PILE LENGTHS WHERE INSTALLED LENGTHS DEVIATE FROM THE ASSUMED AVERAGE.

2.4.5. PILES HITTING OBSTRUCTIONS PRIOR TO REACHING A MINIMUM OF 15 FEET EMBEDMENT MAY NEED TO BE ABANDONED AND RELOCATED. NOTIFY ENGINEER FOR DIRECTION.

2.4.6. DRIVE PILES WITHIN THE FOLLOWING MAXIMUM TOLERANCES:

LOCATION:	3" MAX FROM INDICATED PILE CENTERS
PLUMBNESS:	MAX OF 1" IN 10'-0" FROM VERTICAL

DAMAGED PILES AND PILES DRIVEN OUTSIDE OF REQUIRED DRIVING TOLERANCES WILL NOT BE ACCEPTED. REPLACE WITH NEW PILES AS DIRECTED BY ENGINEER.

2.4.7. ALLOWABLE STEEL PIPE CAPACITY : 20 KIPS FOR 4" DIAMETER PIPE. ALLOW 33-1/3% INCREASE FOR LOADS FROM WIND OR SEISMIC ORIGIN. SEE GEOTECHNICAL ENGINEERING REPORT BY TERRA ASSOCIATES, INC. DATED NOVEMBER 14, 2016.

3. STRUCTURAL CONCRETE

3.1. GENERAL

ALL CONCRETE SHALL BE HARD ROCK CONCRETE MEETING THE REQUIREMENTS OF ACI-301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS." PROPORTIONING OF INGREDIENTS FOR EACH CONCRETE MIX SHALL BE BY METHOD 2 OR THE ALTERNATE PROCEDURE GIVEN IN ACI-301. PLACE CONCRETE PER ACI-304 AND CONFORM TO ACI-604 (306) FOR WINTER CONCRETING AND ACI-605 (305) FOR HOT WEATHER CONCRETING. USE INTERIOR MECHANICAL VIBRATORS WITH 7,000 RPM MINIMUM FREQUENCY. DO NOT OVER-VIBRATE. CONCRETE SHALL BE PLACED MONOLITHICALLY BETWEEN CONSTRUCTION OR CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURE FOR SEVEN DAYS AFTER PLACING.

3.2. STRENGTH

TWENTY-EIGHT DAY COMPRESSIVE STRENGTHS (f'_c) SHALL BE AS FOLLOWS WITH EXPOSURE CATEGORY AND CLASS PER ACI TABLE 19.3.1.1 GIVEN IN PARENTHESIS:

SLABS ON GRADE (F0/S0/W0/C0)	4000 PSI
FOOTINGS (F0/S0/W0/C1)	3000 PSI
CONCRETE COLUMNS (F0/S0/W0/C0)	4000 PSI
VERTICALLY FORMED WALLS (F1/S0/W0/C0)	4000 PSI *
ALL POST-TENSIONED ELEMENTS (F0/S0/W0/C0)	5000 PSI

* MAXIMUM W/C RATIO SHALL BE 0.55

CONCRETE SUPPLIER TO PROVIDE TEST RECORDS PER SECTION 26.4 OF ACI 318. WHEN NO PRIOR EXPERIENCE OR TRIAL MIXTURE DATA ARE AVAILABLE, THE WATER/CEMENT RATIO FROM THE TABLE BELOW MAY BE USED, BUT ONLY WHEN SPECIAL PERMISSION IS GIVEN BY ENGINEER.

MAXIMUM ABSOLUTE WATER/CEMENT RATIO BY WEIGHT FOR CONCRETE MIXES WITHOUT TEST RECORDS SHALL BE AS FOLLOWS:

SPECIFIED COMPRESSIVE STRENGTH	NON-AIR ENTRAINED CONCRETE	AIR-ENTRAINED CONCRETE
3000 PSI	0.58	0.46
4000 PSI	0.44	0.35

3.3. MATERIALS

3.3.1. CEMENT: ASTM C150, TYPE I OR TYPE II. ENGINEER'S APPROVAL IS NEEDED FOR USE OF TYPE III CEMENT.

3.3.2. COARSE AND FINE AGGREGATE: ASTM C33.

3.3.3. WATER SHALL BE CLEAN AND POTABLE.

3.3.4. FLYASH: ASTM C618 CLASS C (CLASS F MAY BE ALLOWED IF APPROVED BY THE STRUCTURAL ENGINEER)

3.3.5. GROUND GRANULATED BLAST FURNACE SLAG (GGBFS): ASTM C989 GRADE 100 OR 120. GGBFS SHALL NOT BE PERMITTED UNLESS REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER. MIX DESIGNS SUBMITTED INCLUDING GGBFS SHALL INCLUDE SHRINKAGE TEST RESULTS AT 28 DAYS.

3.4. ADMIXTURES

3.4.1. WATER REDUCING ADMIXTURE: ASTM C494. ADMIXTURES SHALL BE USED IN EXACT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.4.2. WATER REDUCING ADMIXTURES SHALL BE USED AT ALL HEAVILY CONGESTED AREAS (I.E. CONCRETE BEAMS, COLUMNS AND WALLS WITH REINFORCING SPACING OF 4" OR LESS)

3.4.3. CONCRETE USING ADMIXTURES TO PRODUCE FLOWABLE CONCRETE MAY BE USED SUBJECT TO ENGINEER'S APPROVAL

3.4.4. AIR ENTRAINMENT: ASTM C260 AND ASTM C494 ENTRAIN 5% PLUS/MINUS 1.5% BY VOLUME IN ALL CONCRETE EXPOSED TO WEATHER.

3.4.5. NO OTHER ADMIXTURES PERMITTED UNLESS APPROVED BY THE ENGINEER.

3.5. POST TENSIONED CONCRETE MIX DESIGN

3.5.1. CONCRETE SHALL OBTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI PRIOR TO STRESSING TENDONS.

3.5.2. A MINIMUM OF 15% OF REQUIRED CEMENTITIOUS MATERIAL SHALL BE FLYASH.

3.5.3. W/C RATIO SHALL NOT EXCEED 0.38 UNLESS TEST RECORDS ARE PROVIDED THAT DEMONSTRATE SHRINKAGE DOES NOT EXCEED 0.042% AT 28 DAYS (LABORATORY CONDITIONS).

3.5.4. PROVIDE CONCRETE MIX DESIGN AND REQUIRED TEST REPORTS FOR APPROVAL BY ENGINEER OF RECORD MINIMUM TWO WEEKS PRIOR TO PLACING ANY POST TENSIONED CONCRETE.

3.6. POST-TENSIONED CIP CONCRETE

3.6.1. TENDON QUALITY: TENDONS SHALL BE COMPRISED OF SEVEN-WIRE STRAND CONFORMING TO ASTM A416 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 270 KSI. WIRE SHALL BE STRESS RELIEVED, LOW RELAXATION, UNCOATED, CLEAN, AND FREE OF CORROSION. STRAND DIAMETER HAS BEEN ASSUMED TO BE 0.5 IN. IF 0.60 IN. IS USED, SUBMIT CALCULATIONS FOR APPROVAL WITH SHOP DRAWINGS. ONLY ONE STRAND SIZE WILL BE USED THROUGHOUT THE JOB.

1/2" DIA TENDON AREA:	0.153 SQ IN
ULTIMATE STRENGTH:	270 KSI
MIN JACKING STRESS:	216 KSI

3.6.2. MULTI-STRAND TENDONS IN BEAMS: PROVIDE THE MINIMUM NUMBER OF 1/2" DIAMETER STRANDS NOTED. STRESS TO ACHIEVE INDICATED FORCE. SUBMIT FRICTION AND LOSS CALCULATION PRIOR TO PREPARATION OF SHOP DRAWINGS.

3.6.3. TENDON ANCHORS: ANCHORAGES PROVIDED MUST BE LIMITED TO THOSE WITH A MAXIMUM SEATING LOSS OF 1/4 IN., SUCH AS MANUFACTURED BY GENERAL TECHNOLOGIES, INC. (GTI) OR APPROVED EQUIVALENT. TENDON ANCHORS SHALL BE RECESSED MIN 2". TWO #4 CONTINUOUS BARS SHALL BE PLACED BEHIND ALL ANCHORS UNLESS NOTED OTHERWISE ON THE DRAWINGS. AFTER STRESSING, ANCHORS SHALL BE CLEANED AND GREASE CAPS TIGHTLY INSTALLED BEFORE FILLING ALL POCKETS WITH NON-SHRINK GROUT.

3.6.4. UNBONDED TENDONS: TENDONS SHALL BE ENCASED IN 40 MIL SLIPPAGE SHEATHING WHICH SHALL CONSIST OF A DURABLE WATERPROOF POLYETHYLENE TUBING CAPABLE OF PREVENTING THE PENETRATION OF CEMENT PASTE AND SHALL CONTAIN A RUST-INHIBITING GREASE COATING. ALL TEARS IN SHEATHING SHALL BE REPAIRED PRIOR TO CONCRETE PLACEMENT. THE FOLLOWING FRICTION AND WOBBLE COEFFICIENTS WERE ASSUMED IN THE DESIGN OF ALL POST TENSIONED ELEMENTS.

μ = 0.07/RAD	K = 0.0014/FT

3.6.5. BONDED TENDONS: DUCT-FORMING MATERIAL FOR GROUTED MULTI-STRAND TENDONS SHALL BE STRONG ENOUGH TO RETAIN ITS SHAPE AND RESIST DAMAGE DURING CONSTRUCTION. IT SHALL PREVENT THE ENTRANCE OF CEMENT PASTE AND WATER FROM THE CONCRETE INTO THE DUCT. TENDONS SHALL BE VENTED AS REQUIRED TO ENSURE THAT NO VOIDS ARE PRESENT AFTER GROUTING. THE FOLLOWING FRICTION AND WOBBLE COEFFICIENTS WERE ASSUMED IN THE DESIGN OF ALL POST TENSIONED ELEMENTS.

μ = 0.20/RAD	K = 0.002/FT

3.6.6. ALL GROUTED TENDONS SHALL BE PRESSURE-GROUTED IMMEDIATELY AFTER ACCEPTANCE OF TENSIONING. GROUT FOR TENDON SHALL CONSIST OF A MIXTURE OF CEMENT AND WATER.

3.6.7. TENDON ALIGNMENT: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE ALIGNMENT OF THE TENDONS BEFORE, DURING, AND AFTER CONCRETE PLACEMENT.

A. TENDON ADJUSTMENTS: SLIGHT DEVIATIONS IN THE SPACING OF THE SLAB TENDONS WILL BE PERMITTED WHEN REQUIRED TO AVOID OPENINGS, INSERTS, AND DOWELS WHICH ARE SPECIFICALLY LOCATED. WHERE LOCATIONS OF TENDONS SEEM TO INTERFERE WITH EACH OTHER, ONE TENDON MAY BE MOVED HORIZONTALLY IN ORDER TO AVOID THE INTERFERENCE. VERTICAL MOVEMENT OF TENDONS SHALL NOT BE PERMITTED WITHOUT THE ENGINEER'S APPROVAL.

B. PUMPED CONCRETE: IF CONCRETE IS PLACED BY THE PUMP METHOD, HORSES SHALL BE PROVIDED TO SUPPORT THE HOSE. THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE TENDONS. NO EXCEPTIONS TO THIS REQUIREMENT WILL BE GRANTED.

C. TENDON LAYOUT: A MINIMUM OF TWO TENDONS SHALL BE PROVIDED IN EACH DIRECTION OVER COLUMNS. TENDONS SHALL BE SWEPT FROM THE TYPICAL LAYOUT AS REQUIRED TO MEET THIS REQUIREMENT.

3.6.8. SHOP DRAWINGS:

A. COMPLETE SHOP DRAWINGS OF THE POST-TENSIONING SYSTEM SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER AND REVISED PRIOR TO INSTALLING THE POST-TENSIONING SYSTEM. SHOP DRAWINGS SHALL CLEARLY SHOW TENDON LAYOUT, DEAD END AND STRESSING END LOCATIONS, AND TENDON SUPPORT LAYOUTS WITH DETAILS NECESSARY FOR INSTALLATION.

B. PENETRATION/COORDINATION SHOP DRAWINGS SHALL BE PREPARED FOR PT SLABS AND SUBMITTED CONCURRENT WITH SHOP DRAWINGS FOR PT SYSTEM. SHOP DRAWINGS SHALL INDICATE PENETRATION SIZE AND LOCATION AND SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER.

3.6.9. THE DRAWINGS SHOW THE GTI ZERO VOID SYSTEM. OTHER TENSIONING SYSTEMS SATISFYING THE LIMITATIONS OF FINAL FORCE, GEOMETRY, TENDON SPACING AND PROFILE, AND END DETAILS MAY BE SUBMITTED FOR APPROVAL.

3.6.10. STRESSING SEQUENCE: STRESS THE FLOOR SYSTEM IN THE FOLLOWING SEQUENCE:

SLAB:	FIRST
BEAMS:	SECOND
GIRDERS:	THIRD

3.6.11. TENDON STRESSING: TENSIONING SHALL NOT COMMENCE UNTIL CONCRETE COMPRESSIVE STRESS HAS REACHED THE SPECIFIED MIN. COMPRESSIVE STRESS NOTED ABOVE. TENSIONING SHALL BE DONE WITH A JOINTLY CALIBRATED RAM AND GAGE UNDER IMMEDIATE CONTROL OF A PERSON EXPERIENCED A MINIMUM OF 5 YEARS IN THIS TYPE OF WORK. CONTINUOUS INSPECTION AND RECORDING OF ELONGATION IS REQUIRED DURING ALL STRESSING OPERATIONS. RECORDS SHALL BE KEPT OF ALL JACKING FORCES AND TENDON ELONGATIONS. DATA SHALL BE SUBMITTED DAILY TO THE ENGINEER OF RECORD. IF ACTUAL ELONGATIONS AND CALCULATED ELONGATIONS ARE NOT IN AGREEMENT WITHIN - 5% OR +7%, THE ENGINEER AND PT SUPPLIER SHALL BE NOTIFIED PRIOR TO BURNING OFF TENDON TAIL OR GROUTING.

3.6.12. POST TENSIONED SLAB OWNER MAINTENANCE PROVISIONS: MEASURES HAVE BEEN TAKEN TO MINIMIZE THE AMOUNT OF SLAB CRACKING. HOWEVER, SOME CRACKING DUE TO THERMAL OR SHRINKAGE SHORTENING SHOULD BE ANTICIPATED. THESE CRACKS ARE NORMALLY NOT STRUCTURALLY SIGNIFICANT, HOWEVER CRACKS LARGER THAN 0.005 INCHES SHOULD BE REPAIRED. IT IS RECOMMENDED THAT TWO YEARS AFTER CONSTRUCTION, THE SLAB BE INSPEC

3.12. CONSTRUCTION OR CONTROL JOINTS

3.12.1. UNLESS NOTED OTHERWISE, LOCATION OF THE CONSTRUCTION OR CONTROL JOINTS IN SLAB ON GRADE SHALL NOT EXCEED THE DISTANCES NOTED BELOW. JOINTS SHALL BE LOCATED ON COLUMN GRIDS OR UNDER PERMANENT PARTITIONS TO THE GREATEST EXTENT POSSIBLE. ADDITIONAL JOINTS SHALL BE REQUIRED AT REENTRANT CORNERS AND CORNERS OF SLAB DEPRESSIONS OR PENETRATIONS. SEE ARCHITECTURAL DRAWINGS FOR JOINT LAYOUT AT EXPOSED CONCRETE CONDITIONS. PROVIDE JOINT SEALANT PER SPECIFICATIONS - INSTALL PER MANUFACTURER RECOMMENDATIONS.

4" SLAB ON GRADE 12'-0" OC

3.12.2. CONSTRUCTION OR CONTROL JOINT SPACING IN WALLS SHALL NOT EXCEED 50' ON CENTER EXCEPT AS DIRECTED BY THE ARCHITECT/ENGINEER.

3.12.3. HORIZONTAL CONSTRUCTION JOINTS IN BEAMS AND GIRDERS SHALL NOT BE PERMITTED EXCEPT WHERE INDICATED ON STRUCTURAL DRAWINGS. VERTICAL CONSTRUCTION JOINTS IN BEAMS AND SLABS SHALL BE LOCATED BETWEEN THE MIDPOINT AND THE THIRD POINT OF THE SPAN.

3.12.4. PROVIDE CONSTRUCTION OR CONTROL JOINTS IN NON-STRUCTURAL TOPPING SLABS AT 10'-0" OC EACH WAY, MAXIMUM.

3.13. CONDUIT AND PIPING EMBEDDED IN CONCRETE

3.13.1. ELECTRICAL CONDUIT SHALL NOT BE PLACED WITHIN A SLAB ON GRADE BUT PLACED BELOW THE SLAB IN THE SUB-BASE.

3.13.2. NO JOISTS, BEAMS OR GIRDERS SHALL BE SLEEVED FOR PIPING OR CONDUIT EXCEPT AS NOTED ON THE STRUCTURAL DRAWINGS OR AS APPROVED BY THE ARCHITECT/ENGINEER.

3.13.3. ELECTRICAL CONDUIT AND PIPES EMBEDDED WITHIN THE POST TENSIONED SLAB SHALL SATISFY THE FOLLOWING REQUIREMENTS:

A. CONDUIT AND PIPES SHALL NOT BE LARGER THAN ONE THIRD THE OVERALL THICKNESS OF THE SLAB IN WHICH THEY ARE EMBEDDED.

B. CONDUIT AND PIPES SHALL NOT BE SPACED CLOSER THAN THREE DIAMETERS OR WIDTHS ON CENTER. AT ELECTRICAL ROOMS OR CONGESTED AREAS WHERE MINIMUM SPACING CANNOT BE ACHIEVED, PROVIDE ADDITIONAL #5 REINFORCEMENT AT 12" OC EACH WAY EXTENDING A MINIMUM OF TWO FEET BEYOND CONGESTION. MORE THAN ONE LAYER OF CONDUIT IS NOT PERMITTED UNLESS APPROVED BY THE ENGINEER OF RECORD.

C. CONDUIT AND PIPES SHALL NOT BE PLACED WITHIN 2'-0" OF A COLUMN CAP, WITHIN 1'-6" OF A TENDON ANCHOR, OR WITHIN 2" OF A TENDON.

D. CONDUIT AND PIPES SHALL NOT BE RUSTING OR HAVE OTHER DETERIORATION.

E. CONDUIT AND PIPES SHALL BE UNCOATED OR GALVANIZED IRON OR STEEL, NOT THINNER THAN STANDARD SCHEDULE 40 STEEL PIPE.

3.14. GROUT FOR BEARING PLATES

THE NON-SHRINK GROUT SHALL MEET ASTM C1107 GRADE B OR EQUIVALENT (MASTERFLOW 928 BY BASF OR APPROVED EQUIVALENT). GROUT SHALL BE A PRE-PACKAGED HYDRAULIC CEMENT BASED MINERAL AGGREGATE GROUT, MIXED, PLACED AND CURED AS RECOMMENDED BY THE MANUFACTURER. COMPRESSIVE STRENGTH SHALL EXCEED 6000 PSI AT 28 DAYS.

3.15. SHOTCRETE

3.15.1. SHOTCRETE SHALL BE DEFINED AS MORTAR OR CONCRETE PNEUMATICALLY PROJECTED AT HIGH VELOCITY ONTO A SURFACE. EXCEPT AS SPECIFIED IN THIS SECTION, SHOTCRETE SHALL CONFORM TO THE REQUIREMENTS FOR PLAIN CONCRETE OR REINFORCED CONCRETE.

3.15.2. PROPORTIONS AND MATERIALS: SHOTCRETE PROPORTIONS SHALL BE SELECTED THAT ALLOW SUITABLE PLACEMENT PROCEDURES USING THE DELIVERY EQUIPMENT SELECTED AND SHALL RESULT IN FINISHED IN-PLACE HARDENED SHOTCRETE MEETING THE SPECIFIED STRENGTH REQUIREMENTS.

3.15.3. AGGREGATE: COARSE AGGREGATE, IF USED, SHALL NOT EXCEED 3/4 INCH.

3.15.4. REINFORCEMENT: LAP SPLICES IN REINFORCING BARS SHALL BE BY THE NON-CONTACT LAP SPLICE METHOD WITH AT LEAST 2 INCHES CLEARANCE BETWEEN BARS. THE BUILDING OFFICIAL MAY PERMIT THE USE OF CONTACT LAP SPLICES WHEN NECESSARY FOR THE SUPPORT OF THE REINFORCING PROVIDED IT CAN BE DEMONSTRATED BY MEANS OF PRE-CONSTRUCTION TESTING THAT ADEQUATE ENCASEMENT OF THE BARS AT THE SPLICE CAN BE ACHIEVED, AND PROVIDED THAT THE SPLICES ARE PLACED SO THAT A LINE THROUGH THE CENTER OF THE TWO SPLICED BARS IS PERPENDICULAR TO THE SURFACE OF THE SHOTCRETE WORK.

3.15.5. PRE-CONSTRUCTION TESTS: WHEN REQUIRED BY THE SPECIFICATIONS OR BUILDING OFFICIAL, A TEST PANEL SHALL BE SHOT, CURED, CORED OR SAWN, EXAMINED AND TESTED PRIOR TO COMMENCEMENT OF THE PROJECT. THE SAMPLE PANEL SHALL BE REPRESENTATIVE OF THE PROJECT AND SIMULATE JOB CONDITIONS AS CLOSELY AS POSSIBLE. THE PANEL THICKNESS AND REINFORCING SHALL REPRODUCE THE THICKEST AND MOST CONGESTED AREA SPECIFIED IN THE STRUCTURAL DESIGN. IT SHALL BE SHOT AT THE SAME ANGLE, USING THE SAME NOZZLEMAN AND WITH THE SAME CONCRETE MIX DESIGN THAT WILL BE USED ON THE PROJECT.

3.15.6. REBOUND: ANY REBOUND OR ACCUMULATED LOOSE AGGREGATE SHALL BE REMOVED FROM THE SURFACES TO BE COVERED PRIOR TO PLACING THE INITIAL OR ANY SUCCEEDING LAYERS OF SHOTCRETE. REBOUND SHALL NOT BE REUSED AS AGGREGATE.

3.15.7. JOINTS: EXCEPT WHERE PERMITTED HEREIN, UNFINISHED WORK SHALL NOT BE ALLOWED TO STAND FOR MORE THAN 30 MINUTES UNLESS ALL EDGES ARE SLOPED TO A THIN EDGE. BEFORE PLACING ADDITIONAL MATERIAL ADJACENT TO PREVIOUSLY APPLIED WORK, SLOPING AND SQUARE EDGES SHALL BE CLEANED AND WETTED WITH A CONCRETE BONDING AGENT AS APPROPRIATE.

3.15.8. DAMAGE: IN-PLACE SHOTCRETE WHICH EXHIBITS SAGS OR SLOUGHS, SEGREGATION, HONEYCOMBING, SAND POCKETS OR OTHER OBVIOUS DEFECTS SHALL BE REMOVED AND REPLACED. SHOTCRETE ABOVE SAGS AND SLOUGHS SHALL BE REMOVED AND REPLACED WHILE STILL PLASTIC.

3.15.9. CURING: DURING THE CURING PERIODS SPECIFIED HEREIN, SHOTCRETE SHALL BE MAINTAINED ABOVE 40° F, AND IN MOIST CONDITION. IN INITIAL CURING, SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR 24 HOURS AFTER PLACEMENT IS COMPLETE. FINAL CURING SHALL CONTINUE FOR SEVEN DAYS AFTER SHOTCRETING, FOR THREE DAYS IF HIGH-EARLY-STRENGTH CEMENT IS USED, OR UNTIL THE SPECIFIED STRENGTH IS OBTAINED. FINAL CURING SHALL CONSIST OF A FOG SPRAY OR AN APPROVED MOISTURE-RETAINING COVER OR MEMBRANE. IN SECTIONS WITH A DEPTH IN EXCESS OF 12", FINAL CURING SHALL BE THE SAME AS THAT FOR INITIAL CURING.

3.15.10. STRENGTH TEST: STRENGTH TEST FOR SHOTCRETE SHALL BE MADE BY AN APPROVED AGENCY ON SPECIMENS WHICH ARE REPRESENTATIVE OF WORK AND WHICH HAVE BEEN WATER SOAKED FOR AT LEAST 24 HOURS PRIOR TO TESTING. WHEN THE MAXIMUM SIZE AGGREGATE IS LARGER THAN 3/8" SPECIMENS SHALL CONSIST OF NOT LESS THAN (3) 3" DIAMETER CORES OR 3-INCH CUBES. WHEN THE MAXIMUM SIZE AGGREGATE IS 3/8" OR SMALLER, SPECIMENS SHALL CONSIST OF NOT LESS THAN (3) 2" DIAMETER CORES OR 2" CUBES. SPECIMENS SHALL BE TAKEN IN ACCORDANCE WITH ONE OF THE FOLLOWING:

A. FROM THE IN-PLACE WORK: TAKEN AT LEAST ONCE EACH SHIFT BUT NOT LESS THAN ONE FOR EACH 50 CUBIC YARDS OF SHOTCRETE; OR

B. FROM TEST PANELS: MADE NOT LESS THAN ONCE EACH SHIFT OR NOT LESS THAN ONE FOR EACH 50 CUBIC YARDS OF SHOTCRETE PLACED. WHEN THE MAXIMUM SIZE AGGREGATE IS LARGER THAN 3/8", THE TEST PANELS SHALL HAVE A MINIMUM DIMENSION OF 18" X 18". WHEN THE MAXIMUM SIZE AGGREGATE IS 3/8" OR SMALLER, THE TEST PANELS SHALL HAVE A MINIMUM DIMENSION OF 12" X 12". PANELS SHALL BE GUNNED IN THE SAME POSITION AS THE WORK, DURING THE COURSE OF THE WORK AND BY NOZZLEMEN DOING THE WORK. THE CONDITION UNDER WHICH THE PANELS ARE CURED SHALL BE THE SAME AS THE WORK.

THE AVERAGE OF THREE CORES FROM A SINGLE PANEL SHALL BE EQUAL TO OR EXCEED 0.85 f_c WITH NO SINGLE CORE LESS THAN 0.75 f_c. THE AVERAGE OF THREE CUBES TAKEN FROM A SINGLE PANEL MUST EQUAL OR EXCEED f_c WITH NO INDIVIDUAL CUBE LESS THAN 0.88 f_c TO CHECK TESTING ACCURACY. LOCATIONS REPRESENTED BY ERRATIC CORE STRENGTHS MAY BE RETESTED.

3.15.11. INSPECTIONS

A. DURING PLACEMENT. WHEN SHOTCRETE IS USED FOR STRUCTURAL MEMBERS, A SPECIAL INSPECTOR IS REQUIRED BY IBC TABLE 1705.3. THE SPECIAL INSPECTOR SHALL PROVIDE CONTINUOUS INSPECTION OF THE PLACEMENT OF THE REINFORCEMENT AND SHOTCRETING AND SHALL SUBMIT A STATEMENT INDICATING COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.

B. VISUAL EXAMINATION FOR STRUCTURAL SOUNDNESS OF IN-PLACE SHOTCRETE. COMPLETED SHOTCRETE WORK SHALL BE CHECKED VISUALLY FOR REINFORCING BAR EMBEDMENT, VOIDS, ROCK POCKETS, SAND STREAKS AND SIMILAR DEFICIENCIES BY EXAMINING A MINIMUM OF (3) 3" CORES TAKEN FROM (3) AREAS CHOSEN BY THE DESIGN ENGINEER WHICH REPRESENT THE WORST CONGESTION OF REINFORCING BARS OCCURRING IN THE PROJECT. EXTRA REINFORCING BARS MAY BE ADDED TO NON-CONGESTED AREAS TO REPRESENT THE MOST HEAVILY CONGESTED AREAS ELSEWHERE ON THE PROJECT. THE CORES SHALL BE EXAMINED BY THE SPECIAL INSPECTOR AND A REPORT SUBMITTED TO THE BUILDING OFFICIAL PRIOR TO FINAL APPROVAL OF THE SHOTCRETE.

C. TESTING EQUIPMENT. THE EQUIPMENT USED IN PRE-CONSTRUCTION TESTING SHALL BE THE SAME EQUIPMENT USED IN THE WORK REQUIRING SUCH TESTING. UNLESS SUBSTITUTE EQUIPMENT IS APPROVED BY THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL.

3.16. ADHESIVE EXPANSIVE WATERSTOPS

ADHESIVE EXPANSIVE WATERSTOP SHALL BE VOLCLAY WATERSTOP-RX (AS MANUFACTURED BY CETCO), SWELLSTOP OR HYDROTIGHT (GREENSTREAK), OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

3.17. CONCRETE COORDINATION DRAWINGS

PRIOR TO THE START OF CONCRETE WALL OR ELEVATED SLAB CONSTRUCTION THE CONTRACTOR SHALL SUBMIT CONCRETE COORDINATION DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL. COORDINATION DRAWINGS SHALL INCLUDE DIMENSIONS AND SIZES FOR EMBED LOCATIONS, DOOR AND WINDOW OPENINGS, MECHANICAL PENETRATIONS, AND OTHER APPROPRIATE ITEMS.

4. MASONRY

4.1. MORTAR

CMU:

ASTM C270, TYPE S, f'_c = 1800 PSI AT 28 DAYS

4.2. GROUT

ASTM C476, f'_c = 2500 PSI AT 28 DAYS, 5-1/2 SACK MIX (MINIMUM), 3/8" MAX AGGREGATE SLUMP 8" TO 11"

4.3. REINFORCEMENT: SEE STRUCTURAL CONCRETE MATERIALS SECTION OF THESE NOTES.

4.4. CONCRETE MASONRY UNITS (CMU)

CONFORM TO ASTM C90, MINIMUM FACE SHELL THICKNESS OF 1-1/4", GRADE N-1. MINIMUM COMPRESSIVE STRENGTH OF MASONRY (f'_m) SHALL BE 2000 PSI, UNLESS NOTED OTHERWISE.

4.5. INSTALLATION OF MASONRY UNITS.

PER THE IBC SECTION 2104 FOR UNIT MASONRY CONSTRUCTION REQUIREMENTS.

4.6. MASONRY COORDINATION DRAWINGS:

PRIOR TO THE START OF MASONRY CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT MASONRY COORDINATION DRAWINGS TO THE ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL. COORDINATION DRAWINGS SHALL INCLUDE DIMENSIONS AND SIZES FOR EMBED LOCATIONS, DOOR AND WINDOW OPENINGS, MECHANICAL PENETRATIONS, AND OTHER APPROPRIATE ITEMS.

4.7. CONDUIT OR PIPING EMBEDDED IN MASONRY:

4.7.1. NO MASONRY LINTELS SHALL BE SLEEVED FOR PIPING OR CONDUIT EXCEPT AS NOTED ON THE STRUCTURAL DRAWINGS OR AS APPROVED BY THE ENGINEER.

4.7.2. CONDUIT SHALL NOT BE PLACED WITHIN CELLS CONTAINING REINFORCING UNLESS APPROVED BY THE ENGINEER.

4.8. MASONRY VENEER (BRICK, CMU OR STONE UNITS)

4.8.1. MATERIALS: SEE ARCHITECTURAL DRAWINGS AND PROJECT SPECIFICATIONS.

4.8.2. ADHERED MASONRY VENEER

ADHERED UNITS SHALL NOT EXCEED 2-5/8" IN SPECIFIED THICKNESS, 36" IN ANY FACE DIMENSION, OR MORE THAN 5 SQUARE FEET OF FACE DIMENSION AND SHALL NOT WEIGH MORE THAN 15 PSF. ADHERED MASONRY VENEER SHALL CONSIST OF A FULLY ENGINEERED SYSTEM (BACKING BOARD, GROUT AND LATHE/REINFORCING) COMPLYING WITH SEISMIC DESIGN CATEGORY NOTED IN THE DESIGN CRITERIA SECTION OF THESE NOTES. THE ADHERED MASONRY VENEER SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

5. METALS

5.1. STRUCTURAL STEEL GENERAL REQUIREMENTS

5.1.1. ALL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO AISC 360-16 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", AISC 341-16 "SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS" AND AISC 303-16 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" EXCEPT AS AMENDED BY THESE STRUCTURAL NOTES.

5.1.2. STRUCTURAL STEEL DETAILING REQUIREMENTS:

A. THE STRUCTURAL STEEL DETAILER SHALL HAVE A MINIMUM OF 3 YEARS OF DETAILING EXPERIENCE OF PROJECTS OF SIMILAR SIZE AND COMPLEXITY, AS WELL AS A MINIMUM OF 5 REFERENCE PROJECTS OF SIMILAR SIZE AND COMPLEXITY TO THIS PROJECT. PRIOR TO START OF DETAILING, THE STRUCTURAL STEEL DETAILER SHALL SUBMIT QUALIFICATIONS AND REFERENCE PROJECTS TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT SUBMITTALS HAVE BEEN REVIEWED AND APPROVED PRIOR TO THE START OF DETAILING. NONCOMPLIANCE WITH THESE REQUIREMENTS MAY BE CAUSE FOR DISQUALIFICATION OF THE STRUCTURAL STEEL DETAILER.

B. THE DELIVERABLES BY THE STRUCTURAL STEEL DETAILER SHALL INCLUDE A COMPREHENSIVE THREE-DIMENSIONAL COMPUTER MODEL OF THE PRIMARY STRUCTURAL STEEL FRAME. THIS MODEL SHALL BE MADE AVAILABLE TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD AT THEIR REQUEST.

C. REVISIONS OR MODIFICATIONS TO THE STRUCTURAL FRAMING BY THE STRUCTURAL STEEL DETAILER SHALL NOT BE PERMITTED WITHOUT PRIOR REVIEW AND APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD. ANY STRUCTURAL STEEL FRAMING MEMBER OR CONNECTION MODIFICATIONS MADE WITHOUT PRIOR APPROVAL MAY BE SUBJECT TO REJECTION AND RE-FABRICATION AT THE DISCRETION OF THE STRUCTURAL ENGINEER AND AT NO COST TO THE OWNER.

5.1.3. STRUCTURAL STEEL FABRICATOR REQUIREMENTS:

A. THE STRUCTURAL STEEL FABRICATOR SHALL BE CURRENTLY AISC CERTIFIED, CATEGORY STD.

B. THE STRUCTURAL STEEL FABRICATOR SHALL HAVE A MINIMUM OF 5 YEARS OF DETAILING EXPERIENCE OF PROJECTS OF SIMILAR SIZE AND COMPLEXITY, AS WELL AS A MINIMUM OF 5 REFERENCE PROJECTS OF SIMILAR SIZE AND COMPLEXITY TO THIS PROJECT. PRIOR TO START OF FABRICATION, THE STRUCTURAL STEEL FABRICATOR SHALL SUBMIT QUALIFICATIONS AND REFERENCE PROJECTS TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT SUBMITTALS HAVE BEEN REVIEWED AND APPROVED PRIOR TO THE START OF FABRICATION.

C. PRIOR TO THE START OF FABRICATION, THE STRUCTURAL STEEL FABRICATOR SHALL SUBMIT IN WRITING THE FABRICATOR'S PROJECT SPECIFIC QUALITY CONTROL/QUALITY ASSURANCE PLAN. AT A MINIMUM THE QC/QA PLAN SHALL COMPLY WITH CHAPTER N OF AISC 360-16 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," AND INCLUDE THE FOLLOWING:

a. THE QC/QA PLAN SHALL COMPLY WITH CHAPTER 17 OF THE IBC AND THE STATEMENT OF SPECIAL INSPECTION AND TESTING CONTAINED WITHIN THESE DRAWINGS.

b. THE QC/QA PLAN SHALL INDICATE THE FABRICATOR'S PERSONNEL THAT SERVE AS THE FABRICATOR'S QUALITY CONTROL INSPECTOR (QCI) AND THEIR LIST OF QUALIFICATIONS. THE QCI SHALL BE A DESIGNATED COMPETENT PERSON NOT INVOLVED IN THE MATERIAL FABRICATION OF STRUCTURAL STEEL ON THIS PROJECT.

c. THE QC/QA PLAN SHALL INDICATE IN-HOUSE PROCESSES FOR IDENTIFYING NON-COMPLIANCE WITH CONTRACT REQUIREMENTS, AS WELL AS TRACKING AND COMPLETING NECESSARY REPAIRS.

D. IF THE FABRICATOR'S QC/QA PLAN IS DETERMINED TO BE NON-COMPLIANT WITH THE PROJECT REQUIREMENTS, ADDITIONAL INSPECTIONS MAY BE REQUIRED BY THE PROJECT SPECIAL INSPECTOR EMPLOYED BY THE PROJECT OWNER. THE COSTS ASSOCIATED WITH THESE ADDITIONAL INSPECTIONS SHALL BE BORNE BY THE GENERAL CONTRACTOR AND STRUCTURAL STEEL FABRICATOR.

5.1.4. STRUCTURAL STEEL ERECTOR REQUIREMENTS:

A. THE STRUCTURAL STEEL ERECTOR SHALL HAVE A MINIMUM OF 5 YEARS OF ERECTION EXPERIENCE OF PROJECTS OF SIMILAR SIZE AND COMPLEXITY, AS WELL AS A MINIMUM OF 5 REFERENCE PROJECTS OF SIMILAR SIZE AND COMPLEXITY TO THIS PROJECT. PRIOR TO START OF ERECTION, THE STRUCTURAL STEEL ERECTOR SHALL SUBMIT QUALIFICATIONS AND REFERENCE PROJECTS TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD FOR REVIEW AND APPROVAL. IT SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO ENSURE THAT SUBMITTALS HAVE BEEN REVIEWED AND APPROVED PRIOR TO THE START OF ERECTION.

B. PRIOR TO THE START OF ERECTION, THE STRUCTURAL STEEL ERECTOR SHALL SUBMIT IN WRITING THE ERECTOR'S PROJECT SPECIFIC QUALITY CONTROL/QUALITY ASSURANCE PLAN. AT A MINIMUM THE QC/QA PLAN SHALL COMPLY WITH CHAPTER N OF AISC 360-10 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," AND INCLUDE THE FOLLOWING:

a. THE QC/QA PLAN SHALL COMPLY WITH CHAPTER 17 OF THE IBC AND THE STATEMENT OF SPECIAL INSPECTION AND TESTING CONTAINED WITHIN THESE DRAWINGS.

b. THE QC/QA PLAN SHALL INDICATE THE ERECTOR'S PROCESSES FOR IDENTIFYING NON-COMPLIANCE WITH CONTRACT REQUIREMENTS, AS WELL AS TRACKING AND COMPLETING NECESSARY REPAIRS.

C. THE GENERAL CONTRACTOR AND STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR COORDINATING SITE INSPECTIONS BY THE PROJECT SPECIAL INSPECTOR EMPLOYED BY THE OWNER. ANY ERECTION WORK PERFORMED WITHOUT THE REQUIRED SPECIAL INSPECTIONS SHALL BE REJECTED, AND THE COST OF RE-FABRICATION OR FABRICATION VERIFICATION BY THE SPECIAL INSPECTOR SHALL BE BORNE BY THE GENERAL CONTRACTOR AND STRUCTURAL STEEL ERECTOR.

D. ANY WORK PERFORMED BY THE ERECTOR PRIOR TO REVIEW AND APPROVAL OF THE ERECTOR'S QUALIFICATIONS AND QC/QA PLAN MAY BE SUBJECT TO REJECTION AT THE DISCRETION OF THE STRUCTURAL ENGINEER.

5.2. STRUCTURAL STEEL

5.2.1. STEEL W SHAPES AND C & MC SHAPES 8" OR LARGER SHALL BE ASTM A992 (F_y=50 KSI).

5.2.2. STEEL M, S, HP AND L SHAPES SHALL BE ASTM A572 Gr. 50 (F_y=50 KSI).

5.2.3. STEEL PLATES THAT ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM SHALL BE ASTM A572 Gr. 50 (F_y=50 KSI).

5.2.4. OTHER STEEL PLATES AND C & MC SHAPES SMALLER THAN 8" SHALL BE ASTM A36 (F_y=36 KSI).

5.2.5. STEEL PIPE SECTIONS (PIPE) SHALL BE ASTM A53 Gr. B (F_y=35 KSI).

5.2.6. RECTANGULAR AND ROUND HOLLOW STEEL SECTIONS (HSS) OR TUBE STEEL SECTIONS (TS) SHALL BE ASTM A500, GR. C (F_y=50 KSI).

5.2.7. STRUCTURAL TEES SHALL BE CUT FROM W, M OR S SHAPES TO MAKE WT, MT AND ST SHAPES.

5.2.8. BOLTS

A. MACHINE BOLTS NOT SPECIFIED AS HIGH STRENGTH SHALL BE ASTM A307 GRADE A.

B. HIGH STRENGTH BOLTS SHALL BE ASTM F3125 GRADE A325 OR GRADE A490 AS INDICATED ON STRUCTURAL DRAWINGS. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE WITH THREADS INCLUDED IN SHEAR PLANE (CONNECTION TYPE N) UNLESS NOTED OTHERWISE. ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE INSTALLED WITH NUTS CONFORMING TO ASTM A563 AND HARDENED WASHERS CONFORMING TO ASTM F436.

C. HIGH STRENGTH BOLTS WITH TWIST OFF TYPE TENSION CONTROL MAY BE SUBSTITUTED FOR CONVENTIONAL BOLTS AND SHALL BE ASTM F3125 GRADE F1852 OR GRADE F2280, AND MAY BE USED FOR GRADE A325 OR GRADE A490 RESPECTIVELY.

D. ALL HIGH STRENGTH BOLTS SHALL BE INSTALLED PER THE SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS (LATEST EDITION) BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (WWW.BOLTCOUNCIL.ORG).

5.2.9. STEEL ANCHORAGE ELEMENTS:

A. THREADED RODS SHALL BE ALL-THREAD ASTM A36 (F_y=36 KSI) UNLESS NOTED OTHERWISE.

B. WELDED HEADED STUDS: "NELSON STUDS" SHALL BE BY NELSON STUD WELDING, INC. OR APPROVED EQUIVALENT COMPLYING WITH ASTM A108. STUDS SHALL HAVE A MINIMUM F_u OF 65 KSI.

C. ANCHOR RODS: ANCHOR RODS SHALL BE ASTM F1554, F_y=36 KSI WITH HOOKED, HEADED OR THREADED AND NUTTED ENDS AS INDICATED. AT COLUMN LOCATIONS ANCHOR RODS SHALL BE ASTM F1554, F_y=36 KSI WITH HEADED OR THREADED/NUTTED END. TACK WELD NUT TO ANCHOR ROD UNLESS NOTED OTHERWISE. WHERE NOTED, HIGH STRENGTH ANCHOR RODS SHALL BE ASTM F1554, F_y=105 KSI WITH DOUBLE NUTTED PLATE WASHER.

D. EXPANSION ANCHORS SHALL BE CARBON STEEL AS NOTED IN THE FOLLOWING TABLE. ANCHORS IN CONCRETE SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.2 AND/OR ICC-ES AC193 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. ANCHORS SHALL HAVE A CURRENT CODE REPORT THAT COMPLIES WITH THE CURRENT EDITION OF THE IBC AND SHALL BE RATED FOR USE IN THE SEISMIC DESIGN CATEGORY NOTED IN THE DESIGN CRITERIA SECTION OF THESE NOTES.

EXPANSION ANCHORS IN CONCRETE	CODE REPORT
HILTI KWIK BOLT TZ	ICC ESR-1917
SIMPSON STRONG-BOLT 2	ICC ESR-3037
DEWALT POWER-STUD+ SD2	ICC ESR-2502

EXPANSION ANCHORS IN GROUT FILLED CONCRETE MASONRY	CODE REPORT
HILTI KWIK BOLT 3	ICC ESR-1385
SIMPSON STRONG-BOLT 2	IAPMO ER-240
DEWALT POWER-STUD+ SD1	ICC ESR-2966

E. HEAVY DUTY CONCRETE/MASONRY SCREW ANCHORS SHALL BE USED IN DRY INTERIOR CONDITIONS AND SHALL BE AS NOTED IN THE FOLLOWING TABLE:

HEAVY DUTY CONCRETE/ MASONRY SCREW ANCHORS	CODE REPORT
HILTI KWIK HUS-EZ	ICC ESR-3027(CONC) ICC ESR-3056 (CMU)
SIMPSON TITEN HD	ICC ESR-2713 (CONC) ICC ESR-1056 (CMU)
DEWALT SCREW BOLT+	ICC ESR-3889 (CONC) ICC ESR-4042 (CMU)

F. ADHESIVE ANCHORS SHALL BE THREADED ANCHOR RODS OR REBAR DOWELS USING AN INJECTABLE ADHESIVE AS NOTED IN THE FOLLOWING TABLE. ANCHORS IN CONCRETE SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND/OR ICC-ES AC-308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. ANCHORS SHALL HAVE A CURRENT CODE REPORT THAT COMPLIES WITH THE CURRENT EDITION OF THE IBC AND SHALL BE RATED FOR USE IN THE SEISMIC DESIGN CATEGORY NOTED IN THE DESIGN CRITERIA SECTION OF THESE NOTES.

ADHESIVE ANCHORS IN CONCRETE (1) (2)	CODE REPORT
HILTI HIT HY-200 SAFE SET	ICC ESR-3187
SIMPSON AT-XP (3)	IAPMO ER-263
DEWALT AC200+ DUST-X	ICC ESR-4027

ADHESIVE ANCHORS IN GROUT FILLED CONCRETE MASONRY	CODE REPORT
HILTI HIT HY-270	ICC ESR-4143
SIMPSON AT-XP *	IAPMO ER-281
DEWALT AC100+ GOLD	ICC ESR-3200

(1) ADHESIVE ANCHORS INSTALLED IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION TO SUPPORT SUSTAINED TENSION LOADS SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI) AS CERTIFIED THROUGH ACI/CRSI, OR AN APPROVED ALTERNATIVE WHEN SUBMITTED AND APPROVED BY THE ENGINEER. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF INSTALLATION.

(2) ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21 DAYS.

(3) SIMPSON SET-XP MAY BE USED WHERE BASE MATERIAL TEMPERATURE IS ABOVE 50 DEGREES FAHRENHEIT OR FOR EMBEDMENT GREATER THAN 12-INCHES FOR LONGER GEL TIME. SEE ICC ESR-2508 (CONC) AND IAPMO ER-265 (MASONRY).

G. POWDER ACTUATED FASTENERS: PDF'S OR PAF'S SHALL BE A MINIMUM 0.157" DIA KNURLED SHANK FASTENER AS NOTED IN THE FOLLOWING TABLE, UNLESS NOTED OTHERWISE. FASTENERS DRIVEN INTO STEEL SHALL BE DRIVEN SO THAT THE POINT OF THE FASTENER COMPLETELY PENETRATES THE STEEL BASE MATERIAL. AT TOPPING SLABS, PT SLABS OR SLABS WITH RADIANT HEAT TUBES EMBEDDED WITHIN THE SLAB, LIMIT THE PDF PENETRATION TO 3/4" MAXIMUM AND COORDINATE WITH TENDON/TUBE PLACEMENT AND COVER.

POWDER ACTUATED FASTENERS	CODE REPORT
HILTI X-U	ICC ESR-2269
SIMPSON PDPA	ICC ESR-2138
DEWALT CSI PIN	ICC ESR-2024

H. CONCRETE/MASONRY SCREWS SHALL BE AS NOTED IN THE FOLLOWING TABLE:

CONCRETE/MASONRY SCREWS	CODE REPORT
HILTI KWIK CON II+	-
SIMPSON TITEN	-
DEWALT TAPPER+	ICC ESR-3068 (CONC) ICC ESR-3196 (MAS)

5.2.10. METAL PROTECTION: ALL STEEL EXPOSED TO WEATHER, MOISTURE, SOIL, OR AS NOTED SHALL BE GALVANIZED PER ASTM A123 OR A153 AS APPLICABLE. ALL OTHER STEEL SURFACES SHALL BE SHOP PRIMED AFTER FABRICATION.

REPAIR ALL DAMAGED AREAS OF GALVANIZED PARTS SUCH AS FIELD WELDS, ETC. APPLY REPAIR COATING THICKNESS GREATER THAN OR EQUAL TO ORIGINAL ZINC COATING THICKNESS.

5.2.11. STEEL COLUMNS: ALL VERTICAL LOAD CARRYING MEMBERS HAVE BEEN NOTED AS "COLUMNS" ON THE STRUCTURAL DRAWINGS. THIS NOTATION DOES NOT IDENTIFY THESE MEMBERS AS "POSTS" OR "COLUMNS" AS DEFINED BY THE LATEST OSHA RULES REGARDING COLUMN ANCHORAGE REQUIREMENTS (OSHA 29 CFR PARTS 1926.751 AND 1926.755). THE GENERAL CONTRACTOR, STEEL DETAILER, AND STEEL ERECTOR SHALL BE RESPONSIBLE TO DETERMINE THE CORRECT OSHA DESIGNATION OF EACH MEMBER REGARDLESS OF THE NOTATION SHOWN ON THE STRUCTURAL DRAWINGS.

5.2.12. PRE-ENGINEERED STEEL STAIRS AND GUARDRAILS: THE STEEL STAIR MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF THE PROJECT.

5.2.13. LIGHT GAGE STEEL SHEATHING

LIGHT GAGE STEEL SHEATHING SHALL BE FROM STEEL SHEETS OF A THICKNESS INDICATED ON SHEARWALL SCHEDULE. STEEL SHEETS SHALL BE ASTM A1003 GRADE 33 TYPE H UNLESS NOTED OTHERWISE.

A. AT SHEARWALLS, WALL STUDS SHALL HAVE A MINIMUM FLANGE WIDTH

PROVIDE COPY OF ALL SPECIAL INSPECTION REPORTS TO THE BUILDING INSPECTION.

11. STATEMENT OF SPECIAL INSPECTIONS

IBC	SI	SO	TITLE
1705.2	✓	✓	STEEL CONSTRUCTION (SEE TABLES 15A, 15B, AND 15C)
1705.3	✓	✓	CONCRETE CONSTRUCTION (SEE TABLE 13)
1705.4	✓	✓	MASONRY CONSTRUCTION (SEE TABLES 14A AND 14B)
1705.6	✓	N/R	SOILS (SEE TABLE 12A)
1705.7	✓	N/R	DRIVEN DEEP FOUNDATIONS (SEE TABLE 12B)
1705.12.3	✓	✓	COLD FORMED STEEL FRAMING - SEISMIC FORCE RESISTING SYSTEM (SEE TABLE 18)
1705.12.5	✓	N/R	ARCHITECTURAL COMPONENTS (INCLUDING ACCESS FLOORS) (SEE TABLE 18)

SI = SPECIAL INSPECTION
SO = STRUCTURAL OBSERVATION
✓ = ITEM IS REQUIRED
N/R = ITEM IS NOT REQUIRED

SPECIAL INSPECTIONS INDICATED ARE FOR STRUCTURAL ELEMENTS ONLY. SEE ARCH, MECH AND ELEC DRAWINGS FOR ADDITIONAL SPECIAL INSPECTIONS.

11.

11.1. INSPECTION/TESTING REQUIREMENTS:

SEE DRAWINGS, SPECIFICATIONS, AND IBC SECTIONS 110, AND CHAPTER 17.

11.2. INSPECTIONS BY THE BUILDING OFFICIAL (IBC SECTION 110):

11.2.1. FOOTING AND FOUNDATION INSPECTIONS SHALL BE MADE AFTER EXCAVATIONS ARE COMPLETE AND ANY REQUIRED REINFORCING IS IN PLACE. ANY REQUIRED FORMS SHALL BE IN PLACE PRIOR TO INSPECTION.

11.2.2. CONCRETE SLAB AND UNDER FLOOR INSPECTIONS SHALL BE MADE AFTER ALL IN SLAB OR UNDER FLOOR REINFORCING, CONDUIT, PIPING AND OTHER ANCILLARY EQUIPMENT ITEMS AND ACCESSORIES ARE IN PLACE BUT PRIOR TO CONCRETE PLACEMENT OR FLOOR SHEATHING INSTALLATION.

11.2.3. FRAMING INSPECTIONS SHALL BE MADE AFTER ALL SHEATHING, FRAMING, BLOCKING AND BRACING ARE COMPLETE AND ALL PIPES, DUCTS, ELECTRICAL, PLUMBING, ETC., ARE INSTALLED AND APPROVED PRIOR TO COVER.

11.2.4. IN ADDITION TO THE INSPECTIONS SPECIFIED ABOVE, THE BUILDING OFFICIAL IS AUTHORIZED TO MAKE OR REQUIRE OTHER INSPECTIONS OF ANY CONSTRUCTION WORK TO ASCERTAIN COMPLIANCE WITH THE PROVISIONS OF THE IBC OR OTHER LAWS ENFORCED BY THE BUILDING OFFICIAL.

11.3. STRUCTURAL TESTS AND SPECIAL INSPECTIONS (IBC CHAPTER 17):

11.3.1. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

11.3.2. STRUCTURAL TESTS AND SPECIAL INSPECTIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE IBC AS WELL AS ANY ADDITIONAL REQUIREMENTS OF THE BUILDING OFFICIAL. OMISSION FROM THE LIST BELOW OF TESTING AND INSPECTION REQUIREMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM PROVIDING TESTING AND INSPECTION REQUIRED BY THE SPECIFICATIONS, THE IBC AND THE BUILDING OFFICIAL.

11.3.3. TESTING AND SPECIAL INSPECTIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 17 OF THE IBC FOR THE ITEMS LISTED IN THIS SECTION.

11.4. STRUCTURAL OBSERVATION

11.4.1. STRUCTURAL OBSERVATION MAY BE PERFORMED DURING CONSTRUCTION IN A MANNER AS REQUIRED TO BECOME GENERALLY FAMILIAR WITH THE IN-PLACE CONSTRUCTION.

11.4.2. STRUCTURAL OBSERVATION EXTENT SHALL BE AS INDICATED ABOVE. TIMING AND DURATION OF OBSERVATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR DURING CONSTRUCTION.

11.4.3. CONSTRUCTION OBSERVATION REPORTS AND FINDINGS SHALL NOT BE VIEWED AS A WARRANTY OR GUARANTEE BY THE STRUCTURAL ENGINEER.

11.5. SPECIAL INSPECTOR: SHALL BE CURRENTLY WABO CERTIFIED.

11.5.1. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED FOR CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

11.5.2. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, ENGINEER OF RECORD, ARCHITECT OF RECORD, AND OTHER DESIGNATED PERSONS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE GENERAL CONTRACTOR FOR CORRECTION, THEN, IF NOT IN CONFORMANCE, TO THE PROPER DESIGN AUTHORITY AND BUILDING OFFICIAL.

11.5.3. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL REPORT STATING WHETHER THE WORK REQUIRING SPECIAL INSPECTION WAS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE IBC.

12A. REQUIRED SPECIAL INSPECTIONS AND TEST OF SOILS

IBC TABLE 1705.6

SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	N/R	✓
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	N/R	✓
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAL	N/R	✓
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	✓	N/R
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY	N/R	✓

12.

12.1. SPECIAL INSPECTIONS AND TESTS FOR EXISTING SITE SOIL CONDITIONS, FILL PLACEMENT, AND LOAD-BEARING REQUIREMENTS PER IBC 1705.6., AS NOTED IN TABLE 12A.

12.1.1. THE APPROVED GEOTECHNICAL REPORT AND THE CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE.

12B. REQUIRED SPECIAL INSPECTIONS AND TEST OF DRIVEN DEEP FOUNDATION ELEMENTS

IBC TABLE 1705.7

SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY ELEMENT MATERIALS, SIZES, AND LENGTHS COMPLY WITH THE REQUIREMENTS	✓	N/R
2. DETERMINE CAPACITIES OF TEST ELEMENTS AND CONDUCT ADDITIONAL LOAD TESTS, AS REQUIRED	✓	N/R
3. INSPECT DRIVING OPERATIONS AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH ELEMENT	✓	N/R
4. VERIFY PLACEMENT LOCATIONS AND PLUMBNESS, CONFIRM TYPE AND SIZE OF HAMMER, RECORD NUMBER OF BLOWS PER FOOT OF PENETRATION, DETERMINE REQUIRED PENETRATION TO ACHIEVE DESIGN CAPACITY, RECORD TIP AND BUTT ELEVATIONS AND DOCUMENT ANY DAMAGE TO FOUNDATION ELEMENTS	✓	N/R
5. FOR STEEL ELEMENTS, PERFORM ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.2	N/R	N/R
6. FOR CONCRETE ELEMENTS AND CONCRETE-FILLED ELEMENTS, PERFORM TESTS AND ADDITIONAL SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1705.3	N/R	N/R
7. FOR SPECIALTY ELEMENTS, PERFORM ADDITIONAL INSPECTIONS AS DETERMINED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE	N/R	N/R

12.

12.1. SPECIAL INSPECTIONS AND TESTS FOR DEEP DRIVEN FOUNDATION ELEMENTS SHALL BE PERFORMED DURING INSTALLATION AND TESTING PER IBC 1705.7., AS NOTED IN TABLE 12B.

12.1.1. THE APPROVED GEOTECHNICAL REPORT AND CONSTRUCTION DOCUMENTS PREPARED BY THE REGISTERED DESIGN PROFESSIONALS SHALL BE USED TO DETERMINE COMPLIANCE.

13. REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

IBC TABLE 1705.3

SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT	N/R	✓	ACI 318: CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING:				
A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	N/R	✓	AWS D1.4 ACI 318:26.6.4	
B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"	N/R	✓		
C. INSPECT ALL OTHER WELDS	✓	N/R		
3. INSPECT ANCHORS CAST IN CONCRETE	N/R	□	ACI 318: 17.8.2	
4. INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS				
A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	✓	N/R	ACI 318: 17.8.2.4	
B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4A.	N/R	✓	ACI 318: 17.8.2	
5. VERIFY USE OF REQUIRED DESIGN MIX	N/R	✓	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	✓	N/R	ASTM C 172 ASTM C 31 ACI318:26.4, 26.12	1908.10
7. INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	✓	N/R	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	N/R	✓	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT PRESTRESSED CONCRETE FOR:				
A. APPLICATION OF PRESTRESSING FORCES	✓	N/R	ACI 318: 26.10	
B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC FORCE RESISTING SYSTEM	✓	N/R		
10. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS	N/R	✓	ACI 318: 26.9	
11. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO STRESSING OF TENDONS IN POST-TENSIONED CONCRETE AND PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	N/R	✓	ACI 318: 26.10.2	
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED	N/R	✓	ACI 318: 26.11.1.2(b)	

13.

13.1. CONCRETE: SPECIAL INSPECTION AND TESTING PER IBC TABLE 1705.3 AS NOTED IN TABLE 13, INCLUDING:

13.1.1. CONTINUOUS SPECIAL INSPECTION OF PRESTRESSED CONCRETE TENDON PLACEMENT, INTEGRITY OF PROTECTIVE WRAPPING, GROUTING OF BONDED PRESTRESSED TENDONS IN THE SEISMIC FORCE RESISTING SYSTEM AND APPLICATION OF PRESTRESSING FORCES.

13.1.2. CONTINUOUS SPECIAL INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.

13.1.3. CONTINUOUS SPECIAL INSPECTION OF BOLTS INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.

13.1.4. SHOTCRETE: SEE STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.

13.1.5. SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE SHALL BE AS DESCRIBED IN THE RESEARCH REPORT ISSUED BY AN APPROVED SOURCE (ICC, IAPMO, ETC.).

13.1.6. CONTINUOUS SPECIAL INSPECTION FOR CONCRETE REINFORCING BARS, CONCRETE MATERIALS OR PLACEMENT OF CONCRETE FOR COMPOSITE MEMBERS.

13.2. SPECIAL INSPECTIONS AND TESTS SHALL NOT BE REQUIRED FOR THE FOLLOWING:

13.2.1. ISOLATED SPREAD FOOTINGS OF BUILDINGS THREE STORIES OR LESS ABOVE THE GRADE PLANE THAT ARE FULLY SUPPORTED BY EARTH OR ROCK.

13.2.2. NON-STRUCTURAL CONCRETE SLABS ON GRADE.

14.A REQUIRED SPECIAL INSPECTION AND TEST OF MASONRY CONSTRUCTION – MINIMUM VERIFICATION REQUIREMENTS

TMS 602 TABLE 3

MINIMUM VERIFICATION REQUIREMENTS	REQUIRED FOR QUALITY ASSURANCE LEVEL 1	REQUIRED FOR QUALITY ASSURANCE LEVEL 2	REFERENCE FOR CRITERIA TMS 602
1. PRIOR TO CONSTRUCTION, VERIFICATION OF COMPLIANCE OF SUBMITTALS.	✓	✓	ART. 1.5
2. PRIOR TO CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} EXCEPT WHERE SPECIFICALLY EXEMPTED BY THE CODE.	N/R	✓	ART. 1.4 B
3. DURING CONSTRUCTION, VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) WHEN SELF- CONSOLIDATING GROUT IS DELIVERED TO THE PROJECT SITE.	N/R	✓	ART. 1.5 & 1.6.3
4. DURING CONSTRUCTION, VERIFICATION OF f'_m AND f'_{AAC} FOR EVERY 5,000 SQUARE FEET	N/R	N/R	ART. 1.4 B
5. DURING CONSTRUCTION, VERIFICATION OF PROPORTIONS OF MATERIALS AS DELIVERED TO THE PROJECT SITE FOR PREMIXED OR PREBLENDED MORTAR, PRESTRESSING GROUT, AND GROUT OTHER THAN SELF-CONSOLIDATING GROUT.	N/R	N/R	ART. 1.4 B

14.B REQUIRED SPECIAL INSPECTION AND TEST OF MASONRY CONSTRUCTION – MINIMUM SPECIAL INSPECTION REQUIREMENTS

TMS 602 TABLE 4

INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION LEVEL 2	PERIODIC SPECIAL INSPECTION LEVEL 2	REFERENCE FOR CRITERIA TMS 402	TMS 602
1. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. PROPORTIONS OF SITE-PREPARED MORTAR	N/R	✓		ART. 2.1, 2.6 A, & 2.6 C
B. GRADE AND SIZE OF PRESTRESSING TENDONS AND ANCHORAGES	N/R	✓		ART. 2.4 B & 2.4 H
C. GRADE, TYPE AND SIZE OF REINFORCEMENT, CONNECTORS, ANCHOR BOLTS, AND PRESTRESSING TENDONS AND ANCHORAGES	N/R	✓		Art. 3.4 & 3.6 A
D. PRESTRESSING TECHNIQUE	N/R	✓		Art. 3.6 B
E. PROPERTIES OF THIN-BED MORTAR FOR AAC MASONRY	REQUIRED FOR FIRST 5000 SF	REQUIRED AFTER FIRST 5000 SF		Art. 2.1 C.1
F. SAMPLE PANEL CONSTRUCTION	N/R	✓		Art. 1.6 D
2. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. GROUT SPACE	N/R	✓		Art. 3.2 D & 3.2 F
B. PLACEMENT OF PRESTRESSING TENDONS AND ANCHORAGES	N/R	✓	Sec. 10.8 & 10.9	Art. 2.4 & 3.6
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHOR BOLTS	N/R	✓	Sec. 6.1, 6.3.1, 6.3.6 & 6.3.7	Art. 3.2 E & 3.4
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	N/R	✓		Art. 2.6 B & 2.4 G.1.b
3. VERIFY COMPLIANCE OF THE FOLLOWING DURING CONSTRUCTION:				
A. MATERIALS AND PROCEDURES WITH THE APPROVED SUBMITTALS	N/R	✓		Art. 1.5
B. PLACEMENT OF MASONRY UNITS AND MORTAR JOINT CONSTRUCTION	N/R	✓		Art. 3.3 B
C. SIZE AND LOCATION OF STRUCTURAL MEMBERS	N/R	✓		Art. 3.3 F
D. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAME, OR OTHER CONSTRUCTION	N/R	ü	Sec. 1.2.1(E), 6.2.1, & 6.3.1	
E. WELDING OF REINFORCEMENT	✓	N/R	Sec.6.1.6.1.2	
F. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURES ABOVE 90°F)	N/R	✓		Art. 1.8 C & 1.8 D
G. APPLICATION AND MEASUREMENT OF PRESTRESSING FORCE	✓	N/R		Art. 3.6 B
H. PLACEMENT OF GROUT AND PRESTRESSING GROUT,FOR BONDED TENDONS IS IN COMPLIANCE	✓	N/R		Art. 3.5 & 3.6 C
I. PLACEMENT OF AAC MASONRY UNITS AND CONSTRUCTION OF THIN-BED MORTAR JOINTS	REQUIRED FOR FIRST 5000 SF	REQUIRED AFTER FIRST 5000 SF		Art. 3.3 B.9 & 3.3 F.1.b
4. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	N/R	✓		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, & 1.4 B.4

NOTE: SPECIAL INSPECTION PER TABLE 14.B NOT REQUIRED FOR QUALITY ASSURANCE LEVEL 1

14.

14.1. SPECIAL INSPECTION AND VERIFICATION OF MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH TMS 402 AND TMS 602 QUALITY ASSURANCE REQUIREMENTS, AS NOTED IN THE TABLES ABOVE INCLUDING:

14.1.1. COMPRESSIVE STRENGTH OF MASONRY SHALL BE CONSIDERED SATISFACTORY IF THE COMPRESSIVE STRENGTH OF EACH MASONRY WYTHE AND GROUTED COLLAR JOINT MEETS OR EXCEEDS THE SPECIFIED f'_m.

14.1.2. COMPRESSIVE STRENGTH OF MASONRY SHALL BE DETERMINED IN ACCORDANCE WITH THE PROVISIONS OF TMS 602 USING THE UNIT STRENGTH METHOD.

14.1.3. FOR RISK CATEGORY I, II, OR III, MINIMUM QUALITY ASSURANCE LEVEL FOR STRUCTURAL MASONRY SHALL BE LEVEL 2 AS NOTED IN TABLES 14A AND 14B.

15.A REQUIRED SPECIAL INSPECTION AND TESTS OF STRUCTURAL STEEL CONSTRUCTION – INSPECTION OF WELDING

SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD
AISC TABLE N5.4-1			
1. PRIOR TO WELDING, VERIFY AND INSPECT THE FOLLOWING:	N/R	✓	
A. WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	✓	N/R	
B. WELDING PROCEDURE SPECIFICATIONS (WPS)	✓	N/R	
C. MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES	✓	N/R	AISC 360 A3.5
C. MATERIAL IDENTIFICATION OF STRUCTURAL STEEL MEMBERS	N/R	✓	AISC 360 A3.1
E. WELDER IDENTIFICATION SYSTEM	N/R	✓	
F. FIT-UP OF GROOVE WELDS, INCLUDING JOINT GEOMETRY			
1) JOINT PREPARATION	N/R	✓	
2) DIMENSIONS: ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL	N/R	✓	
3) CLEANLINESS: CONDITION OF STEEL SURFACES	N/R	✓	
4) TACKING: TACK WELD QUALITY AND LOCATION	N/R	✓	
5) BACKING TYPE AND FIT (IF APPLICABLE)	N/R	✓	
G. FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING, INCLUDING JOINT GEOMETRY.			
1) JOINT PREPARATION	✓	N/R	
2) DIMENSIONS: ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL	✓	N/R	
3) CLEANLINESS: CONDITION OF STEEL SURFACES	✓	N/R	
4) TACKING: TACK WELD QUALITY AND LOCATION	✓	N/R	
H. CONFIGURATION AND FINISH OF ACCESS HOLES	N/R	✓	
H. FIT-UP OF FILLET WELDS			
1) DIMENSIONS: ALIGNMENT, GAPS AT ROOT	N/R	✓	
2) CLEANLINESS: CONDITION OF STEEL SURFACES	N/R	✓	
3) TACKING: TACK WELD QUALITY AND LOCATION	N/R	✓	
I. CHECK WELDING EQUIPMENT	N/R	✓	
AISC 360 TABLE N5.4-2			
2. DURING WELDING, VERIFY AND INSPECT THE FOLLOWING:			
A. USE OF QUALIFIED WELDERS	N/R	✓	
B. CONTROL AND HANDLING OF WELDING CONSUMABLES			
1) PACKAGING	N/R	✓	
2) EXPOSURE CONTROL	N/R	✓	
C. NO WELDING OVER CRACKED TACK WELDS	N/R	✓	
D. ENVIRONMENTAL CONDITIONS			
1) WIND SPEED WITHIN LIMITS	N/R	✓	
2) PRECIPITATION AND TEMPERATURE	N/R	✓	
E. WELDING PROCEDURE SPECIFICATIONS FOLLOWED			
1) SETTINGS ON WELDING EQUIPMENT	N/R	✓	
2) TRAVEL SPEED	N/R	✓	
3) SELECTED WELDING MATERIALS	N/R	✓	
4) SHIELDING GAS TYPE AND FLOW RATE	N/R	✓	
5) PREHEAT APPLIED	N/R	✓	
6) INTERPASS TEMPERATURE MAINTAINED	N/R	✓	
7) PROPER POSITION	N/R	✓	
F. WELDING TECHNIQUES			
1) INTERPASS AND FINAL CLEANING	N/R	✓	
2) EACH PASS WITHIN PROFILE LIMITATIONS	N/R	✓	
3) EACH PASS MEETS QUALITY REQUIREMENTS	N/R	✓	
G. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	✓	N/R	
AISC 360 TABLE N5.4-3			
3. AFTER WELDING, VERIFY AND INSPECT THE FOLLOWING:			
A. WELDS CLEANED	N/R	✓	
B. SIZE, LENGTH, AND LOCATION OF WELDS	✓	N/R	
C. WELDS MEET VISUAL ACCEPTANCE CRITERIA			
1) CRACK PROHIBITION	✓	N/R	
2) WELD TO BASE METAL FUSION	✓	N/R	
3) CRATER CROSS SECTION	✓	N/R	
4) WELD PROFILES	✓	N/R	
5) WELD SIZE	✓	N/R	
6) UNDERCUT	✓	N/R	
7) POROSITY	✓	N/R	
D. ARC STRIKES	✓	N/R	
E. k-AREA	✓	N/R	
F. BACKING REMOVED AND WELD TABS REMOVED, IF REQUIRED	✓	N/R	
G. REPAIR ACTIVITIES	✓	N/R	
H. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	✓	N/R	
I. NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE ENGINEER OF RECORD	N/R	✓	

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PERMIT SET
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REVISIONS

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QUALITY ASSURANCE NOTES

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15.B REQUIRED SPECIAL INSPECTION AND TESTS OF STRUCTURAL STEEL CONSTRUCTION – INSPECTION OF BOLTING

		SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD
		AISC 360 TABLE N5.6-1			
1.		PRIOR TO BOLTING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	MANUFACTURER'S CERTIFICATIONS FOR FASTENER MATERIALS	✓	N/R	
	B.	FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	N/R	✓	
	C.	PROPER FASTENER SELECTED FOR JOINT DETAIL	N/R	✓	AISC 360 A3.1
	D.	PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	N/R	✓	
	E.	CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITIONS AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	N/R	✓	
	F.	PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	✓	N/R	
	G.	PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS	N/R	✓	
		AISC 360 TABLE N5.6-2			
2.		DURING BOLTING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	N/R	✓	
	B.	JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	N/R	✓	
	C.	FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	N/R	✓	
	D.	FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	N/R	✓	
		AISC 360 TABLE N5.6-3			
3.		AFTER BOLTING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	✓	N/R	

15.C REQUIRED SPECIAL INSPECTION AND TESTS OF COLD FORMED STEEL DECK

		SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD
		SDI QA/QC TABLE 1.1			
1.		PRIOR TO DECK PLACEMENT VERIFY AND INSPECT THE FOLLOWING:			
	A.	COMPLIANCE OF MATERIALS (DECK AND ALL ACCESSORIES) WITH CONSTRUCTION DOCUMENTS INCLUDING PROFILES, MATERIAL PROPERTIES, AND BASE METAL THICKNESS	✓	N/R	
	B.	DOCUMENT ACCEPTANCE OR REJECTION OF DECK AND DECK ACCESSORIES	✓	N/R	
		SDI QA/QC TABLE 1.2			
2.		AFTER DECK PLACEMENT VERIFY AND INSPECT THE FOLLOWING:			
	A.	COMPLIANCE OF DECK AND ALL ACCESSORIES INSTALLATION WITH CONSTRUCTION DOCUMENTS	✓	N/R	
	B.	DECK MATERIALS ARE REPRESENTED BY THE MILL CERTIFICATIONS THAT COMPLY WITH THE CONSTRUCTION DOCUMENTS	✓	N/R	
	C.	DOCUMENT ACCEPTANCE OR REJECTION OF INSTALLATION OF DECK AND ACCESSORIES	✓	N/R	
		SDI QA/QC TABLE 1.3			
3.		PRIOR TO WELDING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	WELDING PROCEDURE SPECIFICATION (WPS)	N/R	✓	
	B.	MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES	N/R	✓	
	C.	MATERIAL IDENTIFICATION (TYPE/GRADE)	N/R	✓	
	D.	CHECK WELDING EQUIPMENT	N/R	✓	
		SDI QA/QC TABLE 1.4			
4.		DURING WELDING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	USE OF QUALIFIED WELDERS	N/R	✓	
	B.	CONTROL AND HANDLING OF WELDING CONSUMABLES	N/R	✓	
	C.	ENVIRONMENTAL CONDITIONS (WIND SPEED, MOISTURE, TEMPERATURE)	N/R	✓	
	D.	WPS FOLLOWED	N/R	✓	
		SDI QA/QC TABLE 1.5			
5.		AFTER WELDING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	SIZE AND LOCATION OF WELDS INCLUDING SUPPORT, SIDE LAP AND PERIMETER	✓	N/R	
	B.	WELDS MEET VISUAL ACCEPTANCE CRITERIA	✓	N/R	
	C.	VERIFY REPAIR ACTIVITIES	✓	N/R	
	D.	DOCUMENT ACCEPTANCE OR REJECTION OF WELDS	✓	N/R	
		SDI QA/QC TABLE 1.6			
6.		PRIOR TO MECHANICAL FASTENING, VERIFY AND INSPECT THE FOLLOWING:			
	A.	MANUFACTURER INSTALLATION INSTRUCTIONS AVAILABLE FOR MECHANICAL FASTENERS	N/R	✓	
	B.	PROPER TOOLS AVAILABLE FOR FASTENER INSTALLATION	N/R	✓	
	C.	PROPER STORAGE FOR MECHANICAL FASTENERS	N/R	✓	
		SDI QA/QC TABLE 1.7			
7.		DURING MECHANICAL FASTENING, VERIFY OR INSPECT THE FOLLOWING:			
	A.	FASTENERS ARE POSITIONED AS REQUIRED	N/R	✓	
	B.	FASTENERS ARE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS	N/R	✓	
		SDI QA/QC TABLE 1.8			
8.		AFTER MECHANICAL FASTENING, VERIFY OR INSPECT THE FOLLOWING:			
	A.	CHECK SPACING, TYPE, AND INSTALLATION OF SUPPORT FASTENERS	✓	N/R	
	B.	CHECK SPACING, TYPE, AND INSTALLATION OF SIDELAP FASTENERS	✓	N/R	
	C.	CHECK SPACING, TYPE, AND INSTALLATION OF PERIMETER FASTENERS	✓	N/R	
	D.	VERIFY REPAIR ACTIVITIES	✓	N/R	
	E.	DOCUMENT ACCEPTANCE OR REJECTION OF MECHANICAL FASTENERS	✓	N/R	

15.

15.1. STRUCTURAL STEEL CONSTRUCTION:

SPECIAL INSPECTION AND NONDESTRUCTIVE TESTING OF STRUCTURAL STEEL ELEMENTS SHALL BE IN ACCORDANCE WITH THE QUALITY CONTROL AND QUALITY ASSURANCE REQUIREMENTS OF AISC 360, AS NOTED IN TABLES 15A, 15B, AND AWS D1.1, INCLUDING:

15.1.1. INSPECTION OF ERECTED STEEL SYSTEM.

15.1.2. REVIEW OF MATERIAL TEST REPORTS AND CERTIFICATIONS FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS.

15.1.3. OBSERVATION OF WELDING OPERATIONS AND VISUAL INSPECTION OF IN-PROCESS AND COMPLETED WELDS SHALL BE AS FOLLOWS:

A. VERIFY THAT WELD FILLER MATERIAL AND MANUFACTURER'S CERTIFICATE OF COMPLIANCE CONFORM TO AWS SPECIFICATION SPECIFIED. VERIFY WELDERS ARE CERTIFIED BY WABO, THAT PROPER ELECTRODES IN OVEN DRY CONDITIONS ARE USED, AND THAT PROPER METHODS AND PREPARATIONS ARE USED.

B. PERIODIC SPECIAL INSPECTION OF WELDING SHALL BE PERFORMED FOR SINGLE PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16" AND FLOOR AND DECK WELDS.

C. CONTINUOUS SPECIAL INSPECTION OF WELDING SHALL BE PERFORMED ON COMPLETE AND PARTIAL PENETRATION GROOVE WELDS AND FILLET WELDS GREATER THAN 5/16".

D. ALL WELDS SHALL BE CHECKED VISUALLY.

E. ALL SHOP AND FIELD WELDING SHALL BE SUBJECT TO INSPECTION BY A WABO CERTIFIED WELDING INSPECTOR EMPLOYED BY THE OWNER. THE INSPECTOR SHALL UTILIZE RADIOGRAPHIC, ULTRASONIC, OR MAGNETIC PARTICLE TESTING AND ANY OTHER AID TO VISUAL INSPECTION THAT MAY BE DEEMED NECESSARY TO ASSURE THE ADEQUACY OF WELDING. THE OWNER SHALL CARRY OUT TESTING AND INTERPRETATION AT ANY STAGE AFTER WELDING.

F. 10% OF ALL FILLET WELDS SHALL BE CHECKED BY MAGNETIC PARTICLE TESTING.

G. 100% OF ALL COMPLETE PENETRATION WELDS SHALL BE CHECKED BY ULTRASONIC TESTING.

H. ALL WELDS FOUND DEFECTIVE AND REPAIRED SHALL BE REINSPECTED BY THE SAME METHOD ORIGINALLY USED. THE COST OF REPAIR AND REINSPECTION SHALL BE BORNE BY THE CONTRACTOR.

I. STANDARDS FOR ACCEPTANCE SHALL BE AS GIVEN IN AWS D1.1.

15.1.4. OBSERVATION OF BOLTING OPERATIONS.

15.1.5. WHERE CONTINUOUS SPECIAL INSPECTION IS NOTED, IT SHALL BE PERFORMED FOR EACH JOINT OR MEMBER. WHERE PERIODIC SPECIAL INSPECTION IS NOTED, IT SHALL BE PERFORMED ON ITEMS ON A RANDOM BASIS. PERIODIC SPECIAL INSPECTION NEED NOT DELAY FABRICATION OR ERECTION OPERATIONS.

15.1.6. COLD FORMED STEEL DECK:

SPECIAL INSPECTIONS AND QUALIFICATION FOR WELDING SPECIAL INSPECTORS SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF SDI QA/QC, AS NOTED IN TABLE 15C.

15.1.7. EPOXY ANCHORS: SPECIFIC REQUIREMENTS FOR INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE OR MASONRY SHALL BE AS DESCRIBED IN THE RESEARCH REPORT ISSUED BY AN APPROVED SOURCE (ICC, IAPMO, ETC.).

15.1.8. EXPANSION ANCHORS: SPECIFIC REQUIREMENTS FOR INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE OR MASONRY SHALL BE AS DESCRIBED IN THE RESEARCH REPORT ISSUED BY AN APPROVED SOURCE (ICC, IAPMO, ETC.).

18. REQUIRED SPECIAL INSPECTION AND TESTS FOR SEISMIC RESISTANCE

		SPECIAL INSPECTION OR TEST TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
2.		COLD-FORMED STEEL LIGHT-FRAME CONSTRUCTION IN SEISMIC DESIGN CATEGORY C, D, E OR F:		
	A.	WELDING OF ELEMENTS ON THE SEISMIC FORCE-RESISTING SYSTEM.	N/R	✓
	B.	SCREW ATTACHMENT, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE SEISMIC FORCE-RESISTING SYSTEM, INCLUDING SHEAR WALLS, BRACES, DIAPHRAGMS, COLLECTORS, AND HOLDOWNS.	N/R	✓
3.		ARCHITECTURAL COMPONENTS IN SEISMIC DESIGN CATEGORY D, E OR F:		
	A.	THE ERECTION AND FASTENING OF EXTERIOR CLADDING, INTERIOR AND EXTERIOR NON-BEARING WALLS, AND INTERIOR AND EXTERIOR VENEER	N/R	✓

18.

18.1. SPECIAL INSPECTIONS AND TESTING FOR SEISMIC RESISTANCE:

18.1.1. SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE PER IBC 1705.12 SHALL BE REQUIRED FOR SEISMIC FORCE-RESISTING SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E OR F PER TABLE 18 AND THE FOLLOWING:

A. SPECIAL INSPECTIONS OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.

18.1.2. TESTING AND QUALIFICATION FOR SEISMIC RESISTANCE PER IBC 1705.13 SHALL BE REQUIRED FOR SEISMIC FORCE-RESISTING SYSTEM IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F FOR THE FOLLOWING:

A. NONDESTRUCTIVE TESTING FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE REQUIREMENTS OF AISC 341.

18.1.3. SPECIAL INSPECTION IS NOT REQUIRED FOR THE FOLLOWING:

B. COLD-FORMED STEEL LIGHT-FRAMED CONSTRUCTION WHERE THE SHEATHING IS STEEL SHEETS ON ONLY ONE SIDE OF THE SHEAR WALL, SHEAR PANEL OR DIAPHRAGM ASSEMBLY AND THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES ON CENTER.

C. SPECIAL INSPECTION IS NOT REQUIRED FOR ARCHITECTURAL COMPONENTS WHERE:

a. EXTERIOR CLADDING, INTERIOR AND EXTERIOR NONBEARING WALLS AND INTERIOR AND EXTERIOR VENEER ARE 30 FEET OR LESS IN HEIGHT ABOVE GRADE OR WALING SURFACE.

b. EXTERIOR CLADDING AND INTERIOR AND EXTERIOR VENEERS WEIGHTING 5 PSF OR LESS.

c. INTERIOR NONBEARING WALLS WEIGHING 15 PSF OR LESS.

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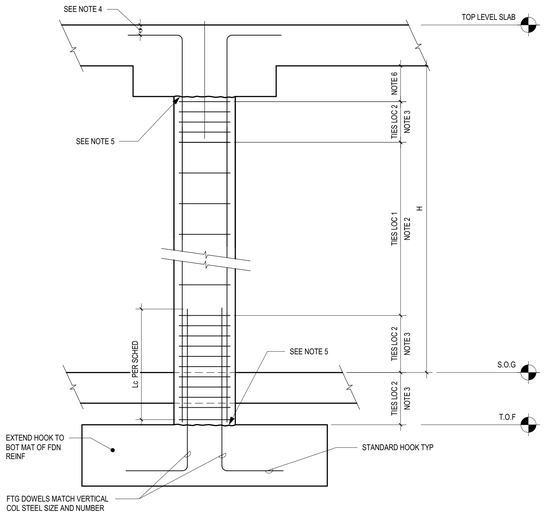


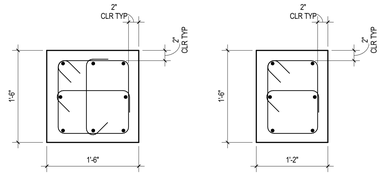
TYPICAL CONCRETE COLUMN ELEVATION

NOTES:

A. SEE CONCRETE COLUMN SCHEDULE FOR TYPE OF REINFORCING CONFIGURATION.

B. A TYPICAL CROSSTIE SHALL HAVE A 135 DGR HOOK AT ONE END AND A 90 DGR HOOK AT THE OTHER END. AT CONTRACTOR'S OPTION, THE 135 DGR HOOK MAY BE REPLACED WITH A 180 DGR HOOK AND THE 90 DGR HOOK MAY BE REPLACED WITH A 135 DGR OR A 180 DGR HOOK.

C. CROSSTIES WITH 90 DGR HOOKS SHALL HAVE THE CONSECUTIVE CROSSTIES ALTERNATED END FOR END ALONG THE LONGITUDINAL REINFORCEMENT.



TYPE 1 TYPE 2

TYPICAL CONCRETE COLUMN REINFORCING CONFIGURATION

NOTES:

1. SEE CONCRETE COLUMN SCHEDULE FOR COLUMN SIZE AND VERTICAL REINFORCING. FOR COLUMN TIE TYPE, SEE THE COLUMN SCHEDULE, AND THE TYPICAL CONCRETE COLUMN TIE CONFIGURATION DETAIL.
2. SEE CONCRETE COLUMN SCHEDULE UNDER "TIES LOC 1" FOR TIE SIZE, SPACING, AND COLUMN TIE CONFIGURATION TYPE. FOR TIE CONFIGURATION SEE THE TYPICAL CONCRETE COLUMN TIE CONFIGURATION DETAIL.
3. FOR H≥6, MAXIMUM COLUMN DIMENSION, OR 18 INCHES (WHICHEVER IS GREATER) SEE CONCRETE COLUMN SCHEDULE UNDER "TIES LOC 2" FOR TIE SIZE, SPACING, AND COLUMN TIE CONFIGURATION TYPE. FOR TIE CONFIGURATION SEE THE TYPICAL CONCRETE COLUMN TIE CONFIGURATION DETAIL.
4. PLACE HORIZONTAL HOOKS DIRECTLY BELOW TOP BARS OF BEAMS OR SLABS. SPLAY HOOKS AS NECESSARY TO RELIEVE BAR CONGESTION. AT CONTRACTOR'S OPTION, HOOKS MAY BE PLACED TOWARDS THE INSIDE OF THE COLUMN.
5. UNLESS NOTED OTHERWISE, COLUMN CONSTRUCTION JOINTS SHALL BE AT THE UNDERSIDE OF FLOOR SLABS, BEAMS, OR GIRDERS, AND AT THE TOPS OF FOOTINGS OR FLOOR SLABS. UNLESS NOTED OTHERWISE, INTEGRAL BEAMS, GIRDERS, BRACKETS, COLUMN CAPITALS, HAUNCHES AND DROP PANELS SHALL BE PLACED AT THE SAME TIME AS SLABS.
6. TIES ARE NOT REQUIRED AT DROP-PANEL LOCATIONS, OTHERWISE PROVIDE TIES PER NOTE 3.

CONCRETE COLUMN SCHEDULE

MARK	DIMENSIONS		REINFORCING CONFIGURATION TYPE	REINFORCING			COMMENTS
	DEPTH	WIDTH		DESCRIPTION	TRANSVERSE REINFORCING (TIES)		
					LOC 1	LOC 2	
CC1418-8	1'-2"	1'-6"	TYPE 2	(6) #8	#4 AT 6" OC	#4 AT 4" OC	
CC1818-7	1'-6"	1'-6"	TYPE 1	(8) #7	#4 AT 6" OC	#4 AT 4" OC	
CC1212-6	1'-0"	1'-0"	TYPE 1	(4) #7	#4 AT 6" OC	#4 AT 4" OC	

1 SCHEDULE

1" = 1'-0"

FOOTING SCHEDULE

MARK	SIZE	REINFORCING	REMARKS
F3.5x3.5	3'-6" x 3'-6" x 3'-6"	(4) #6 EA WAY AT TOP AND BOTTOM OF FOOTING	(12) #5 DOWELS W/ STD HOOK EA END
F3x6	6'-0" x 3'-0" x 1'-6"	#5 AT 12" OC AT BOTTOM OF FOOTING	
F3x8	8'-0" x 3'-0" x 1'-6"	#5 AT 12" OC AT OTTOM OF FOOTING	
F4.0	4'-0" x 4'-0" x 1'-0"	(5) #5 EA WAY AT BOTTOM OF FOOTING	
F6.0	6'-0" x 6'-0" x 1'-2"	(7) #5 EA WAY AT BOTTOM OF FOOTING	
F8.0	8'-0" x 8'-0" x 1'-8"	(9) #6 EA WAY AT BOTTOM OF FOOTING	
F10.0	10'-0" x 10'-0" x 2'-0"	(11) #7 EA WAY AT BOTTOM OF FOOTING	
F8.P	8'-0" x 8'-0" x 2'-0"	(9) #6 EA WAY AT BOTTOM OF FOOTING	PILE SUPPORTED FOOTING PER PLAN
F10.P	10'-0" x 10'-0" x 2'-4"	(11) #7 EA WAY AT BOTTOM OF FOOTING	PILE SUPPORTED FOOTING PER PLAN

FOOTINGS SCHEDULE NOTES:

1. TOP OF FOOTING ELEVATION = -1'-0" UNLESS NOTED OTHERWISE ON PLAN.
2. FOOTING DESIGN BASED ON 3000 PSF ALLOWABLE SOIL BEARING PRESSURE.
3. EQUALLY SPACE REINFORCING IN EACH DIRECTION.
4. PROVIDE 3" CLEAR TO REINFORCING AT BOTTOM OF FOOTING.

2 SCHEDULE

1" = 1'-0"

F'c = 3000 PSI

BAR SIZE	Ld	Lt	Lsb	Lsbt
#3	17	23	23	30
#4	22	29	29	38
#5	28	37	37	49
#6	33	43	43	56
#7	48	63	63	82
#8	55	72	72	94
#9	62	81	81	106
#10	70	91	91	119
#11	78	102	102	133
#14	93	121	-	-
#18	124	162	-	-

F'c = 4000 PSI

BAR SIZE	Ld	Lt	Lsb	Lsbt
#3	15	20	20	26
#4	19	25	25	33
#5	24	32	32	42
#6	29	38	38	50
#7	42	55	55	72
#8	48	63	63	82
#9	54	71	71	93
#10	61	80	80	104
#11	67	88	88	115
#14	81	106	-	-
#18	108	141	-	-

F'c = 5000 PSI

BAR SIZE	Ld	Lt	Lsb	Lsbt
#3	13	17	17	23
#4	17	23	23	30
#5	22	29	29	38
#6	26	34	34	45
#7	38	50	50	65
#8	43	56	56	73
#9	48	63	63	82
#10	54	71	71	93
#11	60	78	78	102
#14	72	94	-	-
#18	96	125	-	-

F'c = 6000 PSI

BAR SIZE	Ld	Lt	Lsb	Lsbt
#3	12	16	16	21
#4	16	21	21	28
#5	20	26	26	34
#6	24	32	32	42
#7	34	45	45	59
#8	39	51	51	67
#9	44	58	58	76
#10	50	65	65	85
#11	55	72	72	94
#14	66	86	-	-
#18	88	115	-	-

F'c = 8000 PSI

BAR SIZE	Ld	Lt	Lsb	Lsbt
#3	12	16	16	21
#4	14	19	19	25
#5	17	23	23	30
#6	21	28	28	37
#7	30	39	39	51
#8	34	45	45	59
#9	38	50	50	65
#10	43	56	56	73
#11	48	63	63	82
#14	57	75	-	-
#18	76	99	-	-

ALL CONCRETE STRENGTHS

BAR SIZE	Lb	Lc	Lcs	-
#3	9	12	12	
#4	11	15	12	
#5	14	19	15	
#6	17	23	17	
#7	20	27	20	
#8	22	30	23	
#9	25	34	26	
#10	28	39	29	
#11	31	43	32	
#14	38	-	-	
#18	50	-	-	

NOTES:

1. REINFORCEMENT DEVELOPMENT AND SPLICE LENGTHS ARE IN ACCORDANCE WITH ACI 318.
2. NOTATIONS:
   - db: NOMINAL BAR DIAMETER (IN)
   - Ld: TENSION DEVELOPMENT LENGTH (IN) FOR REINFORCEMENT SATISFYING THE FOLLOWING REQUIREMENTS: SLABS AND WALLS: CLEAR SPACING GREATER THAN 2db, AND CONCRETE CLEAR COVER GREATER THAN db BEAMS AND COLUMNS: CLEAR SPACING GREATER THAN db, AND CONCRETE CLEAR COVER GREATER THAN db
   - Lt: DEVELOPMENT LENGTH OF TOP BARS IN TENSION = 1.3 X Ld (IN)
   - Lb: DEVELOPMENT LENGTH OF BARS OR DOWELS IN COMPRESSION = 22 X db (IN)
   - Lc: TIED COLUMN LAP SPLICE IN COMPRESSION = 30 X db (IN)
   - Lcs: SPIRAL COLUMN LAP SPLICE IN COMPRESSION = 22.5 X db (IN)
   - Lsb: TENSION LAP SPLICE LENGTH FOR OTHER THAN TOP BARS = 1.3 X Ld (IN)
   - Lsbt: TENSION LAP SPLICE LENGTH OF TOP BARS = 1.69 X Ld (IN)
3. MULTIPLY VALUES IN THE TABLE BY 1.5 IF CLEAR SPACING OR CONCRETE COVER DO NOT MEET THE REQUIREMENTS FOR Ld IN NOTE 2.
4. TOP BARS: HORIZONTAL BEAM REINFORCING WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW.
5. THE DEVELOPMENT AND SPLICE LENGTHS ARE BASED ON REINFORCEMENT STRENGTH Fy = 60 KSI. 6. #14 AND #18 BARS SHALL NOT BE LAP SPLICED. SEE GENERAL NOTES.

REINFORCING BAR DEVELOPMENT AND SPLICE LENGTH TABLES

3 SCHEDULE

1" = 1'-0"

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CONCRETE SCHEDULES

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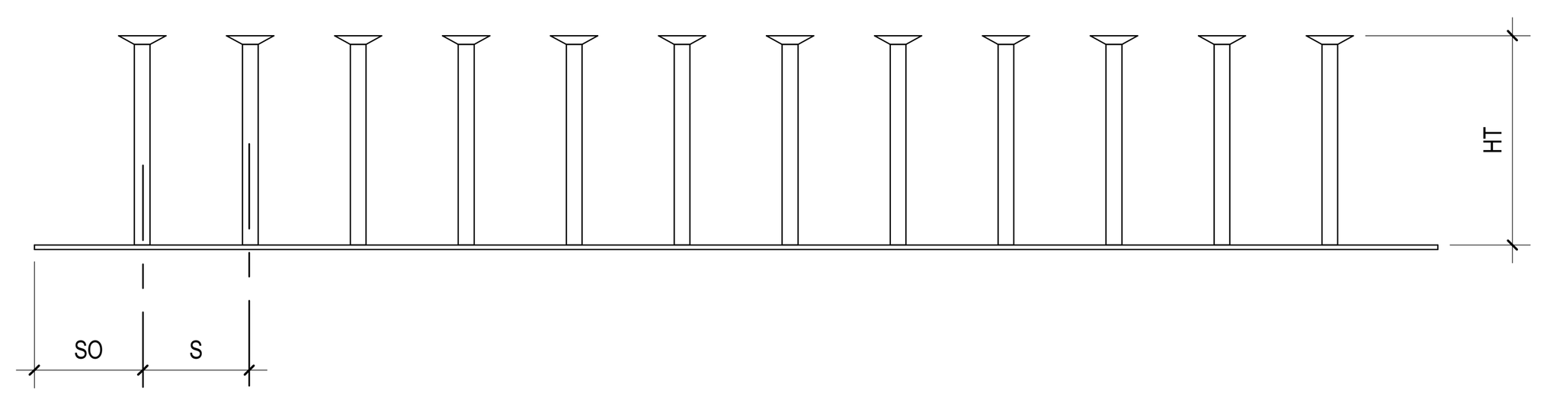
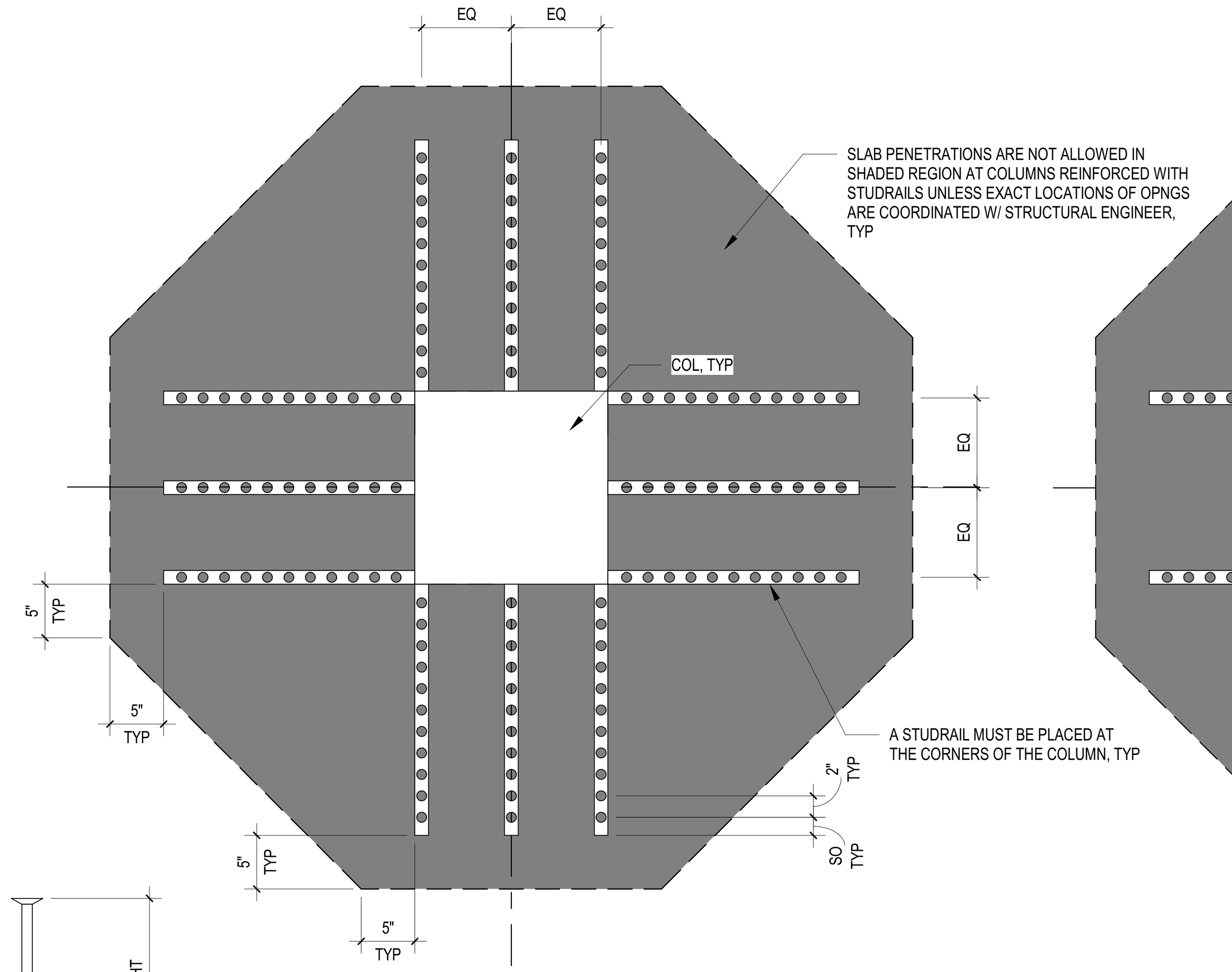
STUDRAIL SCHEDULE

MARK	NUMBER OF RAILS	STUDS PER RAIL	STUD DIA	SO	S	HT	LOCATION
NR	NONE	REQUIRED	-	-	-	-	-
A	8	7	1/2	4 3/4	4 3/4	8 1/2	INTERIOR
B	9	11	1/2	3 7/8	5 1/4	8 1/2	EDGE
C	12	6	1/2	3 7/8	5 3/4	8 1/2	INTERIOR
D	12	8	1/2	3 7/8	5 1/4	8 1/2	INTERIOR
E	12	10	1/2	3 7/8	4 1/4	8 1/2	INTERIOR
F	12	8	1/2	3 7/8	4	8 1/2	INTERIOR
G	12	10	1/2	3	3	8 1/2	INTERIOR

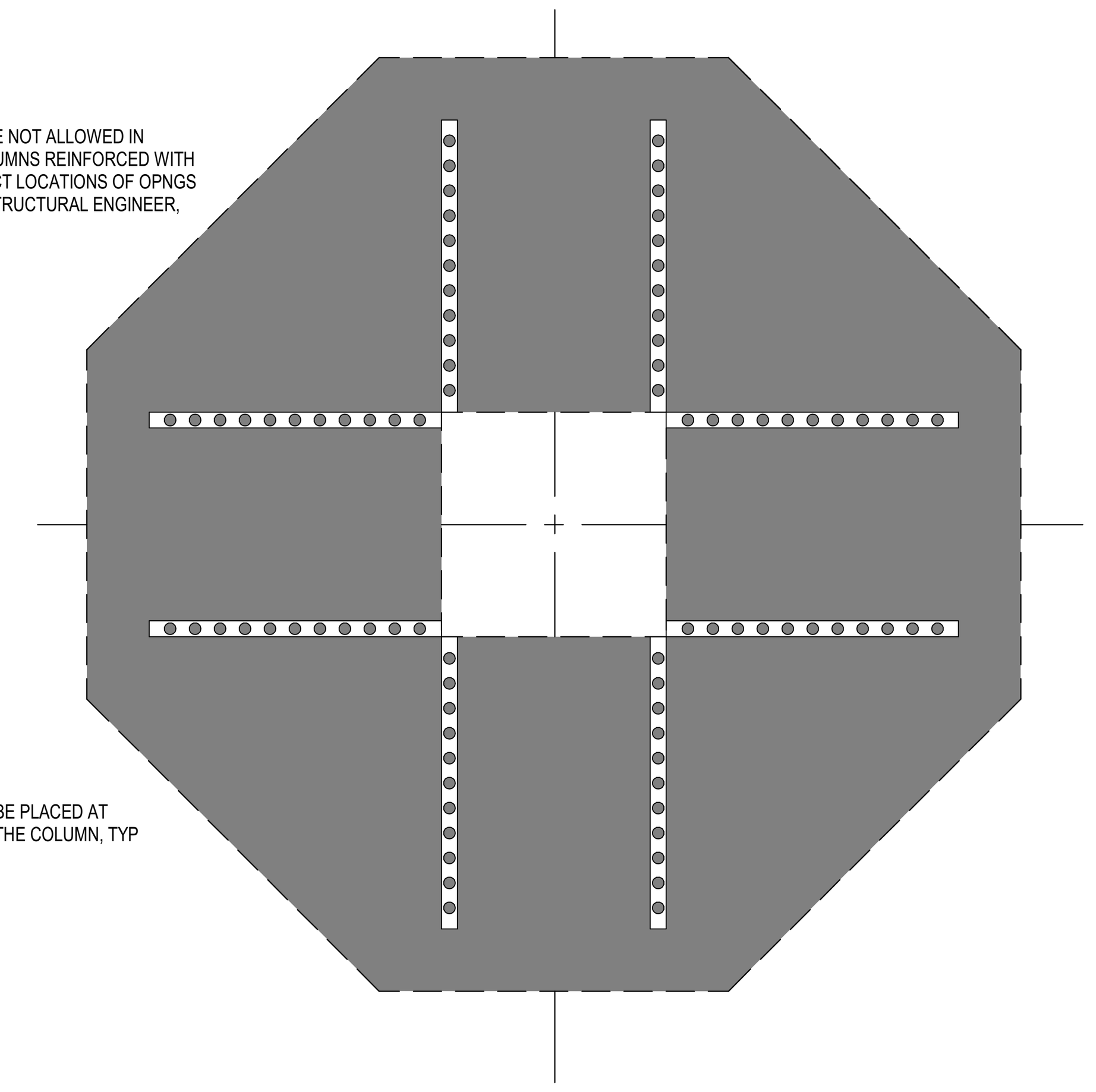
STUDRAIL SCHEDULE NOTES:

1 STUDRAILS MUST BE VERTICAL
2 PROVIDE 3/4" TOP AND 3/4" BOTTOM COVER ABOVE AND BELOW STUDRAIL
3 SPACE STUDRAILS EVENLY ACROSS COLUMN FACE
4 STUDRAILS SHALL BE MANUFACTURED BY DECON, USA. OR APPROVED EQUIVALENT
5 SEE 6/S4.2 FOR TYPICAL COLUMN W/ STUDRAILS

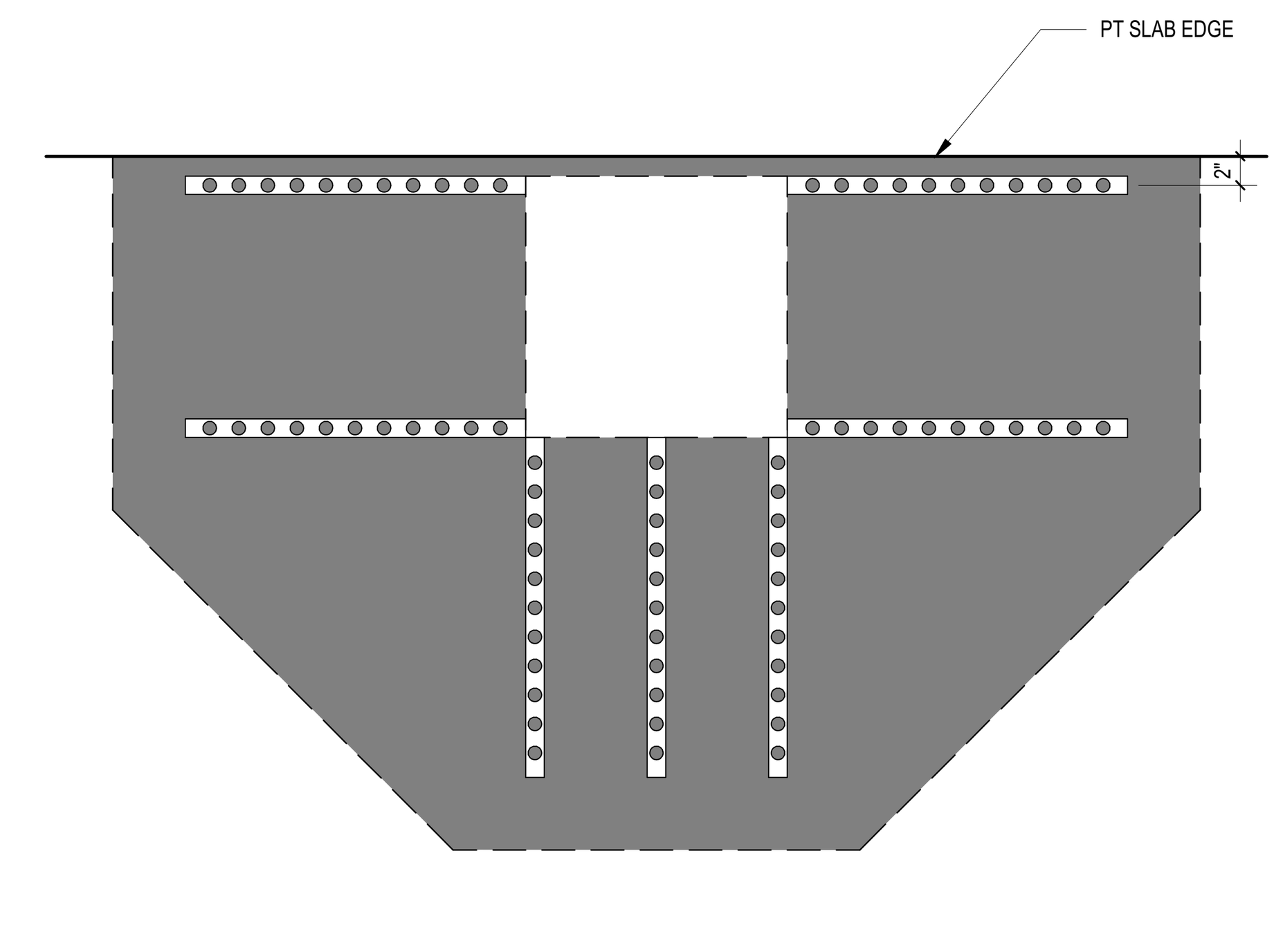




CONFIGURATON W/ (12) STUDRAILS



CONFIGURATON W/ (8) STUDRAILS



CONFIGURATON W/ (9) STUDRAILS

1 SCHEDULE
NTS

REBAR SCHEDULE

MARK	QUANTITY	SIZE	LOCATION	LENGTH	COMMENTS
A7-H	8	#5	TOP	7'-0"	12"
A10	8	#5	TOP	10'-0"	
A12	8	#5	TOP	12'-0"	
A18	8	#5	TOP	18'-0"	
B10	10	#5	TOP	10'-0"	
B12	10	#5	TOP	10'-0"	
B15	10	#5	TOP	15'-0"	12"
C7-H	12	#5	TOP	TOP	
C12	12	#5	TOP	12'-0"	
C15	12	#5	TOP	15'-0"	
D10	16	#5	TOP	10'-0"	
D12	16	#5	TOP	10'-0"	
D15	16	#5	TOP	15'-0"	12"
H	--	#5	TOP	6'-0"	AT 18" OC
J	--	#5	TOP & BOT	5'-0"	TRIM BARS PER 1 / S4.2
K	6	#5	TOP	8'-0"	CORNER BARS 8 / S4.2
M	--	#5	TOP	10'-0"	AT 18" OC

REBAR SCHEDULE NOTES:

1 ALL DIMENSIONS MEASURED FROM OUTSIDE TO OUTSIDE OF REBAR.

2 SCHEDULE
NTS

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER
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PUYALLUP, WA 98374

PERMIT SET
10/16/2023

ORIGINAL ISSUE: 08/17/16

REVISIONS

No.	Description	Date

2220236.20
PROJECT NUMBER

EDD/KJK ADM
DRAWN BY CHECKED BY

WESLEY BRADLEY PARK
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CONCRETE SCHEDULES

S0.6

STEEL STUD SHEARWALL SCHEDULE

MARK	SHEATHING	PANEL FASTENING SIZE	PANEL FASTENING SPACING	BLOCKING SIZE	BOTTOM TRACK ATTACHMENT TO FOUNDATION	2x BOTTOM TRACK ATTACHMENT TO FRAMING BELOW	ASD ALLOWABLE UNIT SHEAR
SS 6	0.027" STEEL SHEET	No. 8	6" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 48" OC	No. 10 AT 12" OC	258 PLF
SS 4	0.027" STEEL SHEET	No. 8	4" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 24" OC	No. 10 AT 6" OC	400 PLF
SS 3	0.027" STEEL SHEET	No. 8	3" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 24" OC	No. 10 AT 6" OC	434 PLF
SS 2	0.027" STEEL SHEET EA FACE	No. 8	2" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 24" OC	No. 10 AT 6" OC	468 PLF
2SS 6	0.027" STEEL SHEET EA FACE	No. 8	6" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 24" OC	No. 10 AT 6" OC	516 PLF
2SS 4	0.027" STEEL SHEET EA FACE	No. 8	4" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 16" OC	(2) ROWS No. 10 AT 6" OC	800 PLF
2SS 3	0.027" STEEL SHEET EA FACE	No. 8	3" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 16" OC	(2) ROWS No. 10 AT 6" OC	868 PLF
2SS 2	0.027" STEEL SHEET EA FACE	No. 8	2" OC EDGES 12" OC FIELD	43-MIL FLAT STRAP x 1 1/2"	3/4" DIA AT 16" OC	(2) ROWS No. 10 AT 6" OC	936 PLF

STEEL STUD SHEARWALL NOTES:

1. STUDS SHALL BE A MINIMUM OF 3 1/2" DEEP WITH 1 5/8" FLANGES AND A 3/8" RETURN LIP. TOP AND BOTTOM TRACKS SHALL BE A MINIMUM OF 3 1/2" DEEP WITH 1 1/4" FLANGES. STUDS AND TRACKS SHALL HAVE A MINIMUM THICKNESS OF 43-MIL.
2. FRAMING SCREWS SHALL BE MINIMUM No.8 TAPPING SCREWS WITH A MINIMUM HEAD DIAMETER OF 0.285" OR No.10 TAPPING SCREWS WITH A MINIMUM HEAD DIAMETER OF 0.333" BY AMERICAN OR CANADIAN MANUFACTURERS ONLY. SCREWS SHALL HAVE SUFFICIENT LENGTH TO ENSURE PENETRATION INTO STEEL FRAMING BY AT LEAST TWO FULL DIAMETER THREADS. FASTENERS SHALL CONFORM TO ASTM 1513.
3. ALL INTERIOR SHEAR WALLS HAVE BEEN DESIGNATED. WHERE THE SHEARWALL HAS BEEN DESIGNATED ON THE PLANS TO EXTEND ALONG LENGTHS OF WALLS WITH PENETRATIONS, SHEATHING AND NAILING OF THAT TYPE SHALL BE REQUIRED ABOVE AND BELOW WALL OPENINGS.
4. UNLESS NOTED OTHERWISE, THE SHEARWALL DESIGNATION APPLIES TO FULL EXTENT OF WALL BETWEEN CORNERS OF WALLS.
5. SHEARWALLS SHALL RUN CONTINUOUS THROUGH BREAKS CAUSED BY INTERSECTING WALLS.
6. WHEN SHEATHING IS REQUIRED ON ONE SIDE ONLY, PLACE ON THE SIDE OF THE SYMBOL. WHERE THE SHEATHING IS NOTED ON TWO SIDES OF THE WALL, STAGGER VERTICAL PANEL JOINTS SUCH THAT JOINTS ON OPPOSITE SIDES OF THE WALL DO NOT FALL ON THE SAME FRAMING MEMBER.
7. FASTENER SPACING INDICATED ON SCHEDULE APPLIES TO ALL STUDS, TOP AND BOTTOM PLATES AND BLOCKING. FASTENERS SHALL BE LOCATED AT LEAST 3/8" FROM PANEL EDGES.
8. PROVIDE SHEATHING EDGE NAILING TO ALL COLUMNS/STUDS WITH HOLDOWNS AND STUDS ATTACHED TO STEEL TUBE COLUMNS.
9. SPACING OF WALL STUDS SHALL BE AS NOTED ON THE PLANS. SPACING OF STUDS SHALL NOT EXCEED 24" OC.
10. ANCHOR BOLTS SHALL NOT BE SPACED GREATER THAN 48" OC, AND SHALL HAVE 7" MIN. EMBED. EXPANSION BOLTS SHALL HAVE 5" MIN EMBED. SEE DETAILS FOR TYPE OF CONNECTION REQUIRED. PROVIDE A MINIMUM OF (2) ANCHOR BOLTS PER PIECE, WITH ONE ANCHOR LOCATED NOT MORE THAN 12" OR LESS THAN 4" FROM EACH END OF EACH PIECE. AT NON-SHEAR WALLS, PROVIDE SPECIFIED ANCHOR BOLTS AT 48" OC MAX, UNLESS NOTED OTHERWISE.

1 SCHEDULE
1" = 1'-0"

STEEL STUD WALL SCHEDULE

MARK	WALL STUDS	GRADE	SPACING	NOTES
416	4" x 16 GA (400 S 162-54)	50 ksi	16" OC	
618	6" x 18 GA (600 S 162-43)	33 ksi	16" OC	TYPICAL WALL
616	6" x 16 GA (600 S 162-54)	50 ksi	16" OC	
612	6" x 12 GA (600 S 162-97)	50 ksi	16" OC	

NOTES:

1. PROVIDE TOP AND BOTTOM TRACKS TO MATCH STUD SIZE, GAGE AND GRADE TYPICAL, UNO.
2. ALIGN STUDS WITH FLOOR JOISTS WHERE SPACINGS ARE EQUAL.
3. ALIGN STUDS ABOVE WITH STUDS BELOW AT ALL BREAKS.
4. PROVIDE MINIMUM (2) STUDS PER SCHEDULE AT ALL HOLDOWN AND VERTICAL STRAP LOCATIONS PER PLAN.
5,. PROVIDE BRIDGING PER TYPICAL BRIDGING DETAIL AT WALLS NOT SHEATHED FULL HEIGHT EACH SIDE.

2 SCHEDULE
N.T.S.

INTERIOR NON-BEARING COLD-FORMED STEEL STUD WALL SCHEDULE

STUD SIZE	SPACING	MAX ALLOWABLE STUD HEIGHT
COMPOSITE WALLS		
250S125-18	24" OC	11'-3"
	16" OC	12'-10"
362S125-18	24" OC	13'-2"
	16" OC	15'-2"
600S125-27	24" OC	21'-3"
	16" OC	24'-4"
NON-COMPOSITE WALLS		
362S125-27	24" OC	12'-5"
	16" OC	15'-0"
600S125-27	24" OC	17'-6" (*)
	16" OC	21'-5" (*)
600S125-30	24" OC	18'-10"
	16" OC	23'-0"
800S125-43	24" OC	28'-4"
	16" OC	33'-1"

NOTES:

1. ALLOWABLE STUD HEIGHTS BASED ON 5 PSF MINIMUM HORIZONTAL LIVE LOAD WITH L/240 DEFLECTION LIMIT.
2. COMPOSITE WALLS SHALL BE SHEATHED FULL HEIGHT EACH SIDE 5/8 GWB INSTALLED IN THE VERTICAL ORIENTATION AND ATTACHED USING MINIMUM #6 SCREWS SPACED AT 12" OC FOR STUDS AT 24" OC, AND 16" OC FOR STUDS AT 16" AND 12" OC.
3. PROVIDE BRIDGING AT 48" OC VERT MAX AT ALL NON-COMPOSITE STUD WALLS. SEE TYPICAL BRIDGING DETAIL.
4. ASTERISK (*) INDICATES WEB STIFFENERS REQUIRED AT BEARING LOCATIONS UNLESS WALL SHEATHED FULL HEIGHT EACH SIDE.
5. SEE ARCH DRAWINGS (PLANS AND WALL TYPES) FOR STUD WALL SIZES.

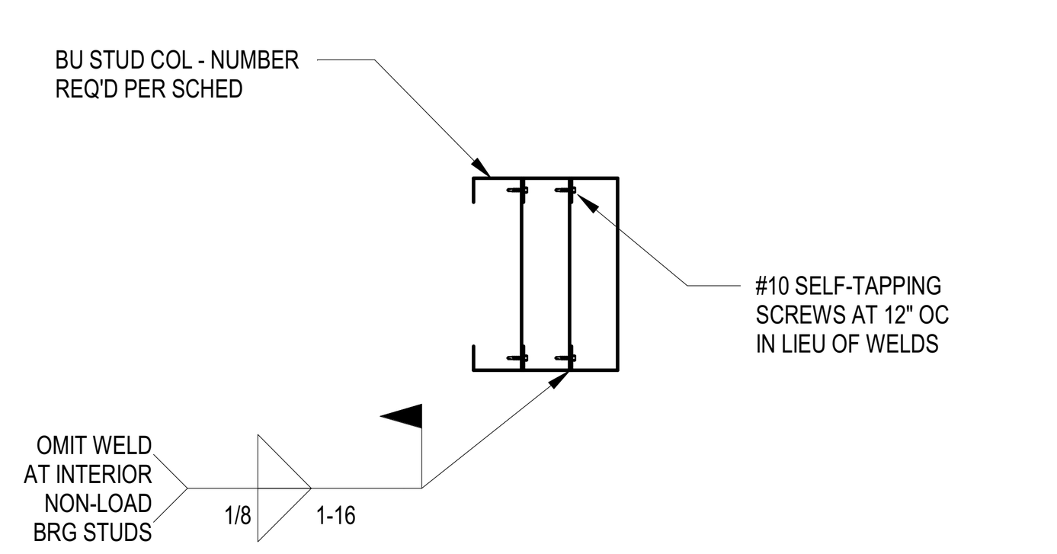
3 SCHEDULE
N.T.S.

TYPICAL STEEL STUD BUILT-UP COLUMN SCHEDULE

EXTERIOR WALLS OPENING WIDTH	BEARING STUDS	FULL HEIGHT STUDS
3'-0" OR LESS	1	2
6'-0" OR LESS	1	3
10'-0" OR LESS	2	4
16'-0" OR LESS	3	6
NON-STRUCTURAL INTERIOR WALLS OPENINGS WIDTH	BEARING STUDS	FULL HEIGHT STUDS
6'-0" OR LESS	1	1
10'-0" OR LESS	1	2
20'-0" OR LESS	2	2
INTERIOR STRUCTURAL WALLS AND BEAMS	BEARING STUDS	FULL HEIGHT STUDS
3'-0" OR LESS	2	1
6'-0" OR LESS	2	1
10'-0" OR LESS	3	2
16'-0" OR LESS	4	2

NOTES

1. PROVIDE 14 GA STUDS AT BU STUD COLUMNS SUPPORTING HSS BEAMS AND HEADERS. PROVIDE NUMBER OF BEARING AND FULL HEIGHT STUDS BASED ON HSS SPAN LENGTH.



4 SCHEDULE
N.T.S.

LIGHT GAGE JOIST SCHEDULE

MARK	SECTION	SPACING	GRADE	ALTERANTE JOIST SIZE
TDJ14-16	925TDJ24-175-68 (1)	16" OC	50 KSI	10" x 14 GA (1000S200-68)
TDJ18-16	925TDJ24-175-43 (1)	16" OC	33 KSI	10" x 18 GA (1000S200-43)
S618-24	600S162-43	24" OC	33 KSI	
S618-16	600S162-43	16" OC	33 KSI	

NOTES

1. CLARKDIETRICH TRADEREADY STEEL JOIST SYSTEM. AT CONTRACTOR'S OPTION, ALTERNATE JOIST MAY BE SUBSTITUTED AND SYSTEM SHALL MEET OR EXCEED SPECIFIED JOISTS.
2. PROVIDE JOIST BRIDGING AT MIDSPAN FOR JOIST SPANS UP TO 16 FEET AND AT THIRD POINTS FOR JOISTS SPANS UP TO 24 FEET SEE 2 / S0.9.
3. STANDARD PUNCHOUTS MAY BE PROVIDED. EDGE OF FIRST AND LAST PUNCHOUT SHALL BE 10" MIN FROM EACH END OF JOIST.

6 SCHEDULE
N.T.S.

COLD-FORMED STEEL CEILING JOIST SCHEDULE

JOIST SIZE	SPACING	MAX ALLOWABLE JOIST SPAN	BRIDGING LOCATION
400S162-33	24" OC	9'-1"	NOT REQ'D
	16" OC	10'-2"	NOT REQ'D
400S162-33	24" OC	11'-9"	MIDSPAN
	16" OC	13'-9"	MIDSPAN
600S162-33	24" OC	14'-9" (*)	MIDSPAN
	16" OC	16'-8"	MIDSPAN
600S162-43	16" OC	17'-11"	MIDSPAN
	12" OC	19'-4"	MIDSPAN

NOTES

1. JOIST SPANS BASED ON CEILING SUPPORTING 13 PSF UNIFORM LOAD MAX WITH L/240 DEFLECTION LIMIT.
2. PROVIDE JOIST BRIDGING WHERE REQUIRED PER TYPICAL JOIST BRIDGING DETAIL.
3. ASTERISK (*) INDICATES WEB STIFFENERS REQUIRED AT BEARING LOCATIONS.

7 SCHEDULE
N.T.S.

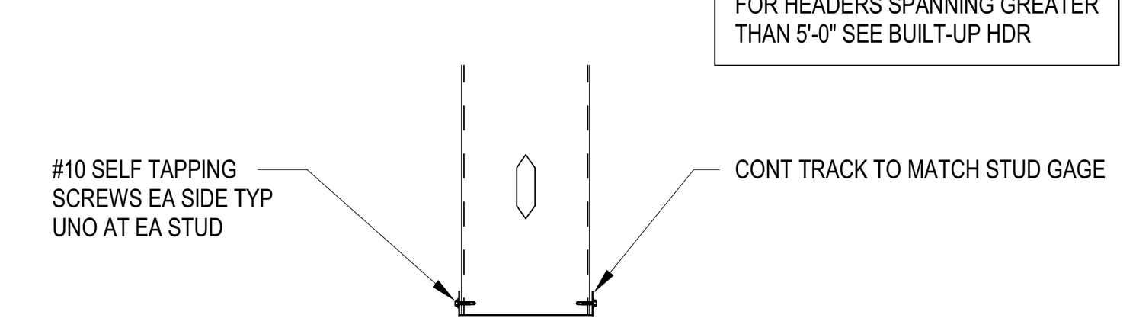
STEEL HEADER SCHEDULE

MARK	SECTION	NOTES
LIGHT GAGE BUILT-UP HEADERS		
MARK	SECTION	NOTES
H6	(2) 6" x16 GA (600S162-54)	
H8	(2) 8" x16 GA (800S162-54)	
H10	(2) 10" x14 GA (1000S162-68)	
H12	(2) 12" x12 GA (1200S162-97)	
HSS HEADERS		
MARK	SECTION	NOTES
H644	HSS 6 x 4 x 1/4	
H844	HSS 8 x 4 x 1/4	
H1044	HSS 10 x 4 x 1/4	

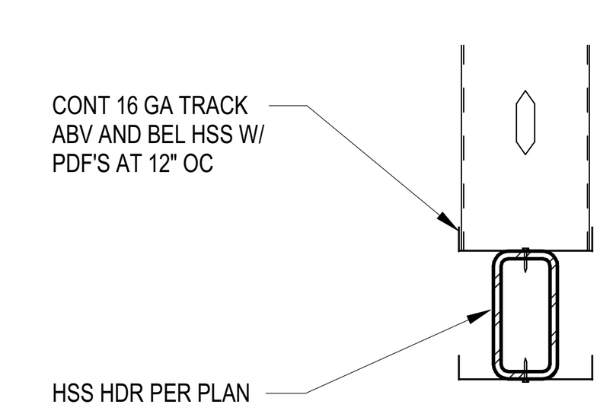
NOTES

1. LIGHT GAGE HEADERS SHALL BE UNPUNCHED UNO.
2. AT CONTRACTOR'S OPTION, PRE-ENGINEERED CLARK DIETRICH HEADER MEETING SECTION PROPERTIES OF HEADER SHOWN MAY BE SUBSTITUTED.

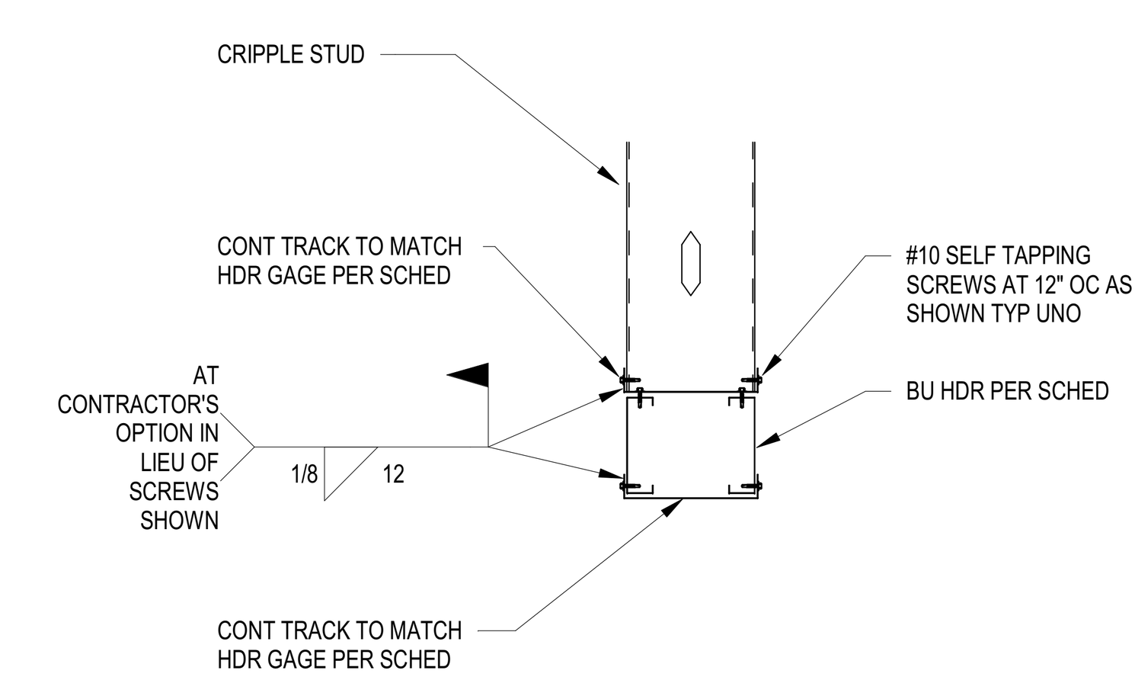
NOTE:
FOR HEADERS SPANNING GREATER THAN 5'-0" SEE BUILT-UP HDR



TYPICAL INTERIOR NON-LOAD BEARING HEADER (5'-0" OR LESS)



TYPICAL HSS HEADER



TYPICAL BUILT-UP HEADER

5 SCHEDULE
N.T.S.

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PERMIT SET
10/16/2023

ORIGINAL ISSUE: 01/10/19

REVISIONS

No.	Description	Date

2220236.20
PROJECT NUMBER

EDD/KJK — DRAWN BY
ADM — CHECKED BY

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

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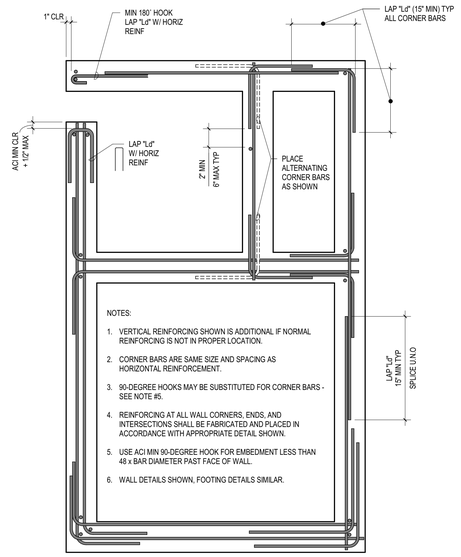
STEEL SCHEDULES

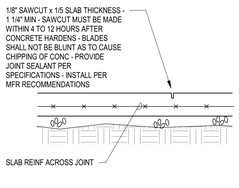
S0.7



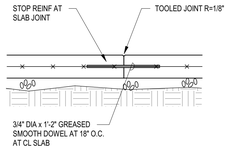
TYPICAL REINFORCEMENT PLACING DETAIL

1 TYPICAL

1" = 1'-0" 1 / S0.8-B



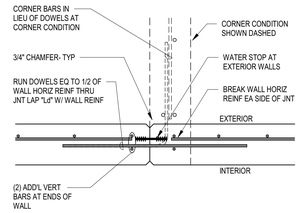
TYPICAL CONTROL JOINT



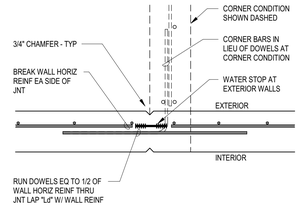
TYPICAL CONSTRUCTION JOINT

2 TYPICAL

1" = 1'-0" 2 / S0.8-B



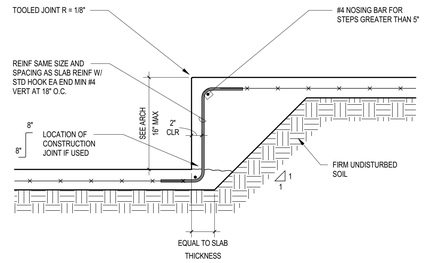
TYPICAL WALL CONSTRUCTION JOINT



TYPICAL WALL CONTROL JOINT

3 TYPICAL

1" = 1'-0" 3 / S0.8-B



TYPICAL AT STEPS IN CONC SLAB ON GRADE

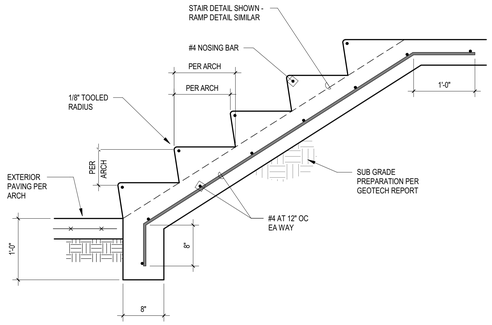
4 TYPICAL

1" = 1'-0" 4 / S0.8-B

TYPICAL STEPPED FOOTING

5 TYPICAL

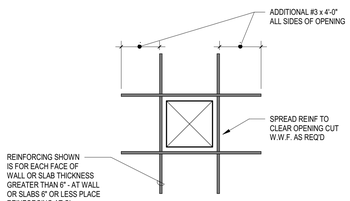
1" = 1'-0" 5 / S0.8-B



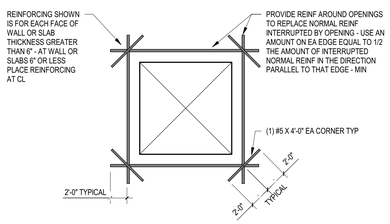
TYP CONCRETE STAIR CONSTRUCTION

6 TYPICAL

1" = 1'-0" 6 / S0.8-B



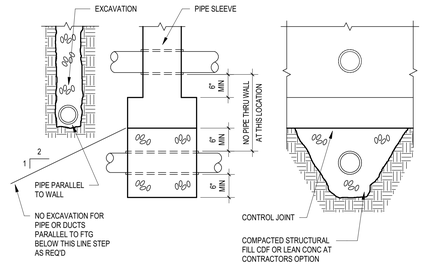
TYPICAL AT OPENINGS LESS THAN 12" IN CONC WALL OR SLAB



TYPICAL AT OPENINGS GREATER THAN 12" IN CONC WALL OR SLAB

7 TYPICAL

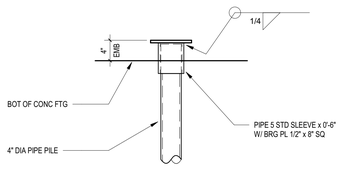
1" = 1'-0" 7 / S0.8-B



TYP DETAIL OF PIPE AT CONCRETE FTG

8 TYPICAL

1" = 1'-0" 8 / S0.8-B



TYPICAL PILE CAP

9 TYPICAL

1" = 1'-0" PIPE PILE

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

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2220236.20
PROJECT NUMBER

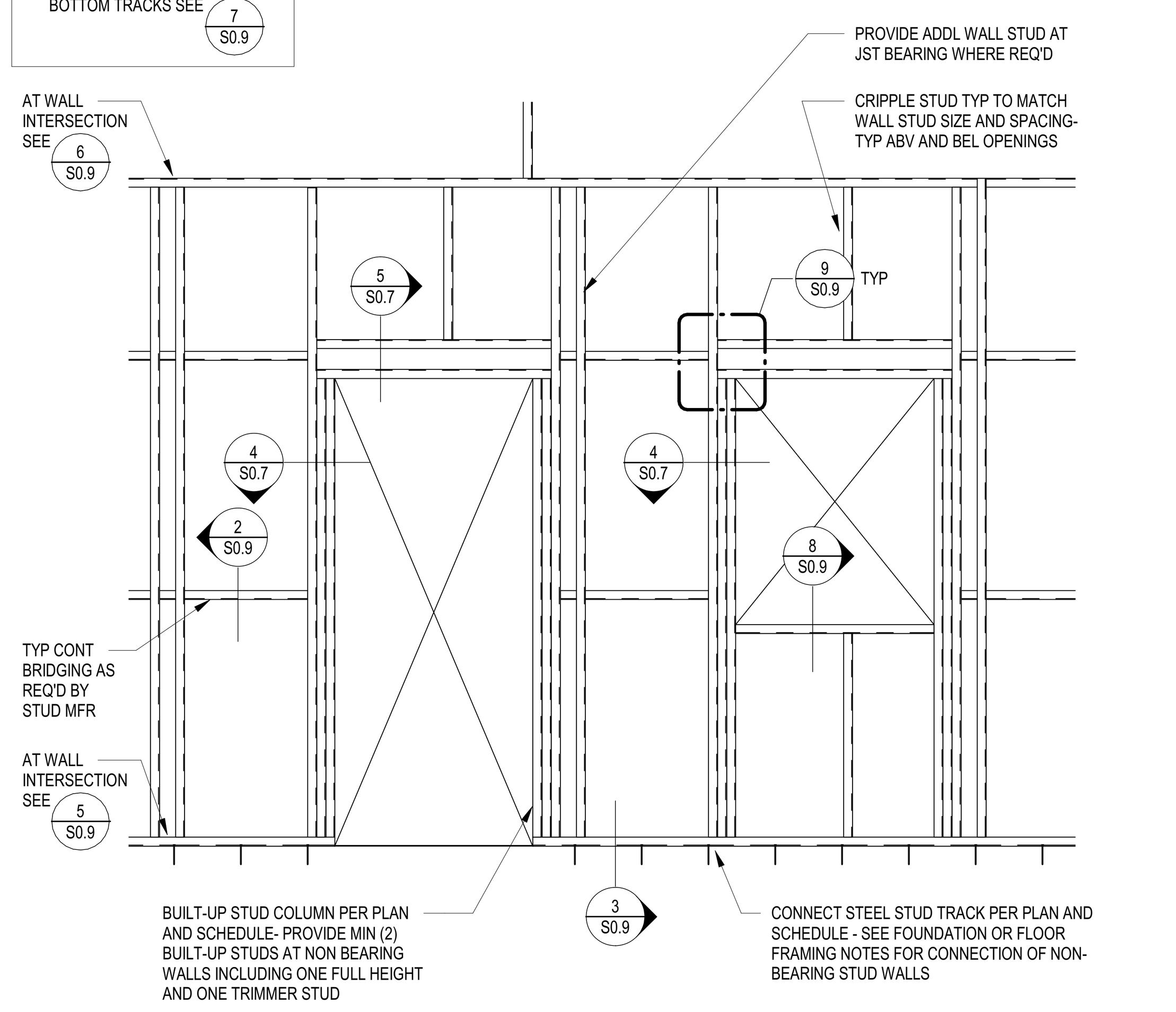
EDD/KJK DRAWN BY ADM CHECKED BY

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

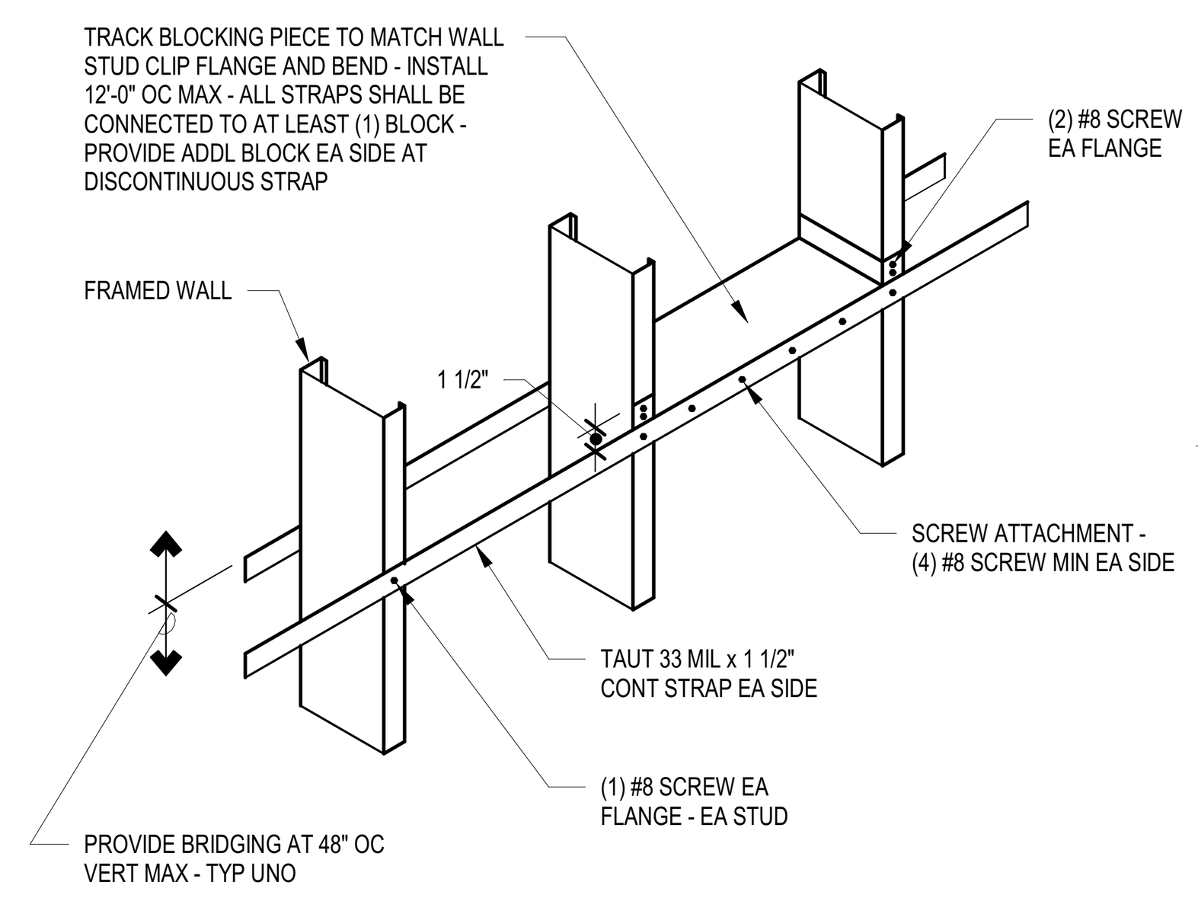
TYPICAL DETAILS

S0.8

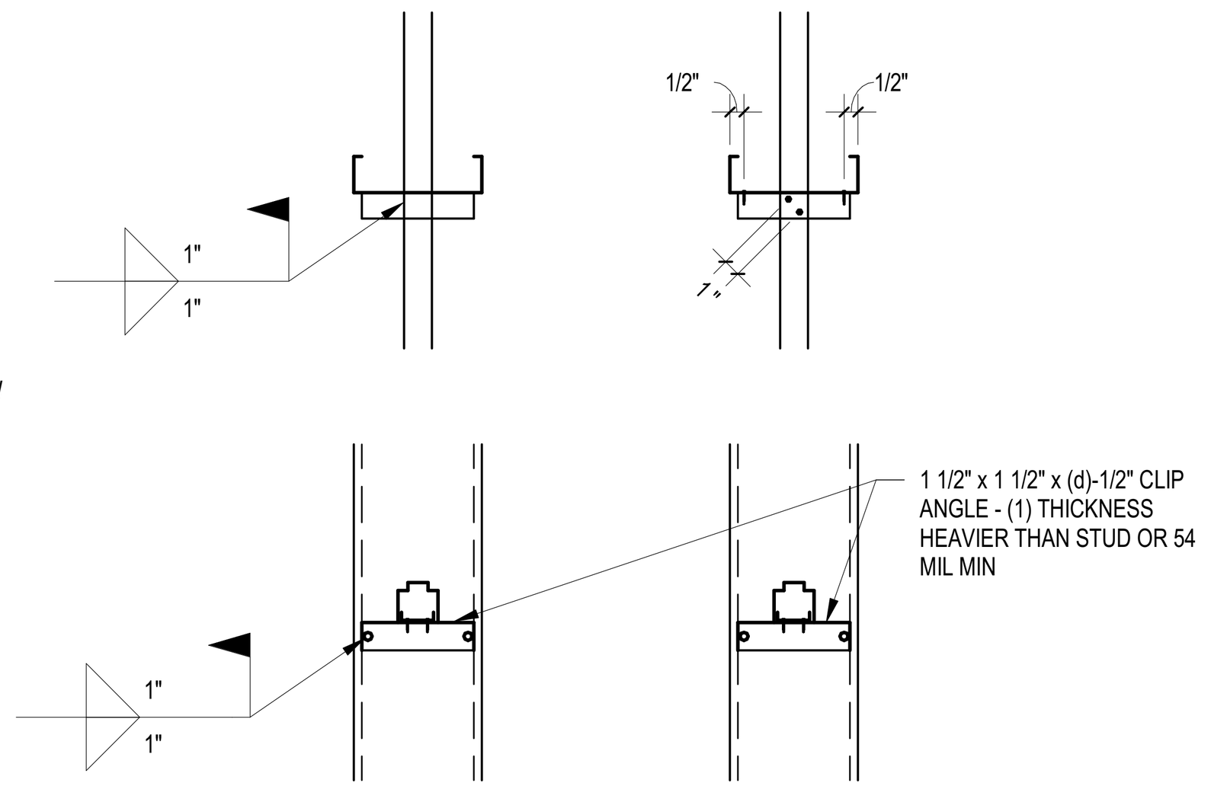
NOTES:
1. ALL SECTION CUTS ARE TYPICAL.
2. FOR SPLICES IN TOP TRACK AND BOTTOM TRACKS SEE 7/S0.9



1 TYPICAL
N.T.S. 1 / S0.9

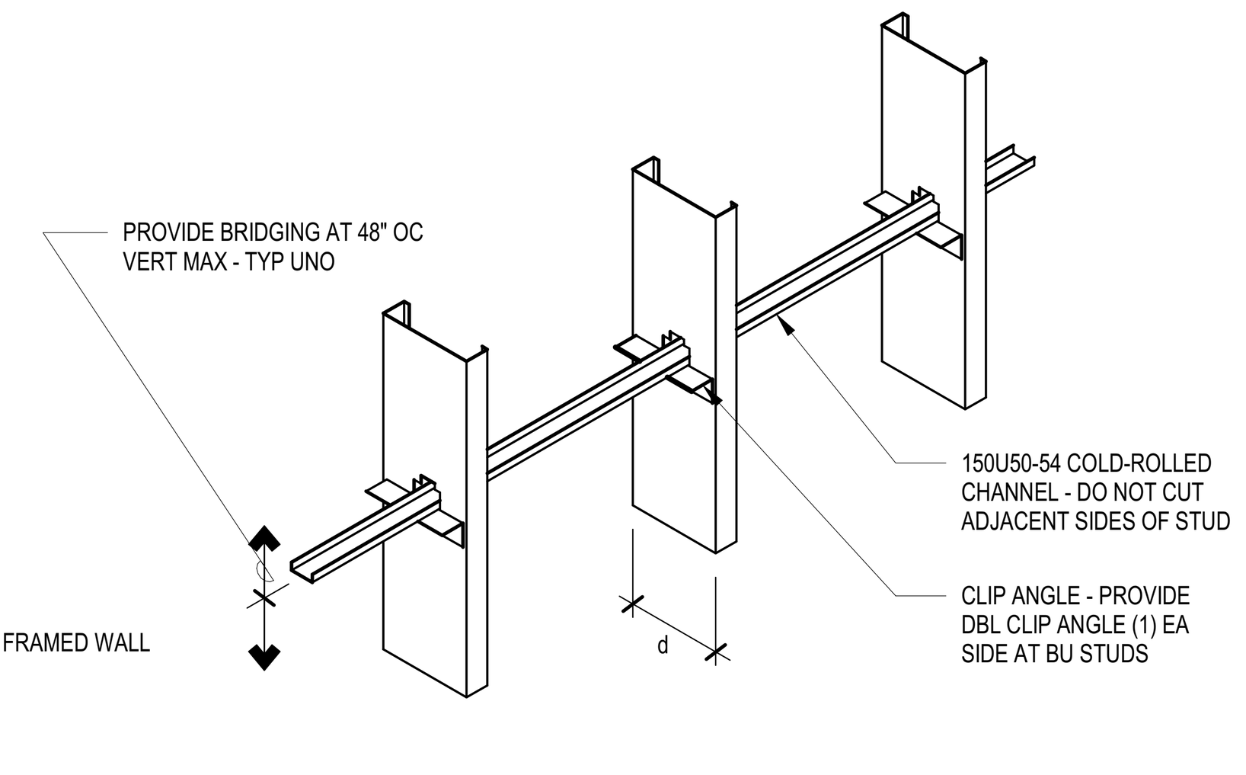


TYPE 1 BRIDGING - DOUBLE FLAT STRAP WITH BLOCKING

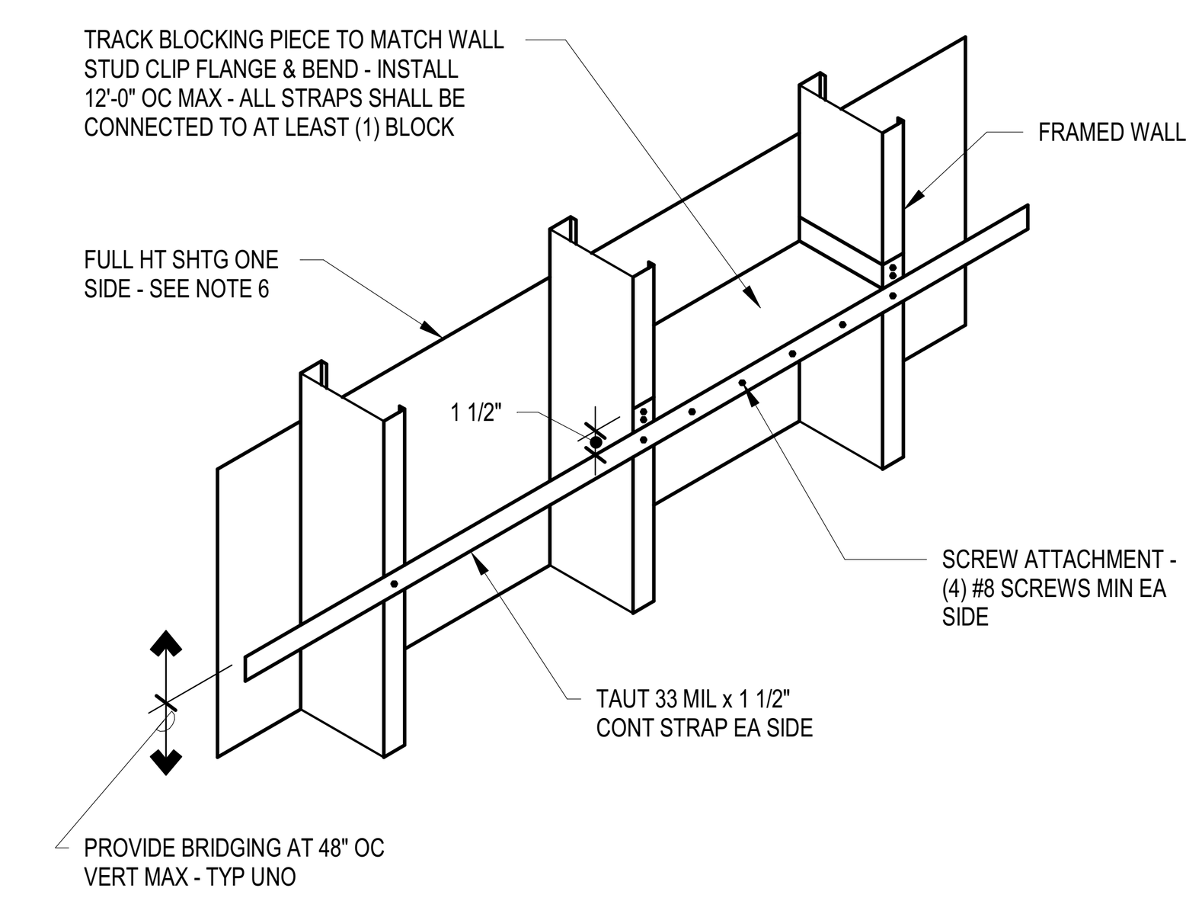


WELDED ANGLE

SCREWED ANGLE



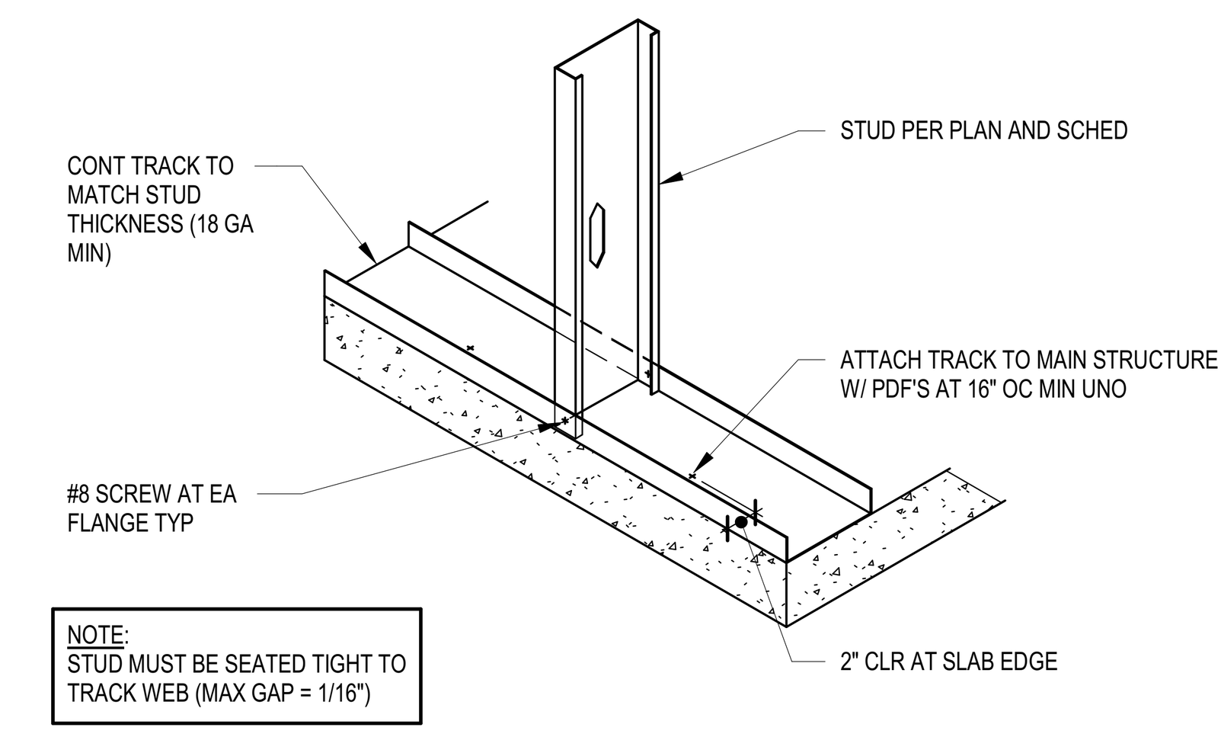
TYPE 2 BRIDGING - COLD-ROLLED CHANNEL WITH CLIP ANGLE



TYPE 3 BRIDGING - SHEATHING WITH SINGLE FLAT STRAP WITH BLOCKING

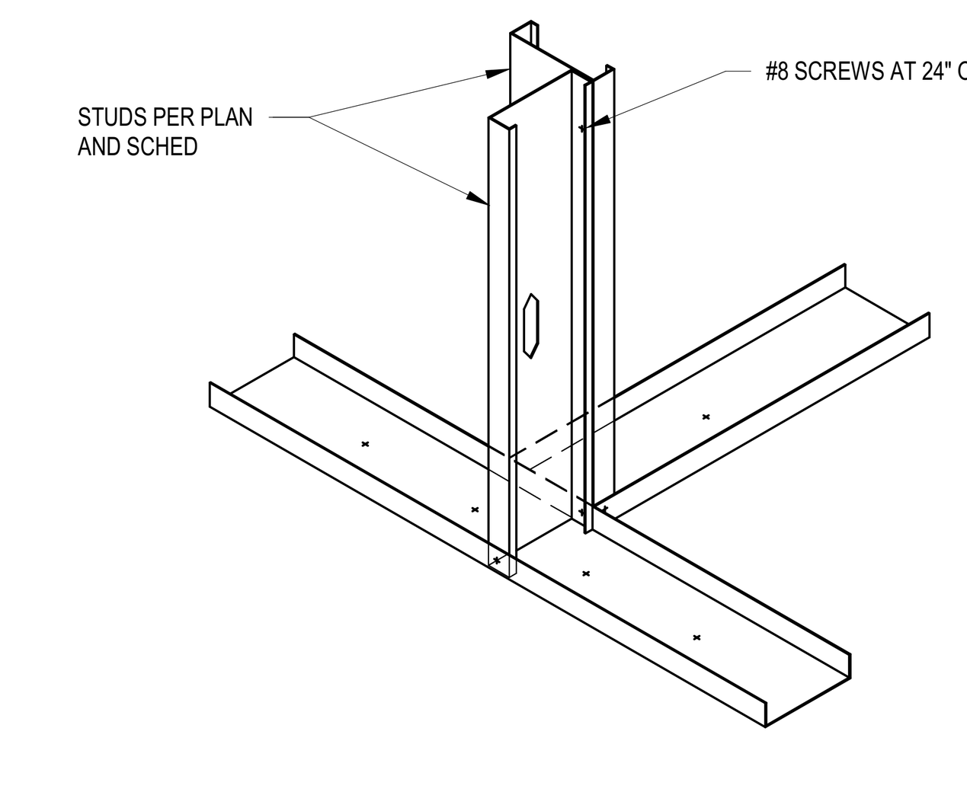
NOTES:
1. PROVIDE BRDIGING ON ALL LOAD BEARING AND CURTAIN WALL STUDS.
2. USE ONLY TYPE 1 AND TYPE 2 BRIDGING FOR LOAD BEARING STUD WALLS (SUPPORTING ROOFS, FLOORS, MEZZANINE, ETC.)
3. INSTALL ALL BRIDGING PRIOR TO INSTALLATION OF SUPPORTED FRAMING.
4. NO BRIDGING REQUIRED AT WALLS WITH FULL HEIGHT SHEATHING EACH SIDE.
5. TYPE 2 BRIDGING NOT ALLOWED ON STUDS GREATERS THAN 6" DEEP.
6. QUALIFIED SHEATHING SHALL BE GWB, GYPSHEATHING, PW, OR OSB ONLY.
7. TYPICAL MINIMUM EDGE DISTANCE = 3x SCREW DIAMETER.

2 TYPICAL
N.T.S. 2 / S0.9

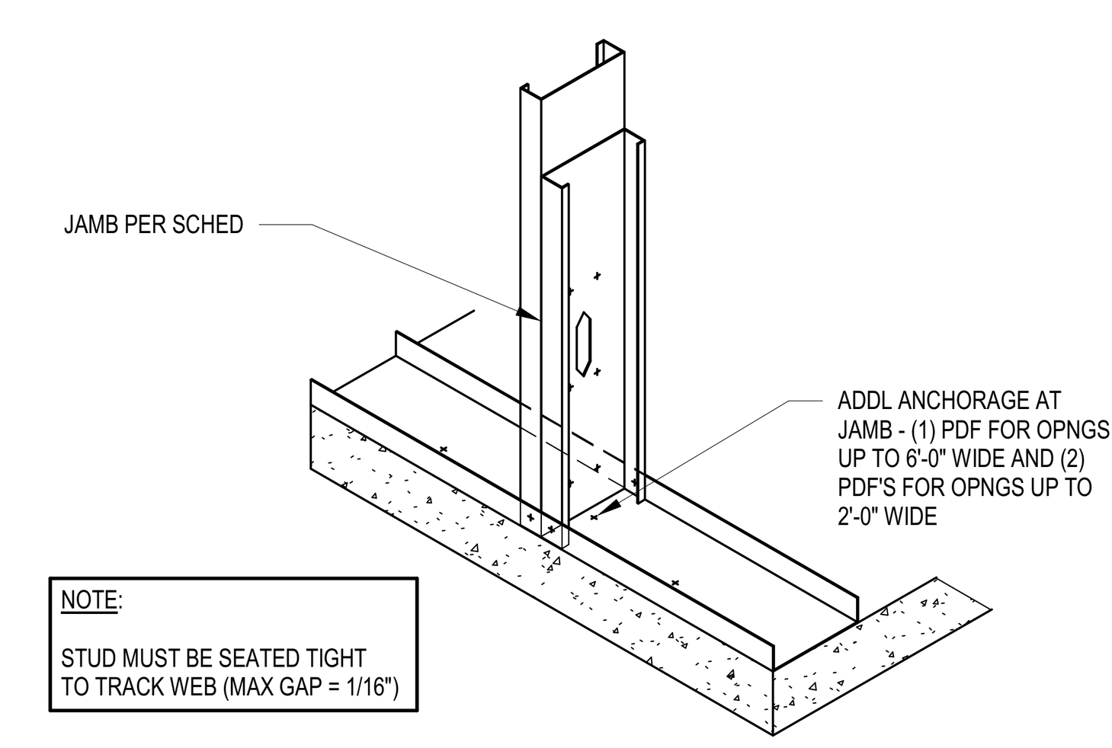


STUD WALL BOTTOM TRACK ATTACHMENT

3 TYPICAL
N.T.S. 3 / S0.9

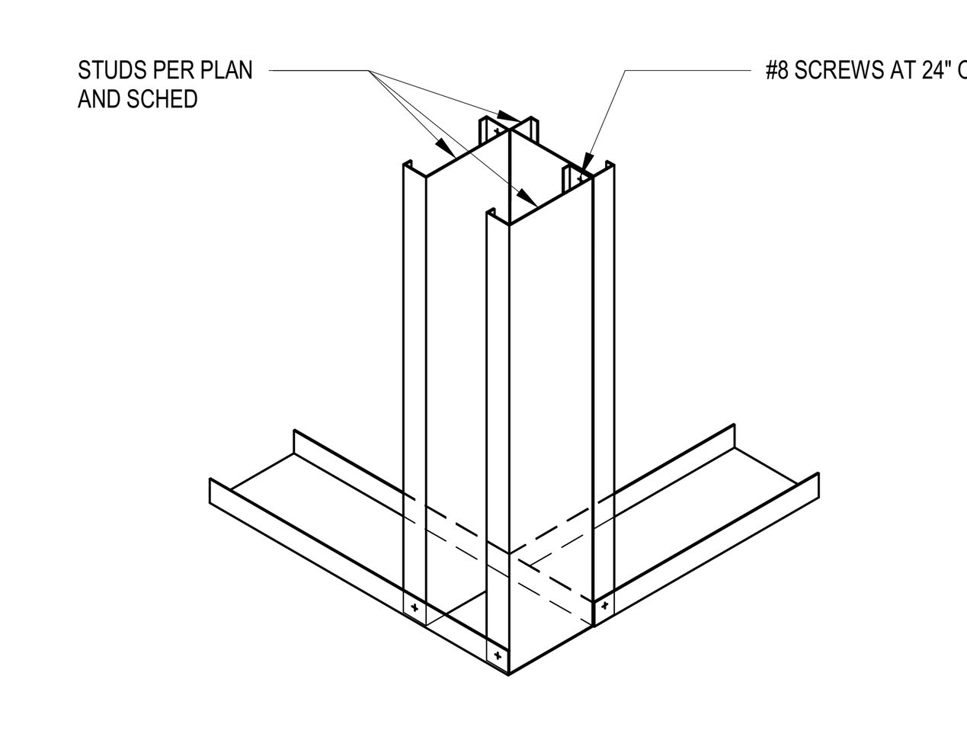


WALL INTERSECTION - BOTTOM TRACK



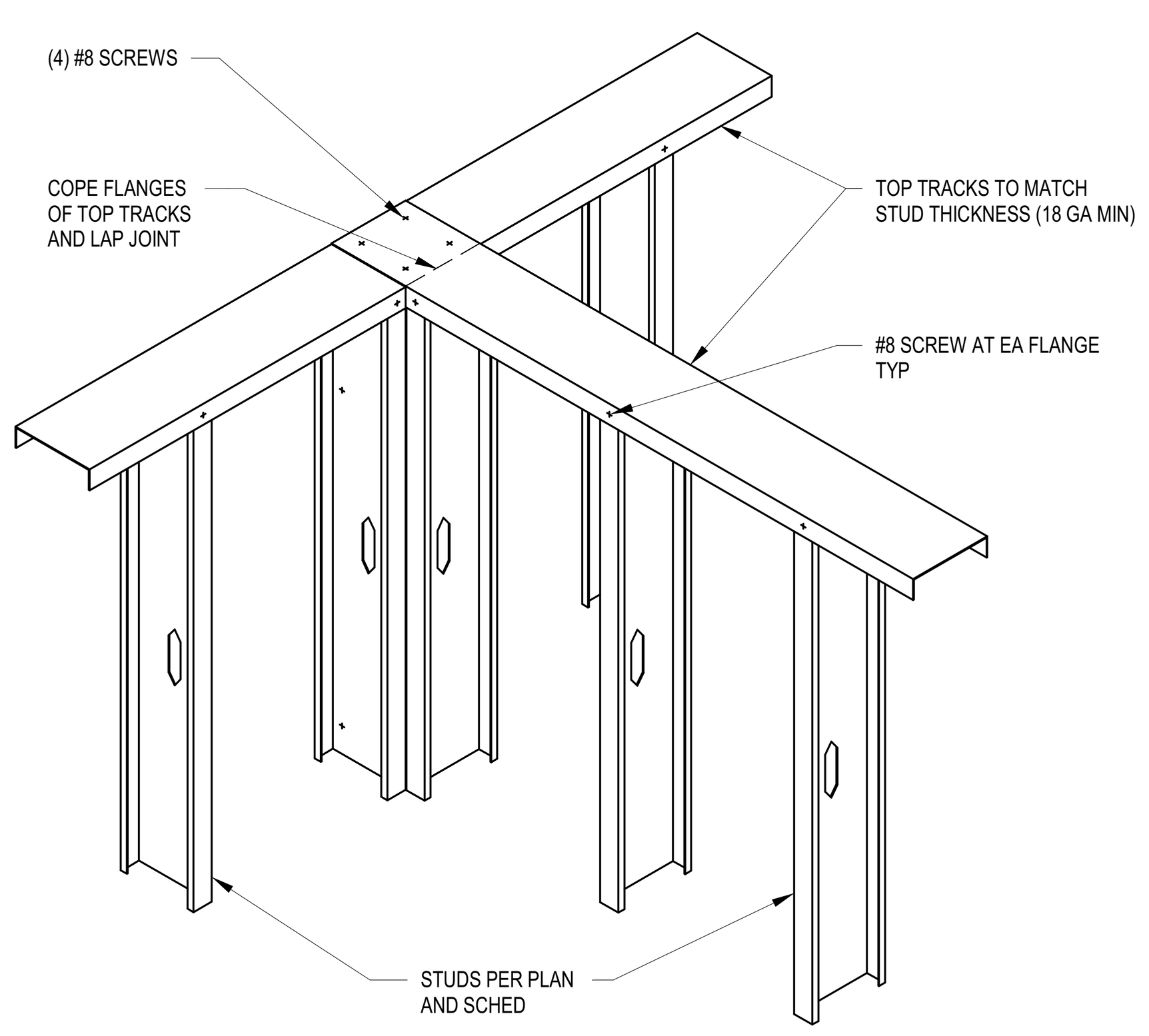
JAMB STUD ATTACHMENT

4 TYPICAL
N.T.S. 4 / S0.9

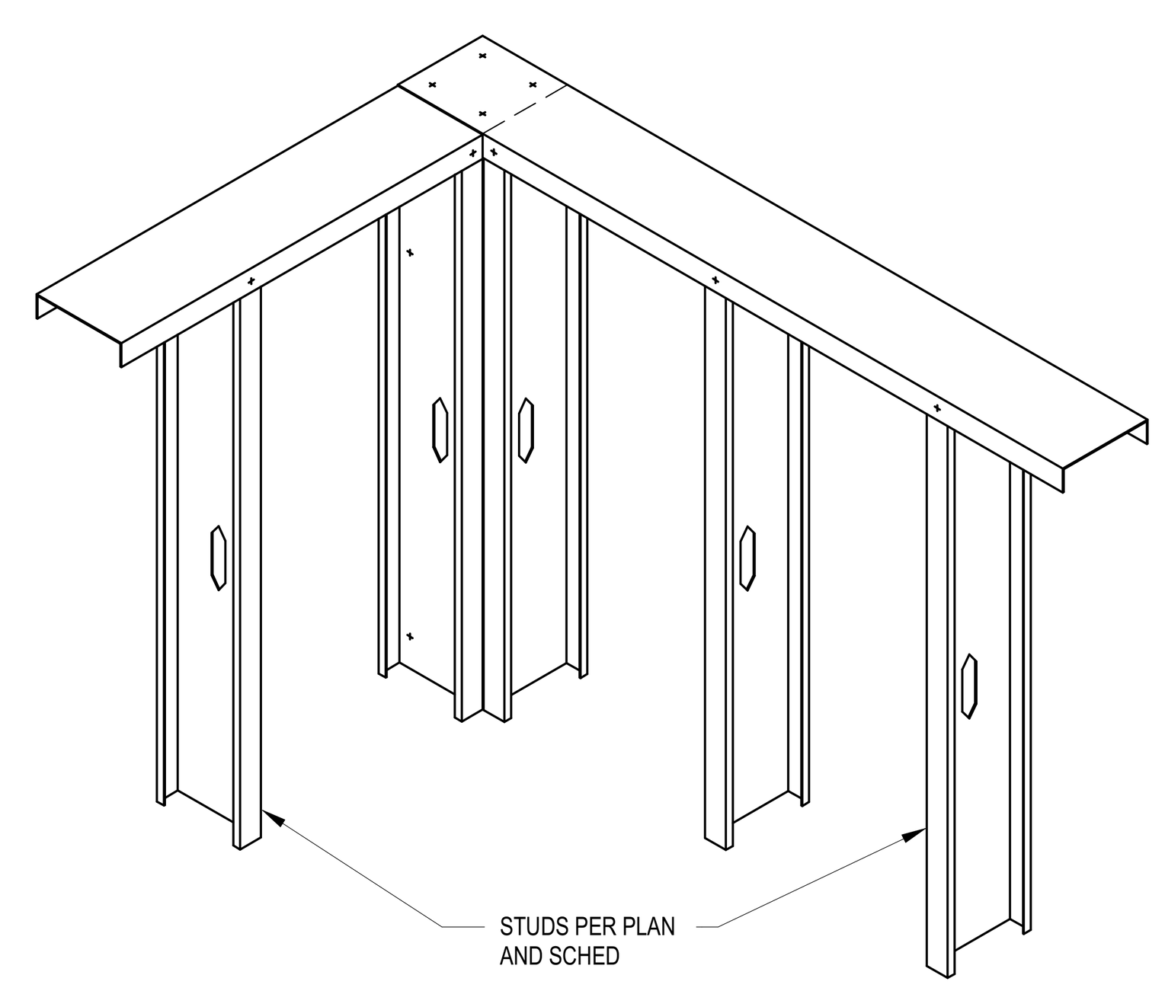


WALL CORNER - BOTTOM TRACK

5 TYPICAL
N.T.S. 5 / S0.9

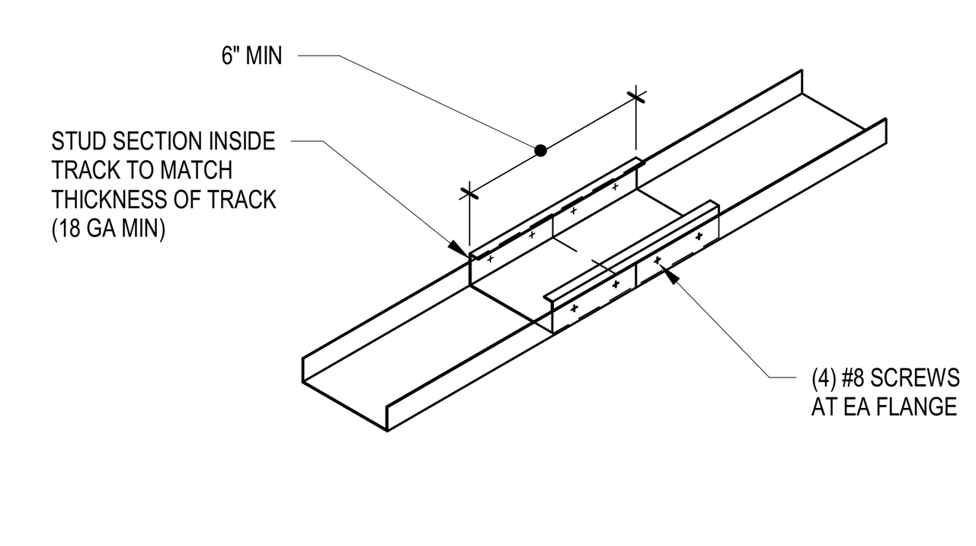


WALL INTERSECTION - TOP TRACK



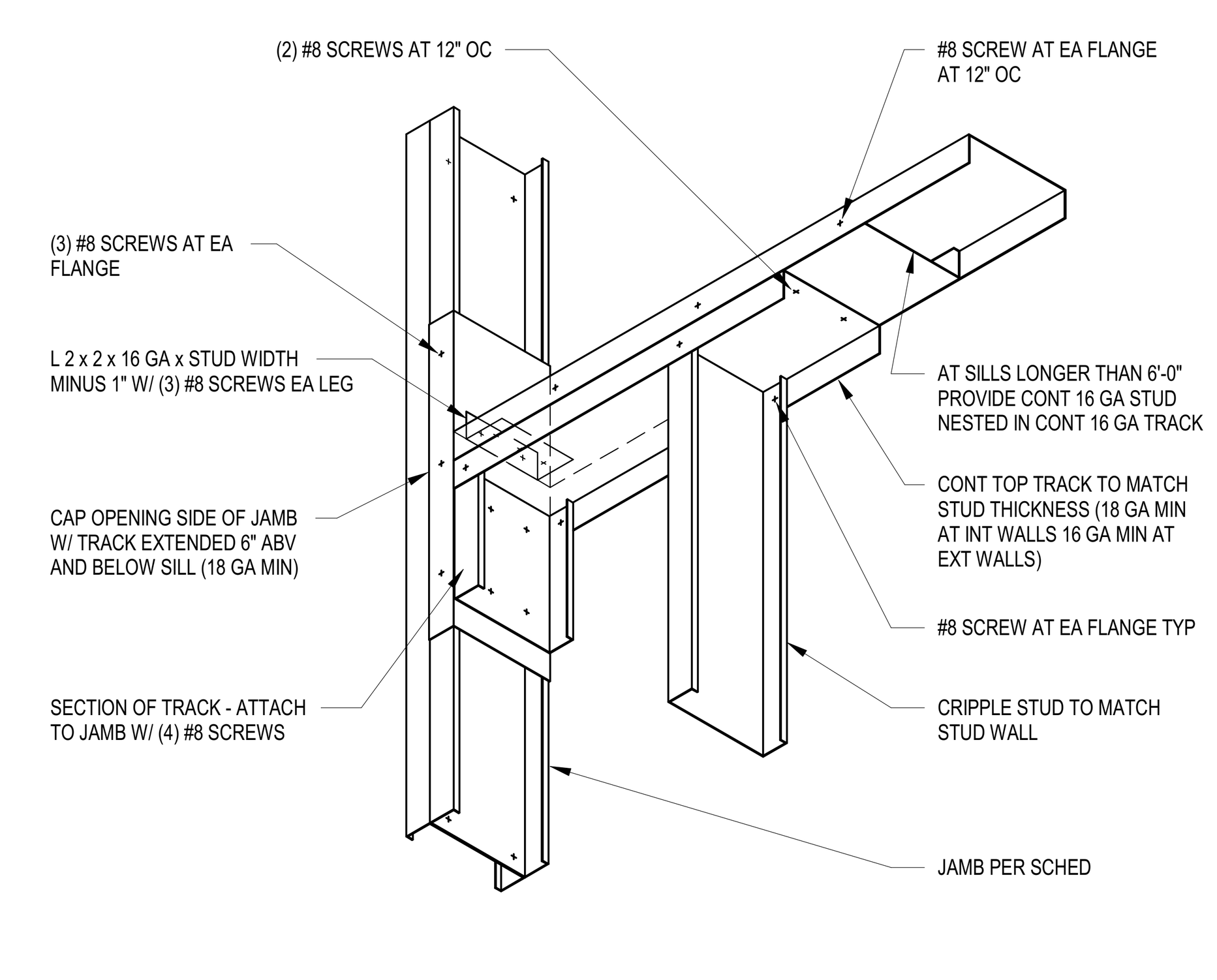
WALL CORNER - TOP TRACK

6 TYPICAL
N.T.S. ELEVATION



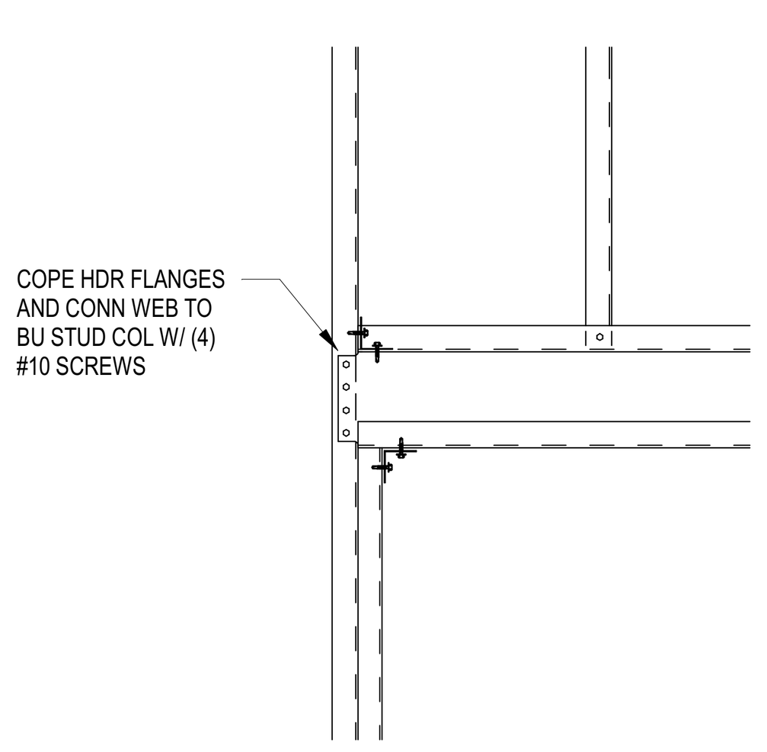
TYPICAL BOTTOM / TOP TRACK SPLICE

7 TYPICAL
N.T.S. 7 / S0.9

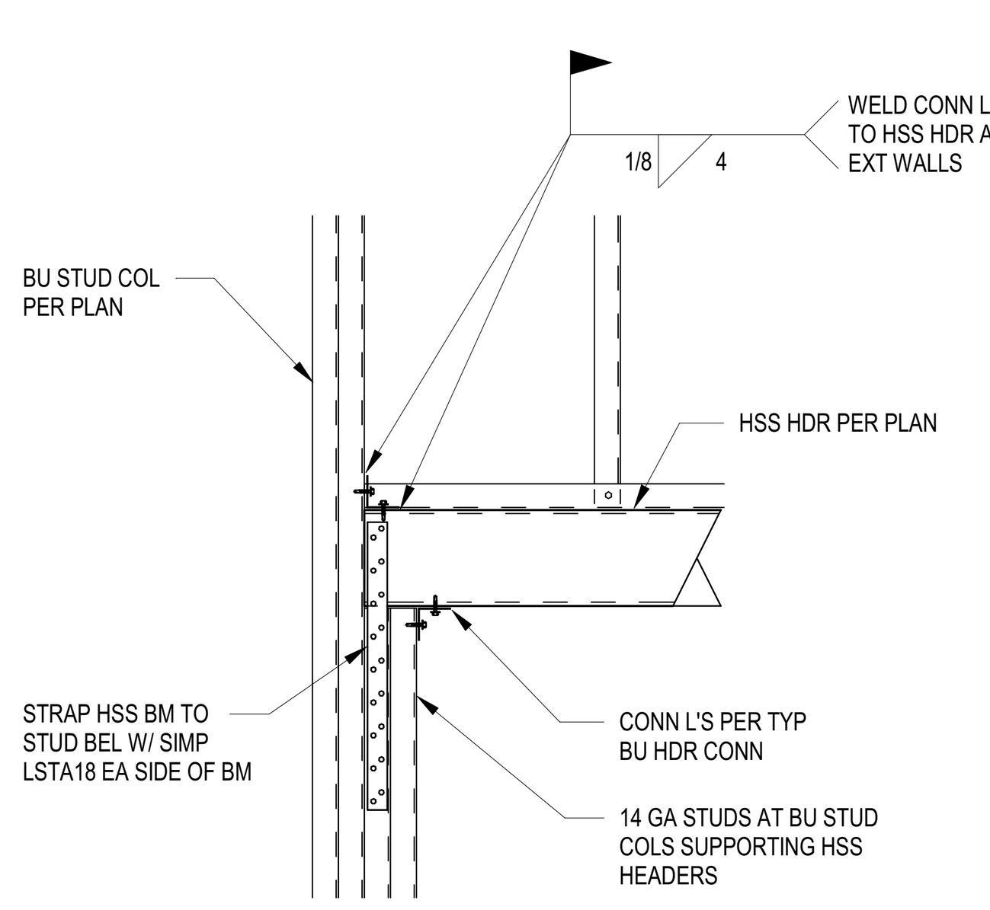


TYPICAL WINDOW SILL

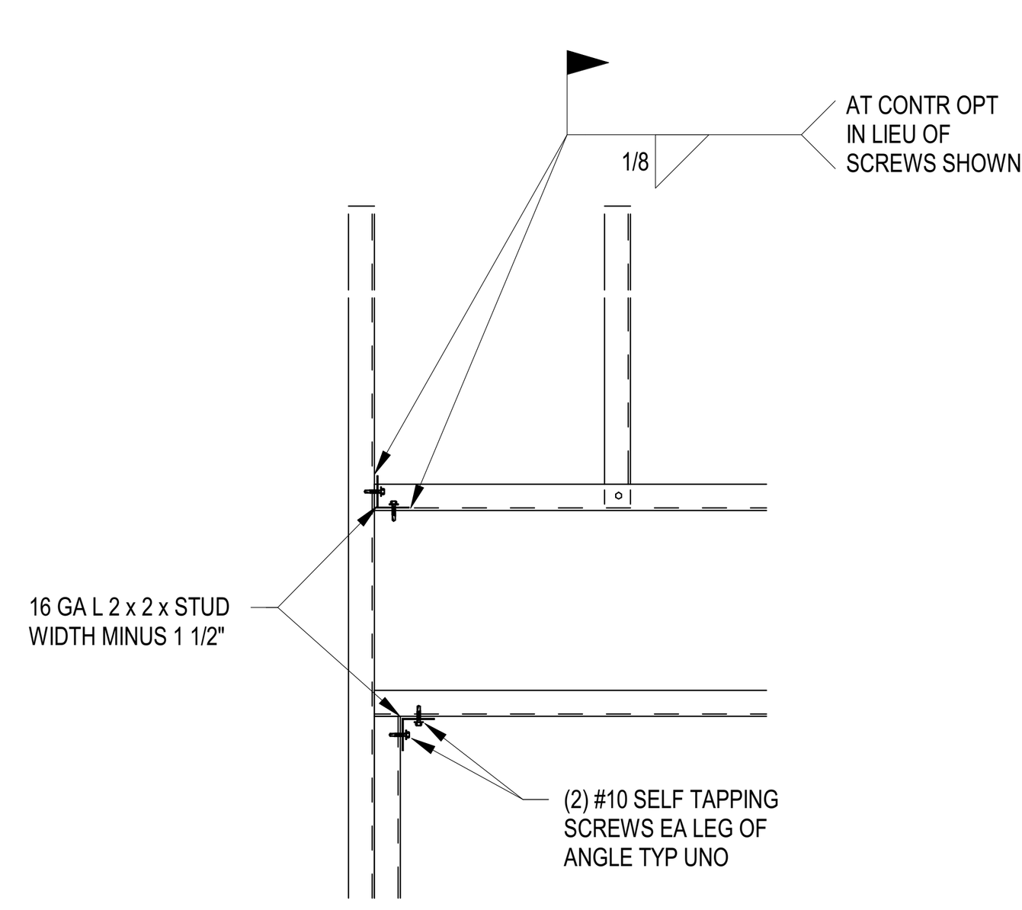
8 TYPICAL
N.T.S. 8 / S0.9



ALTERNATE BUILT-UP HEADER CONNECTION



TYPICAL HSS HEADER CONNECTION



TYPICAL BUILT-UP BEARING HEADER

9 ELEVATION
N.T.S.

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STATE OF WASHINGTON
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PROFESSIONAL ENGINEER

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PERMIT SET
10/16/2023

ORIGINAL ISSUE: 12/13/22

REVISIONS

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ADM CHECKED BY

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

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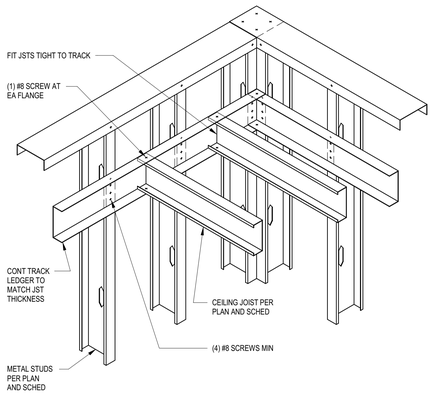
STEEL STUD DETAILS

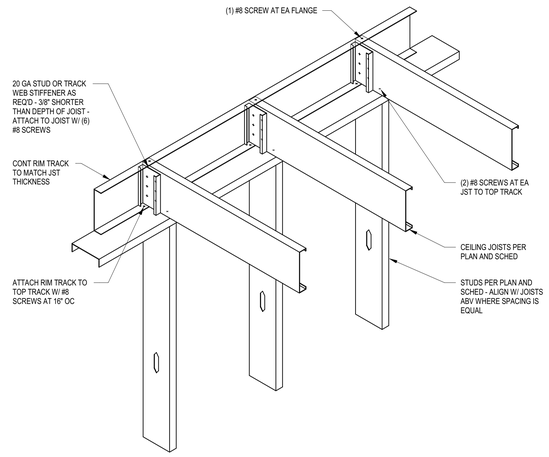
S0.9



TYPICAL GYP CEILING FRAMING

1 TYPICAL

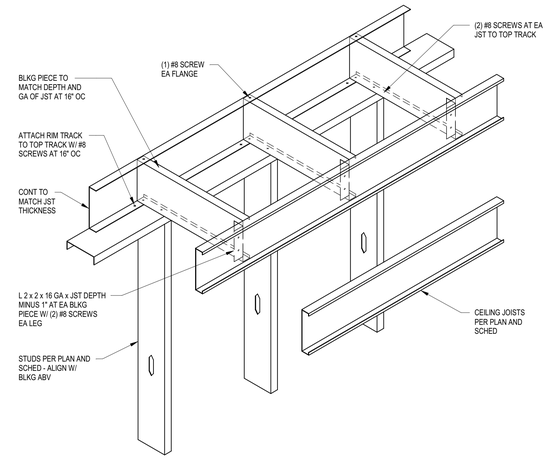
N.T.S. ELEVATION



TYPICAL GYP CEILING FRAMING

2 TYPICAL

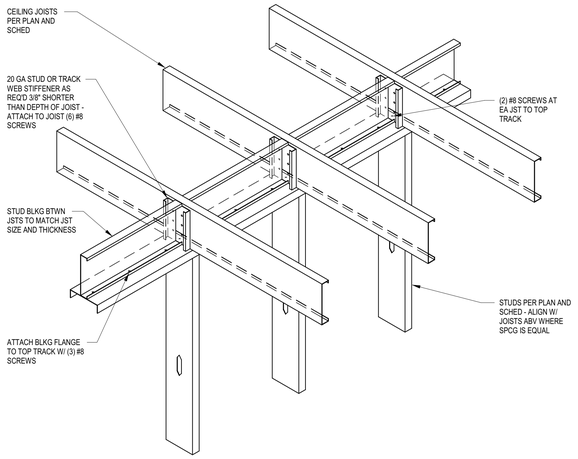
N.T.S. ELEVATION



TYPICAL GYP CEILING FRAMING

3 TYPICAL

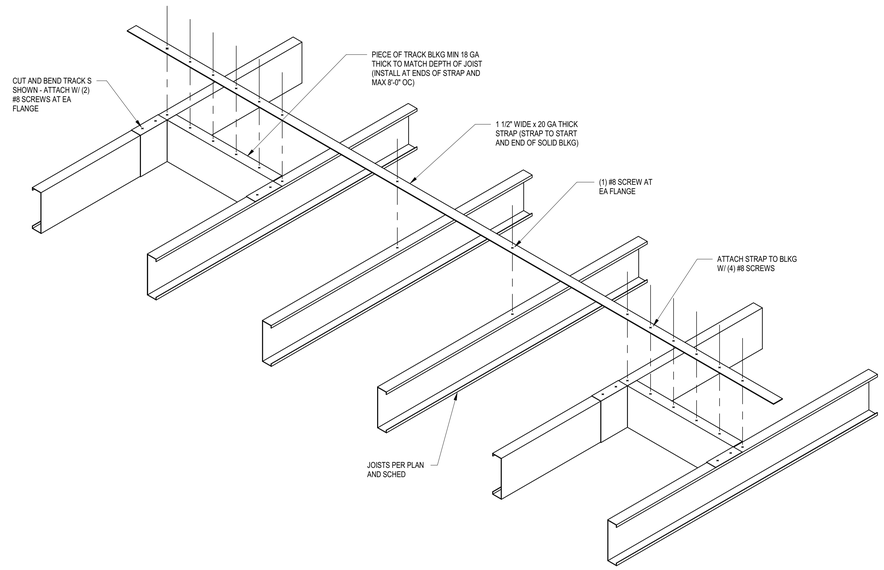
N.T.S. ELEVATION



TYPICAL GYP CEILING FRAMING - INTERIOR SUPPORT

4 TYPICAL

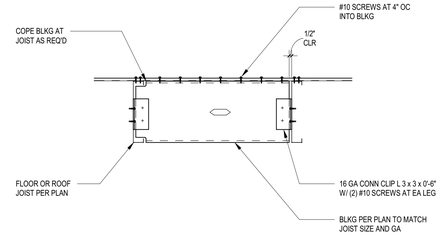
N.T.S. ELEVATION



TYPICAL JOIST BRIDGING

5 TYPICAL

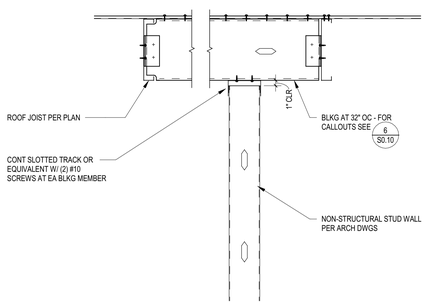
N.T.S. ELEVATION



TYPICAL JOIST BLOCKING

6 TYPICAL

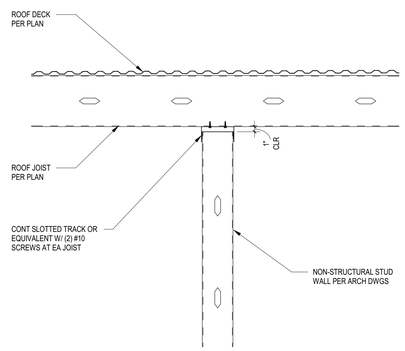
1" = 1'-0" 6 / S0.10



TYPICAL INTERIOR NON-LOAD BEARING WALL

7 TYPICAL

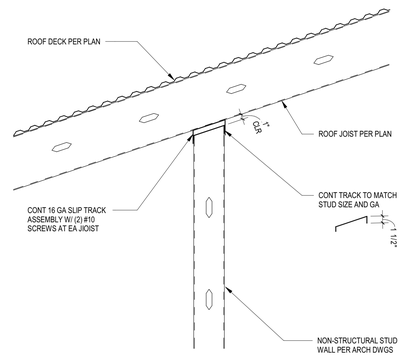
1" = 1'-0" 7 / S0.10



TYPICAL INTERIOR NON-LOAD BEARING WALL

8 TYPICAL

1" = 1'-0" 8 / S0.10



TYPICAL INTERIOR NON-LOAD BEARING WALL

9 TYPICAL

1" = 1'-0" 9 / S0.10

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WESLEY BRADLEY PARK
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STEEL STUD DETAILS

S0.10

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FOUNDATION NOTES

1. SEE SHEETS S0.1 - S0.2 FOR STRUCTURAL NOTES, SHEET S0.8 FOR TYPICAL DETAILS, AND SHEETS S0.3 AND S0.4 FOR TESTING AND INSPECTION NOTES.
2. SEE SHEET S0.5 FOR FOOTING SCHEDULE AND FOR CONCRETE COLUMN SCHEDULE.
3. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR DRAINS, SLOPES, AND OTHER FLOOR DEPRESSIONS NOT SHOWN.
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ELEVATIONS, AND WALLS NOT SHOWN.
5. VERIFY ALL WINDOW AND DOOR WIDTHS AND HEIGHTS WITH ARCHITECTURAL DRAWINGS.
6. SEE ARCHITECTURAL DRAWINGS FOR STUD SIZE, SPACING, AND CALLOUTS AT NON-STRUCTURAL WALLS.
7. FOR TYPICAL CONNECTION OF NON-LOAD BEARING WALLS TO SLAB, USE POWDER ACTUATED FASTENERS AT 16" OC.
8. SEE GEOTECHNICAL ENGINEERING REPORT FOR ALL FOUNDATION AND SLAB SUPPORT REQUIREMENTS, THIS INCLUDES ALL EXCAVATION, FILL AND FILL PLACEMENT REQUIREMENTS.

FLOOR FRAMING NOTES - PT CONSTRUCTION

1. SEE SHEETS S4.1 - S4.2 FOR TYPICAL POST TENSION SLAB DETAILS.
2. VERIFY ALL TOP OF SLAB AND TOP OF WALL ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. VERIFY ALL DOOR AND WINDOW WIDTHS AND HEIGHTS WITH ARCHITECTURAL DRAWINGS.
4. VERIFY SIZE AND LOCATION OF ALL MECHANICAL PENETRATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. GC SHALL SUBMIT PENETRATION LAYOUT PER GENERAL NOTES.
5. TOP = TOP MAT, BOT = BOTTOM MAT, MID = MID-DEPTH.
6. ALL TENDON PROFILES NOTED ON THE PLANS ARE MEASURED FROM THE BOTTOM OF SLAB AT MID-SPAN TO THE CENTER OF STRAND.
7. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, INCLUDING SLAB ELEVATIONS AND DOOR AND WINDOW WIDTHS AND HEIGHTS, WITH ARCHITECTURAL DRAWINGS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
8. SEE DETAIL1 / S0.6 FOR STUDRAIL REQUIREMENTS.
9. SEE DETAIL 3 / S0.5 FOR REQUIRED LAP LENGTHS AND REINFORCING BAR DEVELOPMENT LENGTHS.
10. SEE DETAIL 2 / S4.2 FOR REQUIREMENTS AT HORIZONTAL TENDON CURVES.
11. SEE DETAIL 7 / S4.1 FOR TYPICAL PT TENDON AND MILD STEEL PLACEMENT AND RELATIONSHIPS.
12. SEE DETAIL 5 / S4.2 FOR METHOD OF MARKING PT LOCATIONS.
13. SEE SHEET 1 / S0.5 FOR COLUMN TYPES AND REINFORCING REQUIREMENTS.
14. SEE DETAIL 1 / S4.1 FOR PT ENCAPSULATION REQUIREMENTS.
15. SEE DETAIL 4 / S4.2 FOR PENETRATION REQUIREMENTS NEAR TENDON ANCHORS.
16. SEE DETAIL 3 / S4.2 FOR HORIZONTAL AND VERTICAL TENDON PLACEMENT AT ADDED TENDON ANCHORAGE.
17. ATTACH NON STRUCTURAL WALLS TO FLOOR PER DETAIL 1 / S3.2.
18 SEE S0.7 FOR STEEL STUD WALL SCHEDULE AND SHEARWALL SCHEDULE.

ROOF FRAMING NOTES

1. ALL BEAMS SHALL HAVE 0" CAMBER UNLESS NOTED OTHERWISE.
2. VERIFY ALL TOP OF BEAM AND TOP OF WALL ELEVATIONS WITH ARCHITECTURAL DRAWINGS.
3. VERIFY ALL DOOR AND WINDOW WIDTHS AND HEIGHTS WITH ARCHITECTURAL DRAWINGS.
4. VERIFY SIZE AND LOCATION OF ALL MECHANICAL PENETRATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
5. ALIGN JOISTS WITH STUDS BELOW WHERE SPACINGS ARE EQUAL.
6. ATTACH NON-STRUCTURAL WALLS TO ROOF PER SHEET S0.10.
7. ALL JOIST SPACINGS SHALL BE 1'-4" OC UNLESS NOTED OTHERWISE.

WALL LEGEND:

S / S — STEP FOOTING LOCATION - SEE DETAIL 5 / S0.8

SS 6 — SHEARWALL - REFER TO SHEARWALL SCHEDULE ON SHEET S0.7

STEEL STUD FRAMED WALL ORIGINATING ON FOUNDATION OR FLOOR FRAMING PLAN ON WHICH IT IS NOTED. SEE DETAIL 1 / S0.9 FOR REQUIREMENTS. SEE STEEL STUD WALL SCHEDULE ON SHEET S0.7 FOR STUD SIZE AND SPACING.

COLUMN ORIGINATING ON FOUNDATION OR FLOOR FRAMING PLAN ON WHICH IT IS NOTED.

WALL BELOW FLOOR OR ROOF FRAMING PLAN ON WHICH IT IS NOTED - SEE PLAN BELOW FOR REQUIREMENTS.

H8 — COLUMN BELOW WITH HEADER SUPPORTING FLOOR OR ROOF FRAMING ON THE LEVEL ON WHICH IT IS NOTED - SEE PLAN BELOW FOR COLUMN REQUIREMENTS.

H1 — INDICATES HOLDOWN TYPE - REFER TO DETAIL 6 / S2.1

CMU WALL PER PLAN

STEEL STUD STRUCTURAL WALL WITH BRICK VENEER. SEE SECTION 4.9 OF THE STRUCTURAL NOTES AND PROJECT SPECIFICATIONS FOR VENEER ATTACHMENT REQUIREMENTS.

CAST-IN-PLACE CONCRETE WALL PER PLAN

PILE PER PLAN - SEE DETAIL 9 / S0.8 FOR ADDITIONAL INFORMATION

BATTERED PILE PER PLAN - 20 DEGREES FROM VERTICAL

PT LEGEND:

31* 1 #T — PT TENDON

● — PROFILE POINT - NUMBER INDICATES DISTANCE FROM SLAB SOFFIT TO CGS OF TENDON

T — # T INDICATES NUMBER OF TENDONS IN BAND

* — INDICATES PROFILE POINT IS MEASURED FROM BEAM OR DROP PANEL SOFFIT TO CGS OF TENDON

4 1 — STRESSING END OF TENDON

4 1 — DEAD END OF TENDON

KEY TO ABBREVIATIONS

AB	ANCHOR BOLT	L	ANGLE
ABV	ABOVE	LLH	LONG LEG HORIZONTAL
ADDL	ADDITIONAL	LLV	LONG LEG VERTICAL
ADJ	ADJACENT	LOC	LOCATION
AFF	ABOVE FINISH FLOOR	LONGIT	LONGITUDINAL
ALT	ALTERNATE	MAX	MAXIMUM
ARCH	ARCHITECTURAL, ARCHITECT	MB	MACHINE BOLT
ASD	ALLOWABLE STRESS DESIGN	MECH	MECHANICAL
BEL	BELOW	MFR	MANUFACTURER
BLKG	BLOCKING	MIN	MINIMUM
BM	BEAM	MIW	MALLEABLE IRON WASHER
BNDY	BOUNDARY	NS	NEAR SIDE
BOT	BOTTOM	NTS	NOT TO SCALE
BRG	BEARING	NWT	NORMAL WEIGHT
BS	BOTH SIDES	O/	OVER
BTWN	BETWEEN	OC	ON CENTER
BU	BUILT UP	O.F.	OUTSIDE FACE
CIP	CAST IN PLACE	OPP	OPPOSITE HAND
CJ	CONSTRUCTION/CONTROL JOINT	OPNG	OPENING
CL	CENTERLINE	OSB	ORIENTED STRAND BOARD
CLG	CEILING	PC	PRE-CAST
CLR	CLEAR	PDF	POWER DRIVEN FASTENERS, PAF
CMU	CONCRETE MASONRY UNIT	PAF	POWER ACTUATED FASTENERS, PDF
COL	COLUMN	PERP	PERPENDICULAR
CONC	CONCRETE	PL	PLATE
CONN	CONNECT, CONNECTION	PLF	POUNDS PER LINEAR FOOT
CONT	CONTINUOUS	PNL	PANEL
COORD	COORDINATE	PRE-ENGR	PRE-ENGINEERED
CSK	COUNTERSINK	PROV	PROVIDE
CTR	CENTER	PT	POST TENSIONED
CVR	COVER	PW	PLYWOOD
DEG	DEGREE	REF	REFERENCE
DIA	DIAMETER	REINF	REINFORCE, REINFORCEMENT
DBL	DOUBLE	REQ'D	REQUIRED
EA	EACH	RF	ROOF
EF	EACH FACE	SCHED	SCHEDULE
ELEV	ELEVATION, ELEVATOR	SFRS	SEISMIC FORCE RESISTING SYSTEM
EMB	EMBEDMENT	SHTG	SHEATHING
ENGR	ENGINEER	SIM	SIMILAR
EQ	EQUAL/EQUIVALENT	SIMP	SIMPSON STRONG-TIE
EQUIV	EQUIVALENT	SOG	SLAB ON GRADE
ES	EACH SIDE	SPCG	SPACING
EW	EACH WAY	SQ	SQUARE
(E)	EXISTING	STD	STANDARD
EXP	EXPANSION	STIFF	STIFFENER
EXT	EXTERIOR	SW	SHEARWALL
FDN	FOUNDATION	T&G	TONGUE AND GROOVE
FF	FINISH FLOOR	THK	THICK
FFE	FINISH FLOOR ELEVATION	THRD	THREADED
FOC	FACE OF CONCRETE	T.O.	TOP OF
FOM	FACE OF MASONRY	TOC	TOP OF CONCRETE
FOS	FACE OF STUD	TOF	TOP OF FOOTING
FS	FAR SIDE	TOPL	TOP OF PLATE
FTG	FOOTING	TOS	TOP OF STEEL
GA	GAGE	T.O.W.	TOP OF WALL
GALV	GALVANIZED	TRANSV	TRANSVERSE
GC	GENERAL CONTRACTOR	TRTD	TREATED
GL	GLUE LAMINATED	TYP	TYPICAL
GWB	GYPSUM WALL BOARD	UNO	UNLESS NOTED OTHERWISE
HGR	HANGER	VFY	VERIFY
HORIZ	HORIZONTAL	VERT	VERTICAL
HSS	HOLLOW STEEL SECTION	W/	WITH
HT	HEIGHT	W/O	WITHOUT
I.F.	INSIDE FACE	WF	WIDE FLANGE
INT	INTERIOR	WHS	WELDED HEADED STUD
JNT	JOINT	WP	WORK POINT
JST	JOIST	WTS	WELDED THREADED STUD
K, KIPS	KIPS=1000 LBS	WWF	WELDED WIRE FABRIC

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GENERAL NOTES

S0.11

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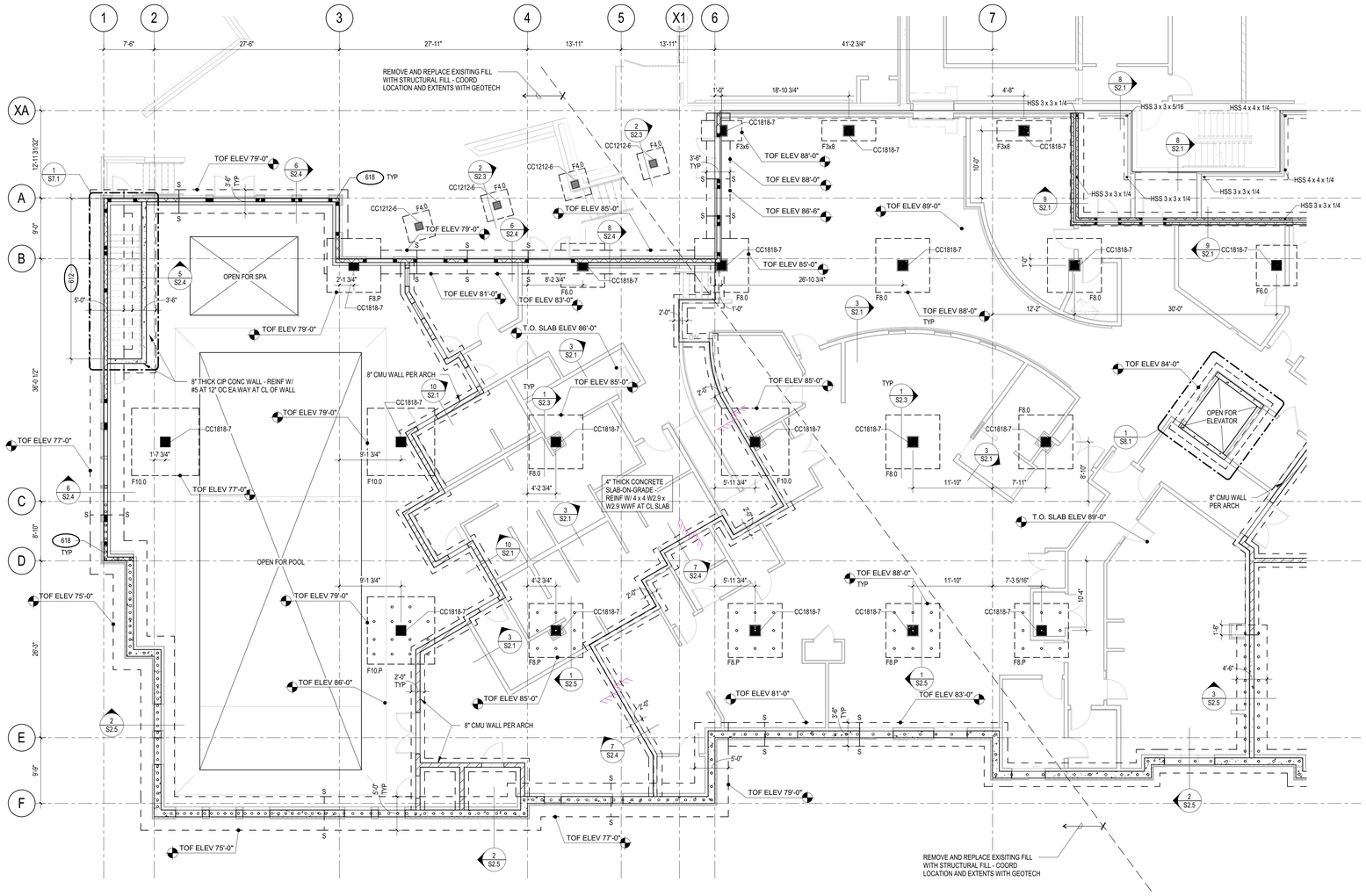
GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
2. SEE SHEETS S0.3 AND S0.4 FOR TESTING AND INSPECTION NOTES.
3. SEE SHEETS S0.5 THRU S0.7 FOR SCHEDULES.
4. SEE SHEET S0.8 FOR TYPICAL DETAILS.
5. SEE SHEETS S0.9 AND S0.10 FOR STEEL STUD DETAILS.
6. SEE SHEET S0.11 FOR FRAMING NOTES AND WALL LEGEND.



1 FOUNDATION PLAN - NORTH

1/8" = 1'-0"

0 4 8 16

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

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LEVEL 0 FOUNDATION PLAN - NORTH

S1.0–N

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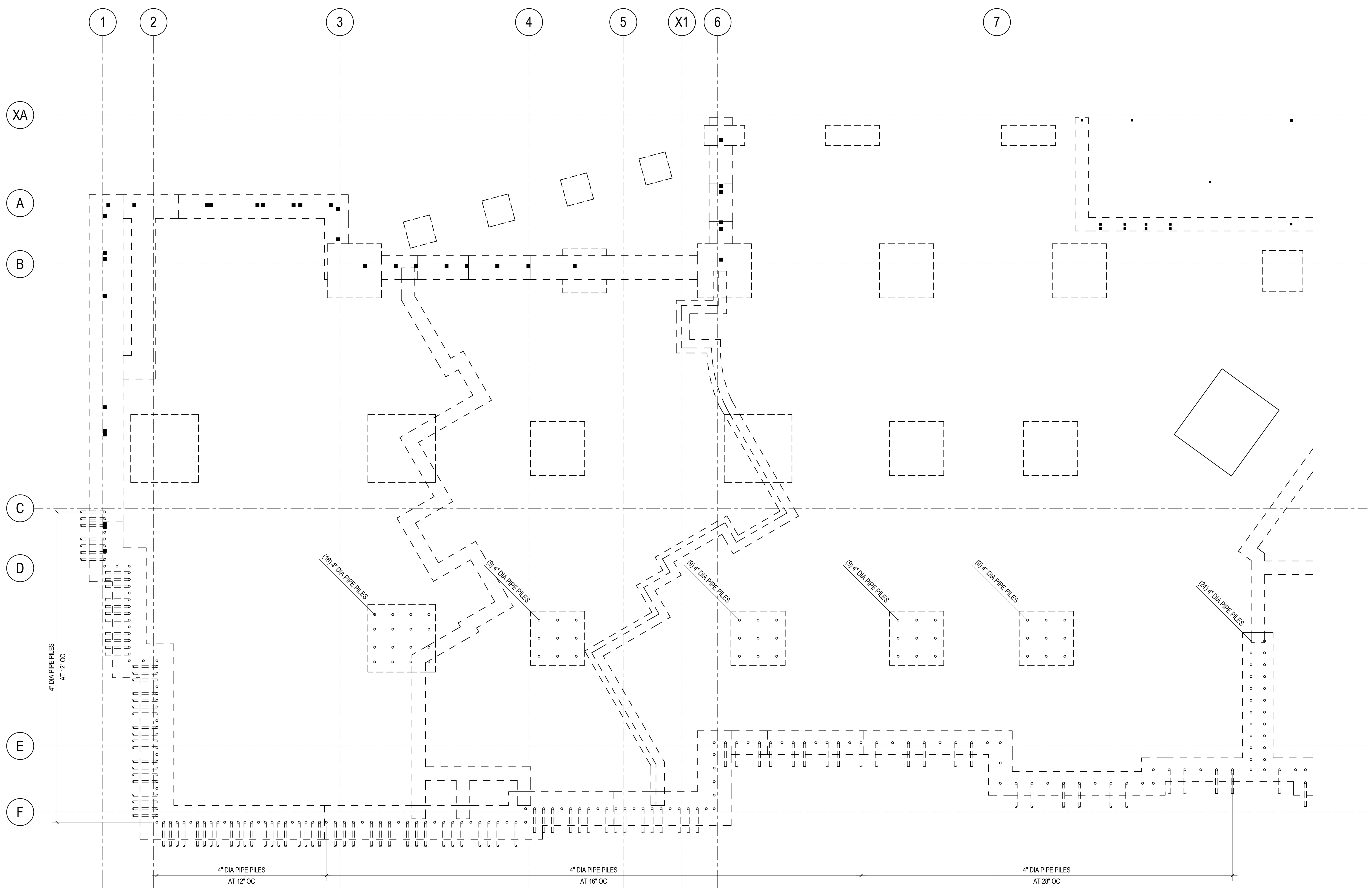
3. SEE SHEETS S0.5 THRU S0.7 FOR SCHEDULES.
4. SEE SHEET S0.8 FOR TYPICAL DETAILS.
5. SEE SHEETS S0.9 AND S0.10 FOR STEEL STUD DETAILS.
6. SEE SHEET S0.11 FOR FRAMING NOTES AND WALL LEGEND.



1 PILE PLAN - NORTH
1/8" = 1'-0"

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

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PHASE 2 - CARE CENTER

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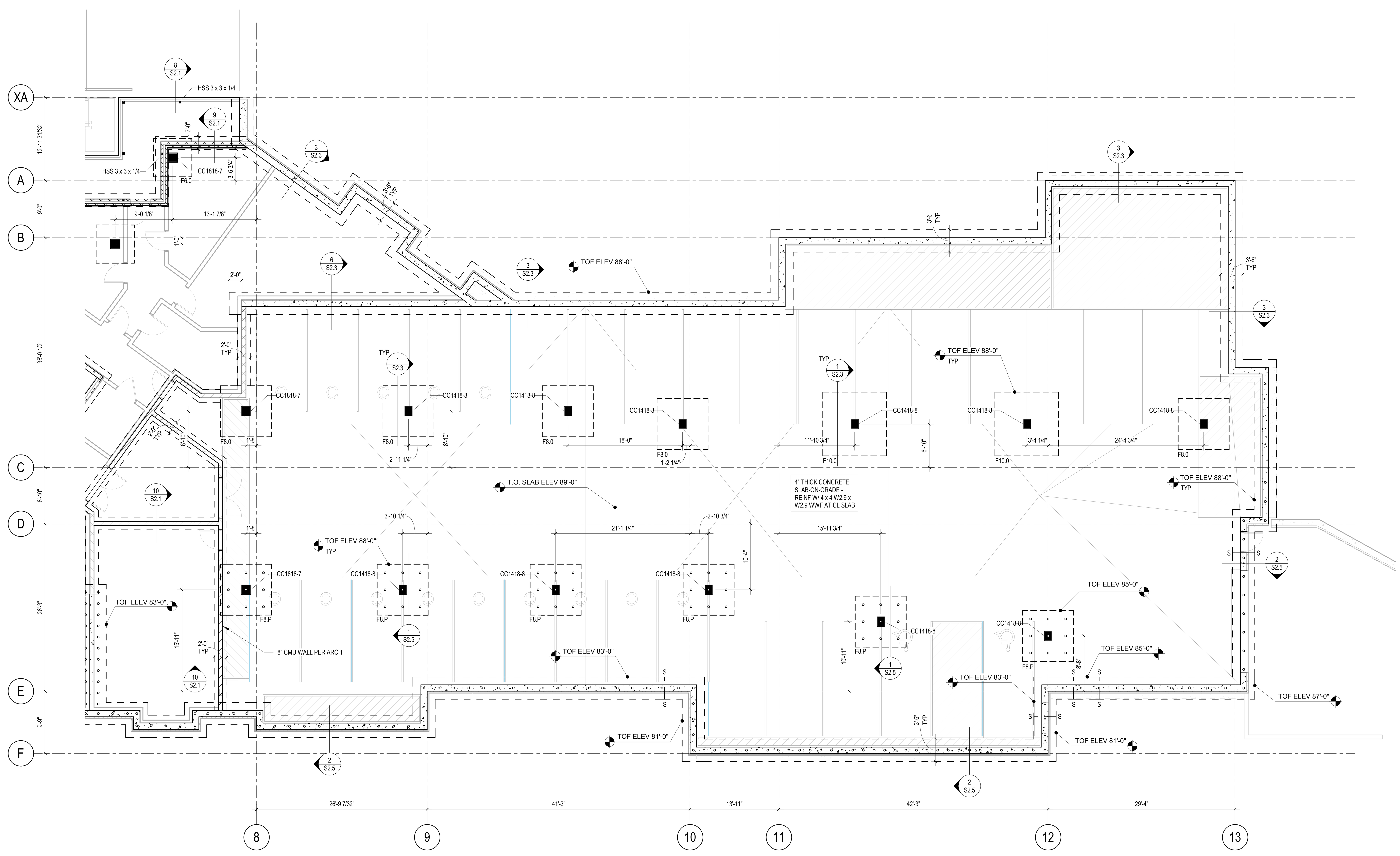
2215 North 30th Street, Suite 300, Tacoma,WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

LEVEL 0 PILE PLAN - NORTH

S1.0-NP

GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
2. SEE SHEETS S0.3 AND S0.4 FOR TESTING AND INSPECTION NOTES.
3. SEE SHEETS S0.5 THRU S0.7 FOR SCHEDULES.
4. SEE SHEET S0.8 FOR TYPICAL DETAILS.
5. SEE SHEETS S0.9 AND S0.10 FOR STEEL STUD DETAILS.
6. SEE SHEET S0.11 FOR FRAMING NOTES AND WALL LEGEND.



1 FOUNDATION PLAN - SOUTH

1/8" = 1'-0"

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

in site architects
1000 university ave. w. suite 130
st. paul, minnesota 55104
612-252-4820

NOTICE:

WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

ORIGINAL ISSUE: 04/23/13

REVISIONS

No.	Description	Date

2220236.20
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PHASE 2 - CARE CENTER

LEVEL 0 FOUNDATION PLAN - SOUTH

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S1.0–S

GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
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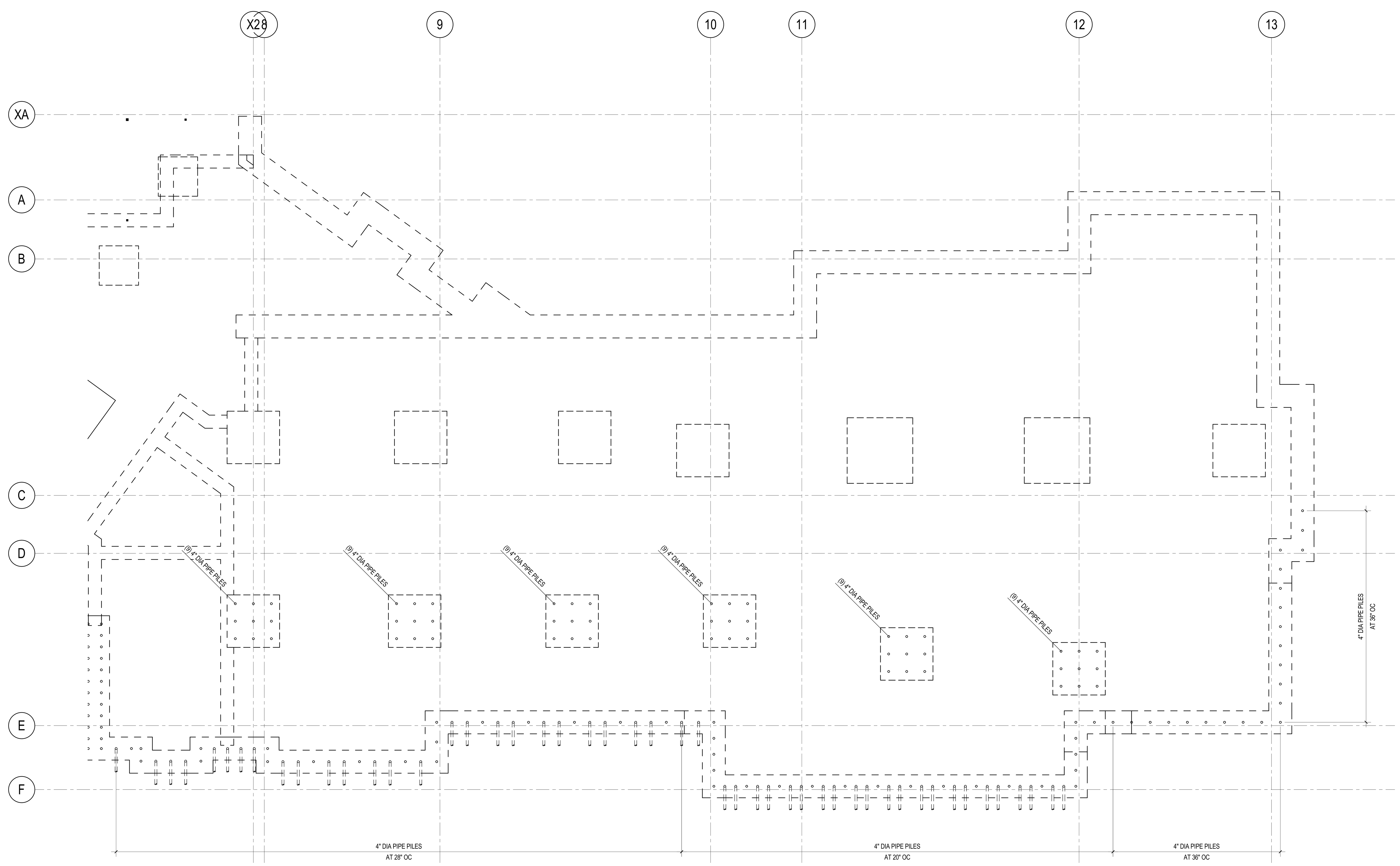

1 **PILE PLAN - SOUTH**
1/8" = 1'-0"

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

10/13/2023 11:53:59 AM

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LEVEL 0 PILE PLAN - SOUTH

S1.0-SP

GENERAL PLAN NOTES

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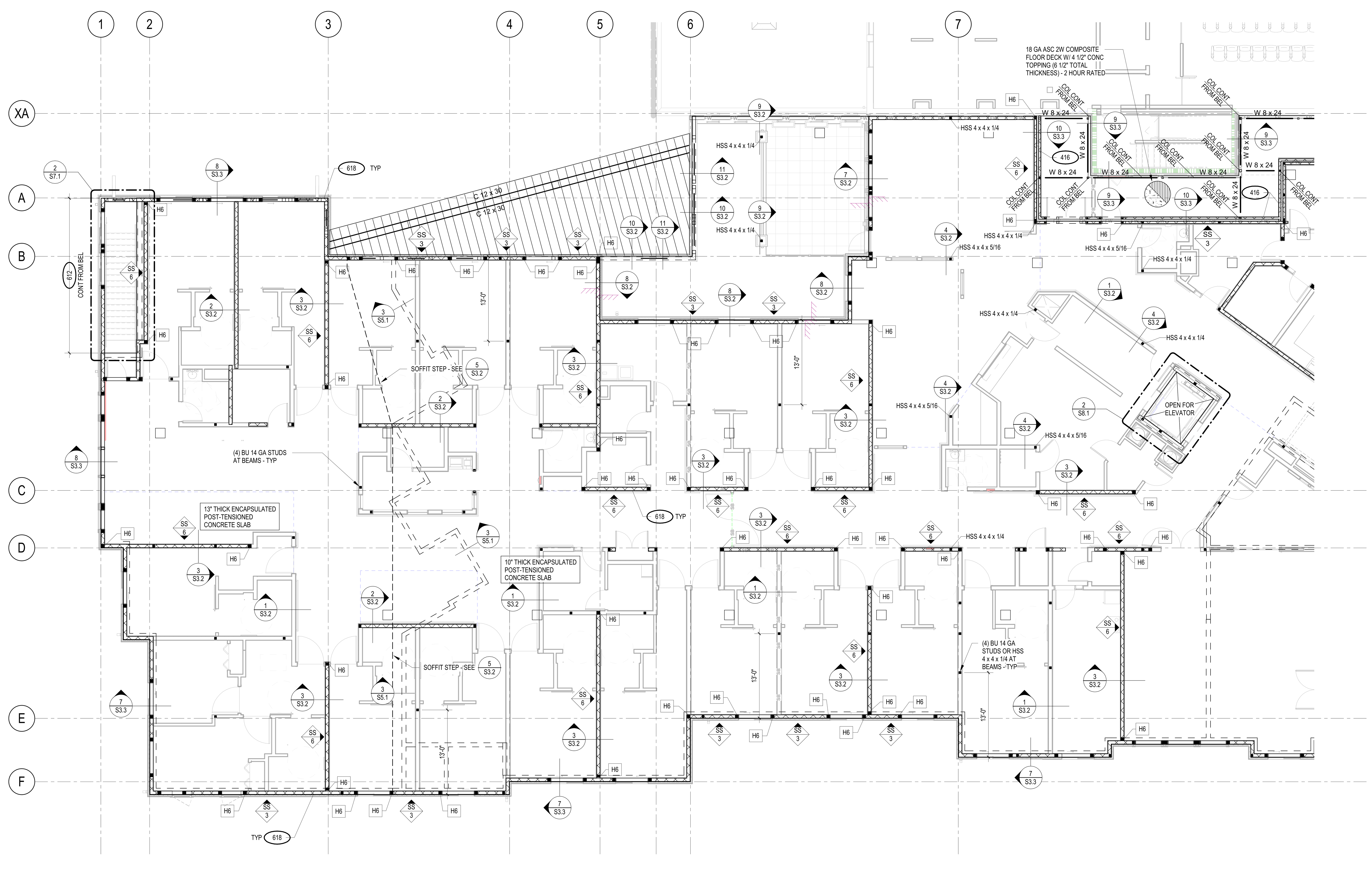

1 LEVEL 1 FLOOR FRAMING PLAN - NORTH

1/8" = 1'-0"

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

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1000 university ave. w. suite 130
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NOTICE:

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LEVEL 1 FRAMING PLAN - NORTH

S1.1-N

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1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
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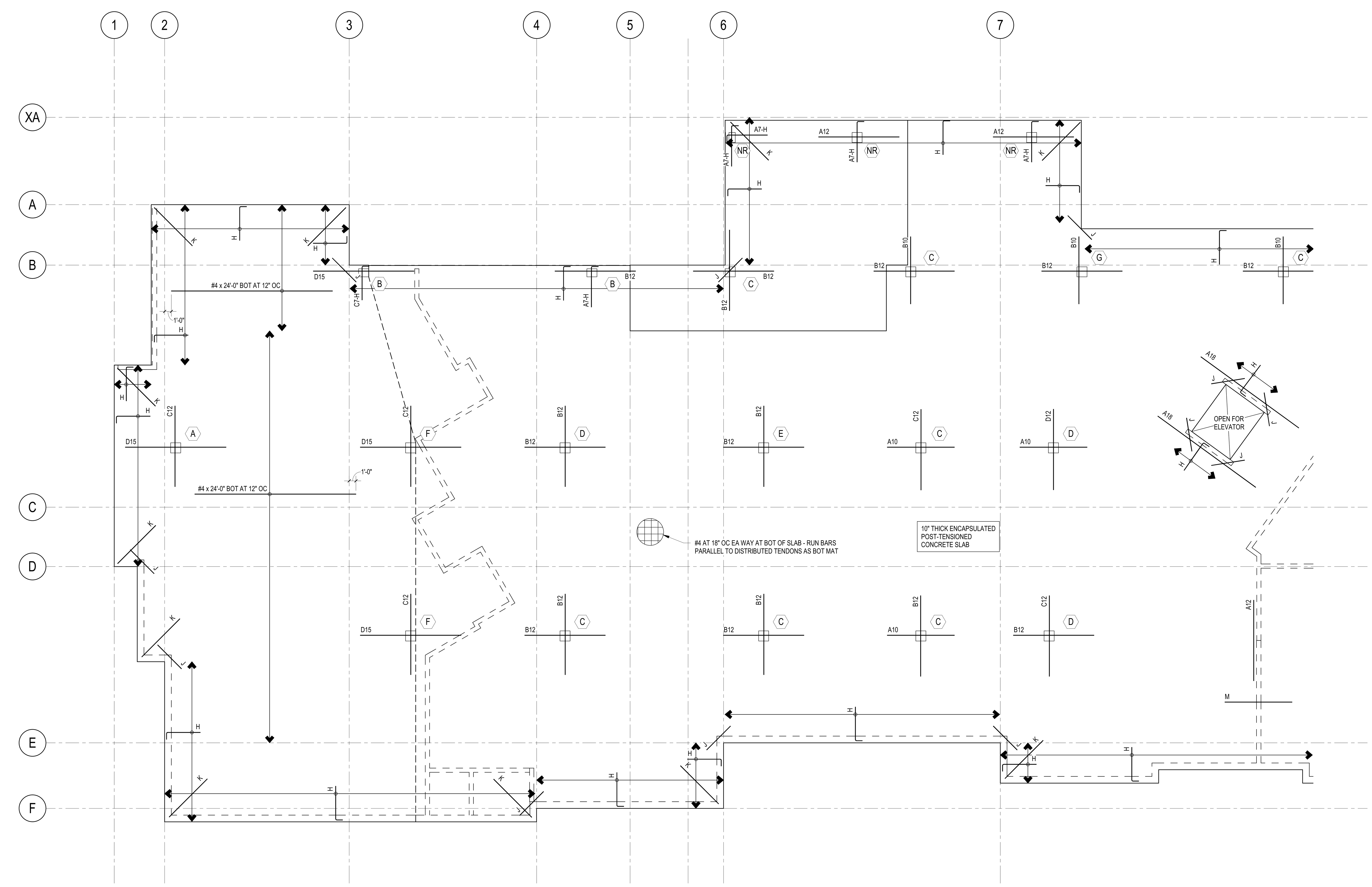

1 LEVEL 1 MILD STEEL PLAN - NORTH
1/8" = 1'-0"

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

10/13/2023 11:54:08 AM

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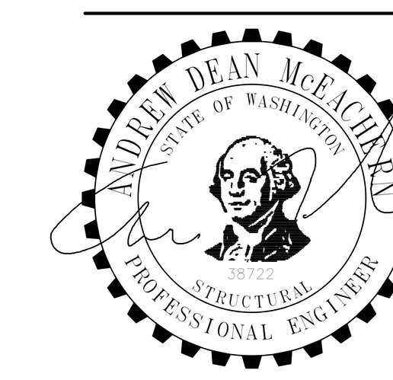

NOTICE:

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10/16/2023

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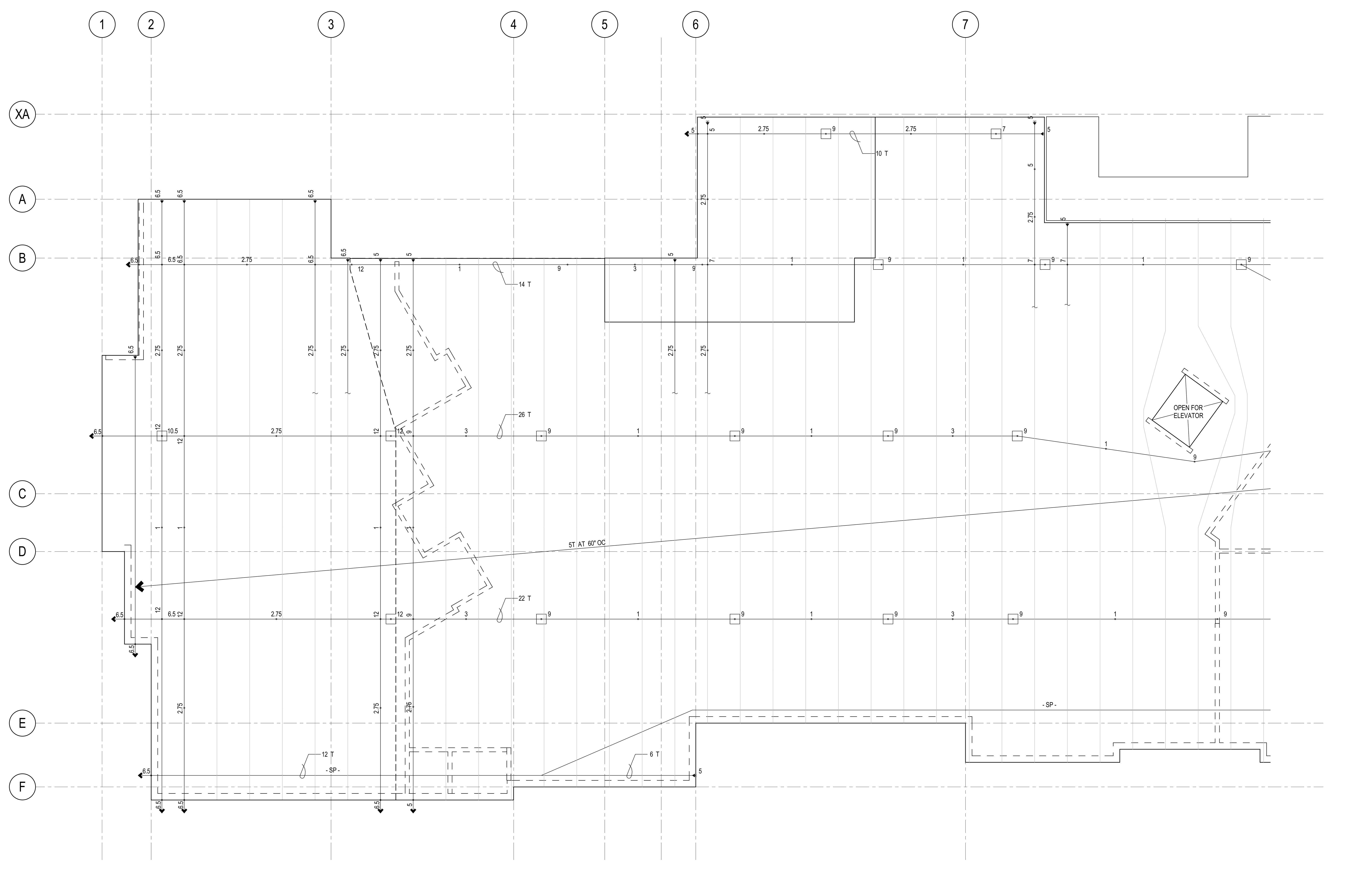
LEVEL 1 MILD STEEL PLAN - NORTH

S1.1–NM



1 LEVEL 1 MILD STEEL PLAN - NORTH

1/8" = 1'-0"

0 4 8 16

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

GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
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LEVEL 1 POST-TENSIONING
PLAN - NORTH

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S1.1-NP

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GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
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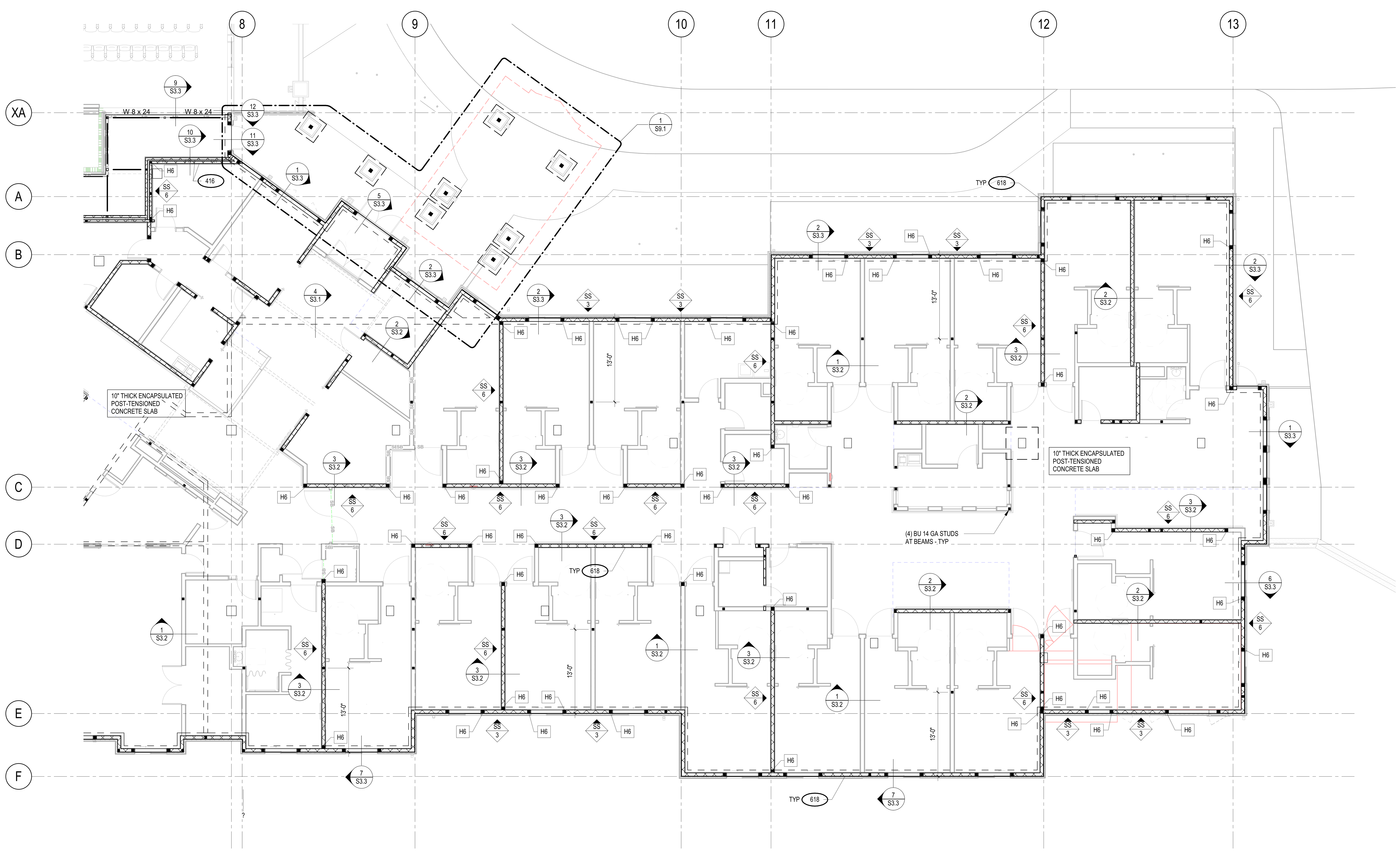

1 LEVEL 1 FLOOR FRAMING PLAN - SOUTH
1/8" = 1'-0"

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

10/13/2023 11:54:16 AM

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LEVEL 1 FRAMING PLAN - SOUTH

S1.1-S

GENERAL PLAN NOTES

1. SEE SHEETS S0.1 AND S0.2 FOR STRUCTURAL NOTES.
2. SEE SHEETS S0.3 AND S0.4 FOR TESTING AND INSPECTION NOTES.
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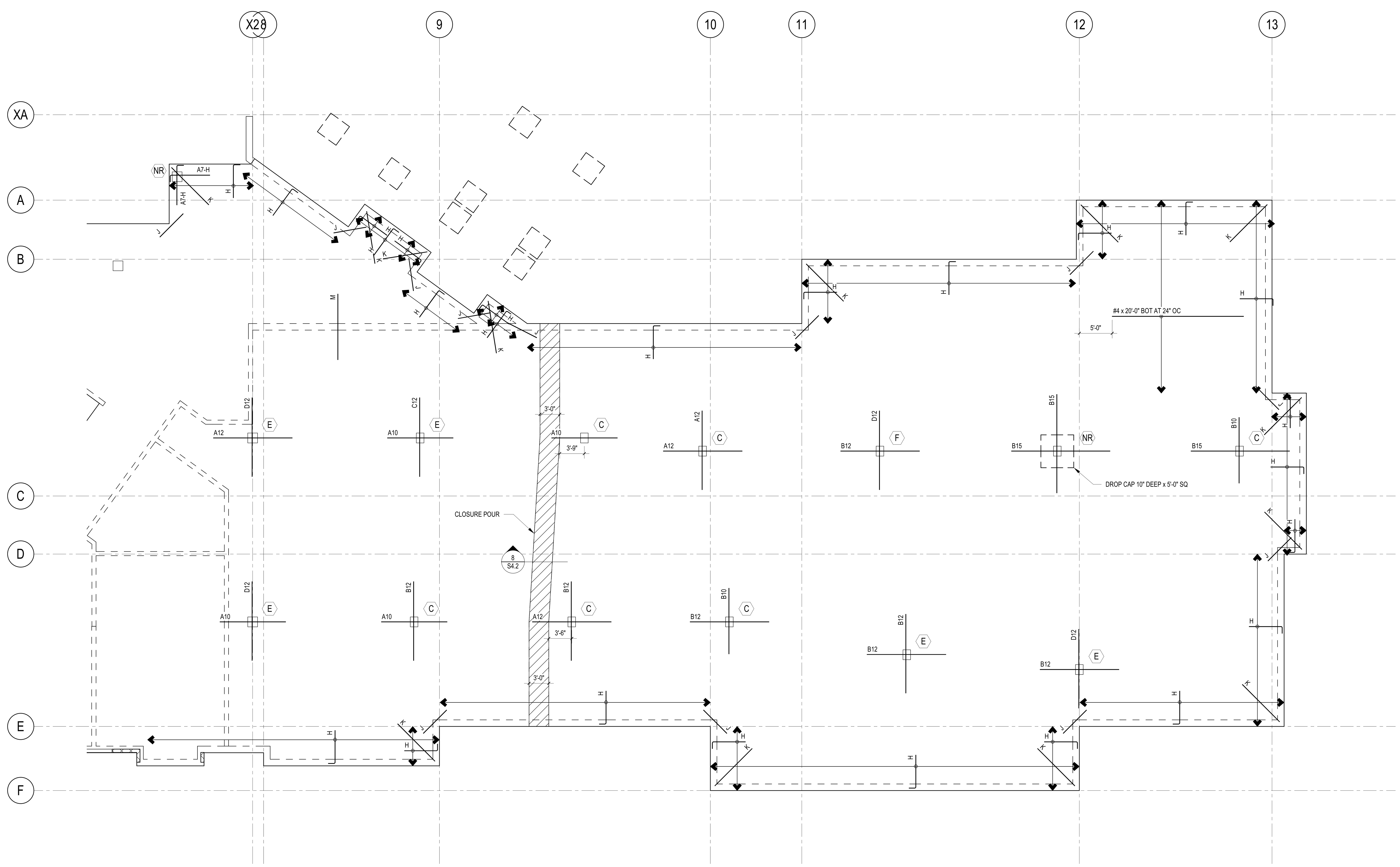

1 LEVEL 1 MILD STEEL PLAN - SOUTH
1/8" = 1'-0"

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

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NOTICE:

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PHASE 2 - CARE CENTER

LEVEL 1 MILD STEEL PLAN - SOUTH

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S1.1-SM

GENERAL PLAN NOTES

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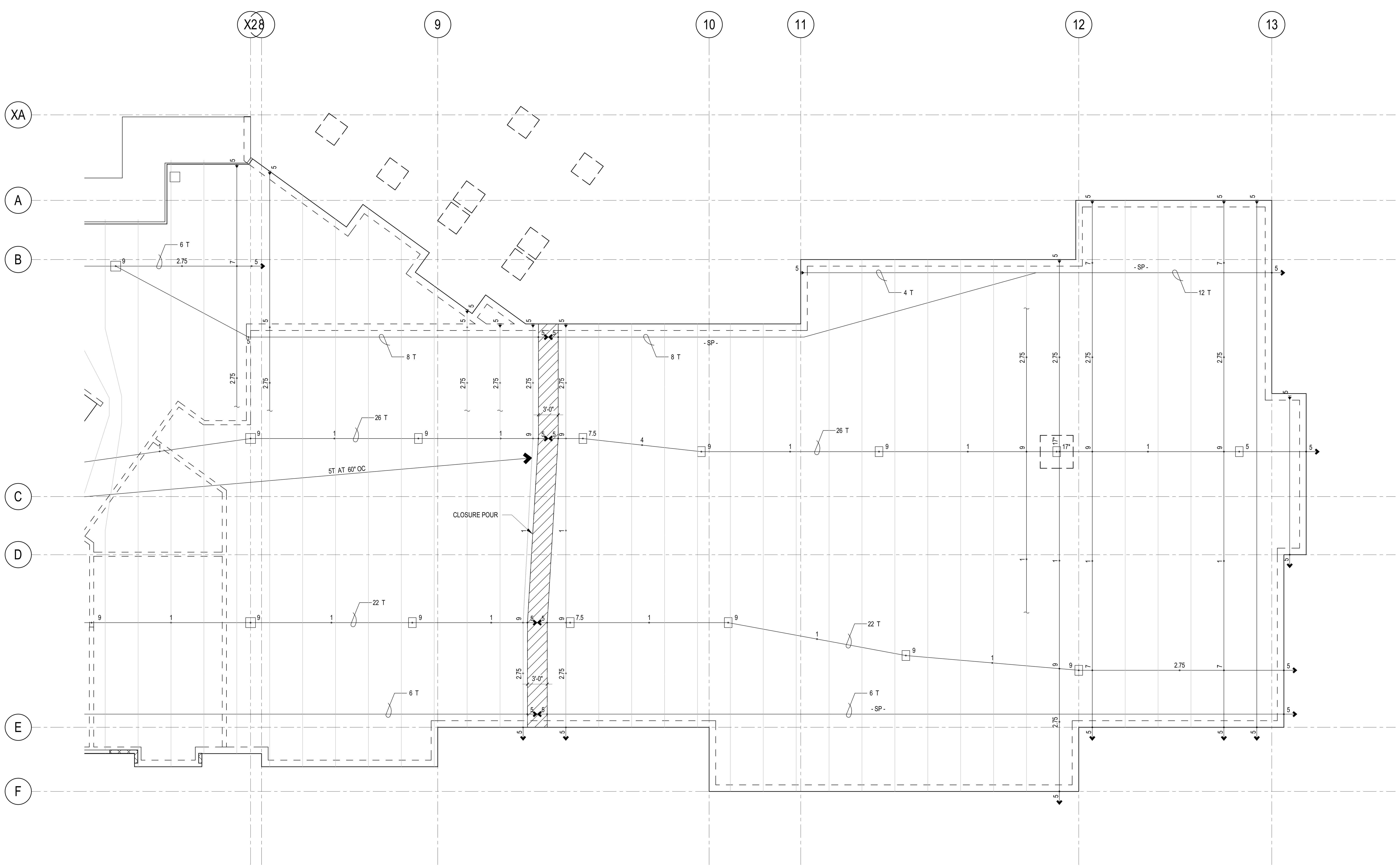

1 **LEVEL 1 MILD STEEL PLAN - SOUTH**
1/8" = 1'-0"

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

10/13/2023 11:54:19 AM

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PERMIT SET
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REVISIONS

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LEVEL 1 POST-TENSIONING PLAN - SOUTH

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S1.1-SP

GENERAL PLAN NOTES

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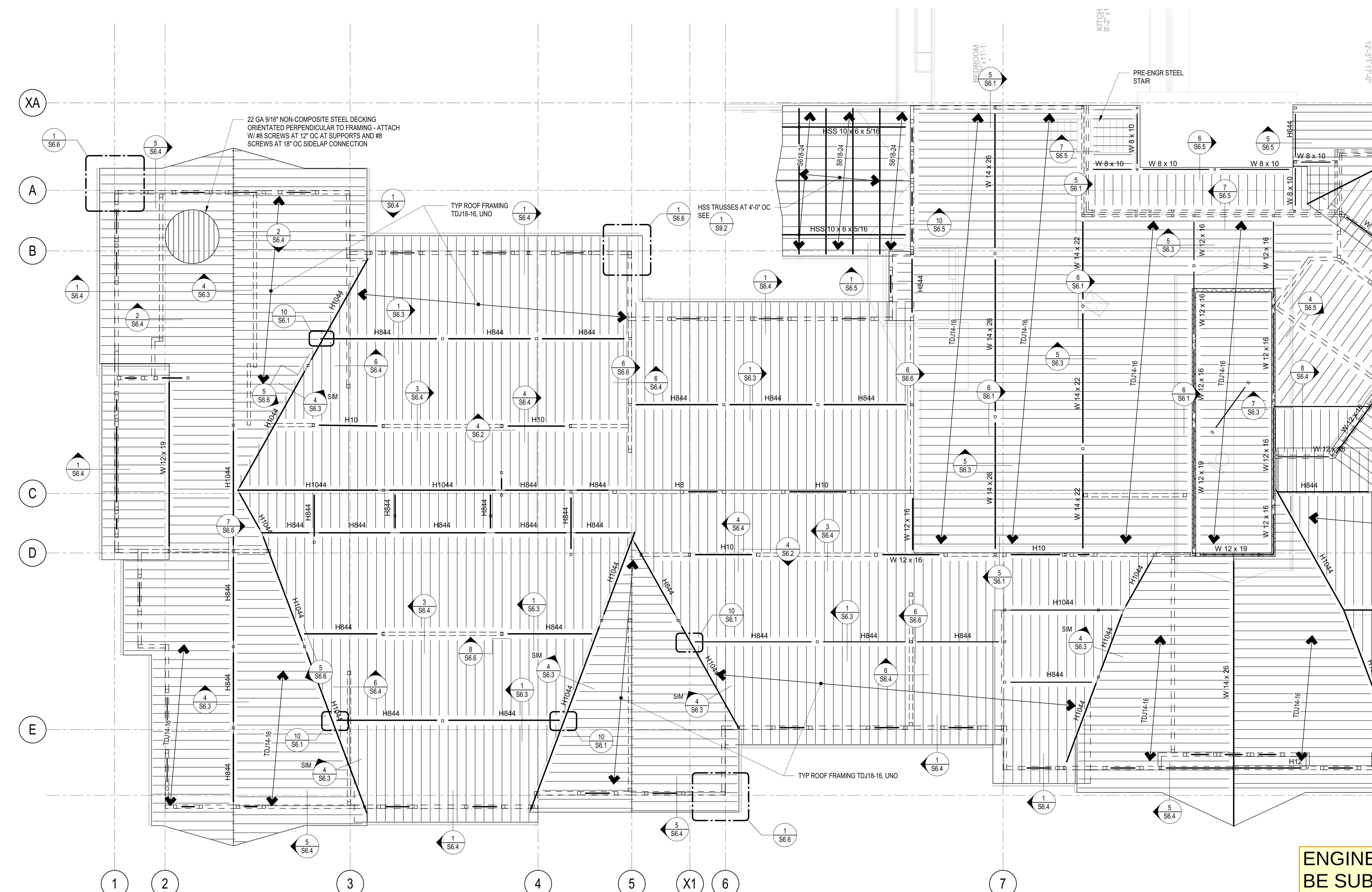
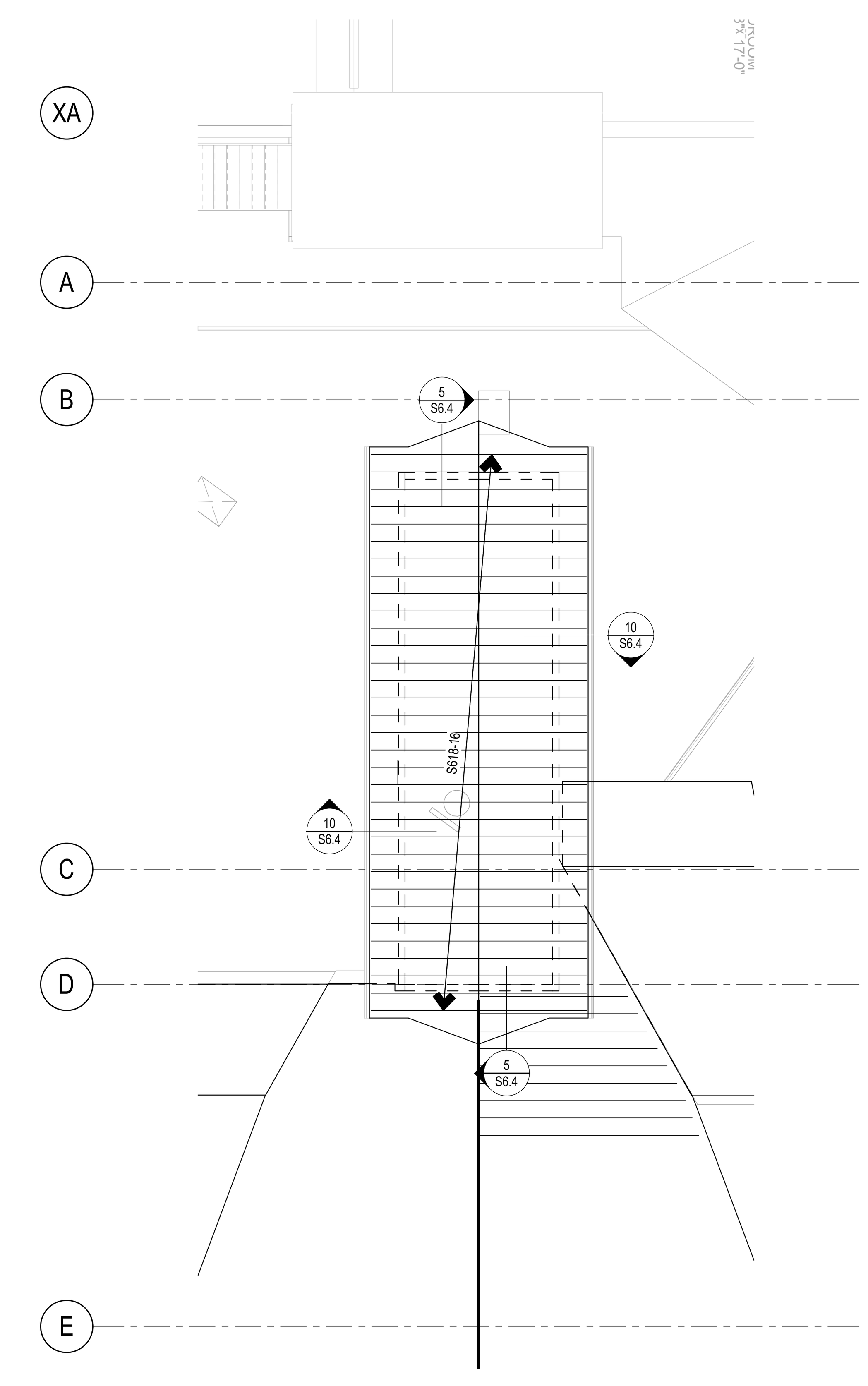


1 ROOF FRAMING PLAN - NORTH
1/8" = 1'-0"
SCALE: 1/8" = 1'-0"



2 HIGH ROOF FRAMING PLAN
1/8" = 1'-0"
SCALE: 1/8" = 1'-0"

ENGINEER SEALED TRUSS PACKET WILL BE SUBMITTED AS A DEFERRED PLAN.

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ROOF FRAMING PLAN - NORTH

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S1.2-N

10/13/2023 11:54:23 AM

GENERAL PLAN NOTES

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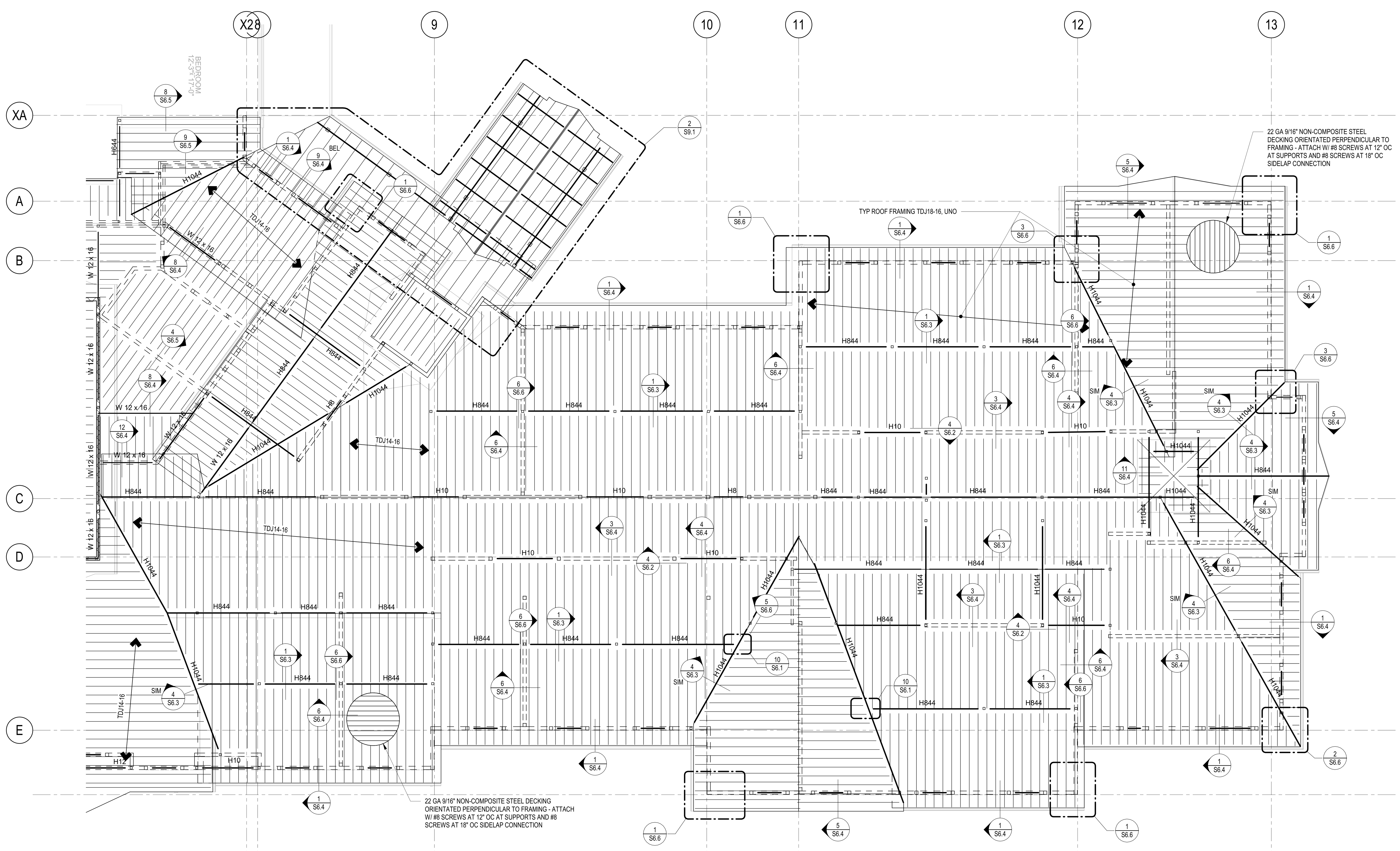

1 ROOF FRAMING PLAN - SOUTH

1/8" = 1'-0"

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

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ROOF FRAMING PLAN - SOUTH

S1.2-S

DIAPHRAGM SCHEDULE

MARK	LOCATION	DECKING / SHEATHING	CONCRETE TOPPING	DECKING ATTACHMENT			DIAPHRAGM SHEAR CAPACITY	NOTES
				SUPPORTS PERP TO DECK SPAN (5)	SUPPORTS PARALLEL TO DECK SPAN (5)	SIDE SEAM ATTACHMENT		
R1	ROOF SHTG	22 GA 9/16" NON-COMPOSITE STEEL DECKING OR 19/32" APA RATED T&G SHTG (FIRE TRTD) W/ (32/16) SPAN RATING	N/A	#10 SCREWS AT 6" OC AT DIAPHRAGM BOUNDARIES	#10 SCREWS AT 6" OC AT PANEL EDGES	#10 SCREWS AT 10" OC AT PANEL FIELD	N/A	

DIAPHRAGM NOTES:

1. ALL NAILS SHALL BE COMMON, MINIMUM 0.148" DIAMETER AND SHALL PENETRATE INTO FRAMING MEMBERS MINIMUM 1 1/2" UNO NAILS SHALL BE LOCATED AT LEAST 3/8" FROM THE EDGES OF PANELS.
2. ALL SHEATHING PANELS SHALL BE NOT LESS THAN 4'-0" x 8'-0" UNLESS OTHERWISE APPROVED BY THE ENGINEER AT BOUNDARIES AND CHANGES IN FRAMING DIRECTION, PANELS MAY BE ANY SIZE PROVIDED ALL EDGES OF THE UNDERSIZED PANELS ARE SUPPORTED BY AND FASTENED TO FRAMING MEMBERS OR BLOCKING WITH 3x NOMINAL WIDTH.
3. ALL FLOOR SHEATHING SHALL BE GLUED AND NAILED TO SUPPORTS.
4. ALL SHEATHING SHALL BE UNBLOCKED T&G FOR SHTG THICKNESS 19/32" OR GREATER AT CONTRACTOR'S OPTION T&G EDGES MAY BE OMITTED AT ROOF SHTG IF PW CLIPS ARE INSTALLED.
5. NON-COMPOSITE DECKING SHALL BE SHALLOW VERCOR DECKING BY VERCO OR APPROVED EQUIVALENT WITH TABULATED DIAPHRAGM SHEAR CAPACITY EQUIVALENT TO LISTED VALUES.
6. AT WIDE FLANGE AND HSS MEMBERS, MIN 0.145" DIA PDF'S MAY BE USED IN LIEU OF SPECIFIED SCREWS, FASTENER SPACINGS REMAIN UNCHANGED, CONTRACTOR SHALL SUBMIT PROPOSED PDF FASTENERS FOR REVIEW AND APPROVAL BY ARCHITECT / ENGINEER.

GENERAL PLAN NOTES

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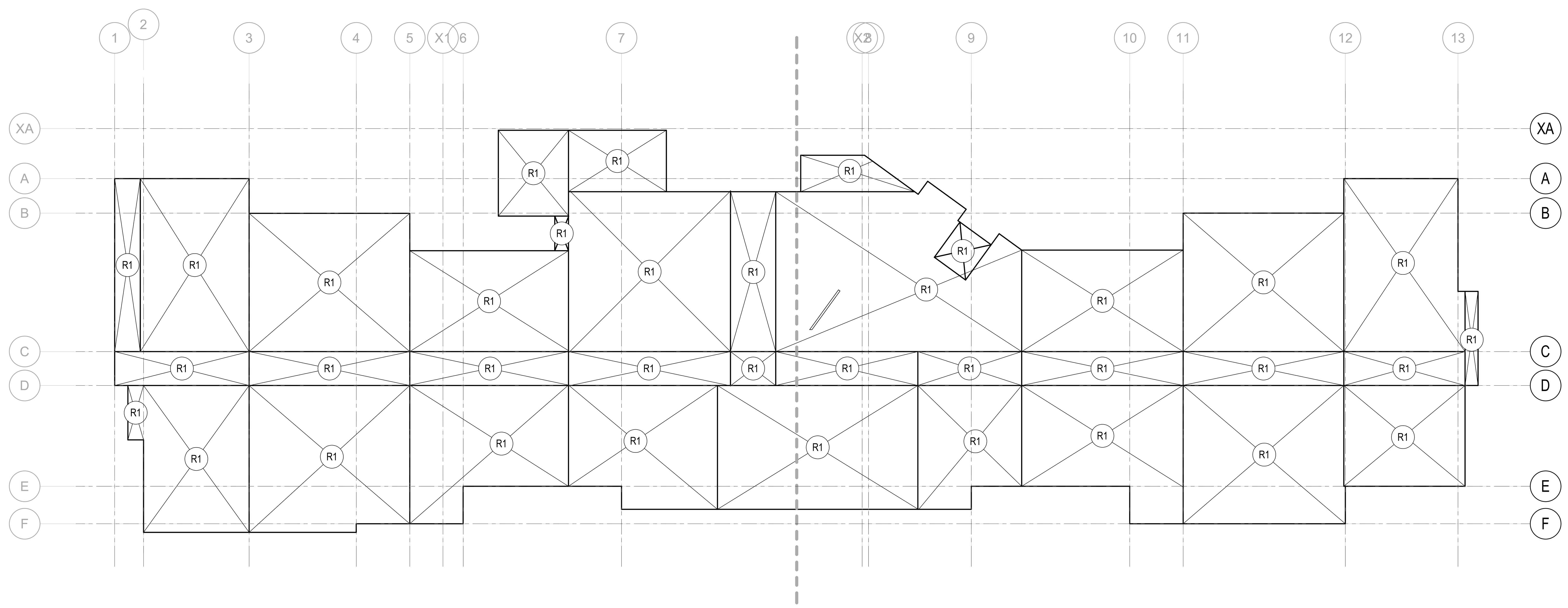

1 ROOF DIAPHRAGM PLAN

1/16" = 1'-0"

0 4 8 16

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

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ANDREW DEAN McEACHERN
STATE OF WASHINGTON
38722
STRUCTURAL
PROFESSIONAL ENGINEER

WESLEY BRADLEY PARK
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DIAPHRAGM PLAN

S1.3

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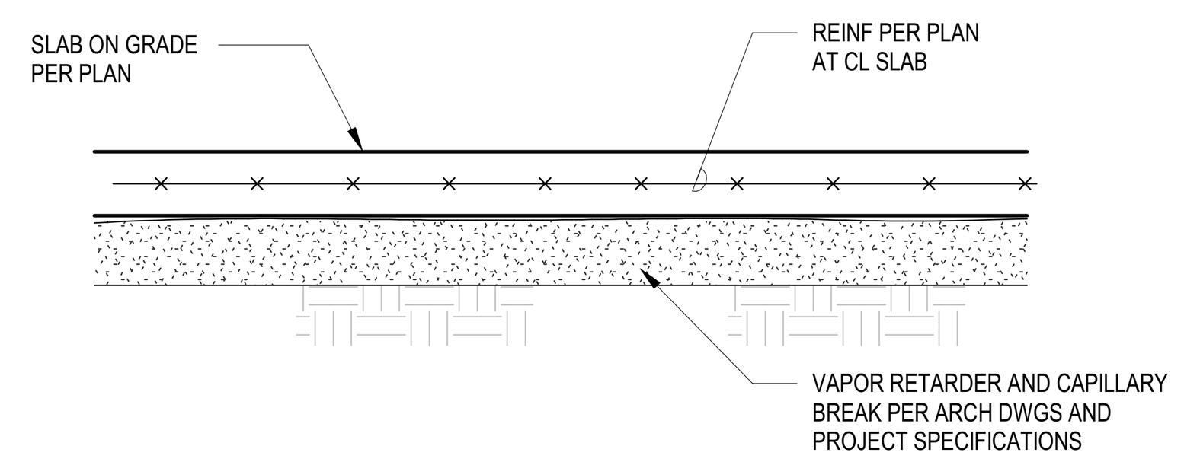
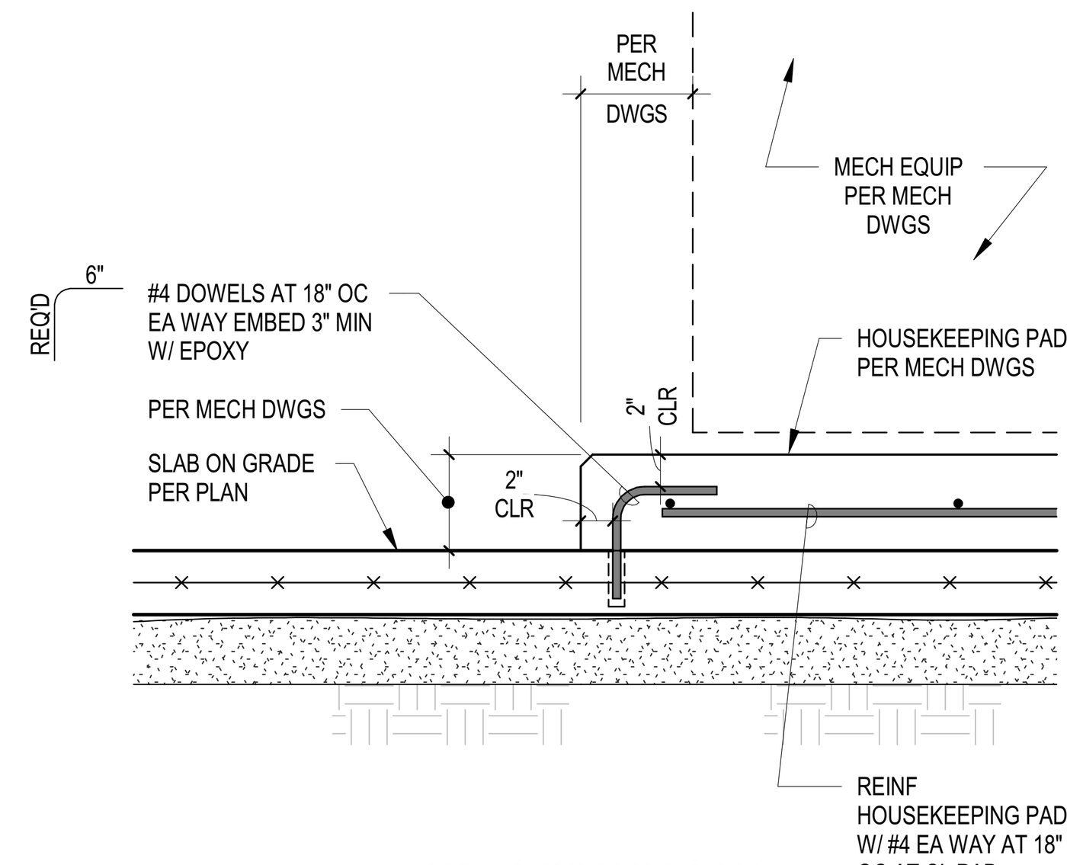
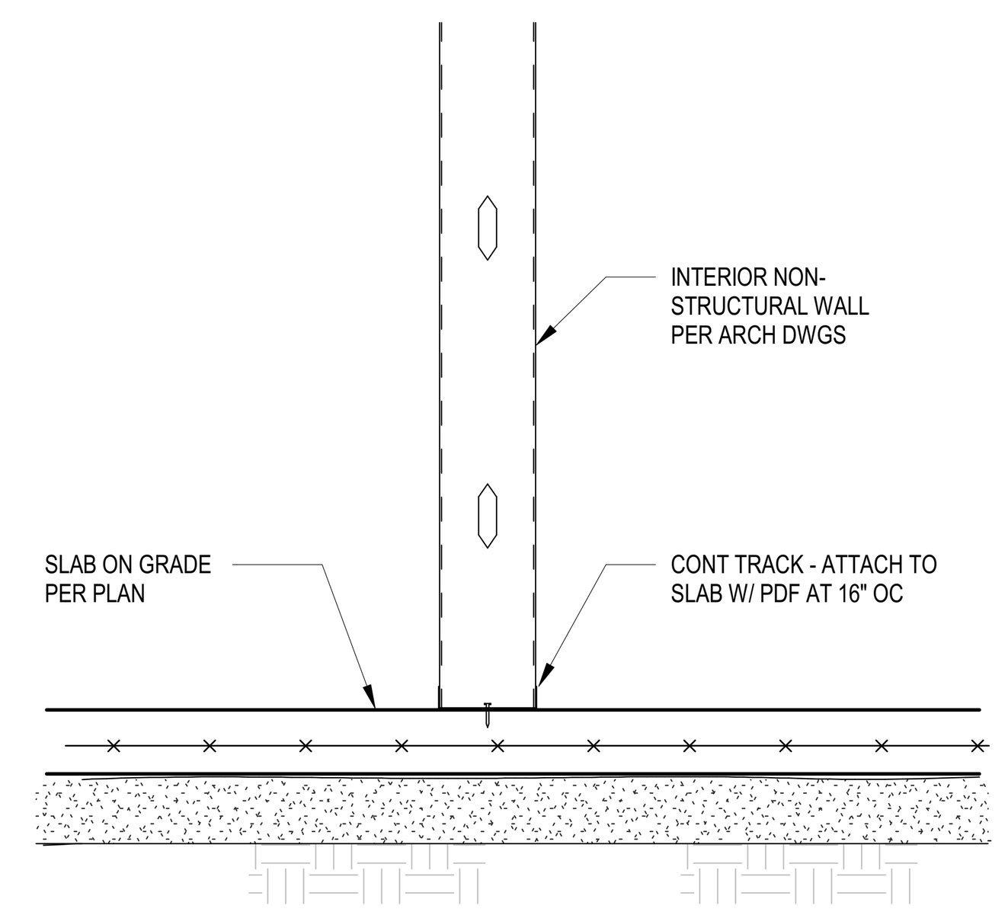
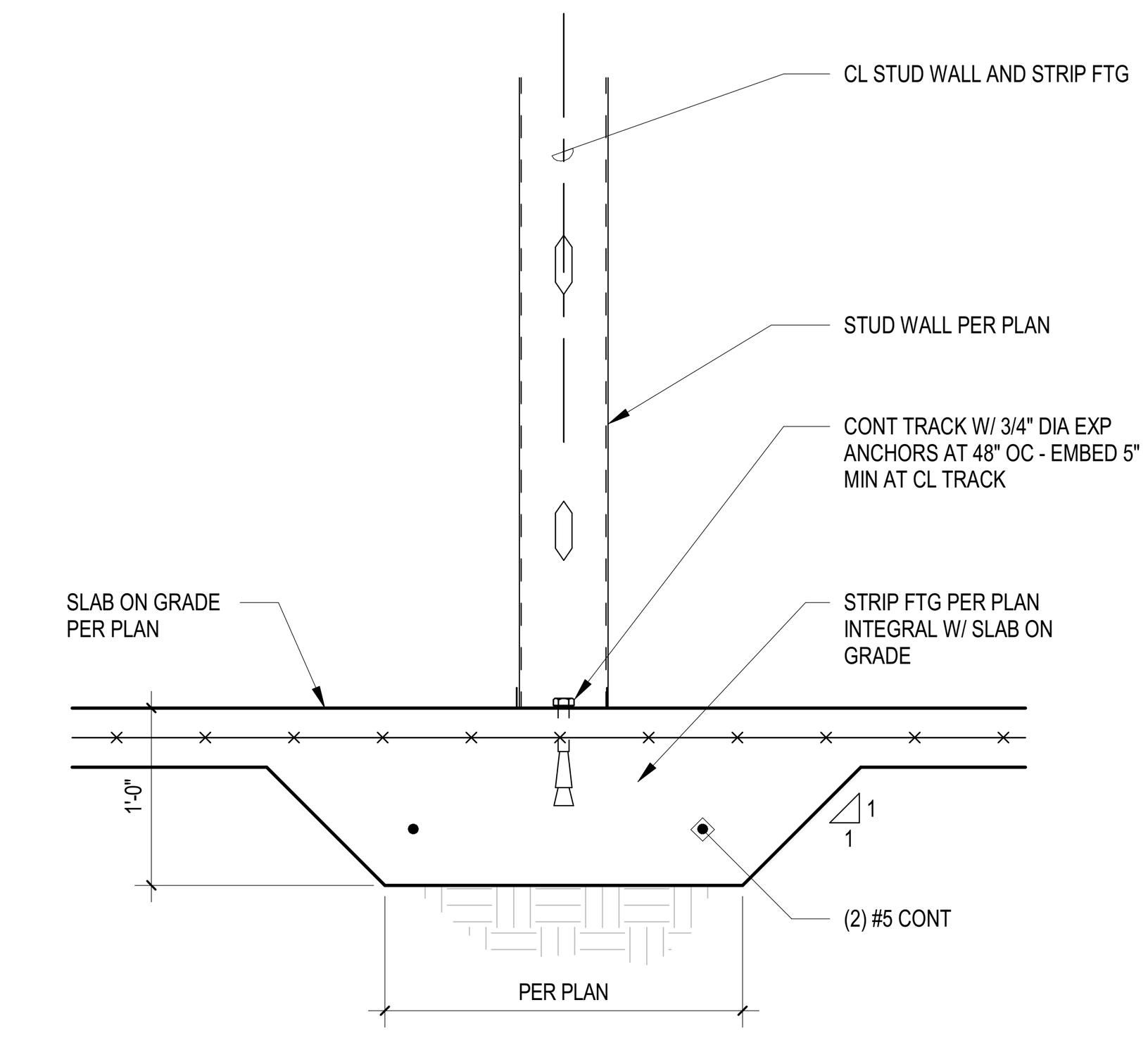




TYP HOUSEKEEPING PAD



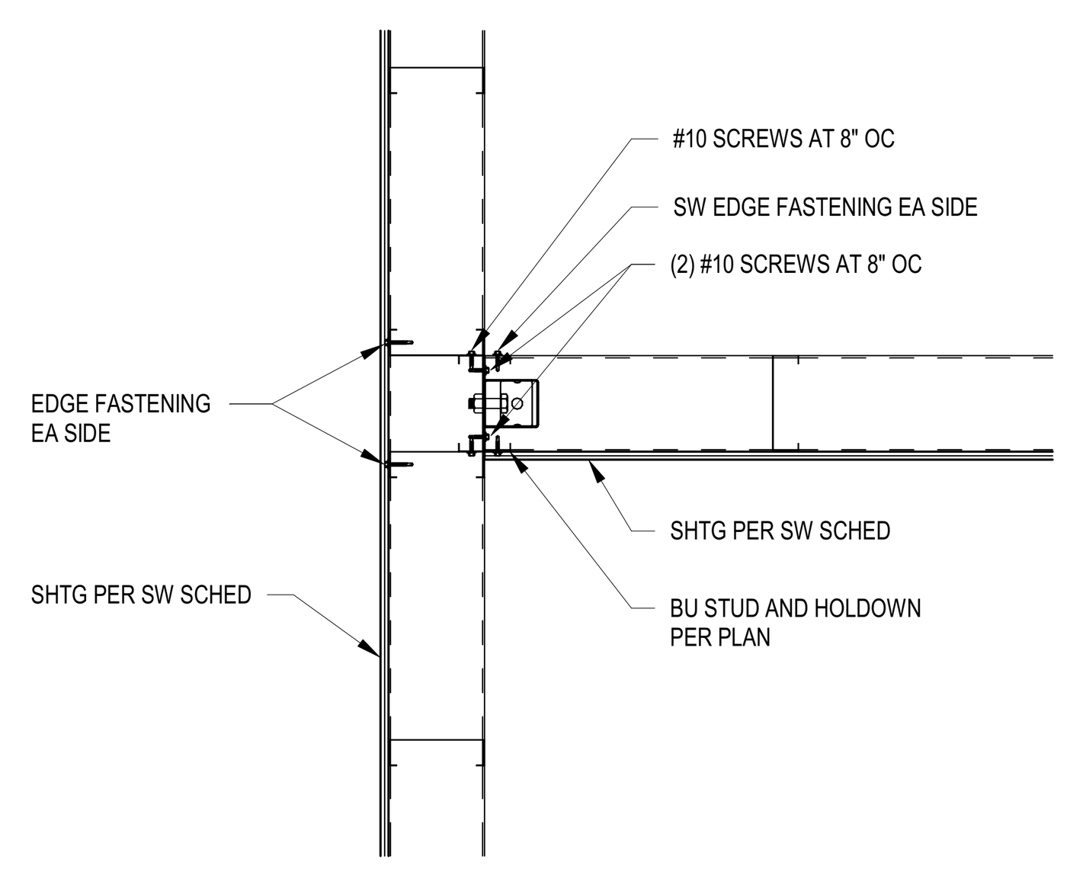


1 **TYPICAL**
1" = 1'-0" 1 / S2.1

2 **TYPICAL**
1" = 1'-0" 2 / S2.1

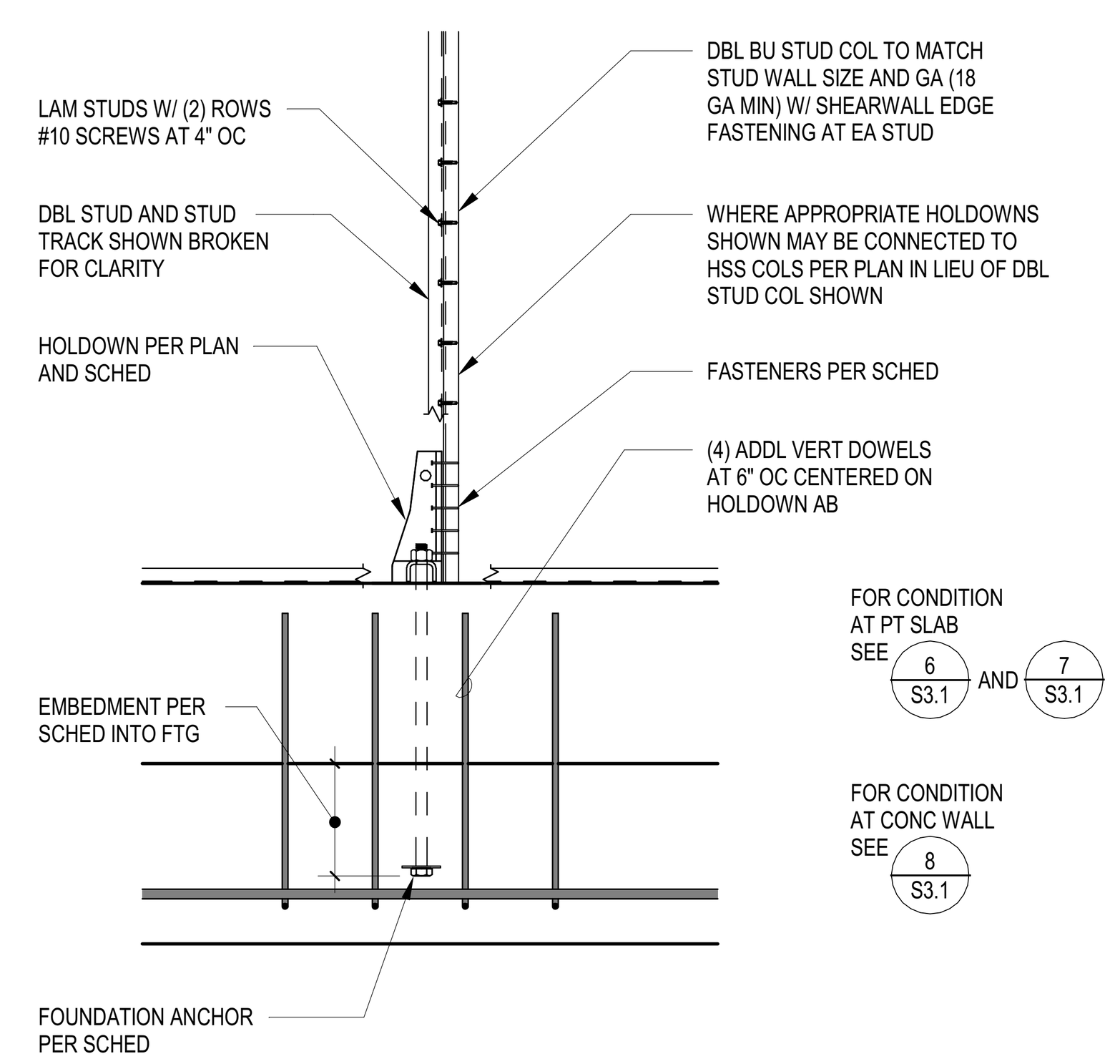
3 **TYPICAL**
1" = 1'-0" 3 / S2.1

4 **TYPICAL**
1" = 1'-0" 4 / S2.1



TYPICAL SHEAR WALL INTERSECTION

5 **TYPICAL**
1" = 1'-0" 5 / S2.1

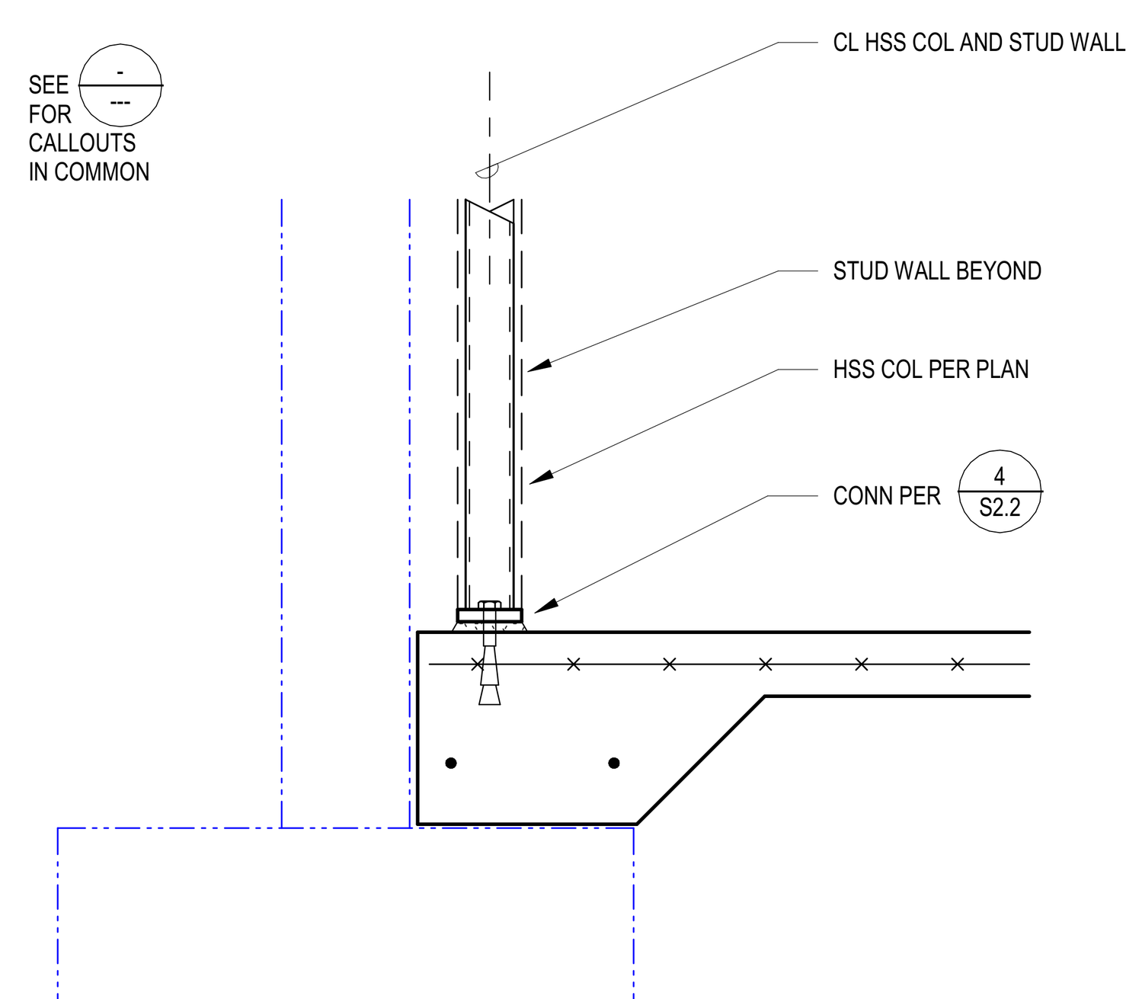


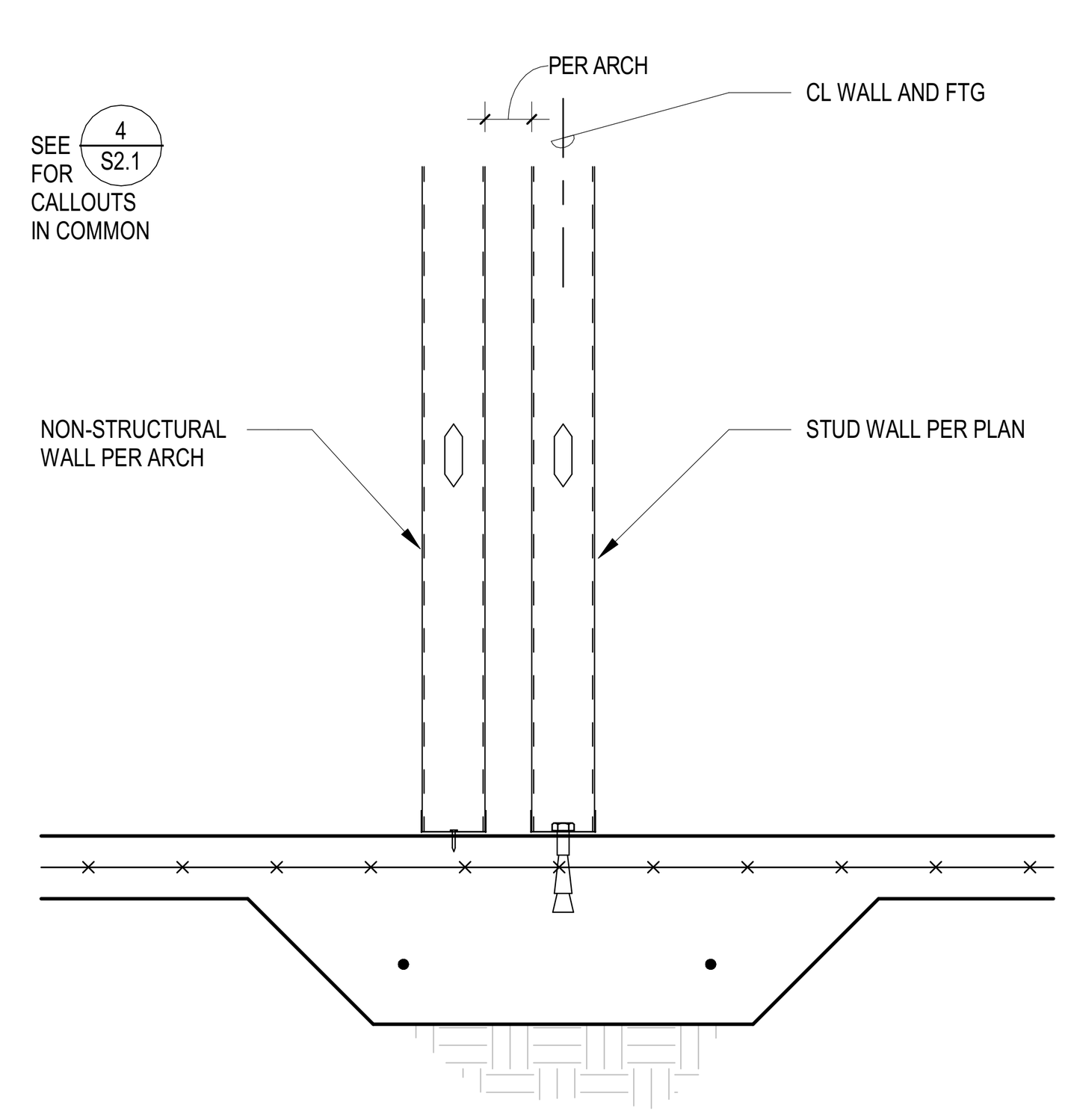
EMBEDDED ANCHOR

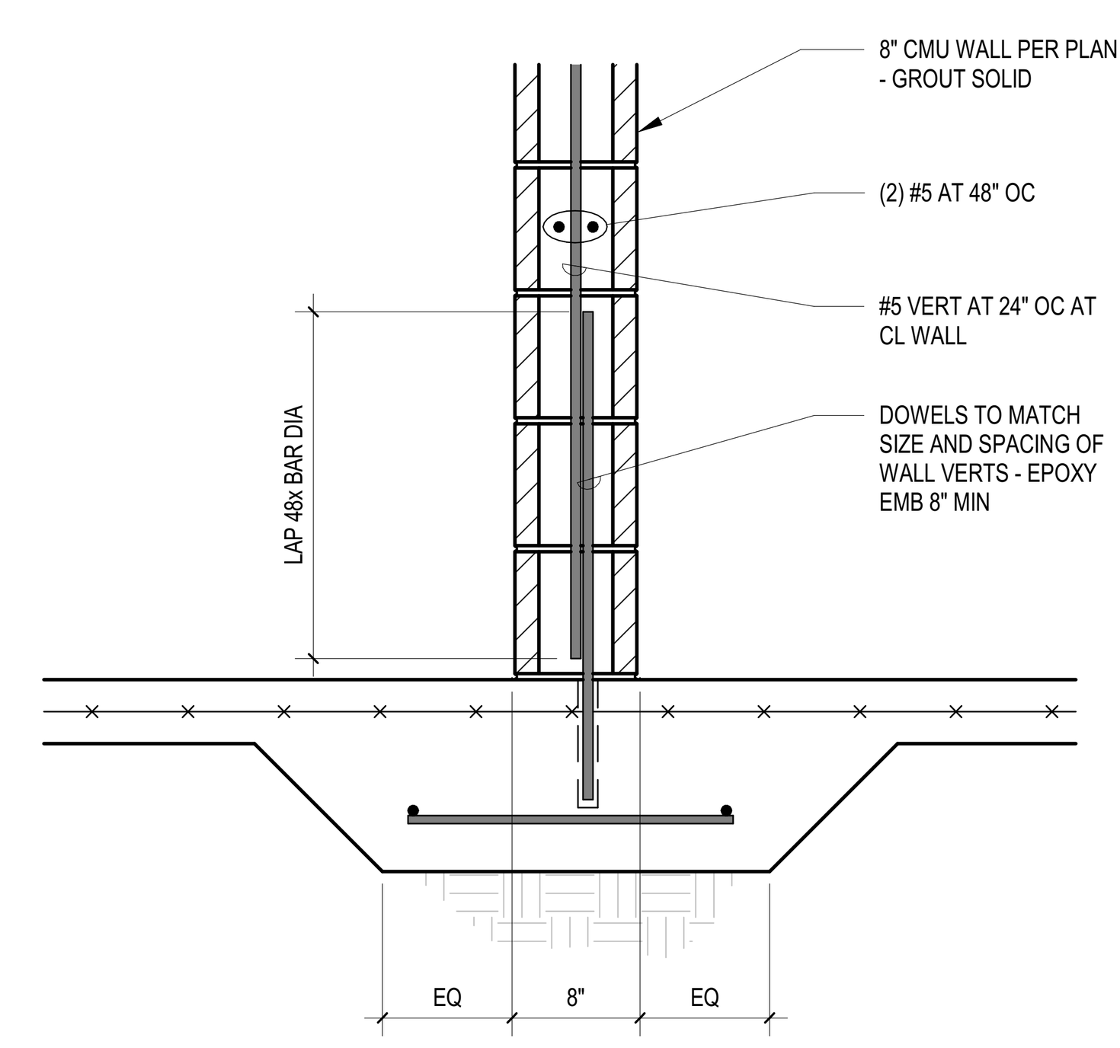
HOLDOWN SCHEDULE

MARK	HOLDOWN	FOUNDATION ANCHOR	FASTENERS	HOLDOWN CAPACITY	EMBEDMENT	NOTES
H4	S/HDU4	SIMP PAB5	(6) #14	3825 LBS (ASD)	6"	
H6	S/HDU6	SIMP PAB5	(12) #14	6125 LBS (ASD)	6"	
H9	S/HDU9	SIMP PAB7	(18) #14	9255 LBS (ASD)	10"	
H11	S/HDU11	SIMP PAB7 W/ HEAVY HEX NUT	(27) #14	11100 LBS (ASD)	10"	
NR	NONE REQ'D	-	-	-	-	NO HOLDOWN REQ'D AT INDICATED LOCATIONS

6 **SCHEDULE**
N.T.S.







8 **SECTION**
1" = 1'-0" 8 / S2.1

9 **SECTION**
1" = 1'-0" 9 / S2.1

10 **SECTION**
1" = 1'-0" 10 / S2.1

10/13/2023 11:54:32 AM

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1000 university ave. w. suite 130
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612-252-4820

ANDREW DEAN McEACHERN, STATE OF WASHINGTON, STRUCTURAL, PROFESSIONAL ENGINEER

NOTICE:

WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

ORIGINAL ISSUE: 08/17/16

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2220236.20
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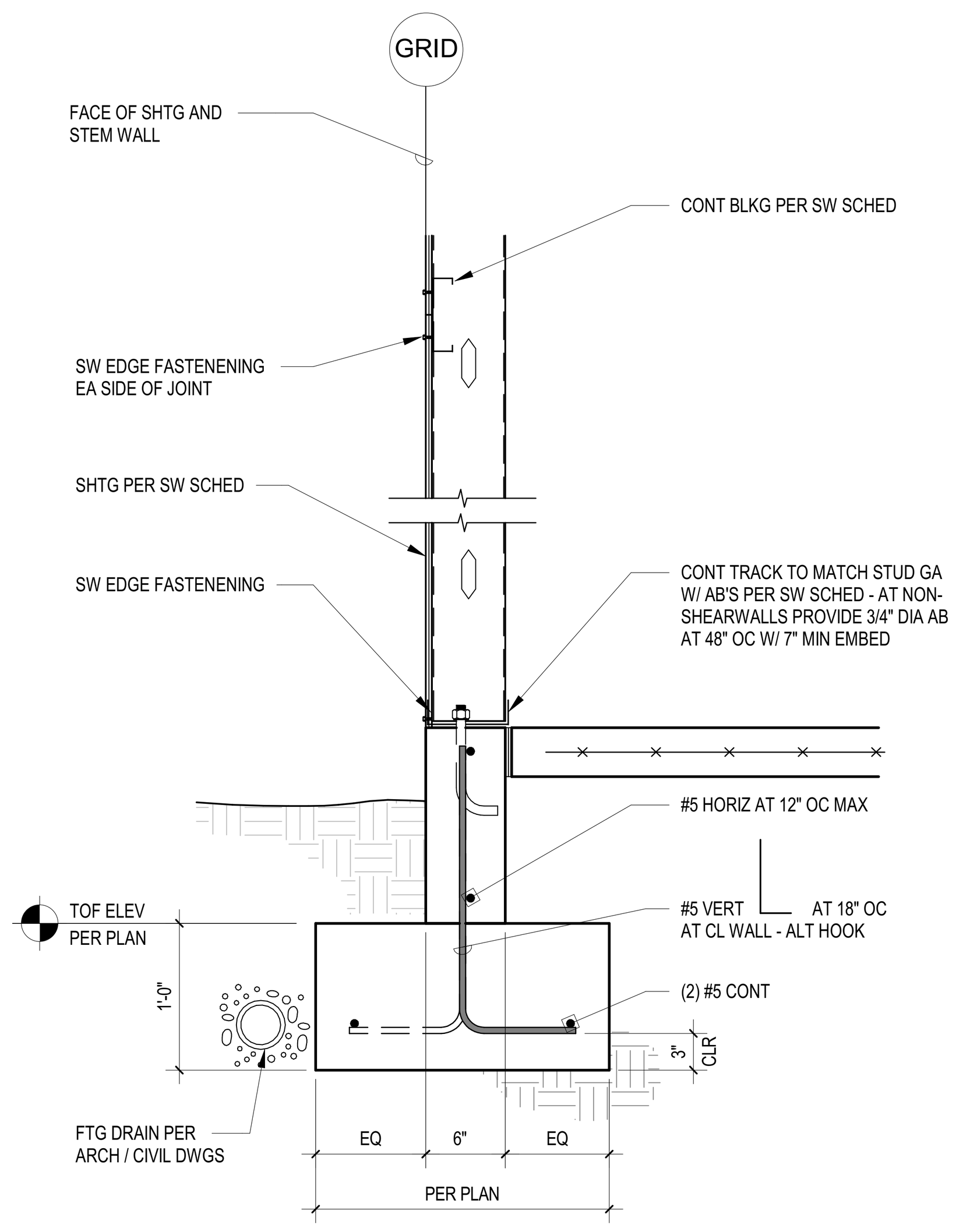
WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

AHBL
TACOMA SEATTLE SPOKANE TRI-CITIES
2215 North 30th Street, Suite 300, Tacoma,WA 98403
253.383.2422 TEL 253.383.2572 FAX www.ahbl.com WEB

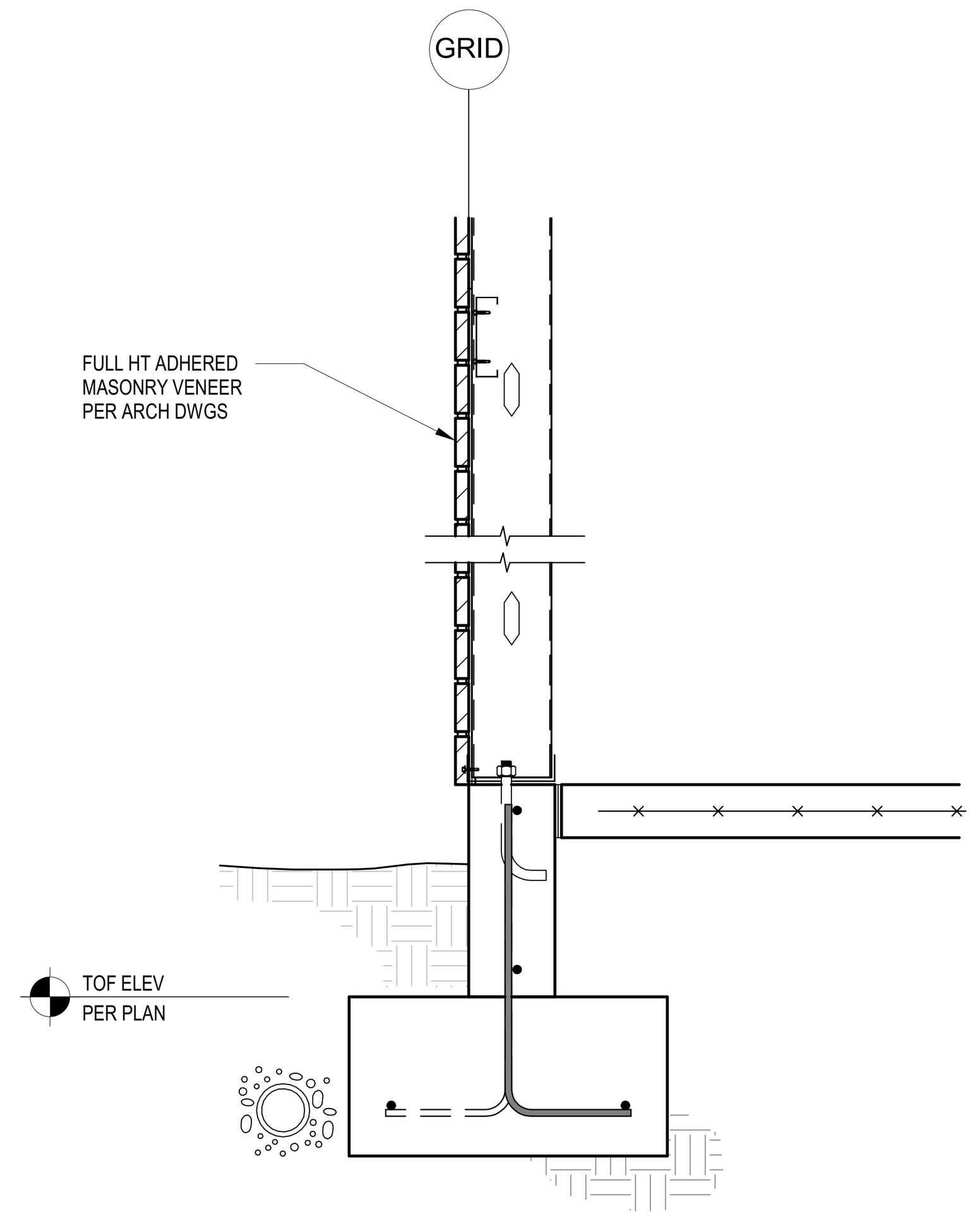
FOUNDATION DETAILS

S2.1



1 SECTION

1" = 1'-0" 1 / S2.2



2 SECTION

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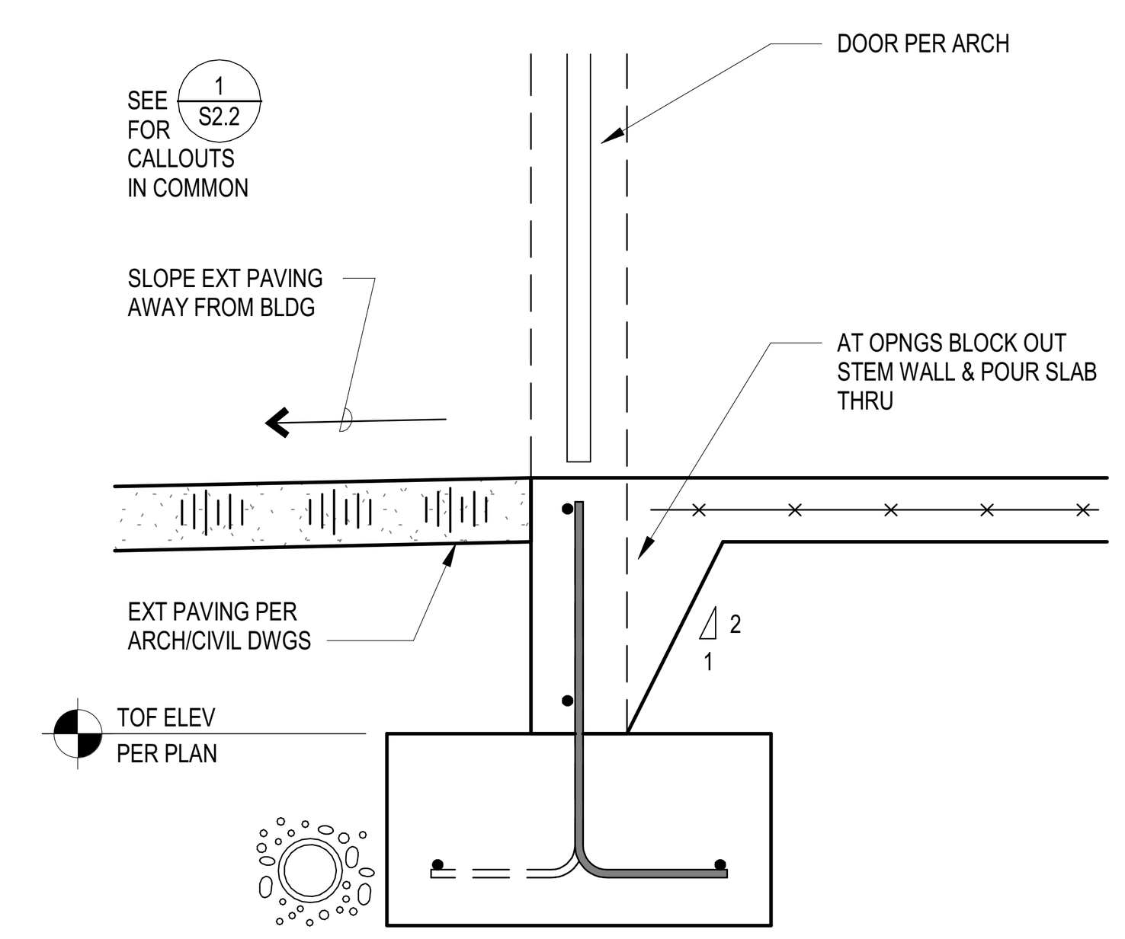
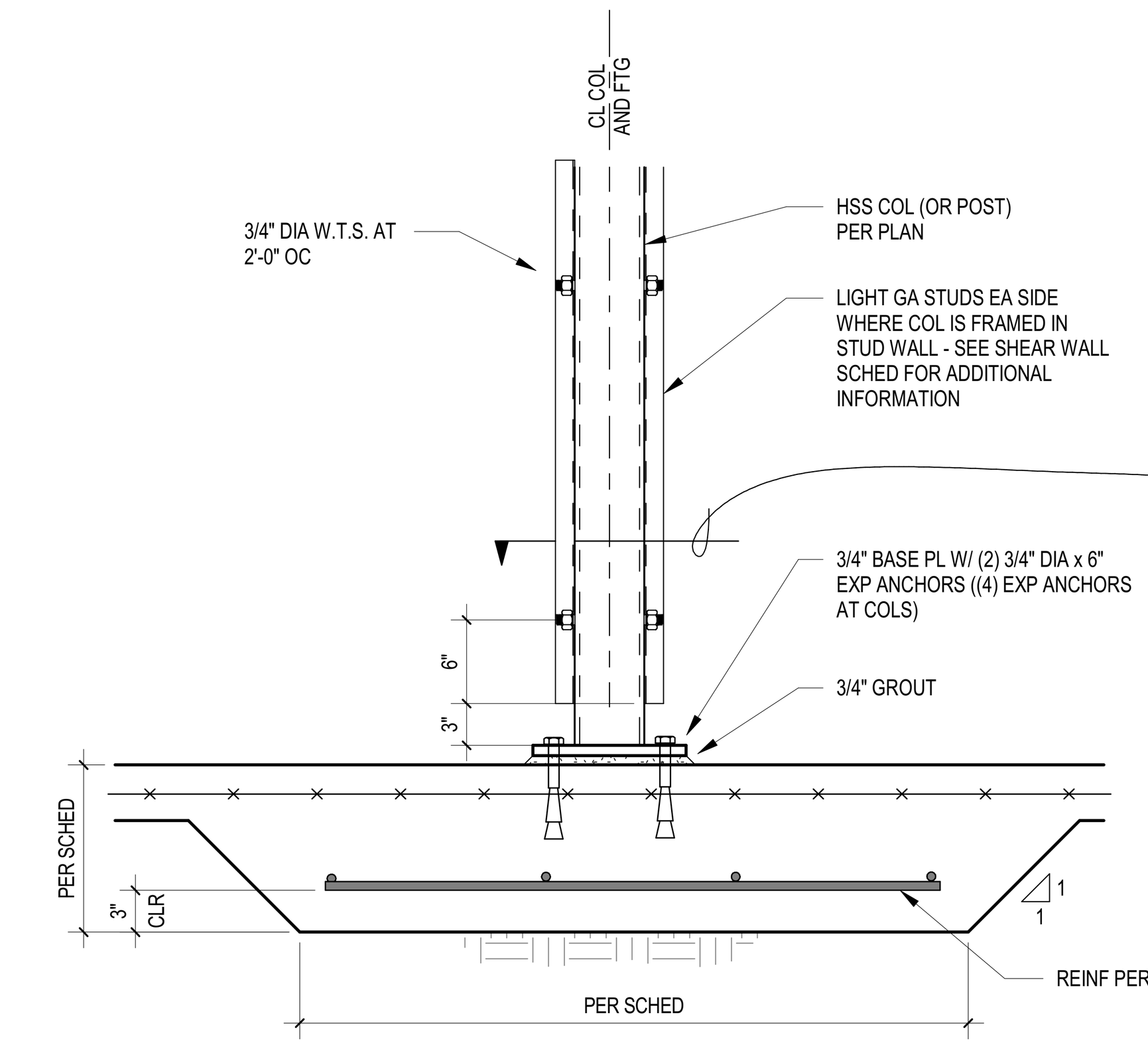
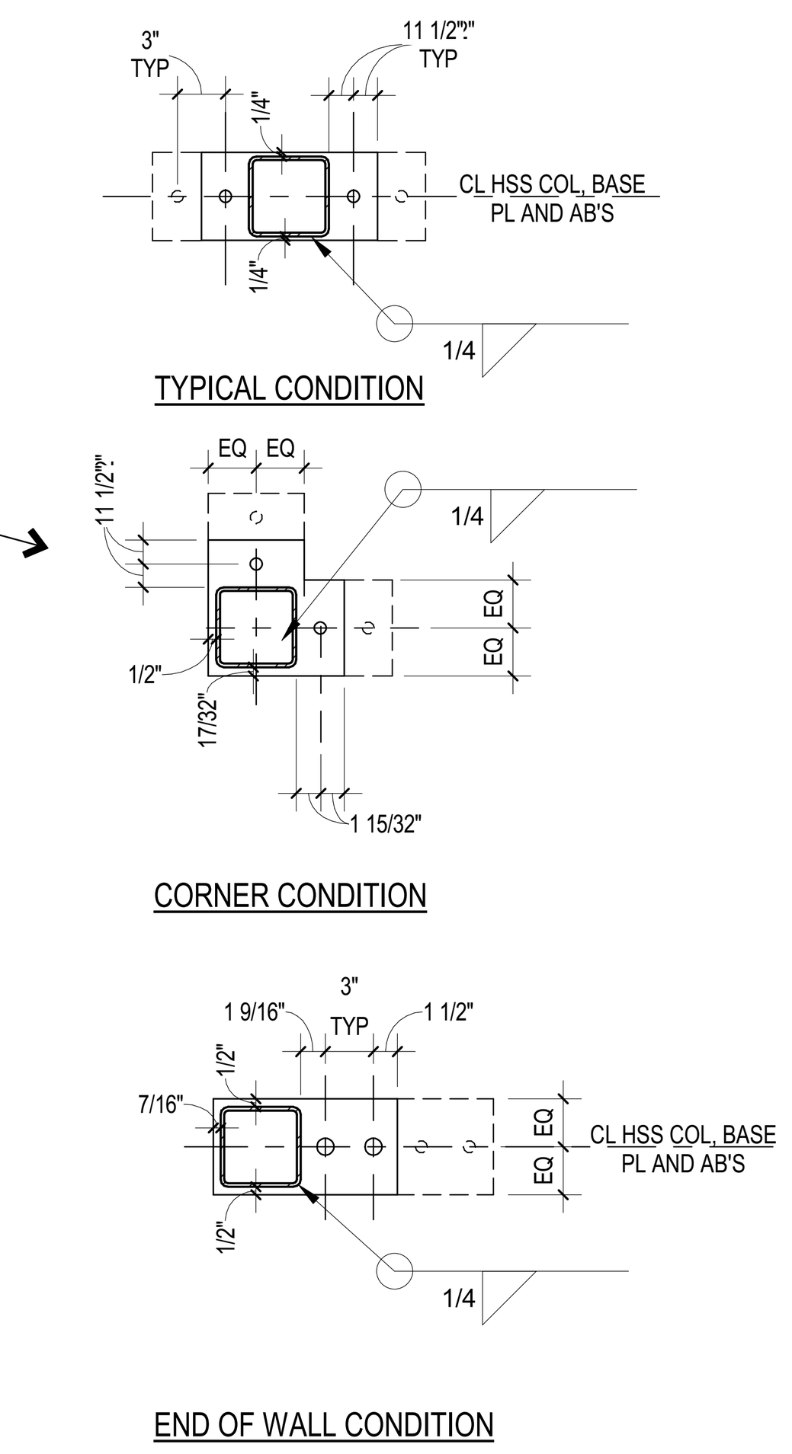


3 SECTION

1" = 1'-0" 3 / S2.2





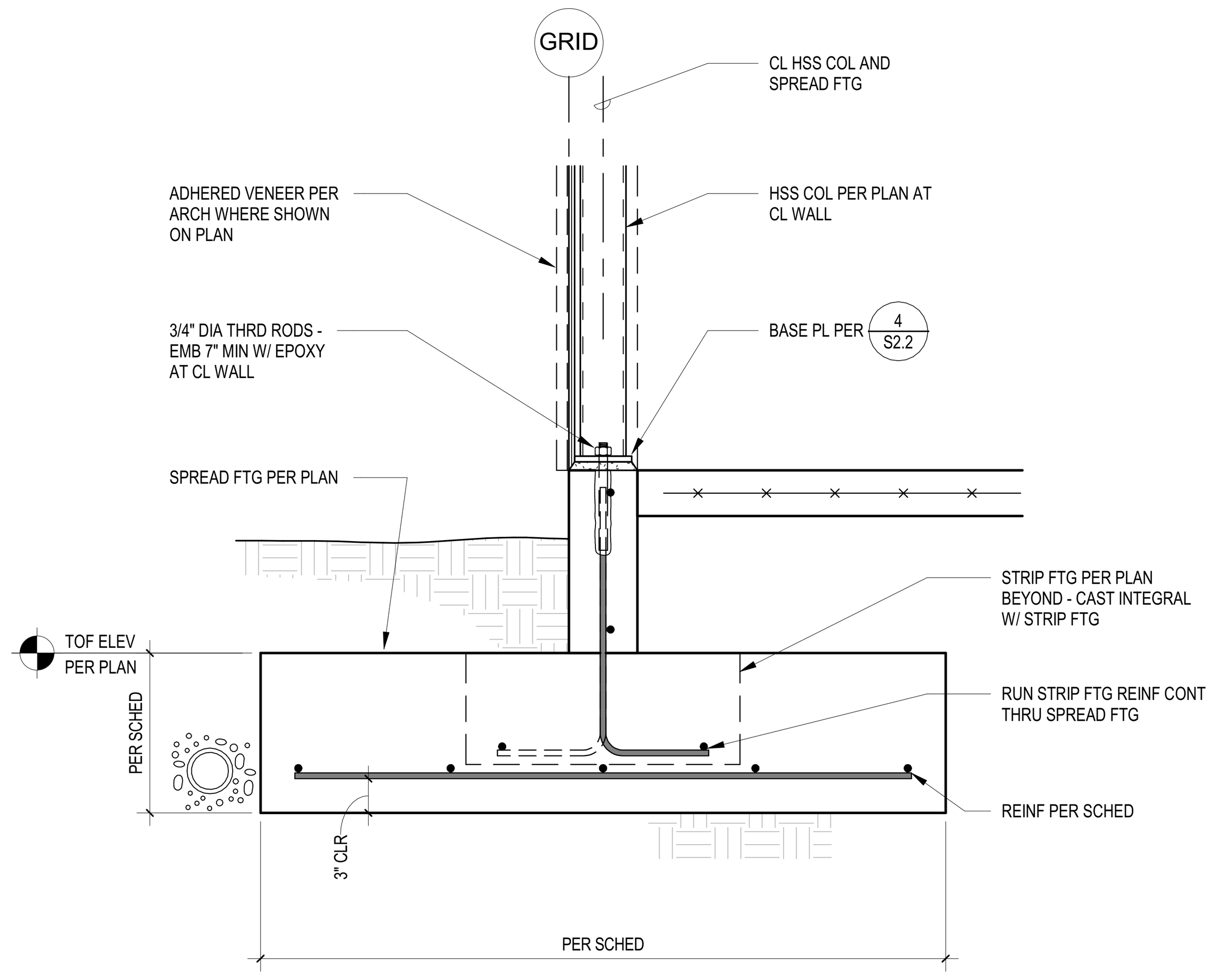
REGARDLESS OF DESIGNATION OF VERTICAL LOAD CARRYING MEMBER (COL OR POST) GIVEN ON STRUCTURAL DRAWINGS GENERAL CONTRACTOR, STEEL ERECTOR, AND STEEL DETAILER SHALL DETERMINE DESIGNATION OF ALL VERTICAL LOAD CARRYING MEMBERS RELATIVE TO OSHA 29 CRF PART 1926.751 AND 1926.755. STEEL DETAILER SHALL CONFIGURE THE BASE PLATE WITH THE APPROPRIATE NUMBER OF BOLTS AS REQUIRED TO CONFORM TO OSHA REQUIREMENTS.

NOTE:

(2) BOLT CONNECTIONS SHOWN APPLY TO "POST" MEMBERS AS DETERMINED BY OSHA REGULATIONS (VERTICAL LOAD CARRYING MEMBER WEIGHING 300 lbs OR LESS). AT COL LOCATIONS (VERTICAL LOAD CARRYING MEMBERS WEIGHING MORE THAN 300 lbs) STEEL DETAILER SHALL PROVIDE (2) ADDITIONAL ANCHOR BOLTS (MIN (4) BOLTS) AS SHOWN

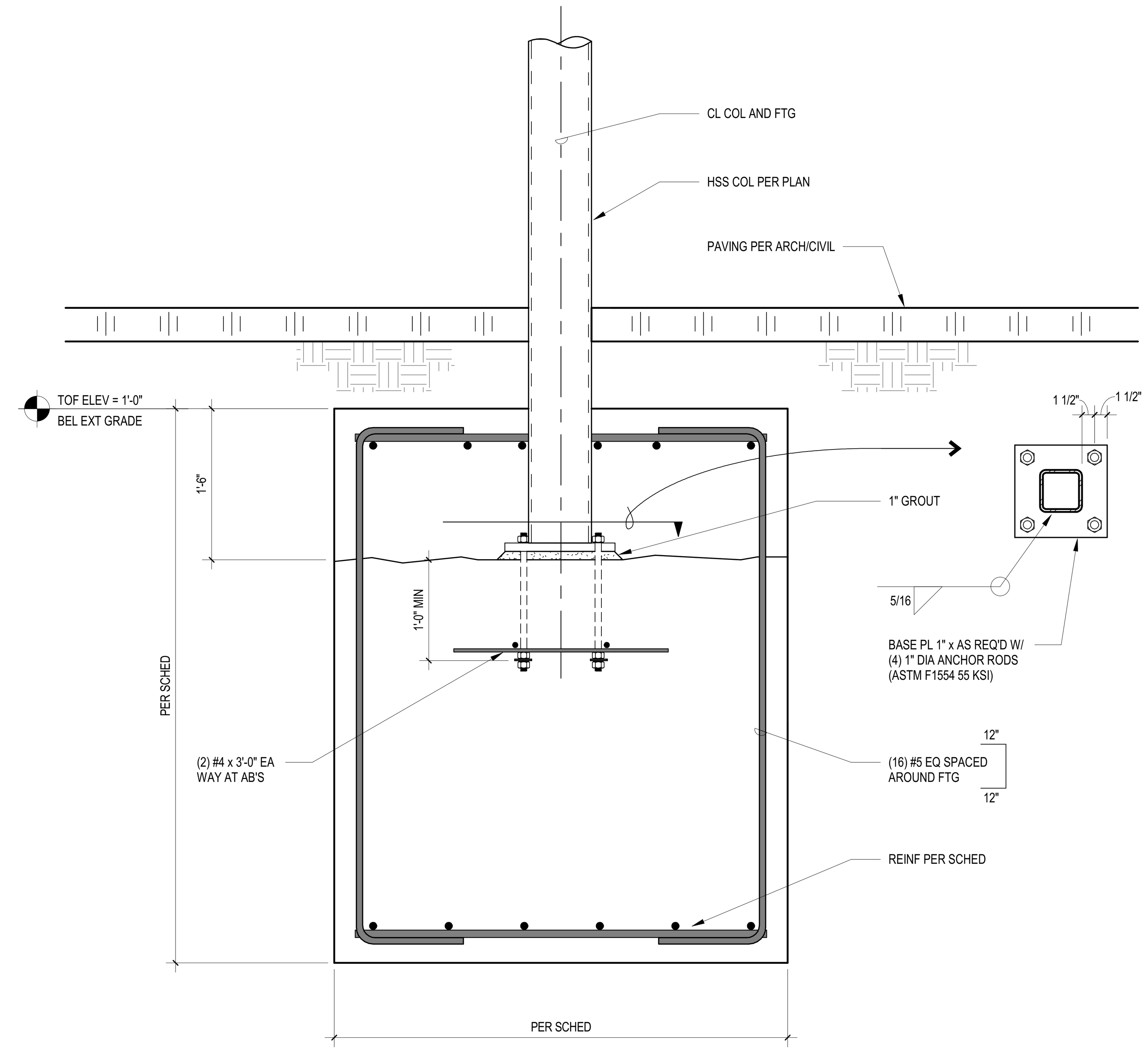
4 SECTION

1" = 1'-0" 4 / S2.2



5 SECTION

1" = 1'-0" 5 / S2.2



6 SECTION

1" = 1'-0" 6 / S2.2

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ANDREW DEAN McEACHERN
STATE OF WASHINGTON
STRUCTURAL
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PERMIT SET
10/16/2023

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WESLEY BRADLEY PARK
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FOUNDATION DETAILS

S2.2

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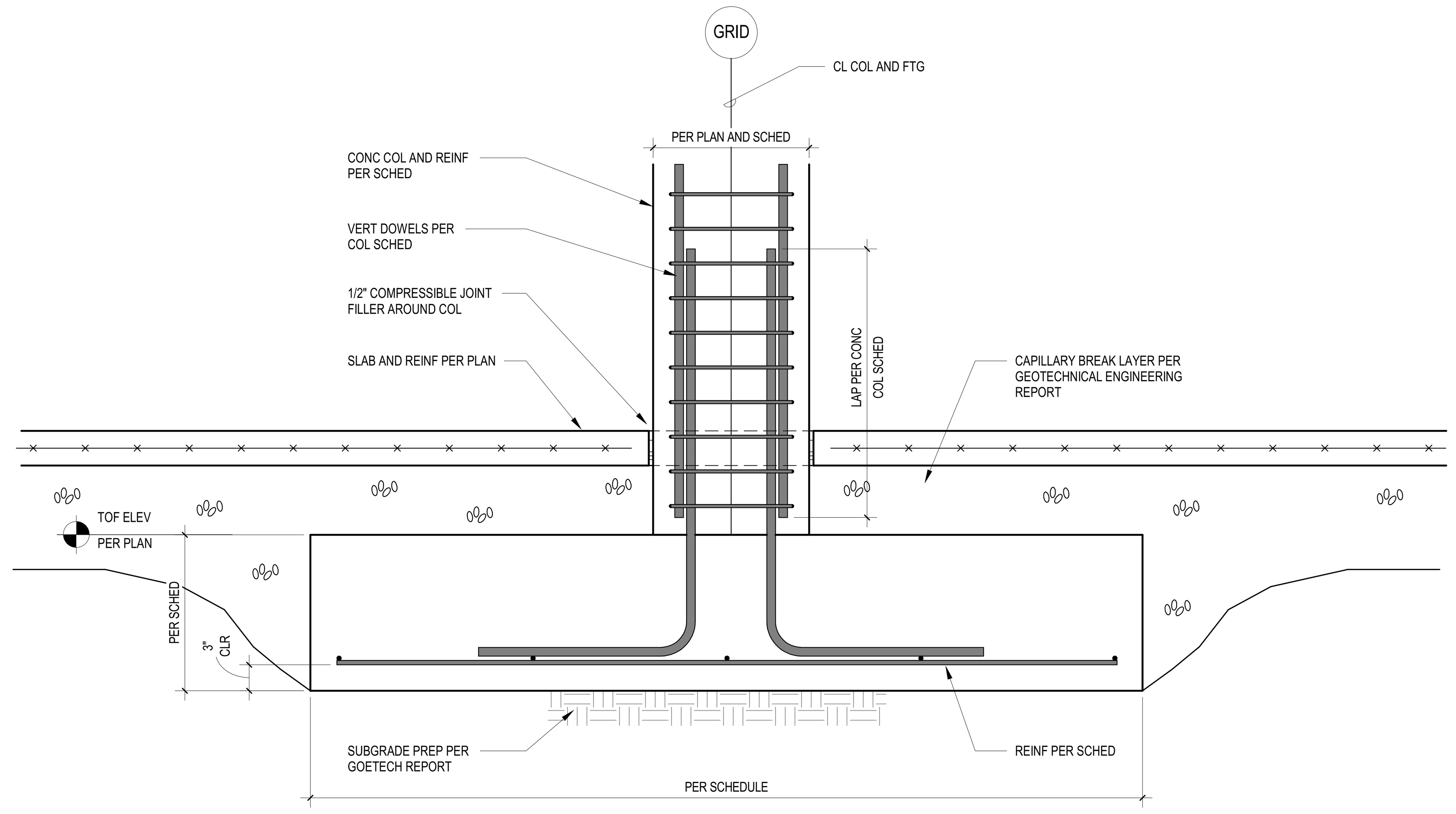
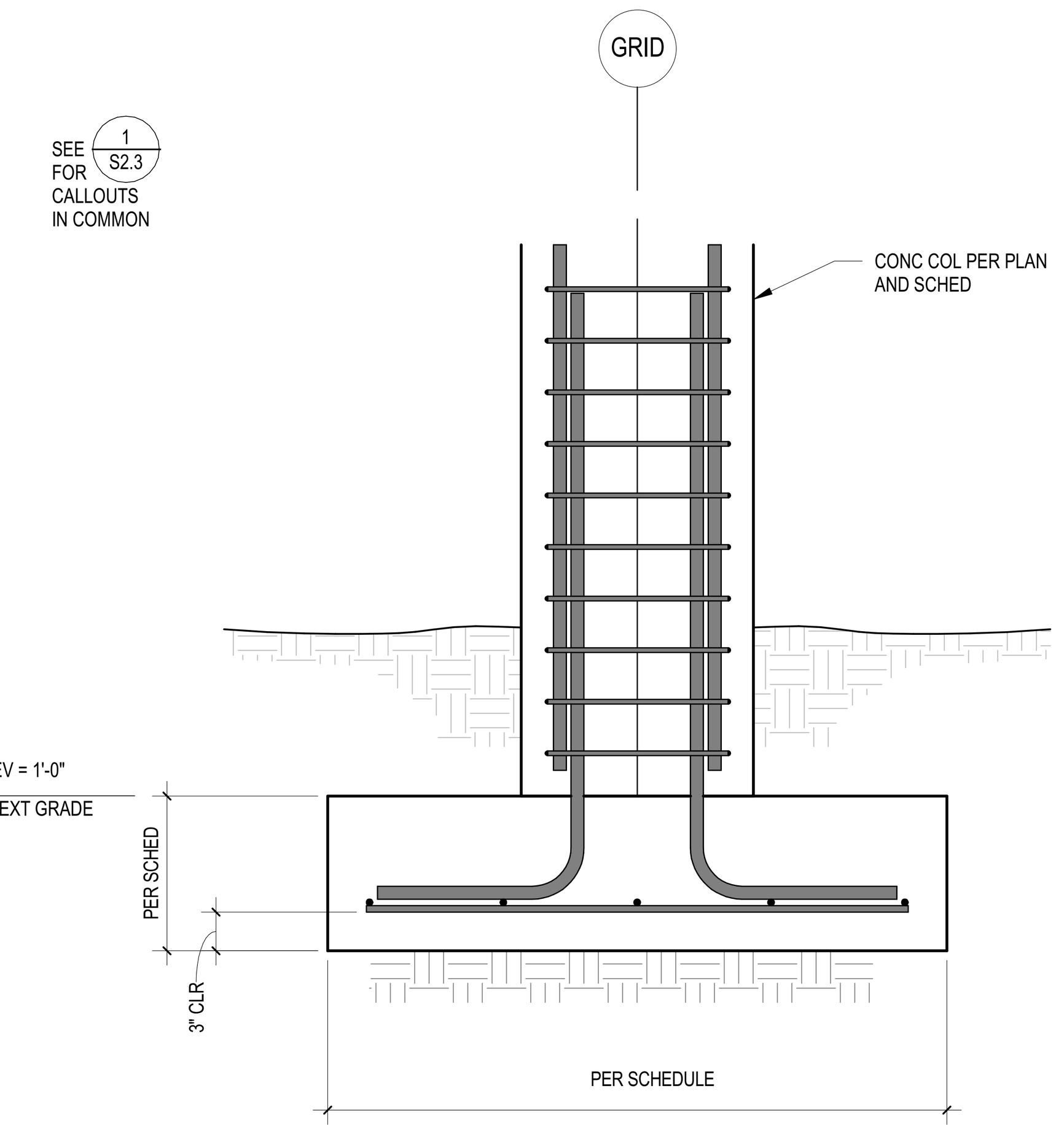


1 SECTION
1" = 1'-0" 1 / S2.3



2 SECTION
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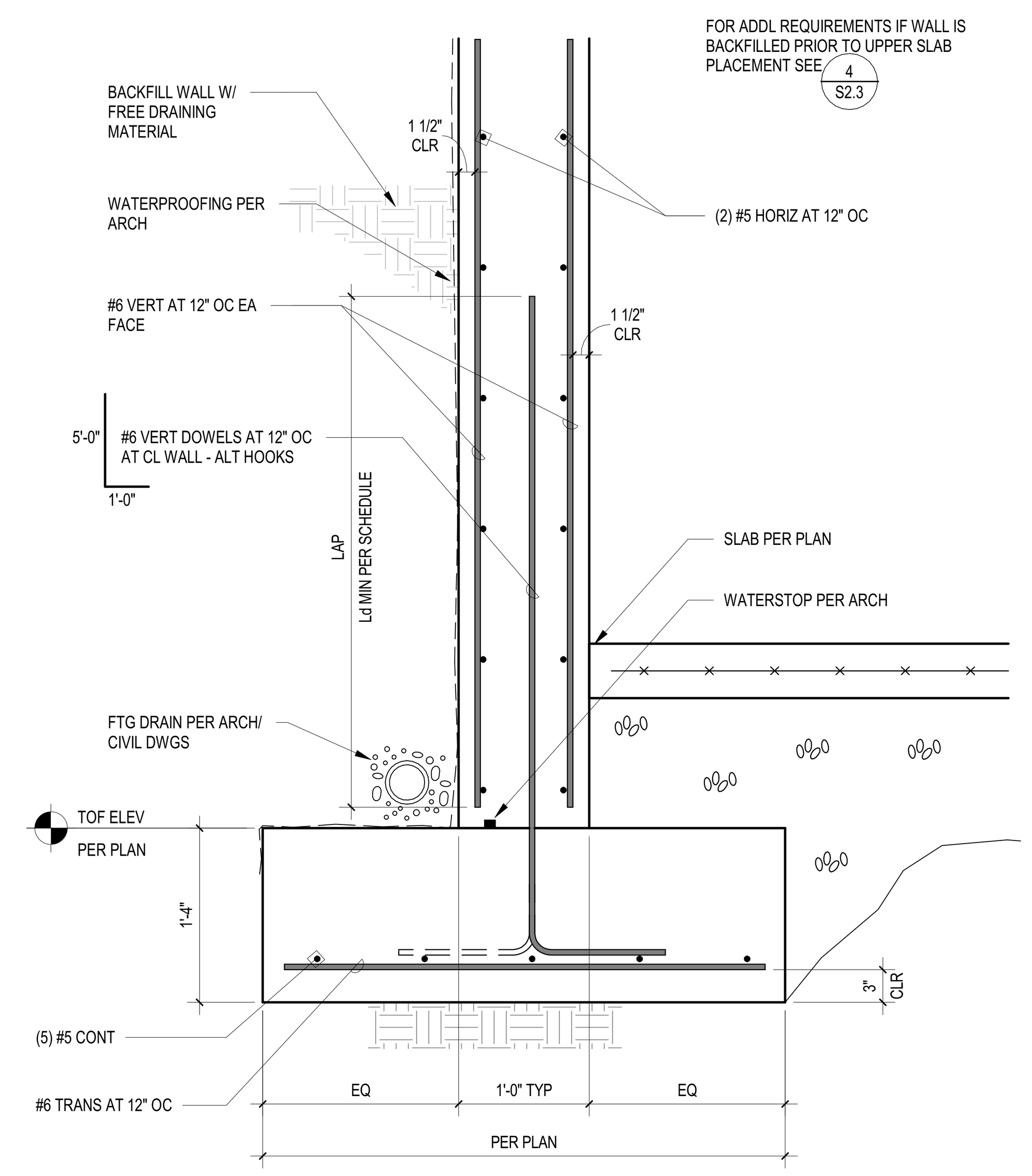
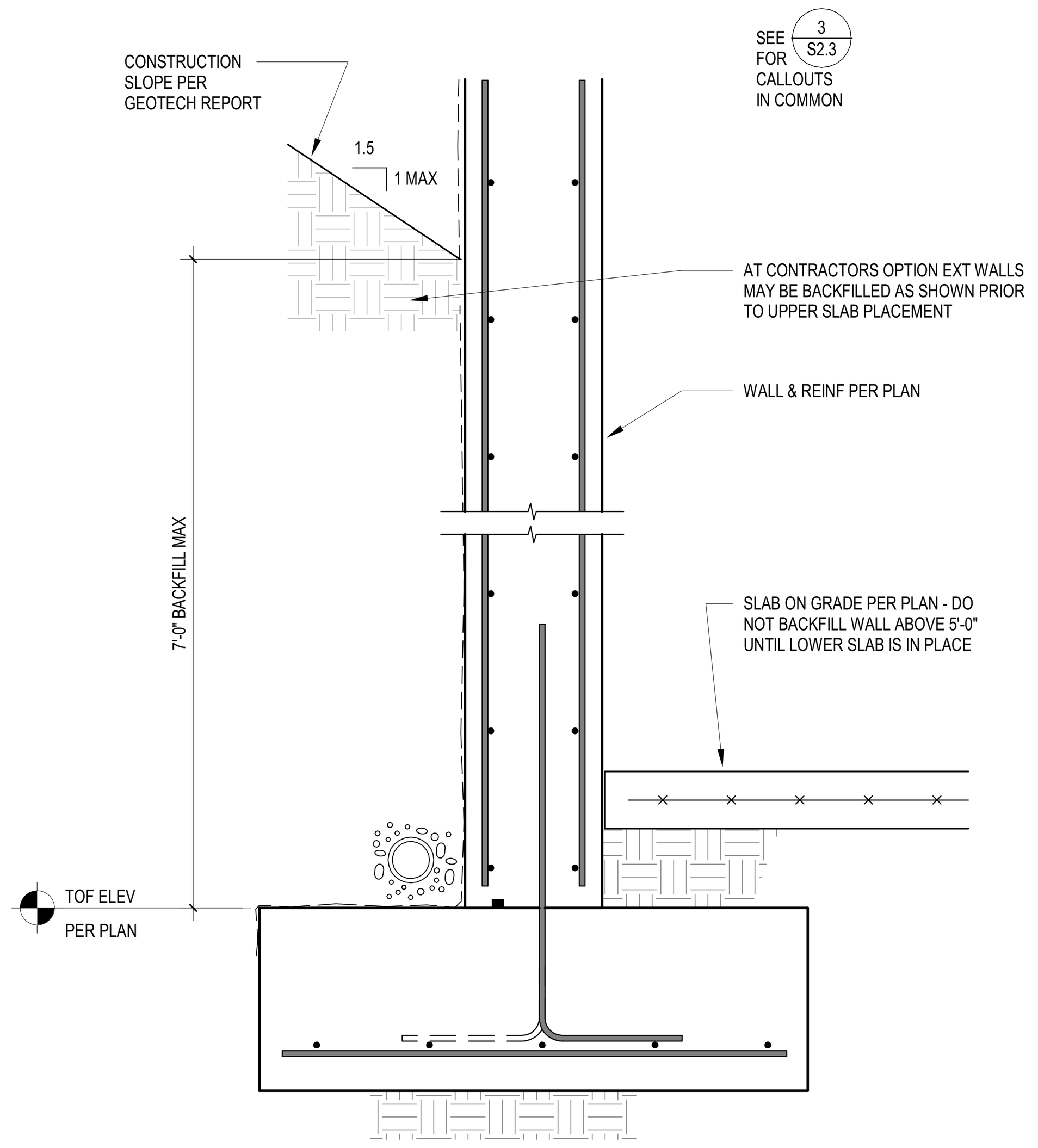


3 SECTION
1" = 1'-0" 3 / S2.3



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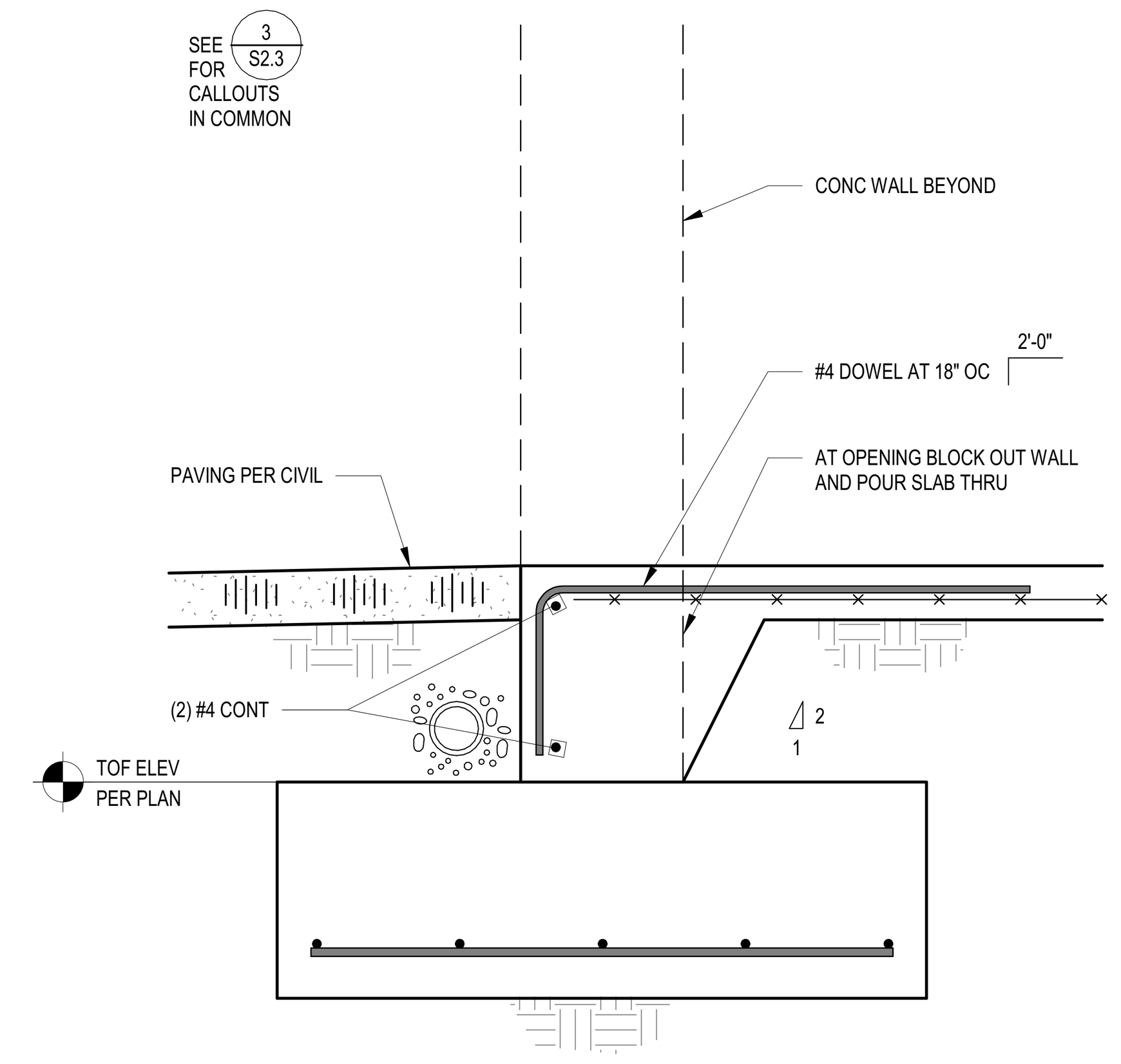
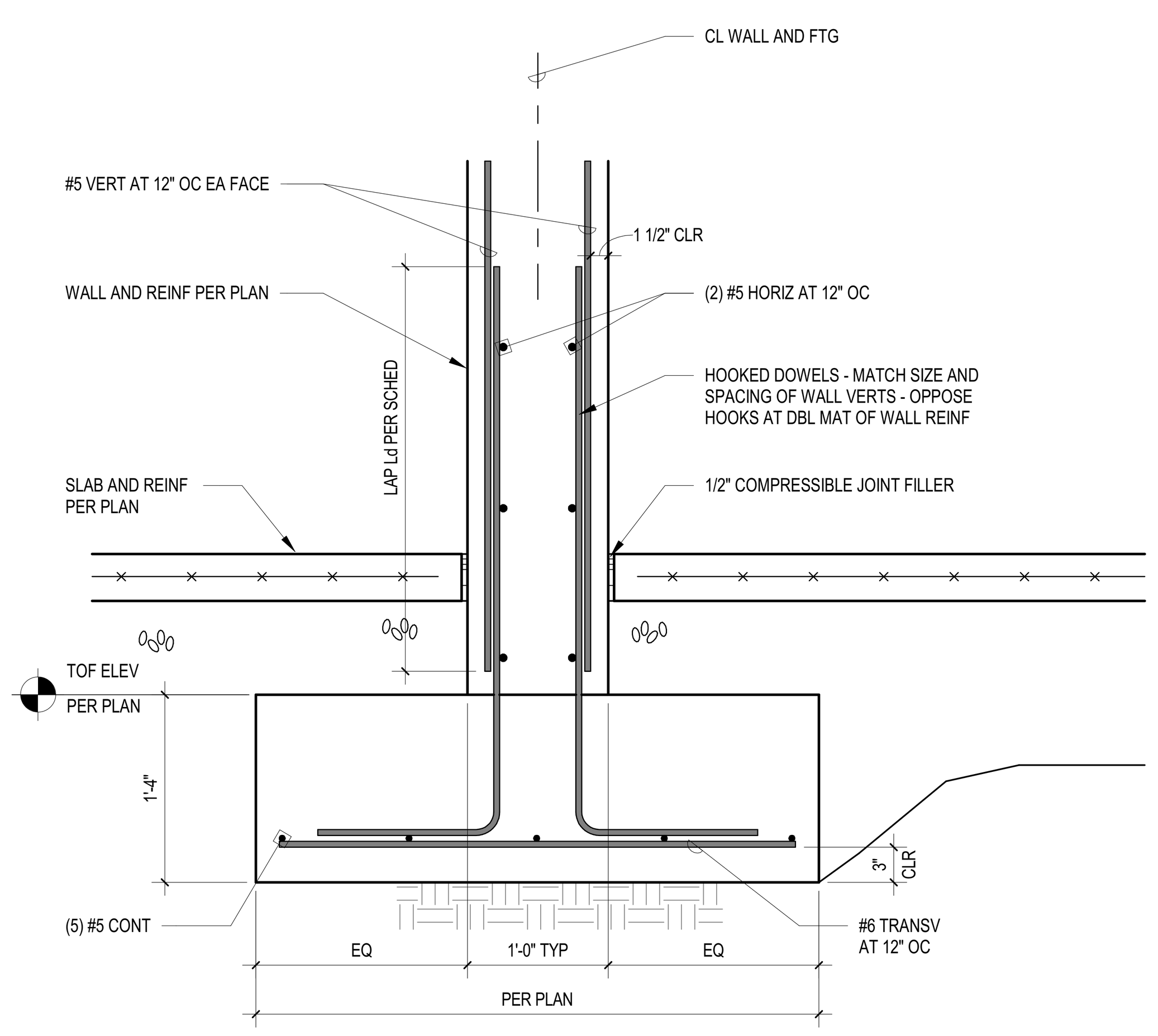
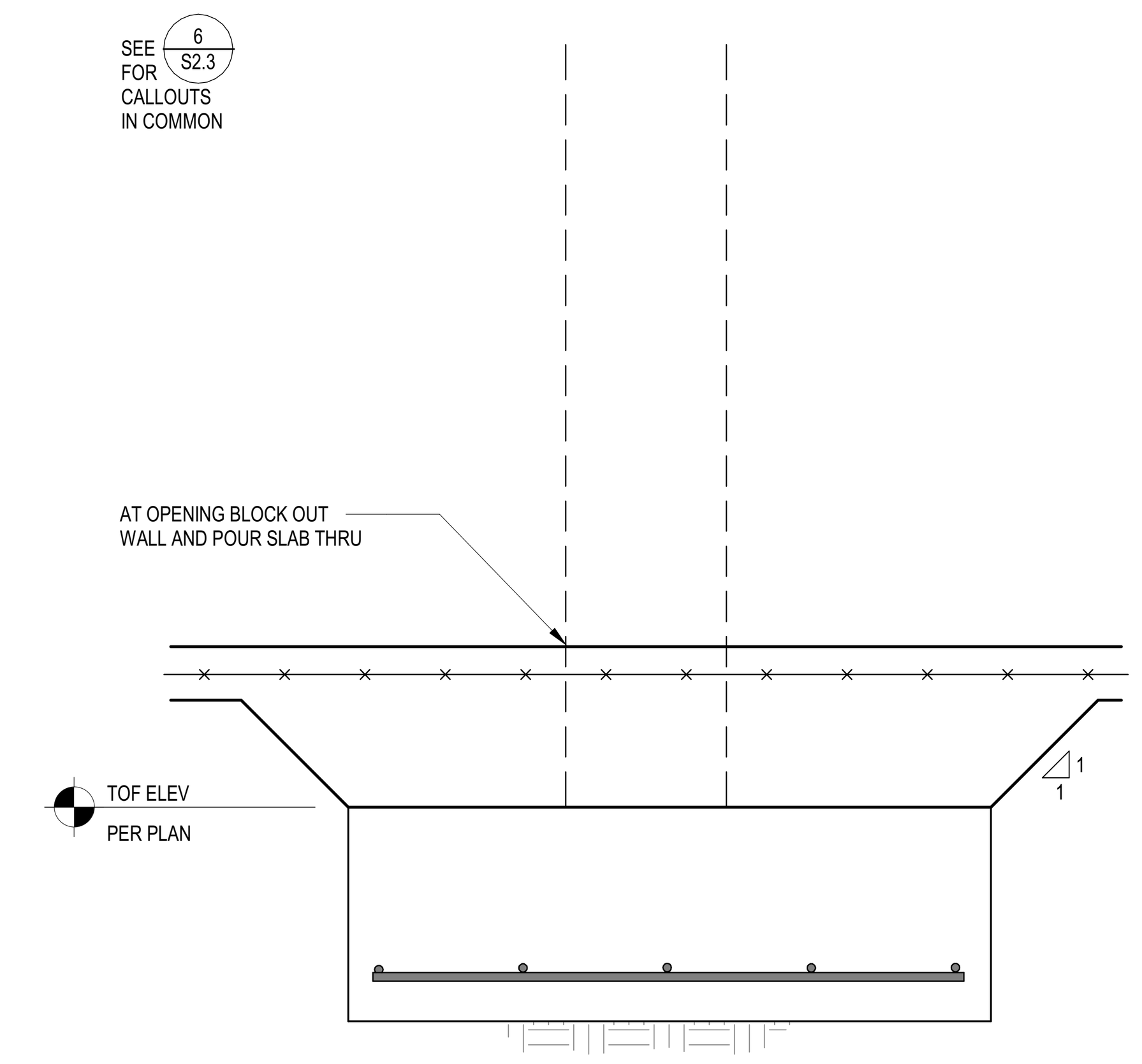


5 SECTION
1" = 1'-0" 5 / S2.3



6 SECTION
1" = 1'-0" 6 / S2.3



7 SECTION
1" = 1'-0" 7 / S2.3

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NOTICE:

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FOUNDATION DETAILS
S2.3

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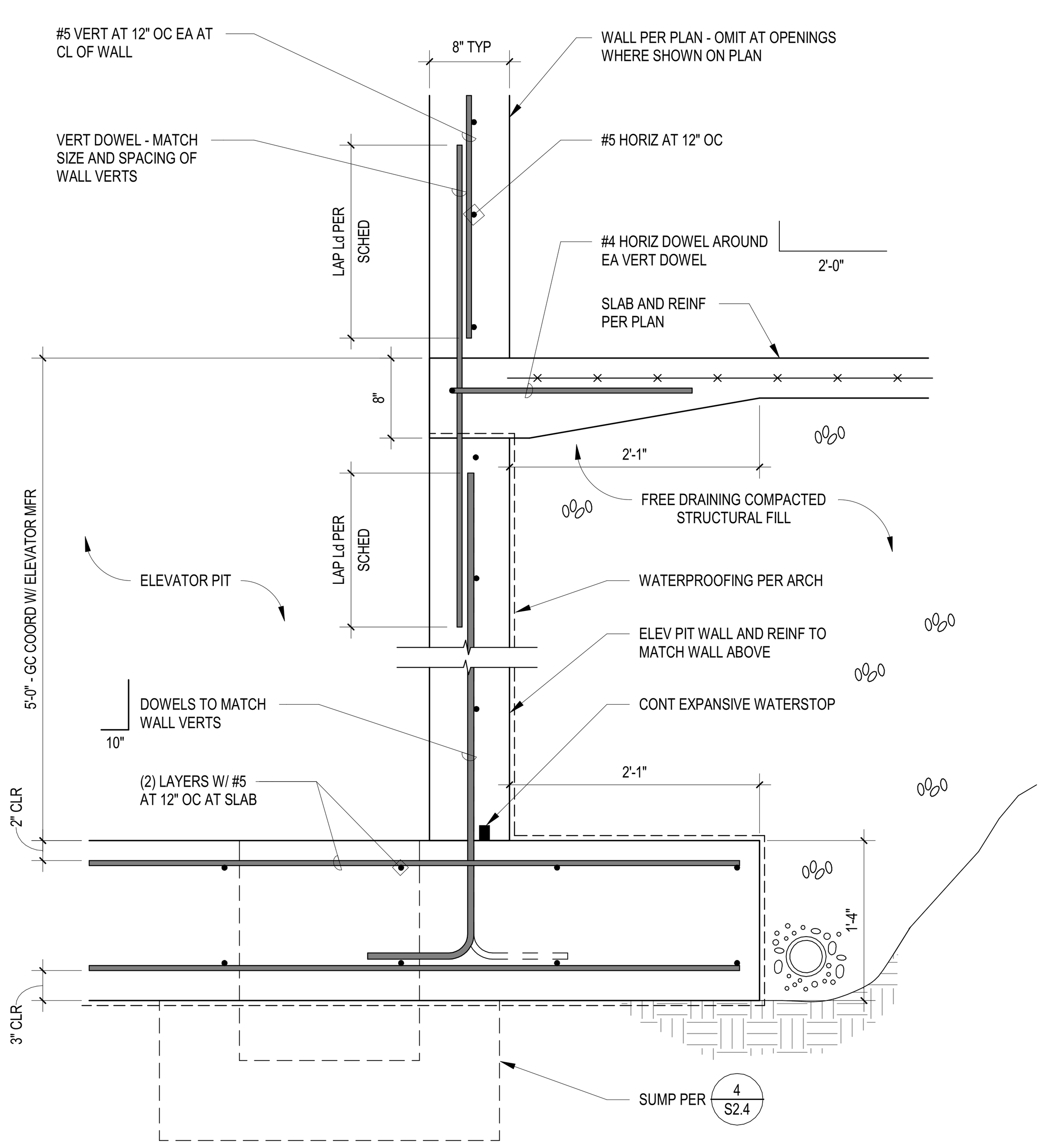
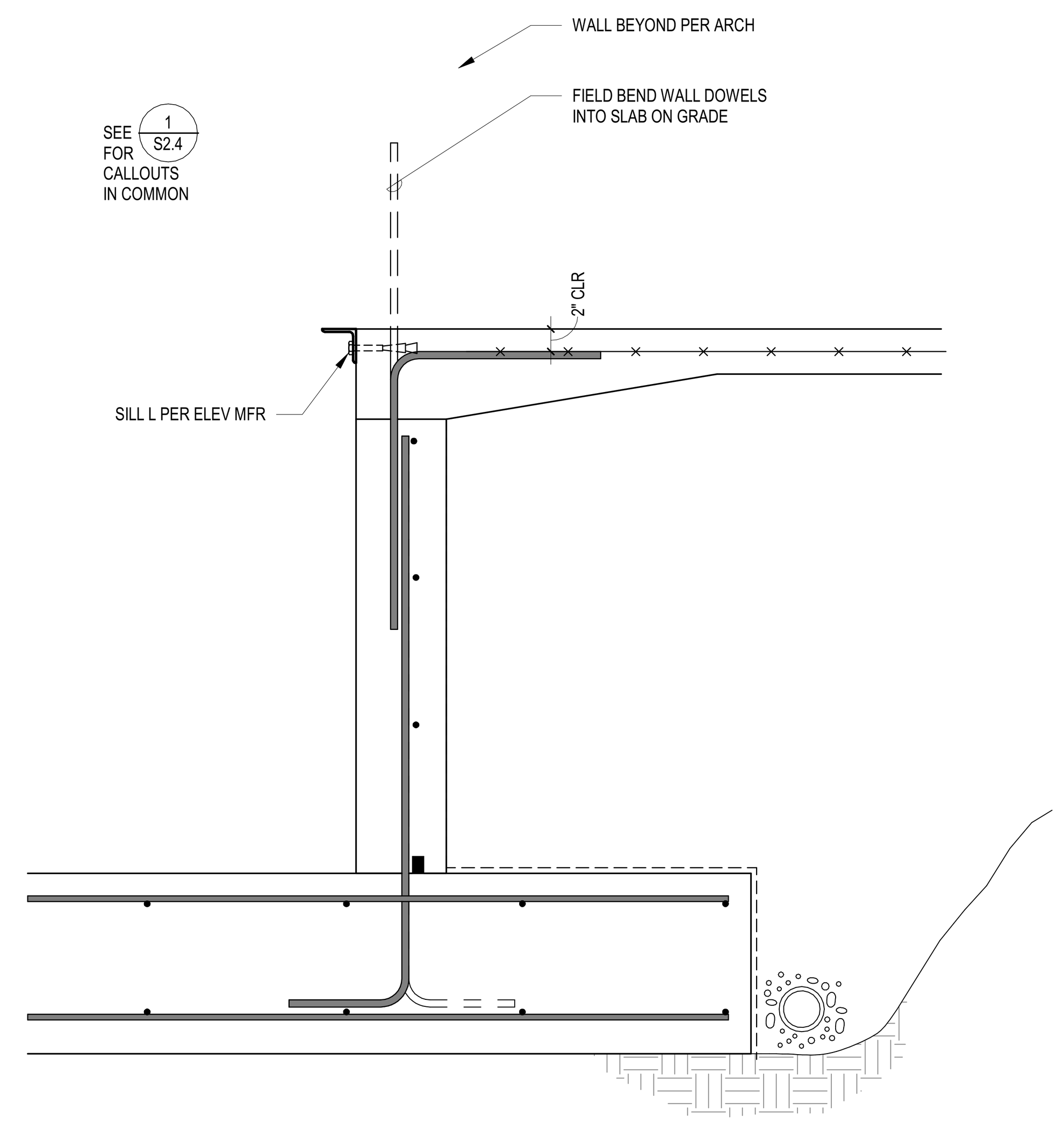
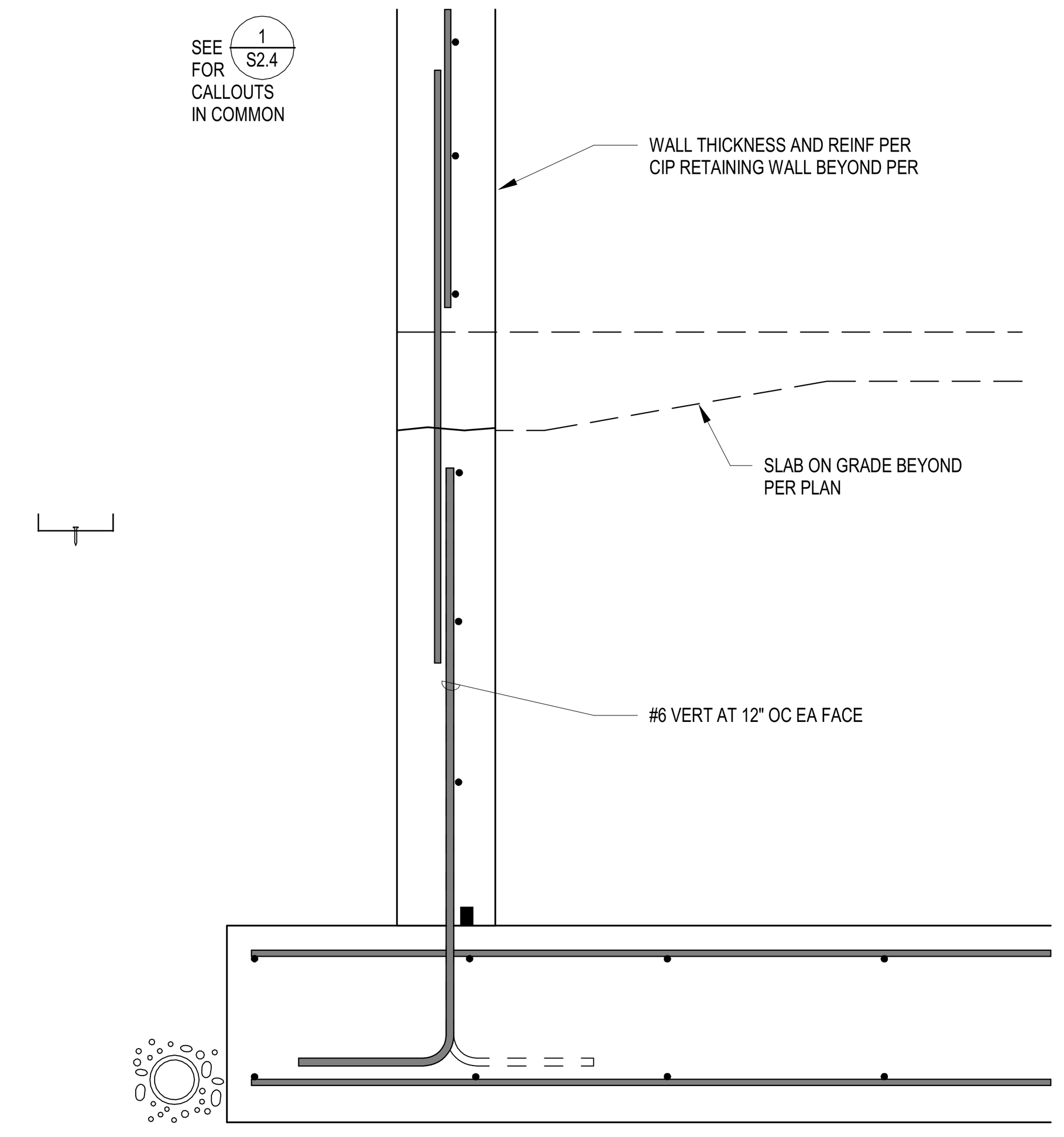


1 **SECTION**
1" = 1'-0"



2 **SECTION**
1" = 1'-0"



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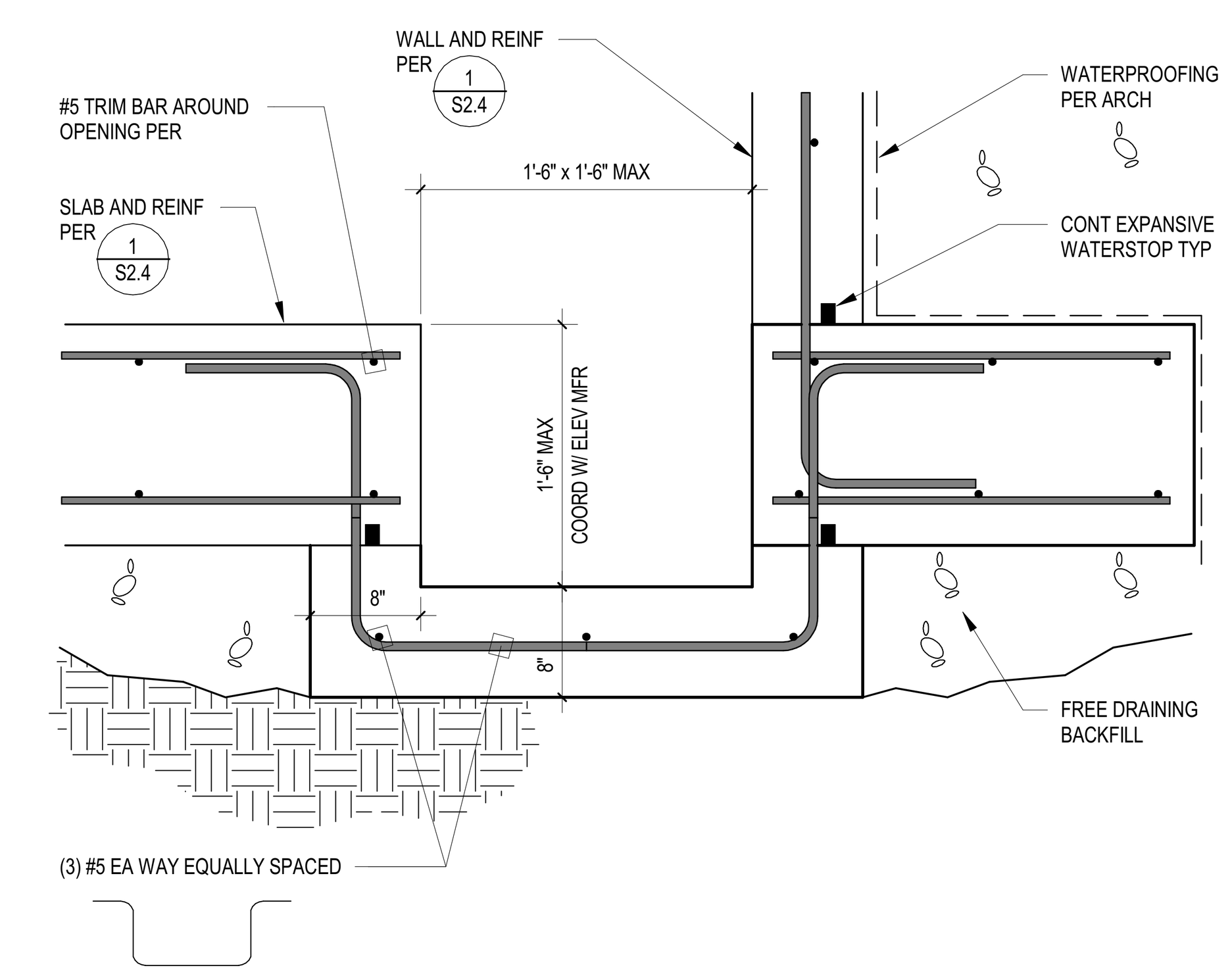
1" = 1'-0"



4 **SECTION**
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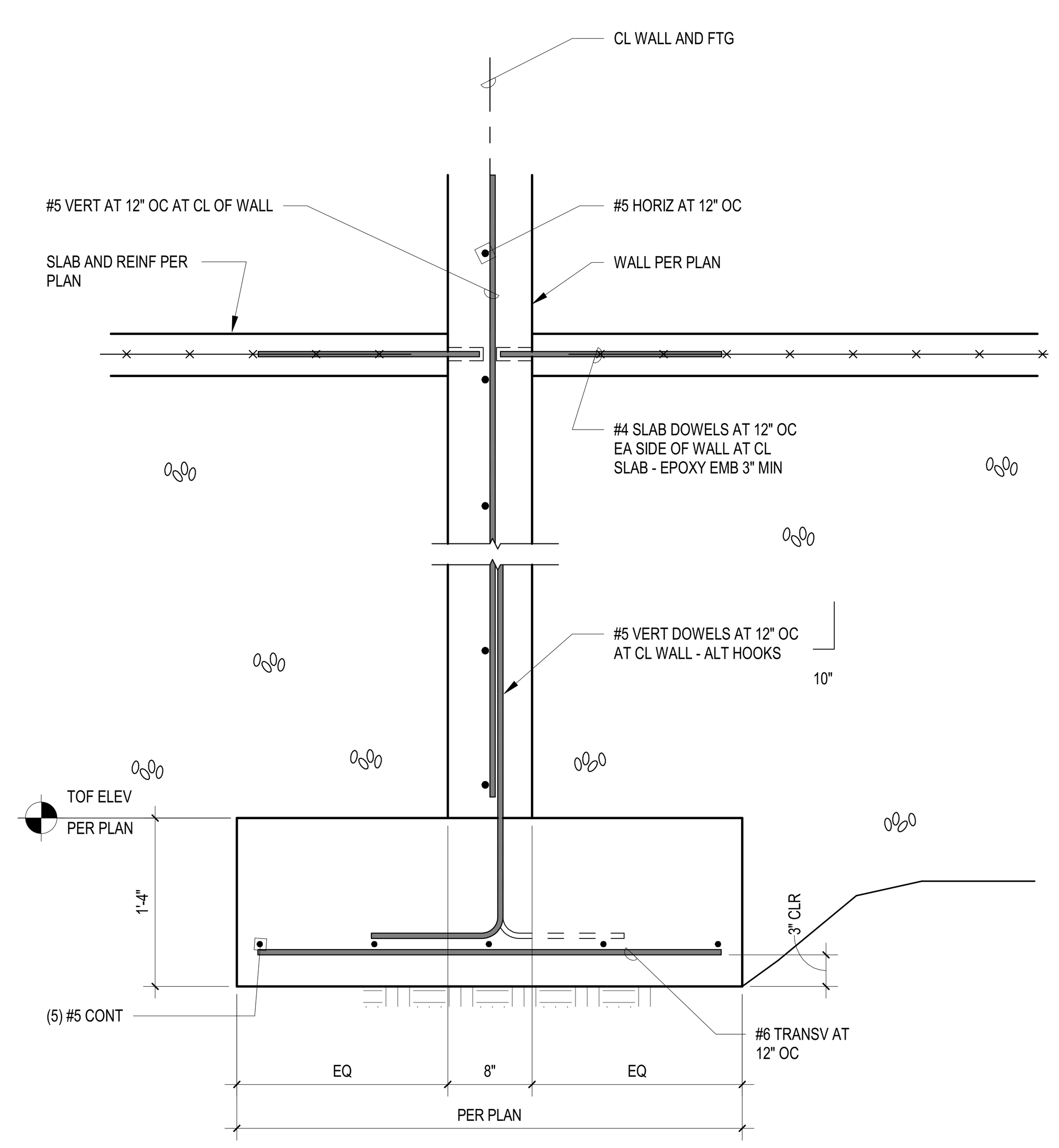
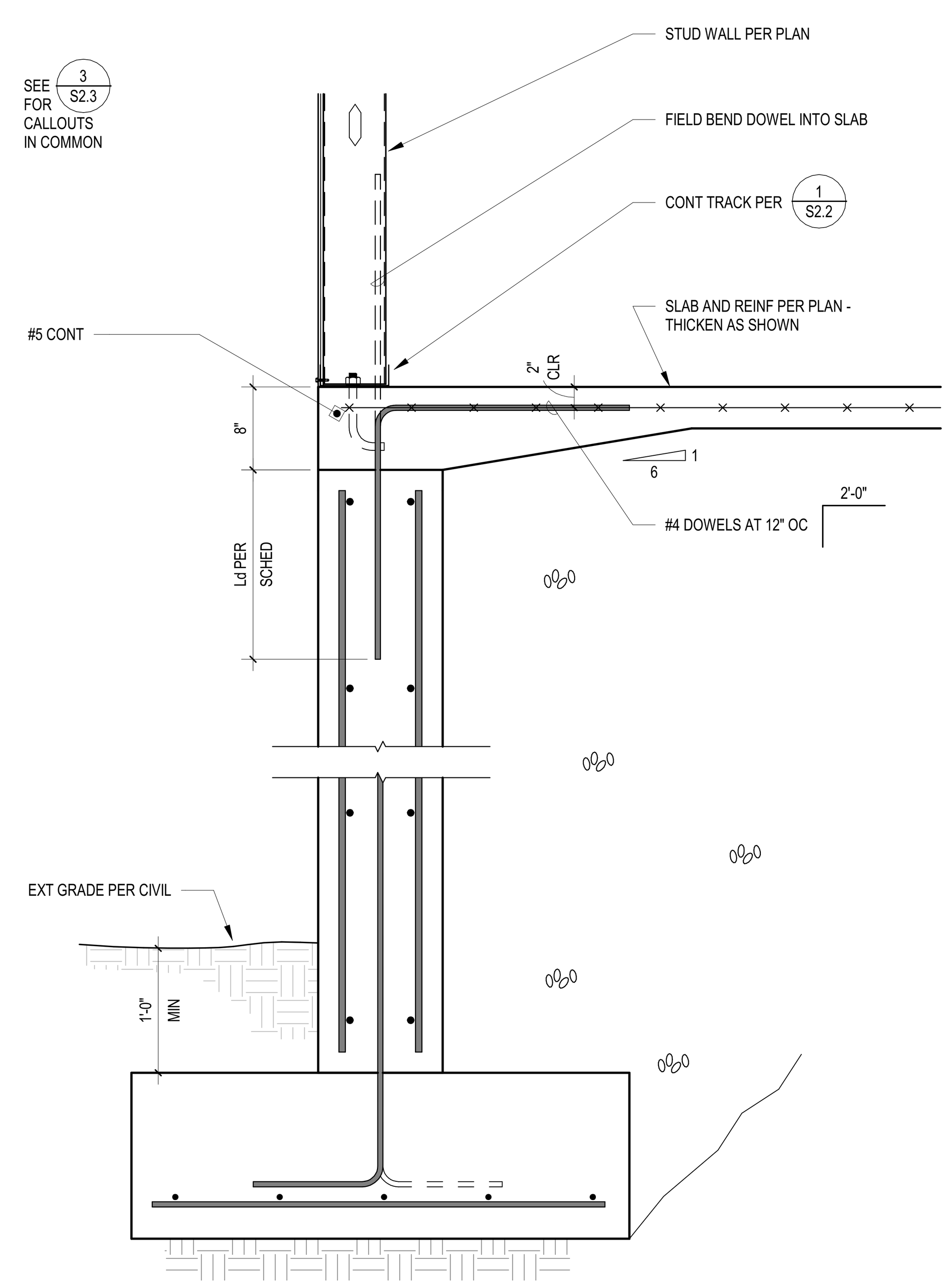
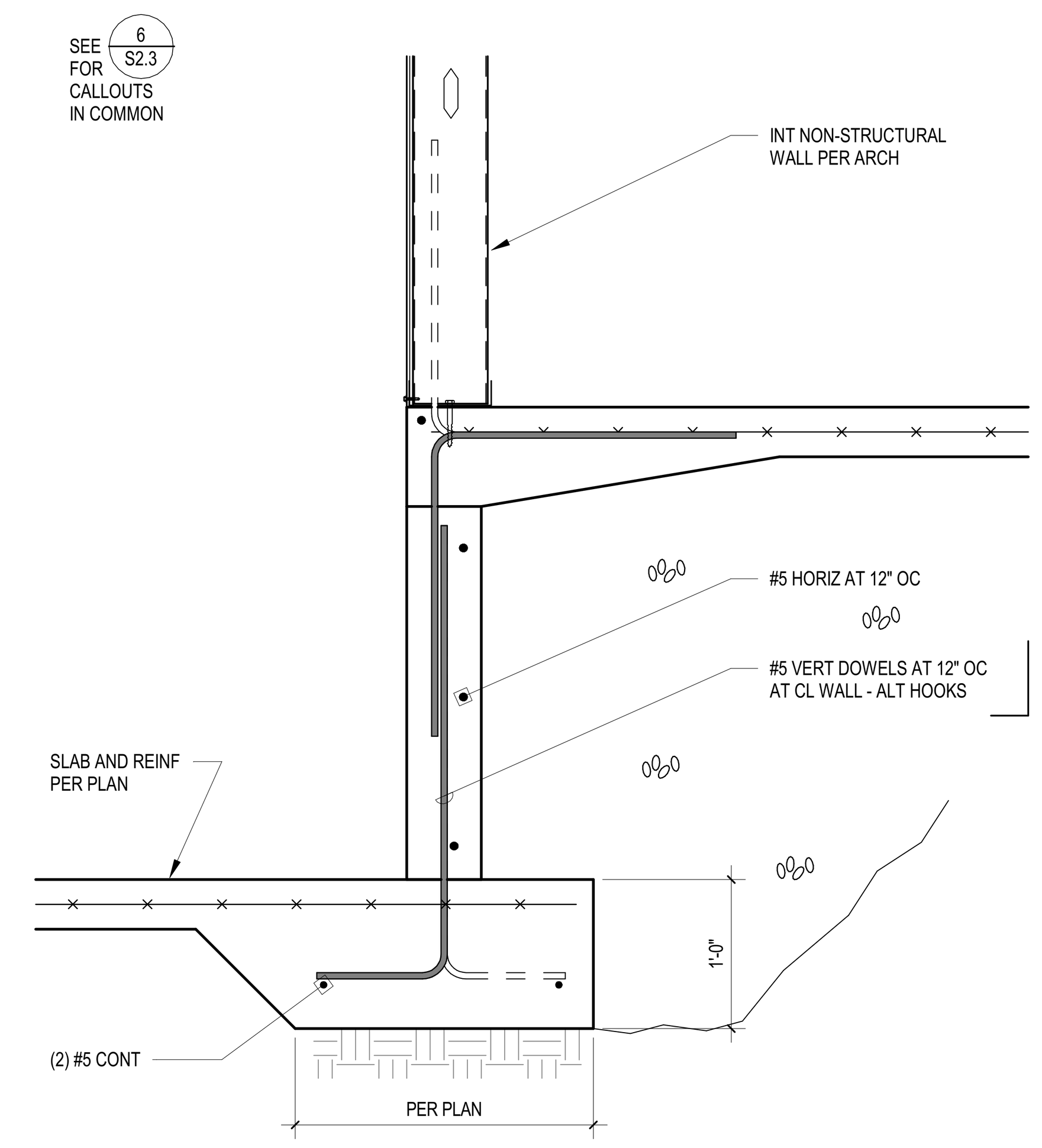


5 **SECTION**
1" = 1'-0"



6 **SECTION**
1" = 1'-0"



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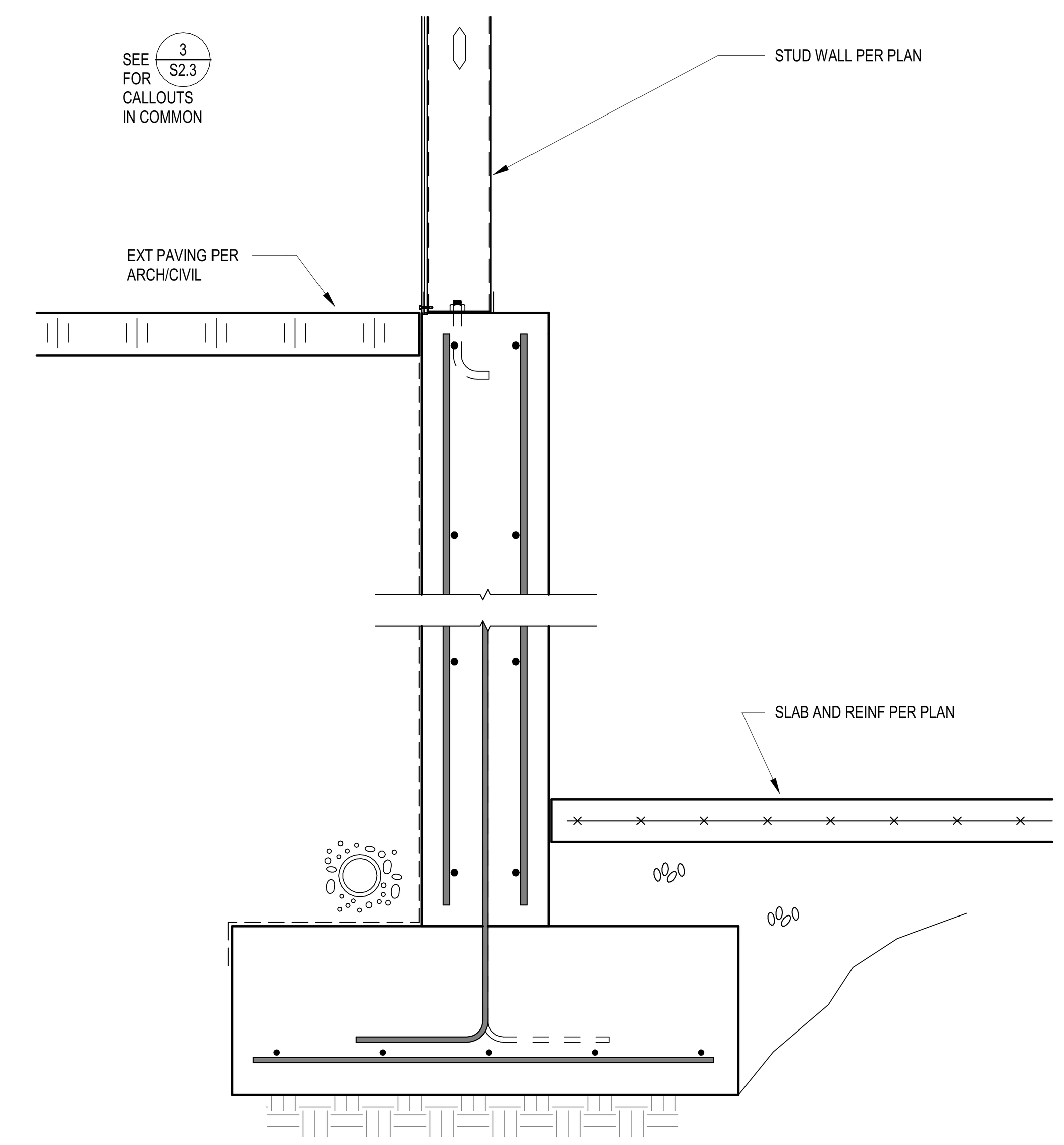
1" = 1'-0"



8 **SECTION**
1" = 1'-0"

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st. paul, minnesota 55104
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FOUNDATION DETAILS

S2.4

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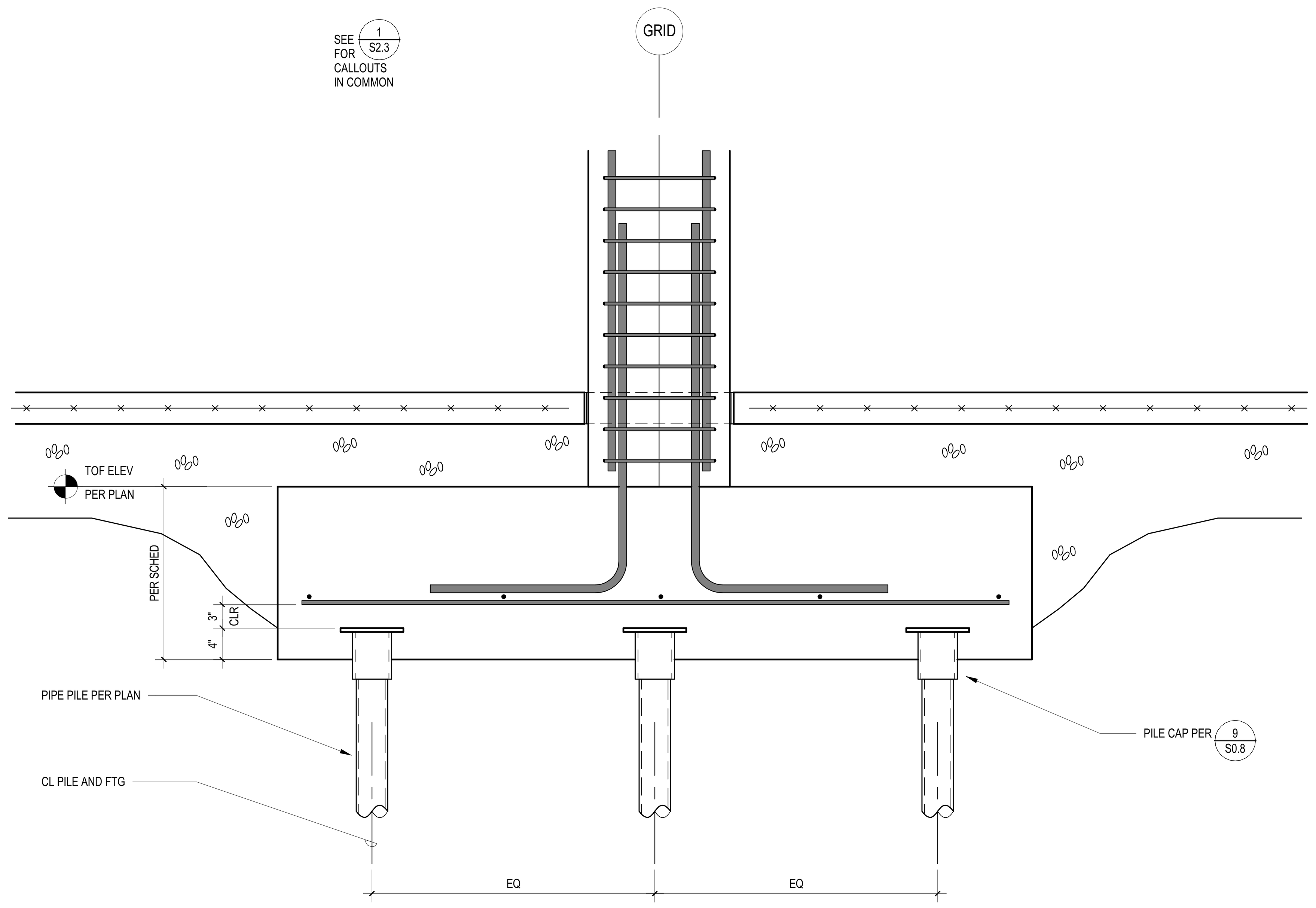

1 SECTION
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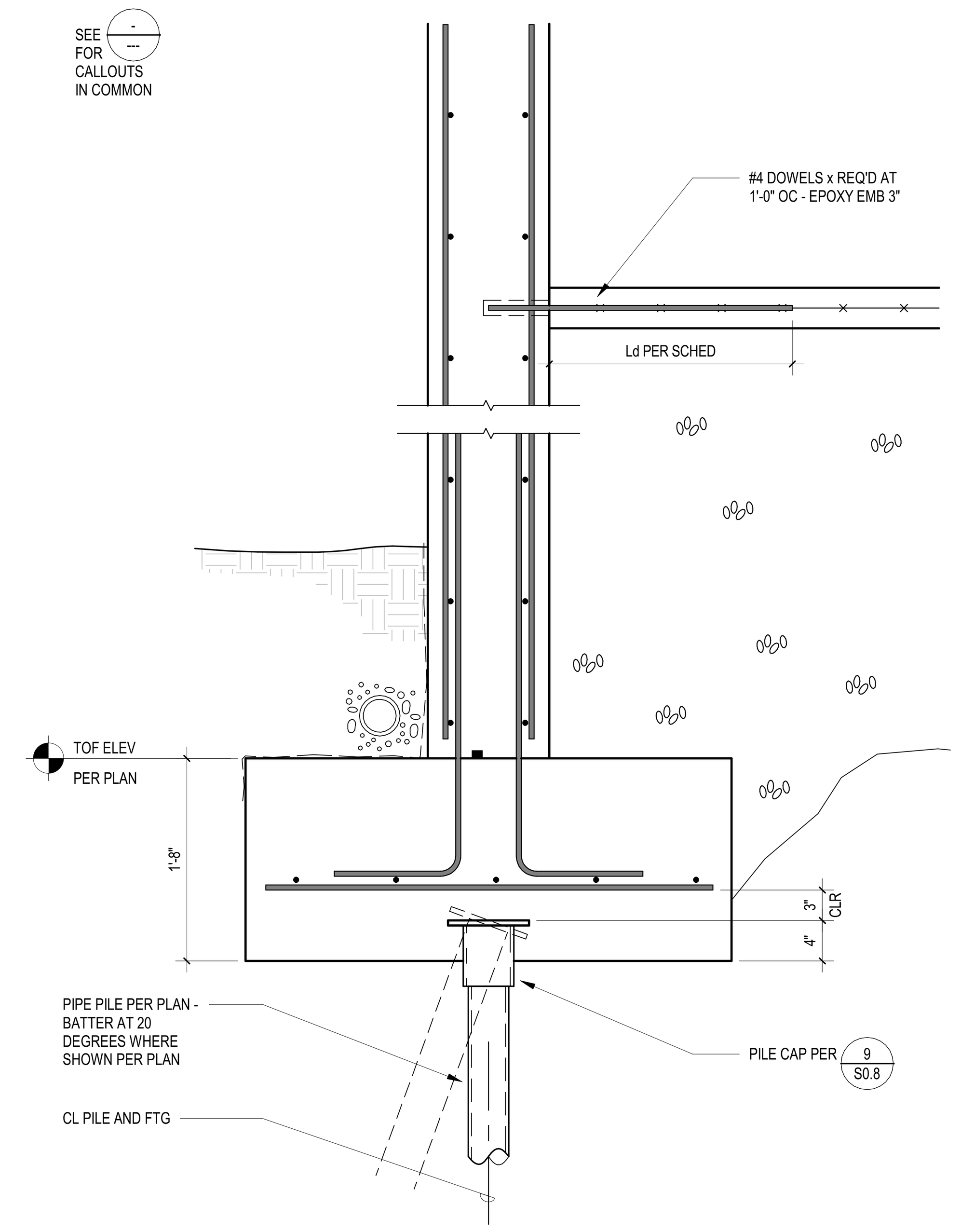

2 SECTION
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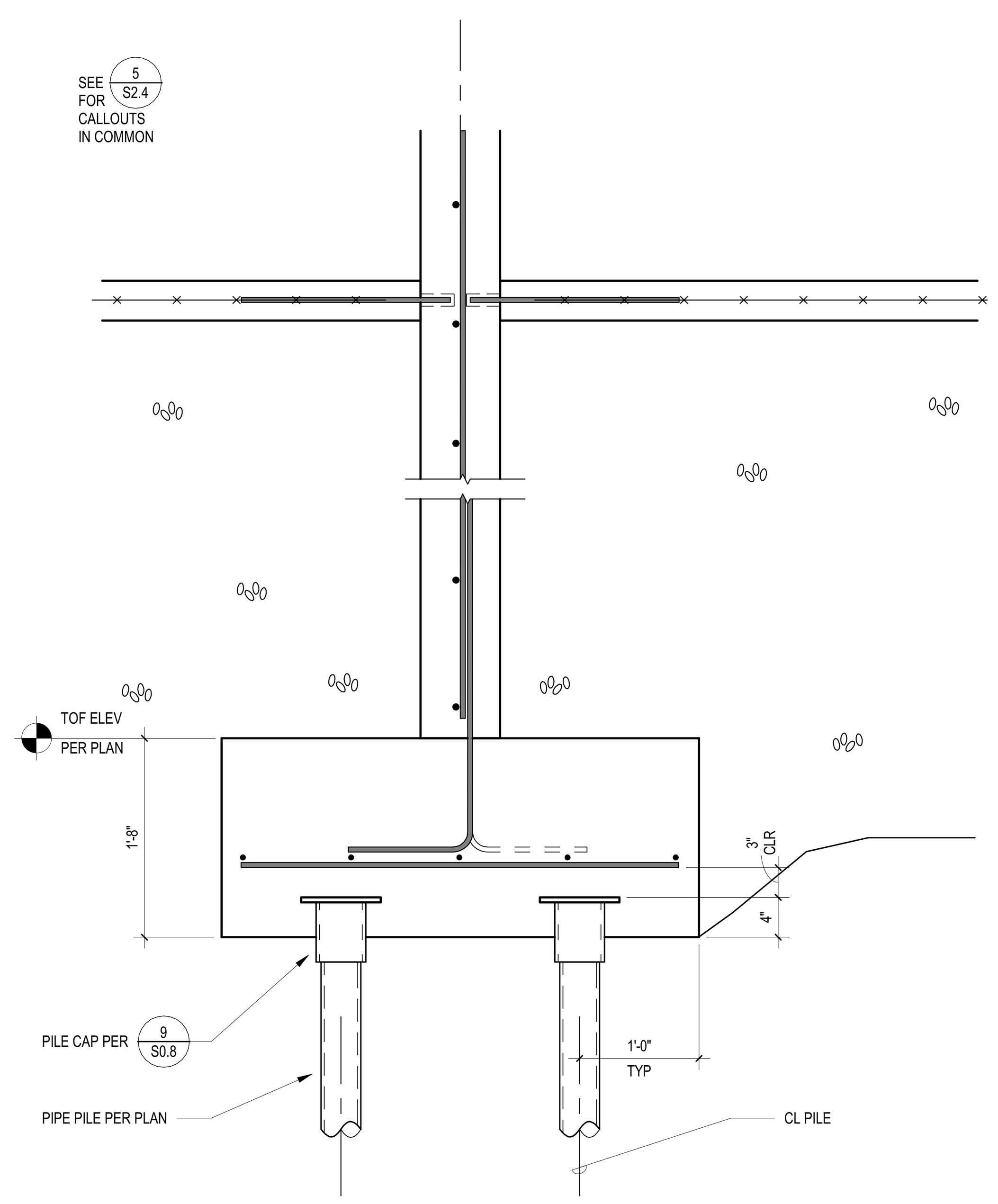

3 SECTION
1" = 1'-0" 3 / S2.5

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NOTICE:

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PERMIT SET
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FOUNDATION DETAILS
S2.5

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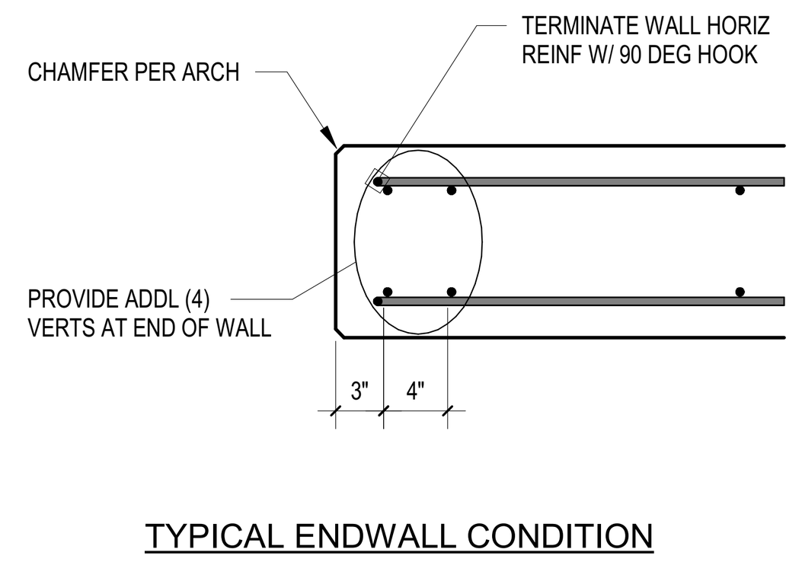

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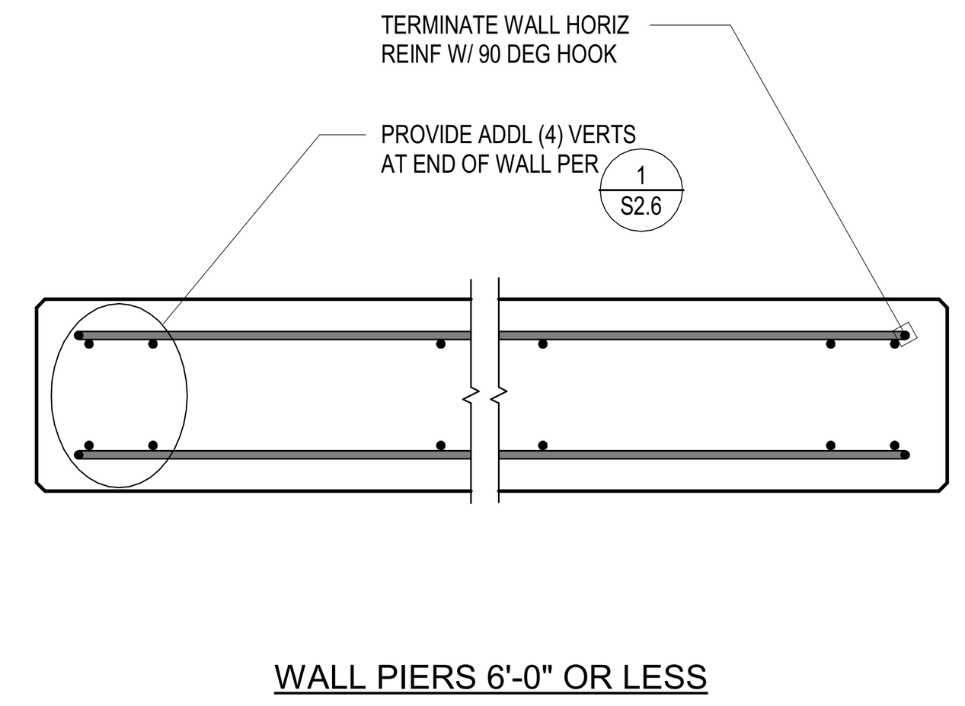
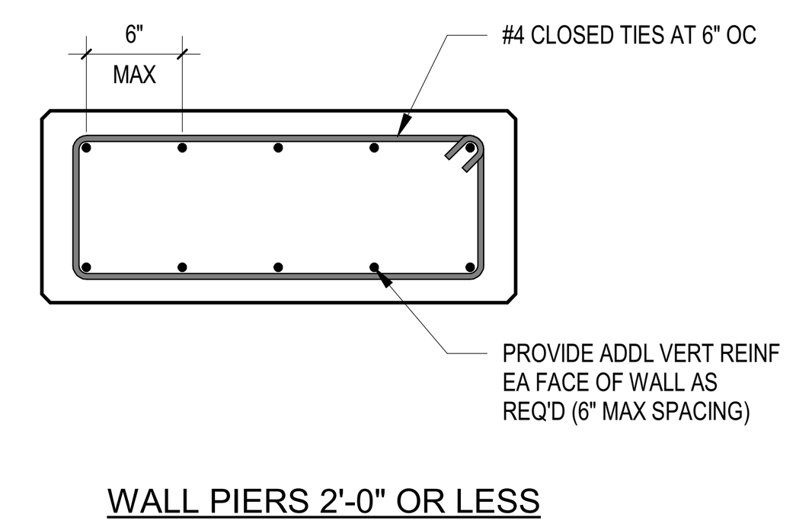
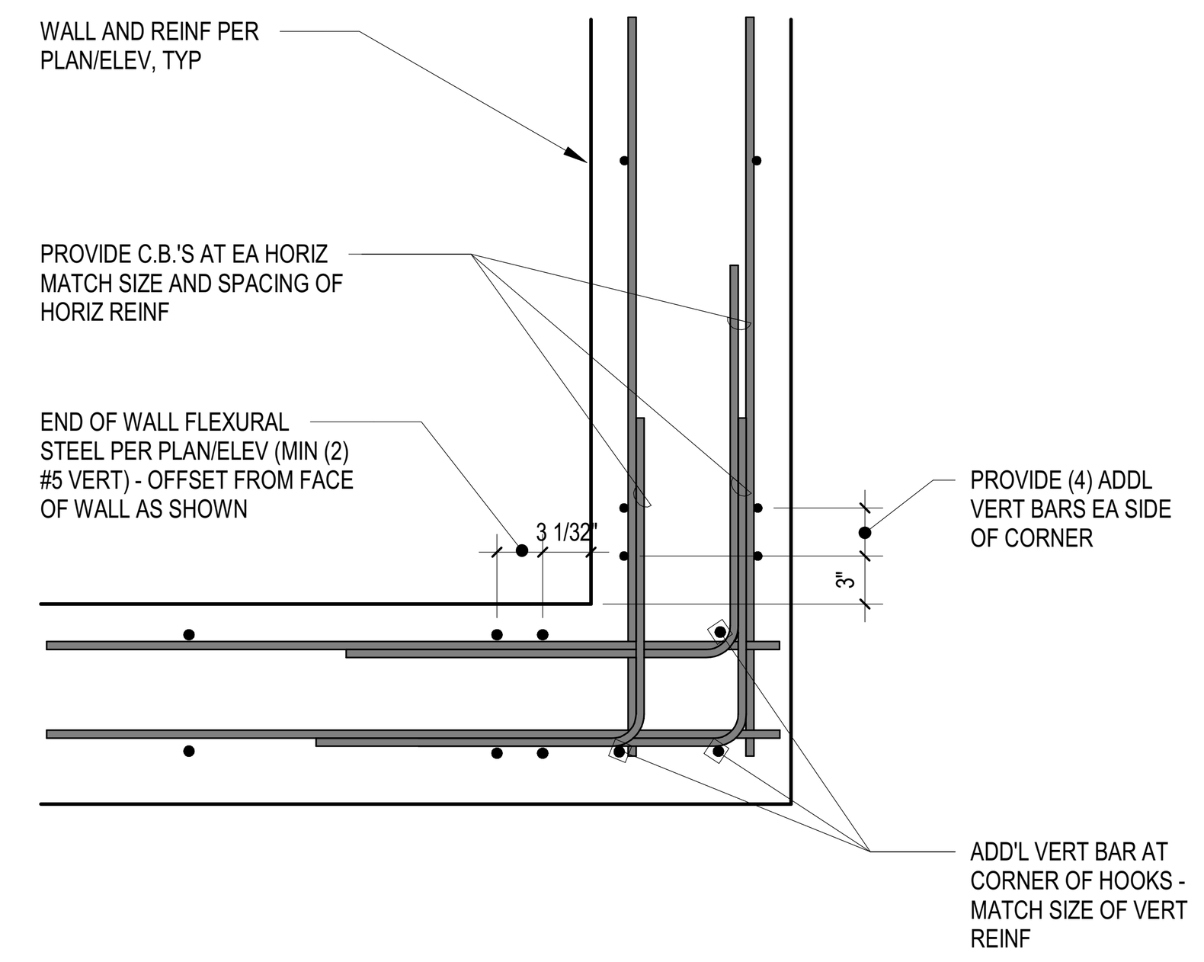


2 PLAN
1" = 1'-0" 2 / S2.6



3 PLAN
1" = 1'-0" 3 / S2.6



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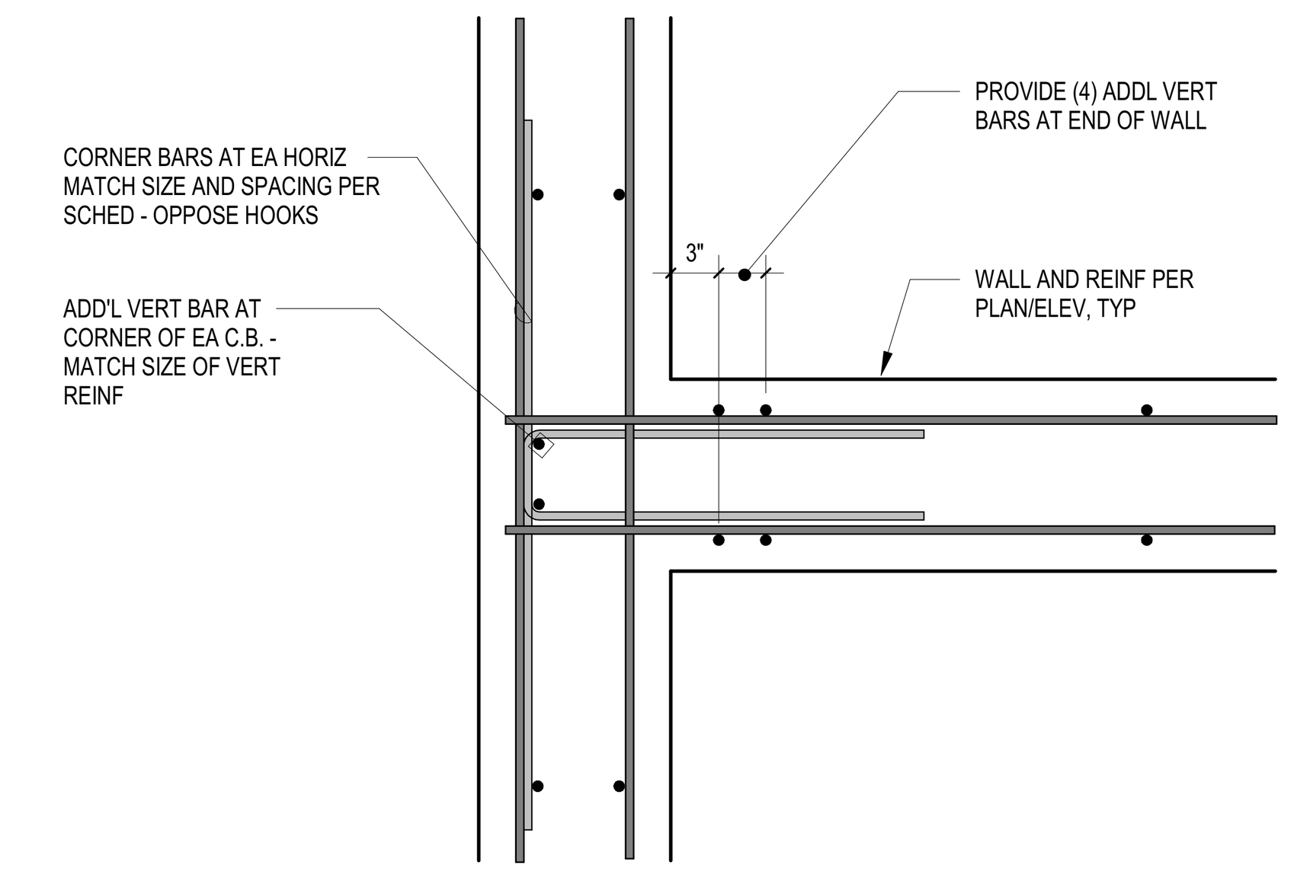

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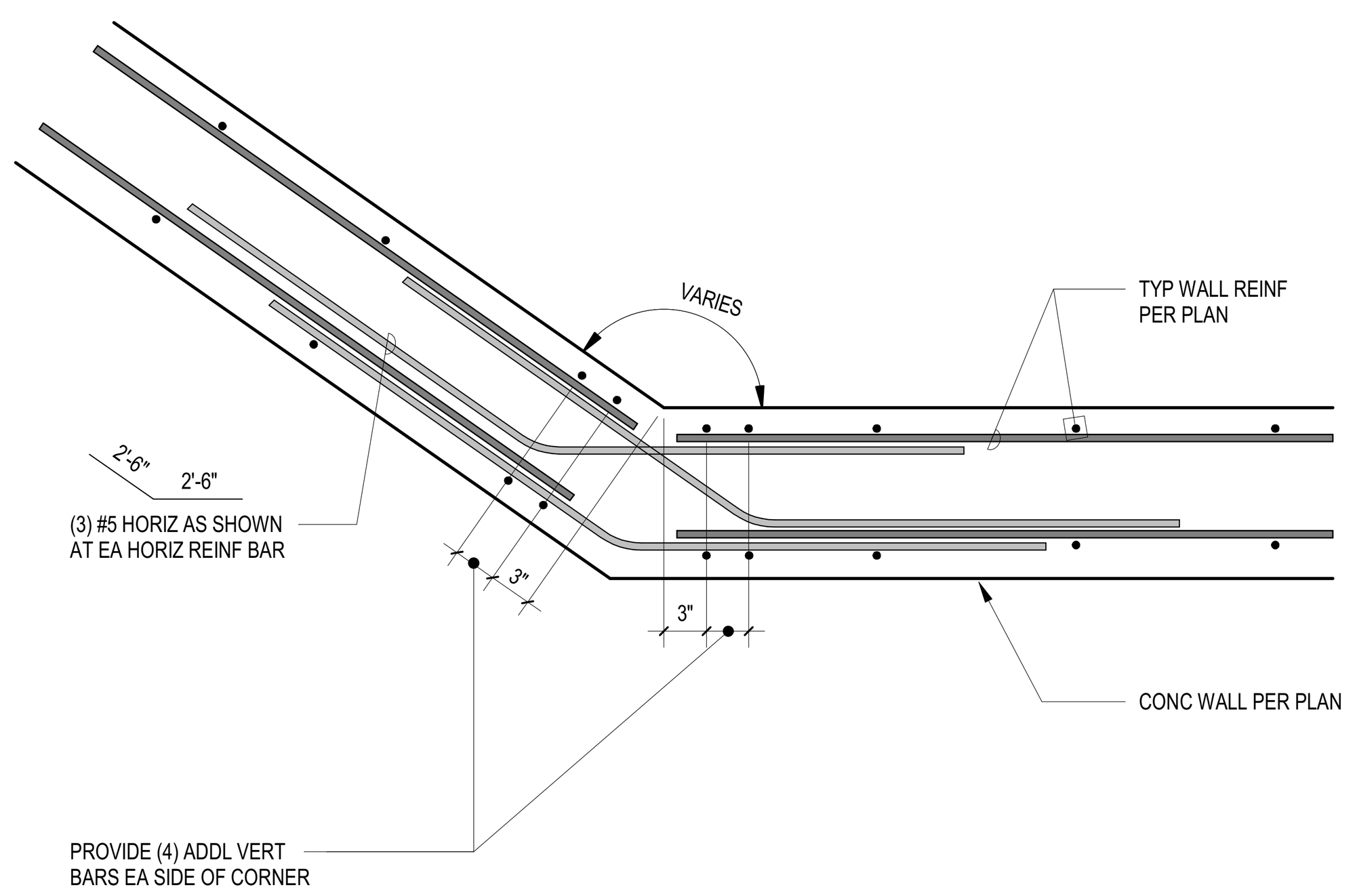

6 PLAN
1" = 1'-0" 6 / S2.6

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612-252-4820

NOTICE:

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707 39TH AVENUE SE
PUYALLUP, WA 98374

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FOUNDATION DETAILS

S2.6

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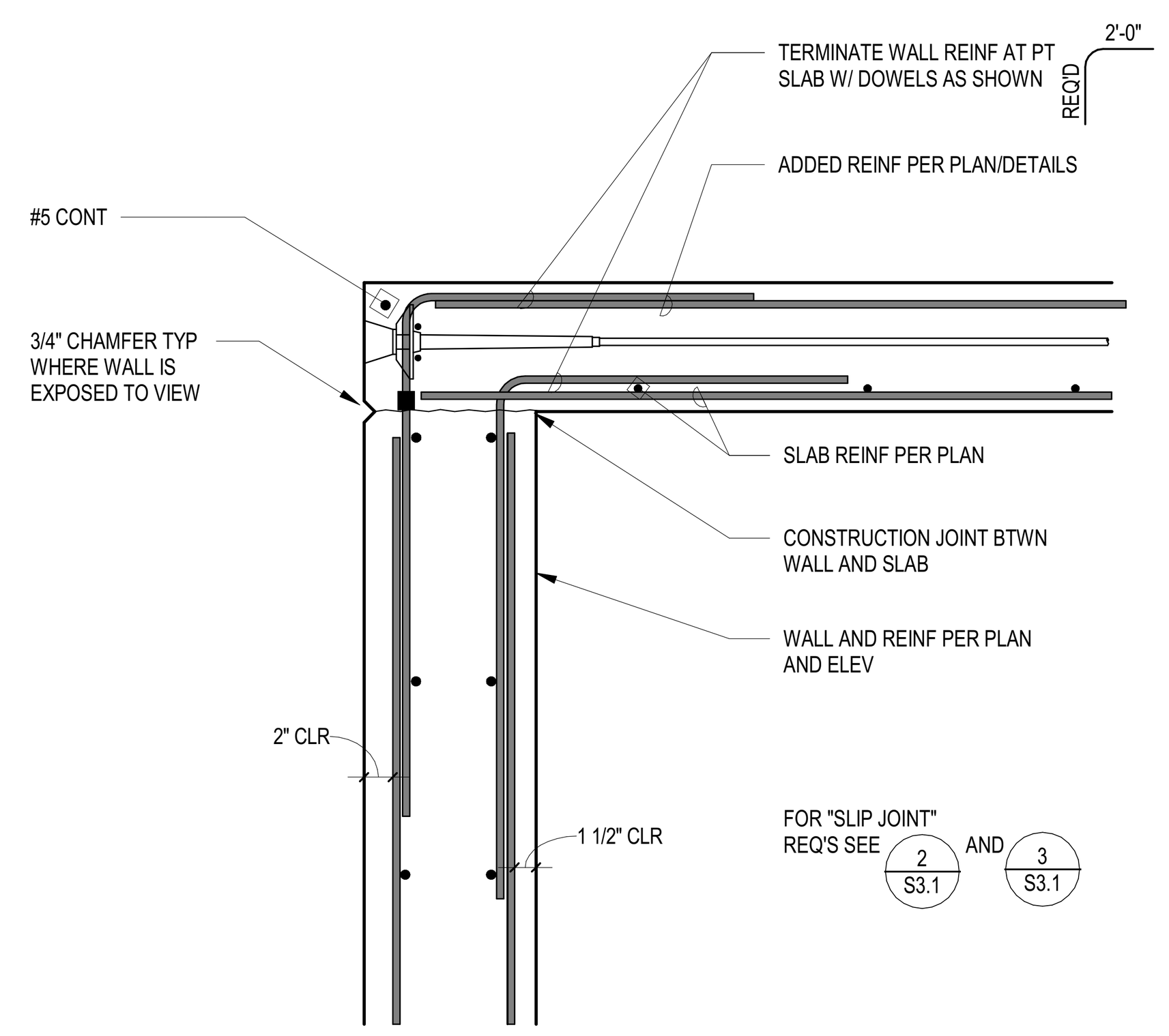
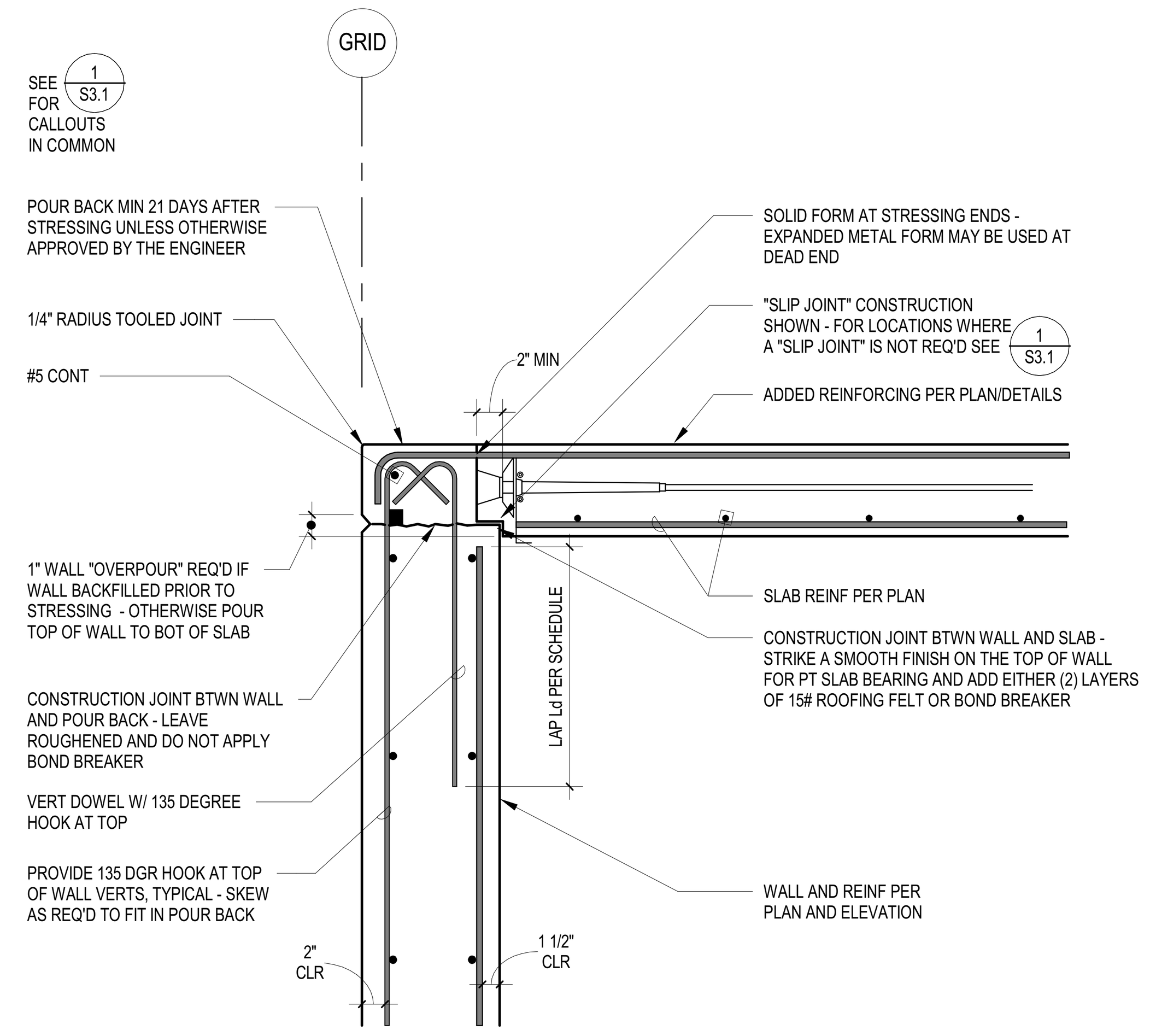


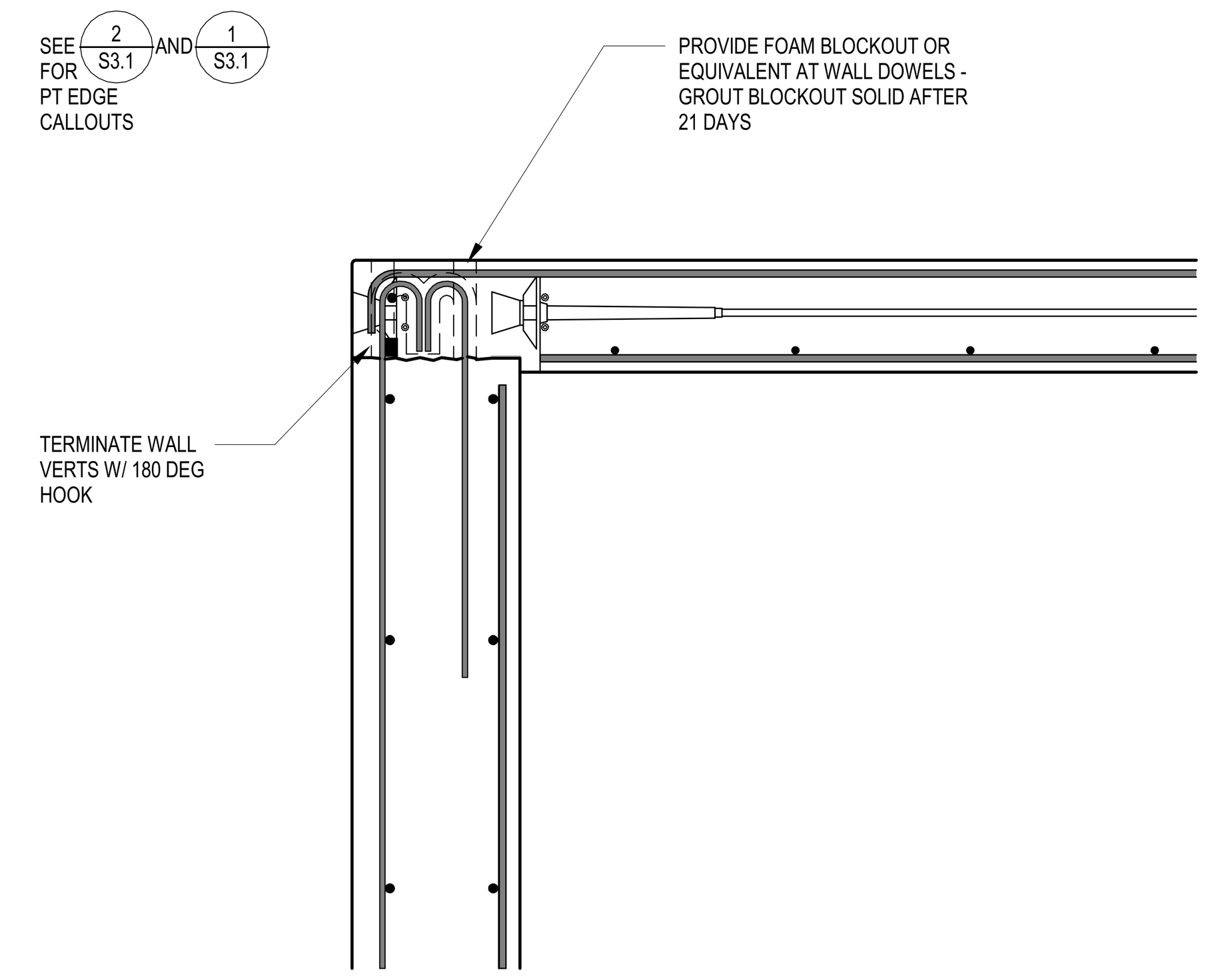
TYPICAL PT SLAB TO WALL CONN

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



"SLIP JOINT" CONN

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



ALTERNATE "SLIP JOINT" CONN

3 SECTION
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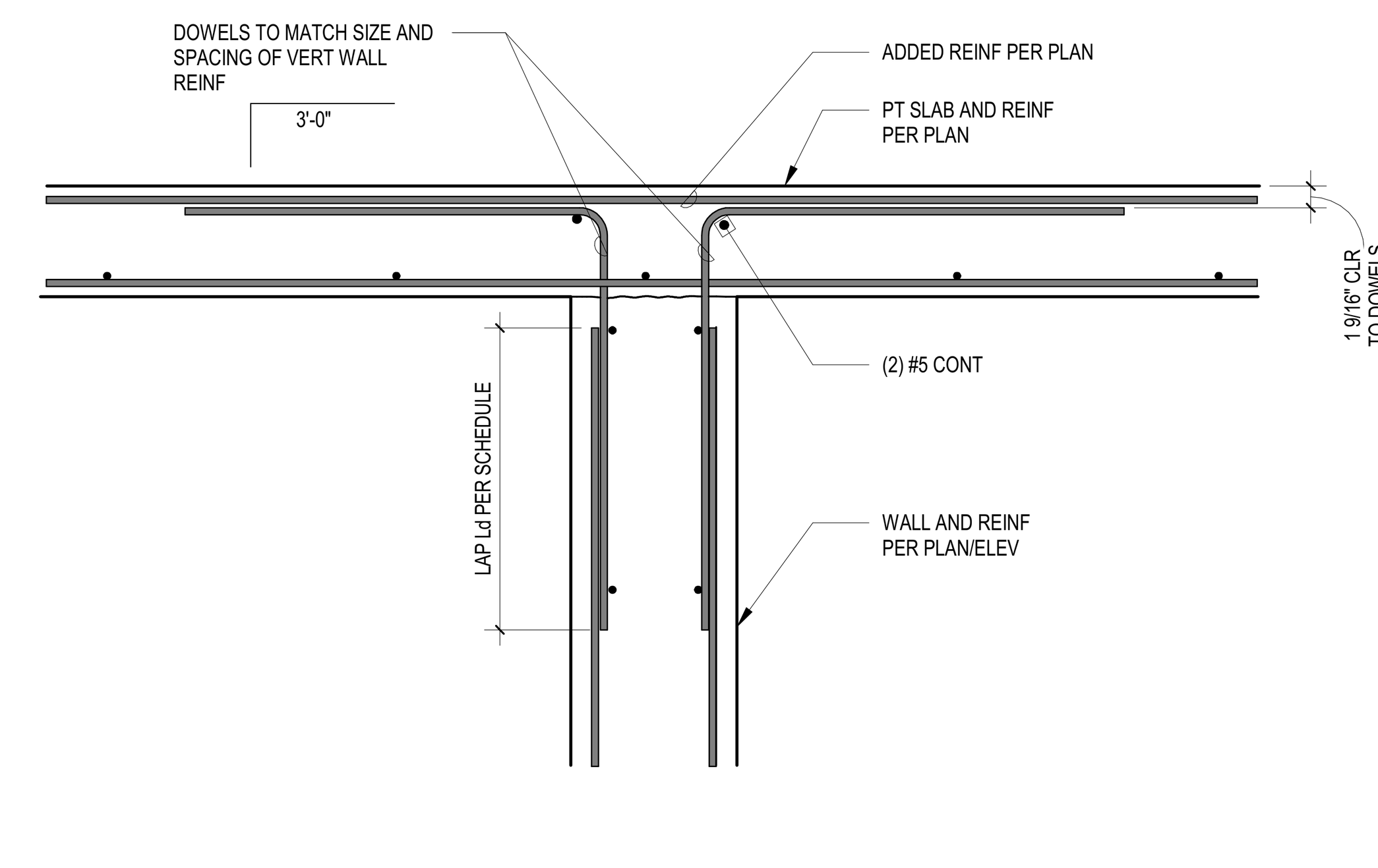
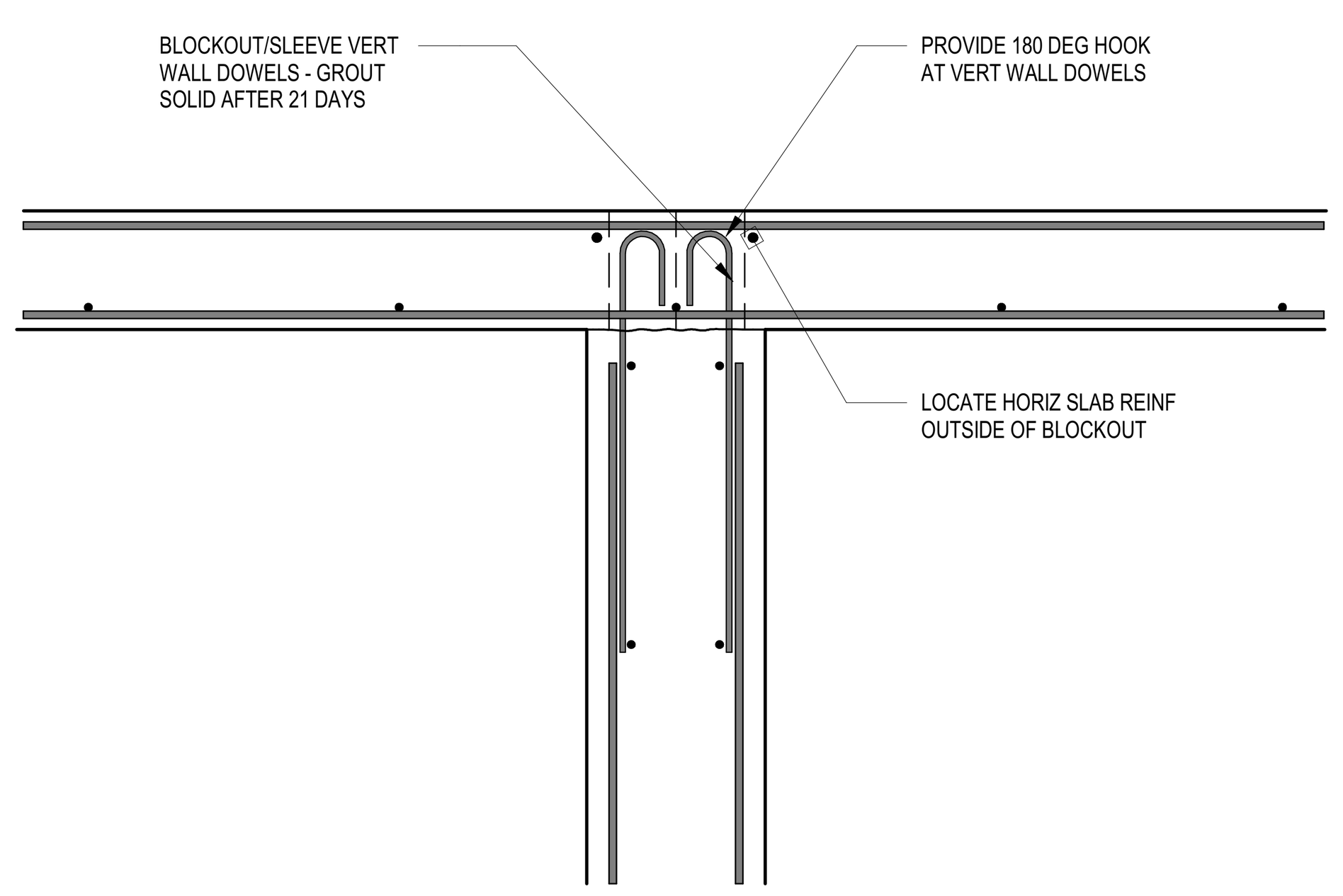


TYPICAL INTERIOR WALL JOINT - WALL BELOW

4 SECTION
1" = 1'-0" 4 / S3.1



"SLIP JOINT" CONNECTION

5 SECTION
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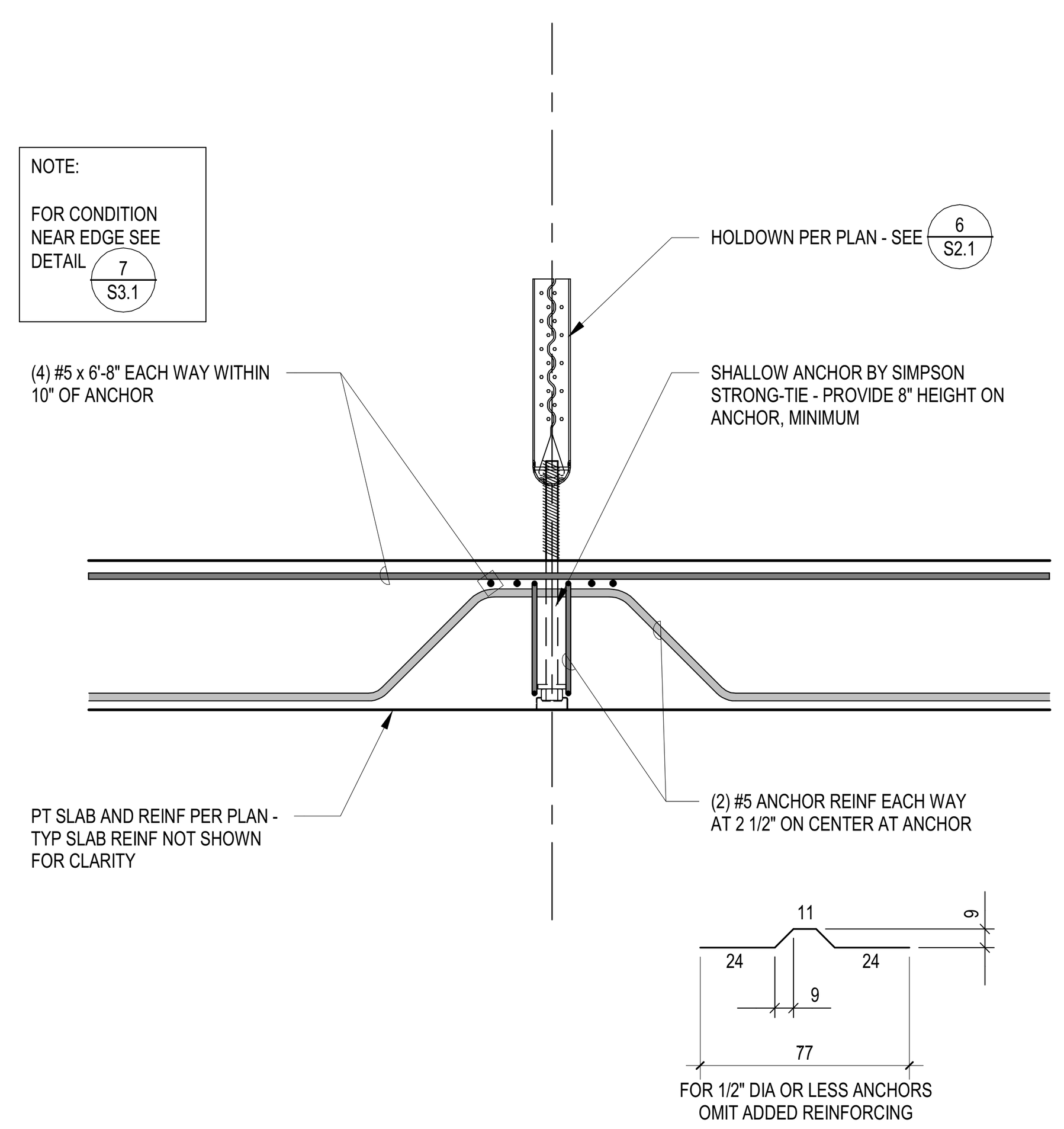

6 SECTION
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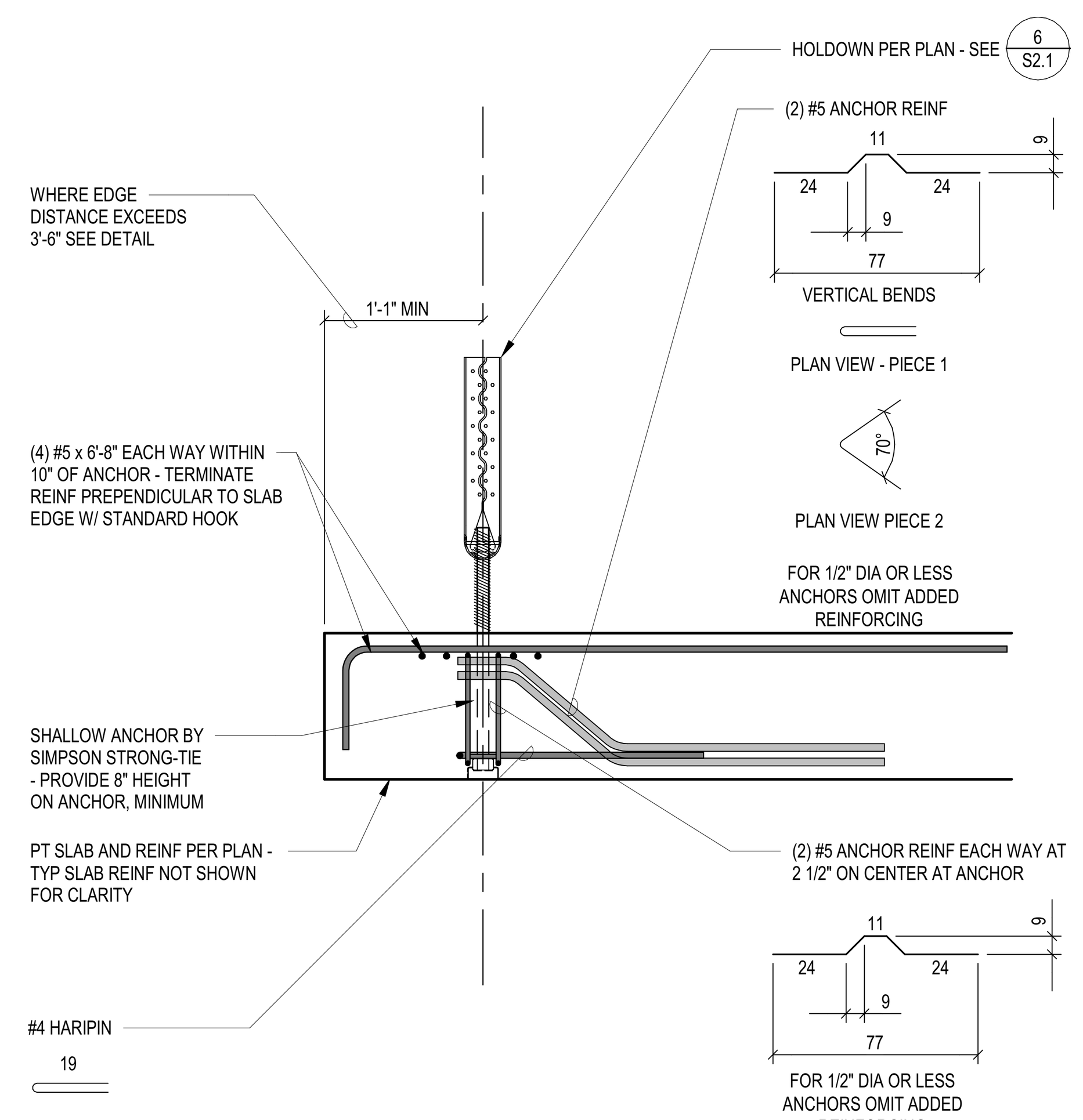
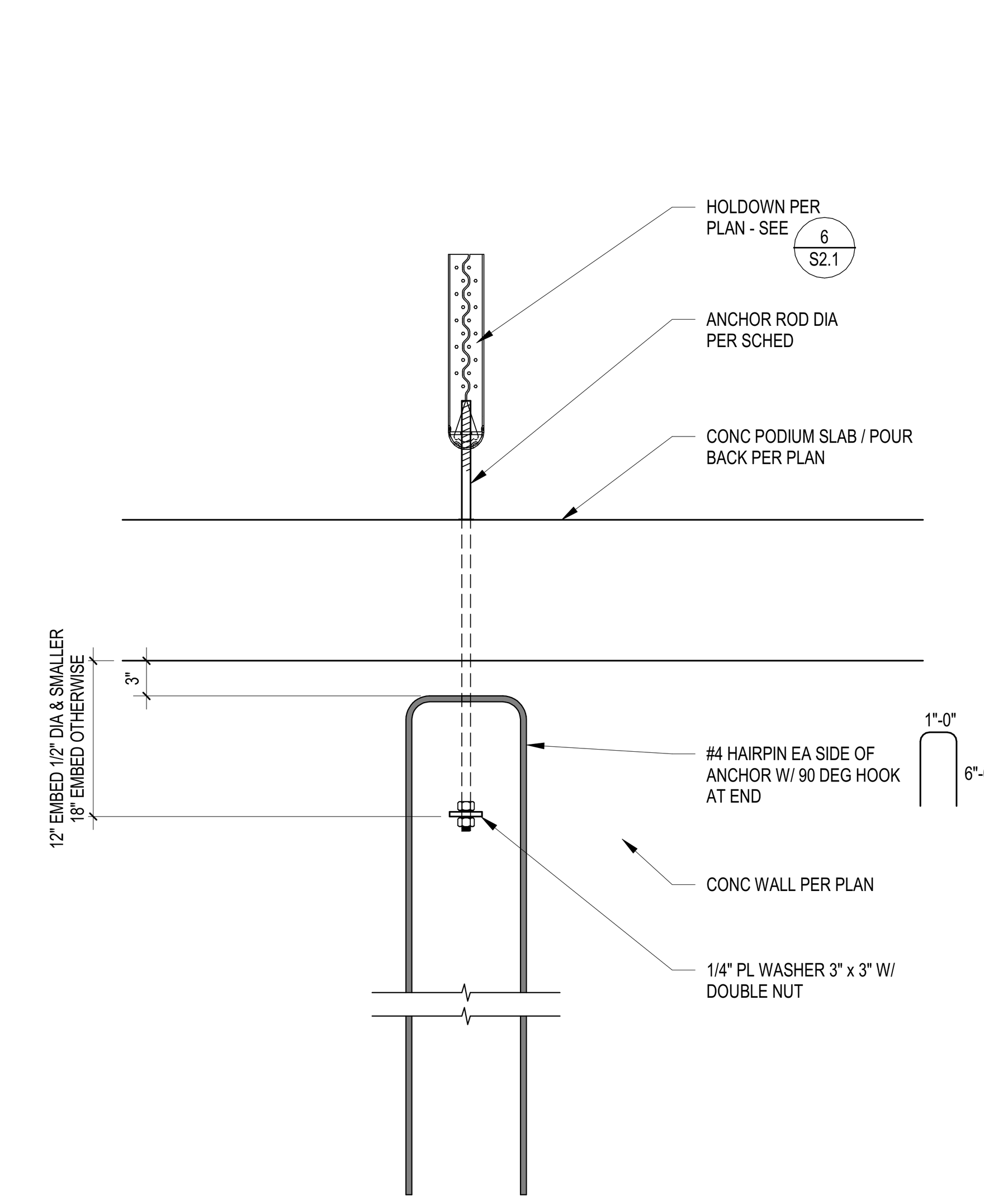


7 SECTION
1" = 1'-0" 7 / S3.1



8 SECTION
1" = 1'-0" 8 / S3.1

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NOTICE:

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CONCRETE FLOOR DETAILS

S3.1

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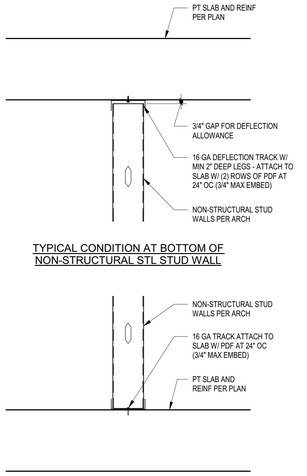

1 SECTION
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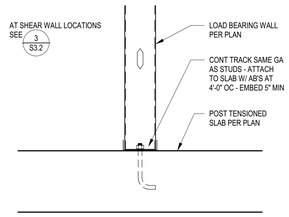
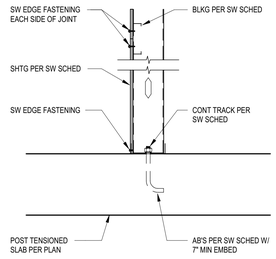


2 SECTION
1" = 1'-0" 2 / S3.2



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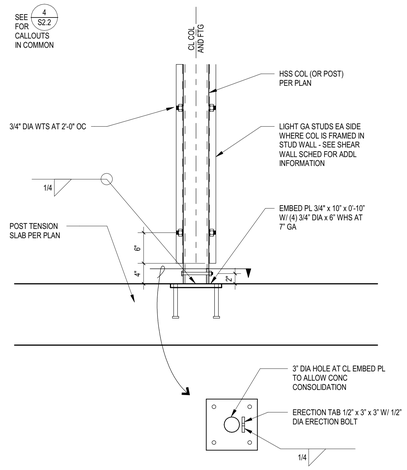

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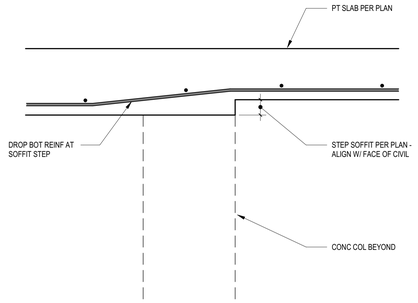
1" = 1'-0" 4 / S3.2

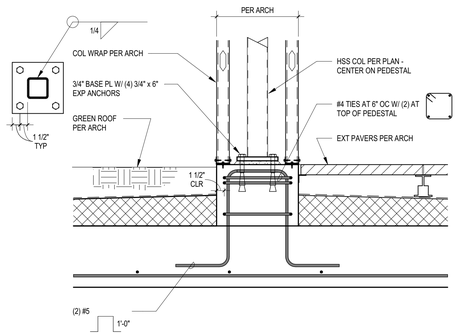


5 SECTION
1" = 1'-0" 5 / S3.2

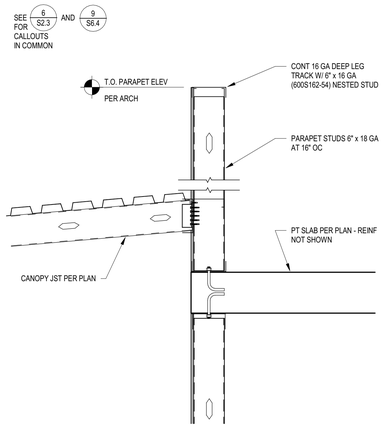
6 SECTION
1" = 1'-0" 6 / S3.2

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

8 SECTION
1" = 1'-0" 8 / S3.2



9 SECTION
1" = 1'-0" 9 / S3.2



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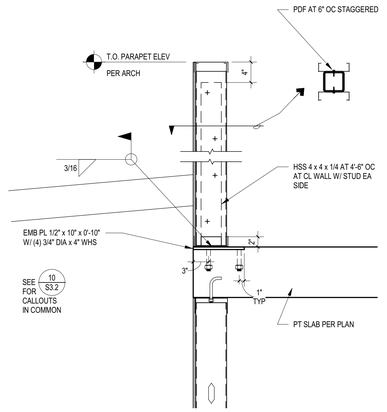

11 SECTION
1" = 1'-0" 11 / S3.2

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

ORIGINAL ISSUE: 02/07/18

REVISIONS

No.	Description	Date

2220236.20
PROJECT NUMBER

EDD/KJK DRAWN BY ADM CHECKED BY

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

CONCRETE FLOOR DETAILS

S3.2

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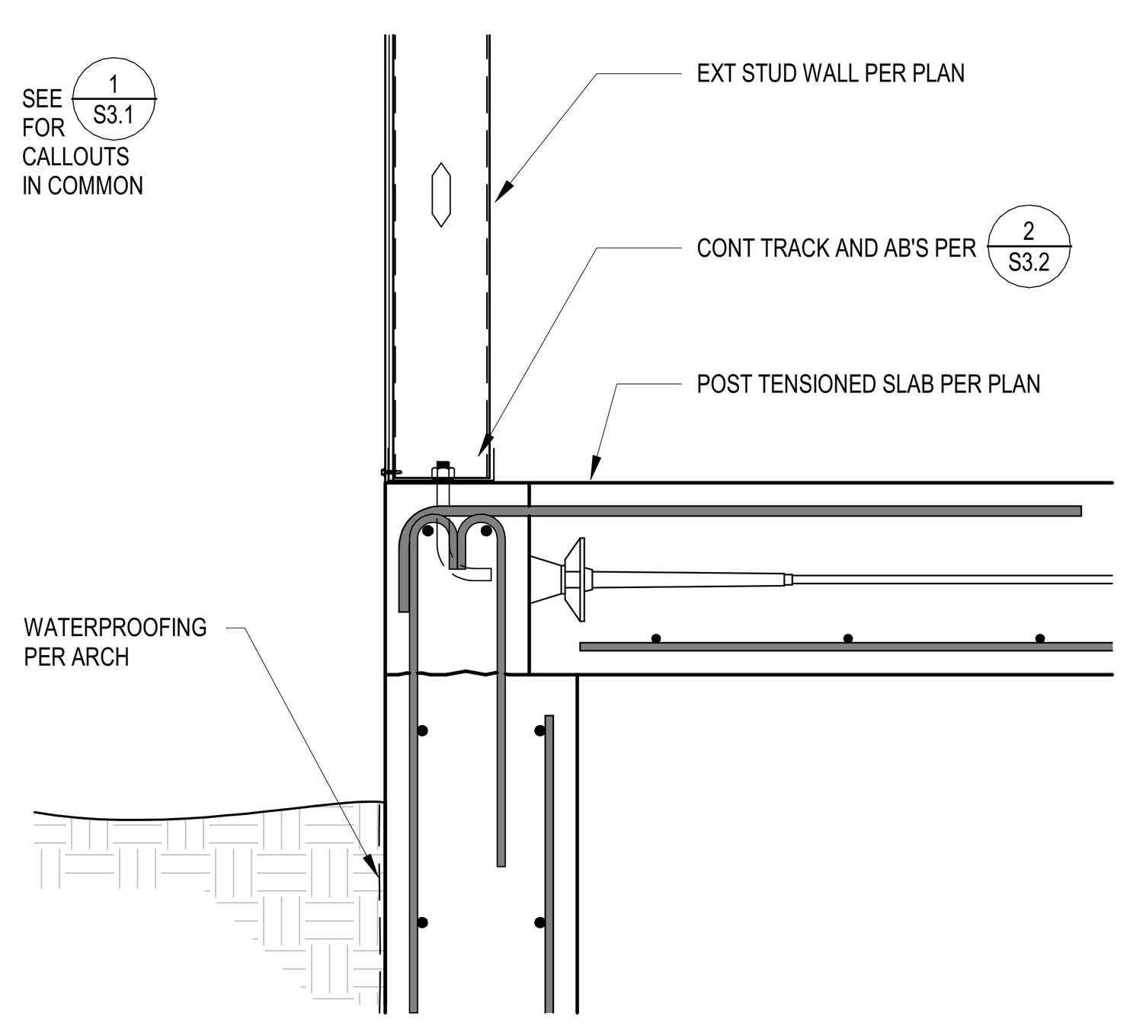

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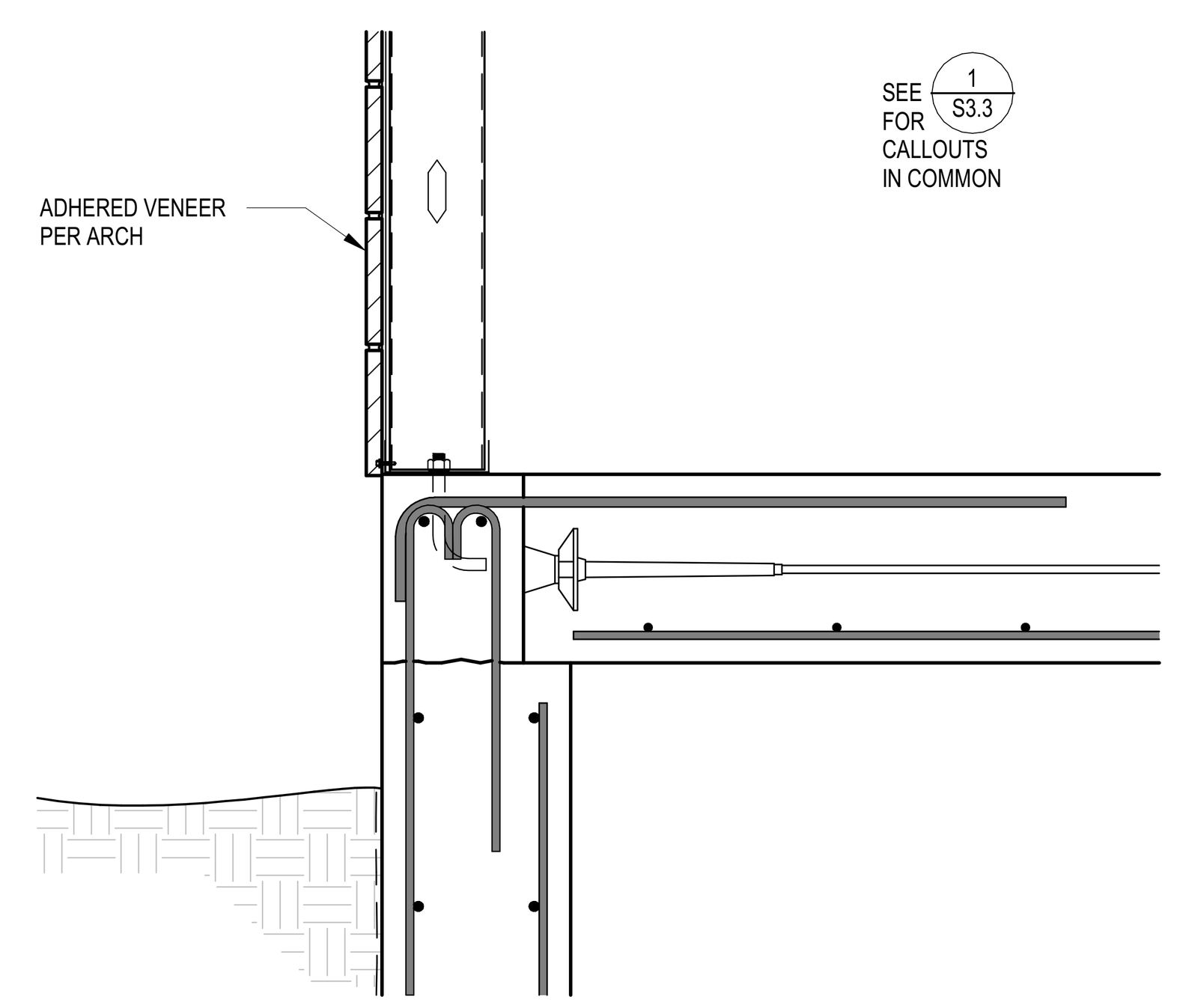

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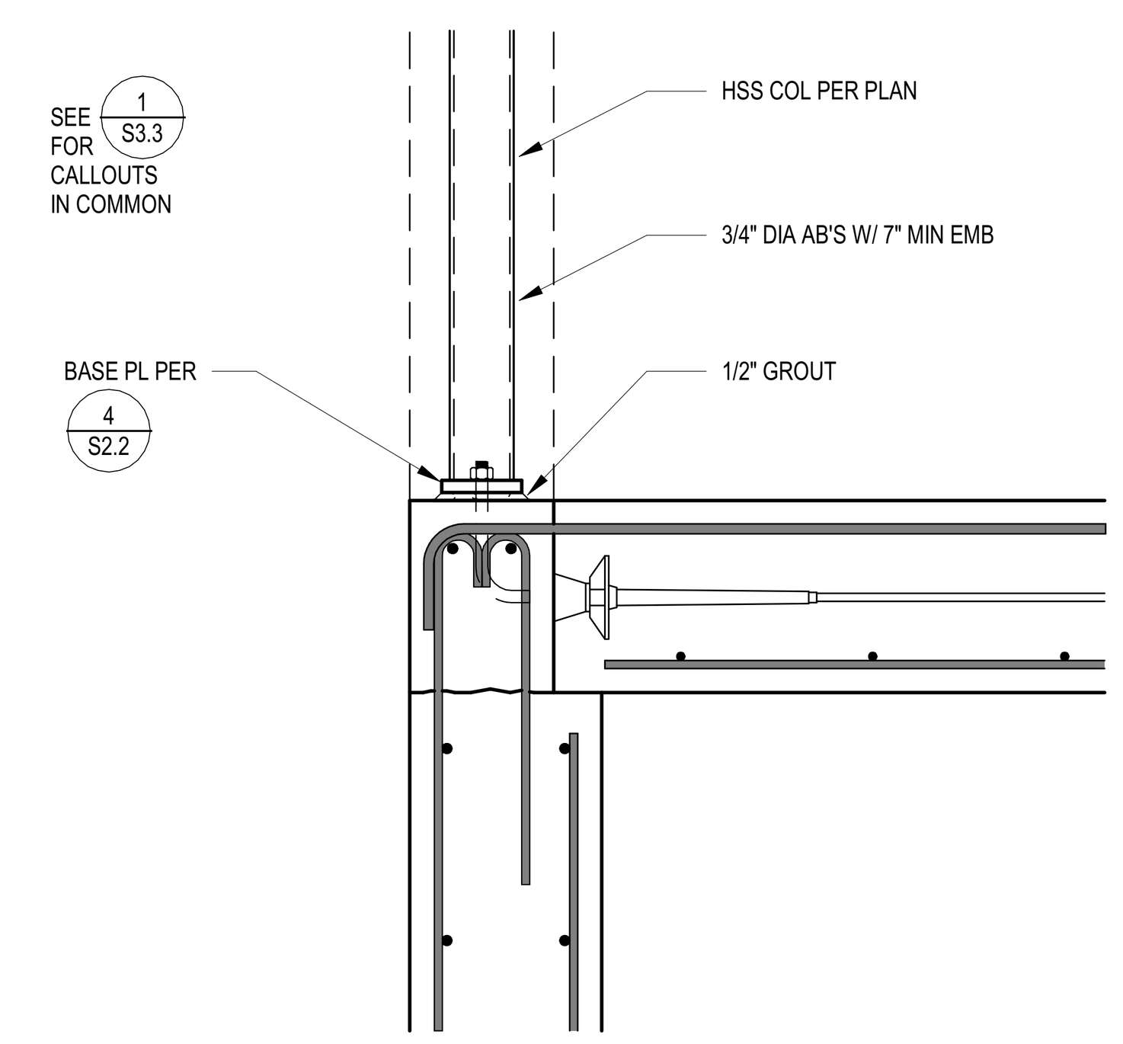

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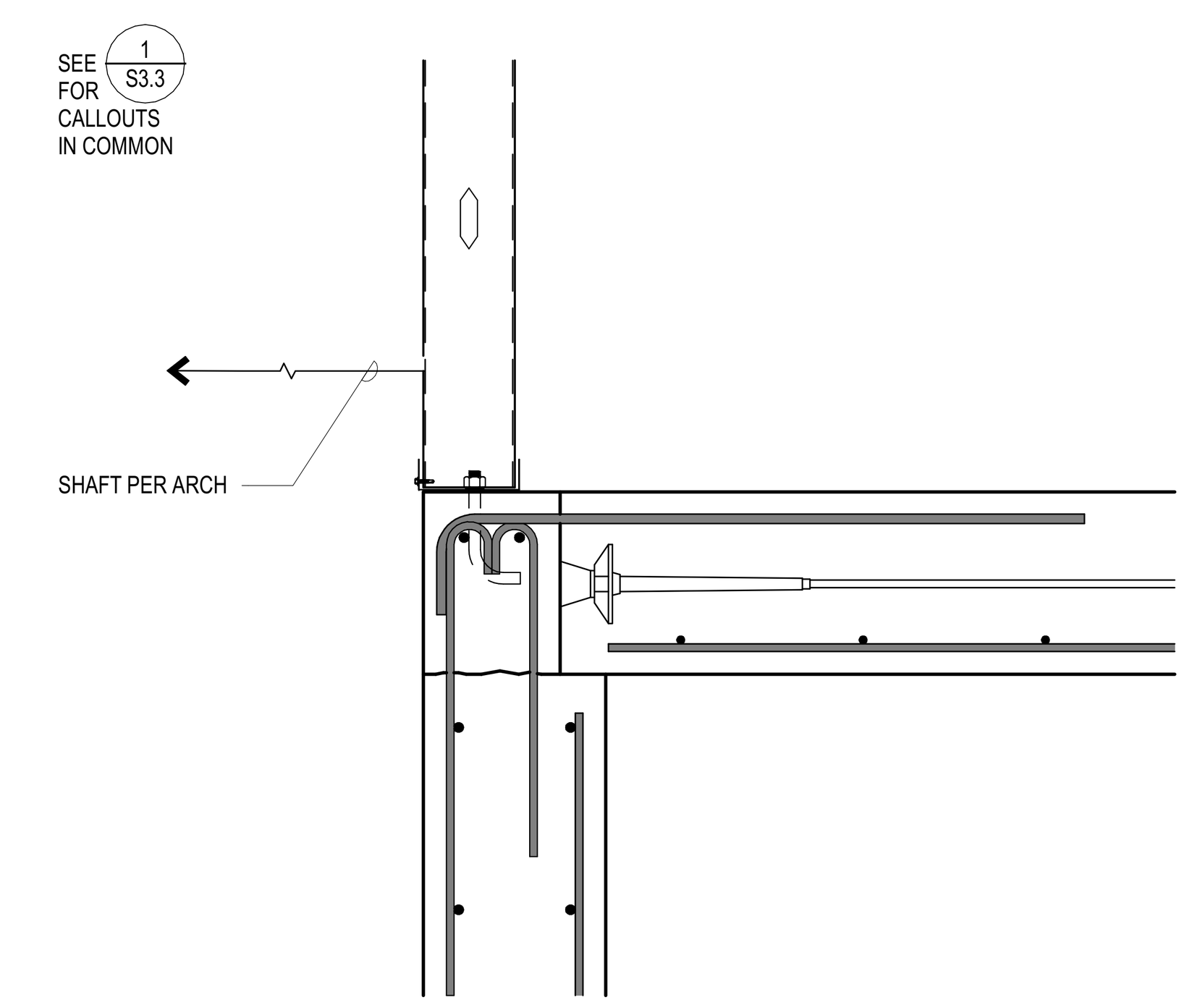

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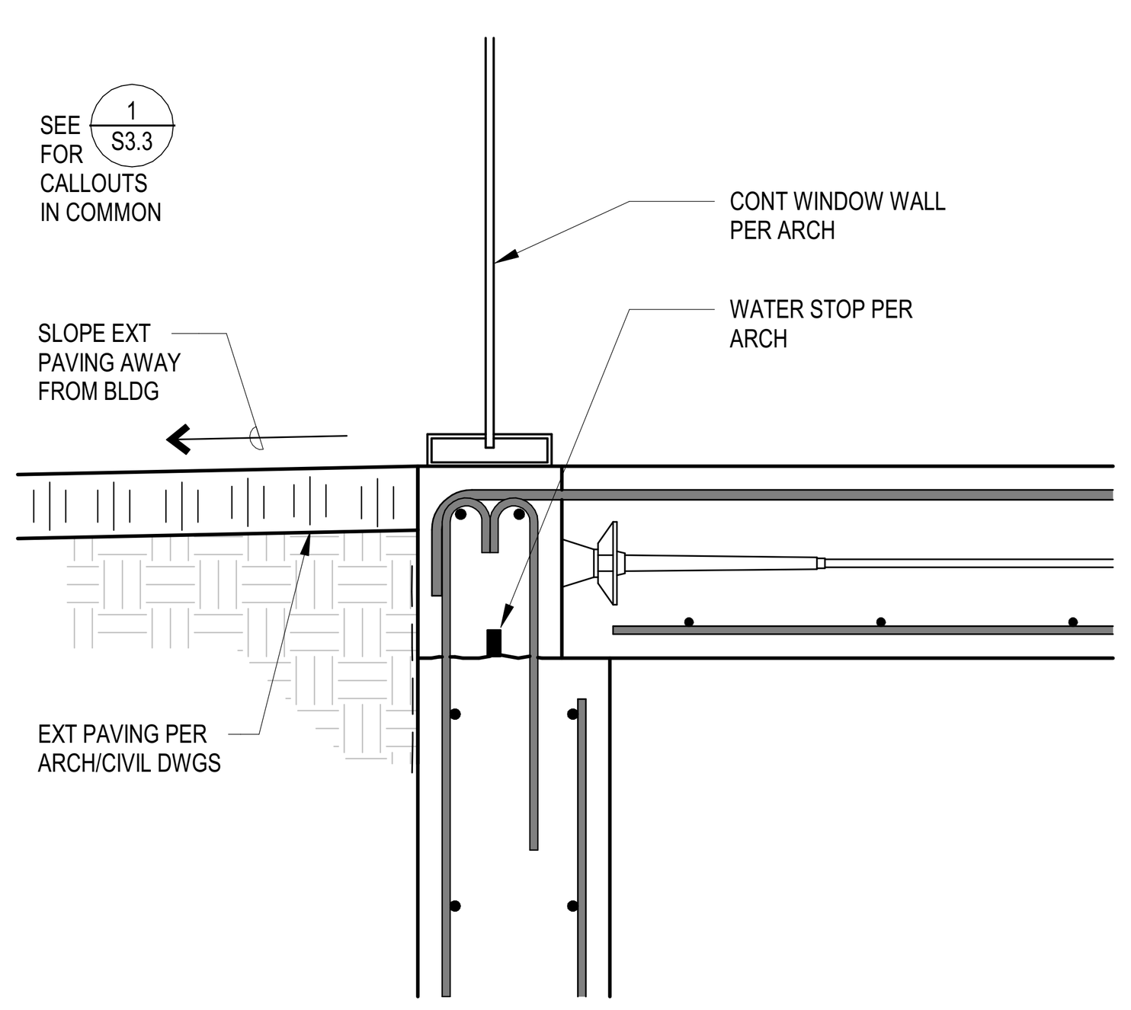

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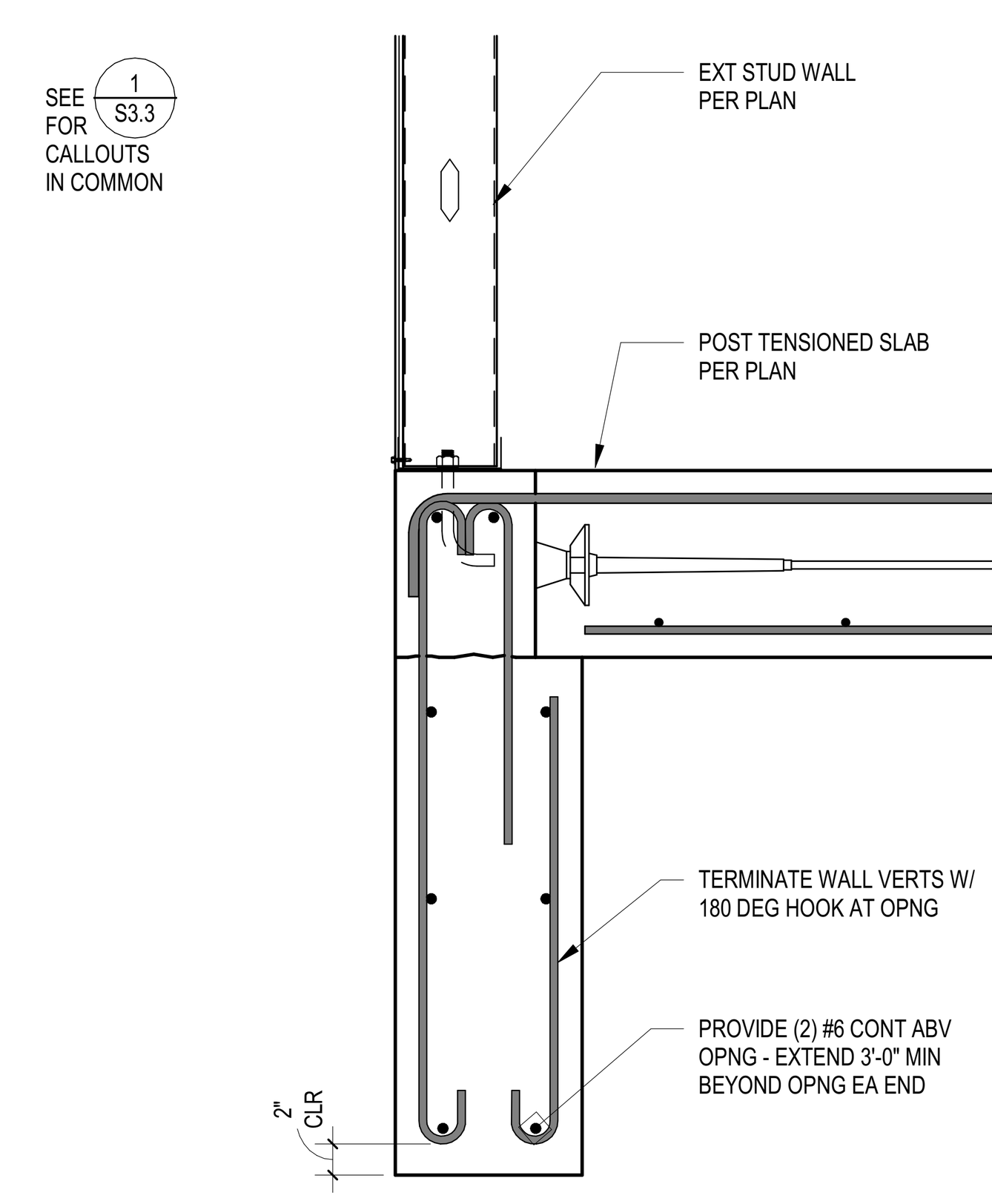
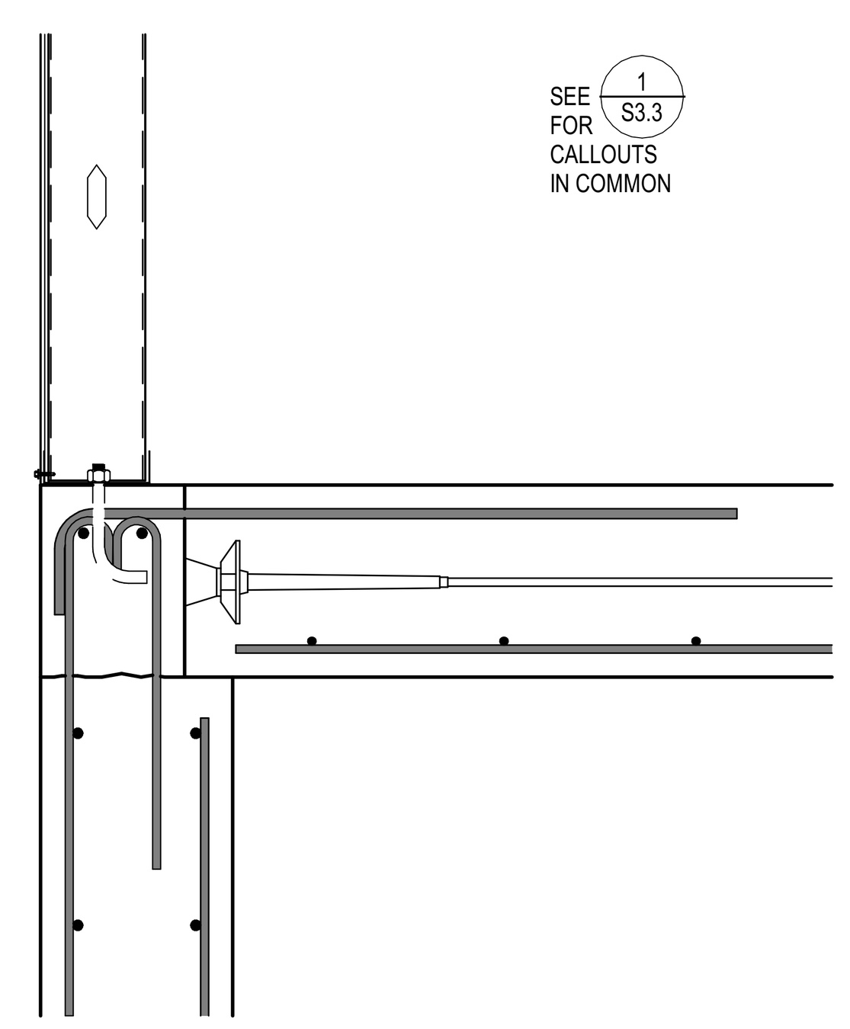
1" = 1'-0"



TYPICAL OPENING CONDITION

6 SECTION
1" = 1'-0"



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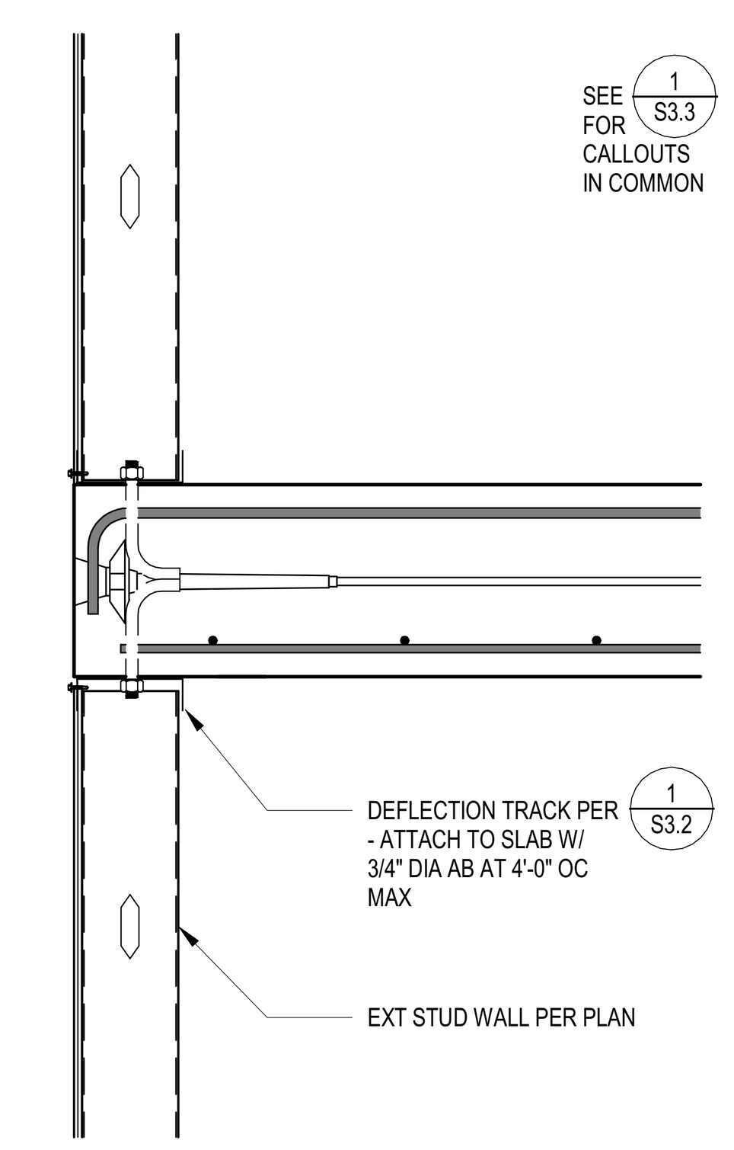
1" = 1'-0"



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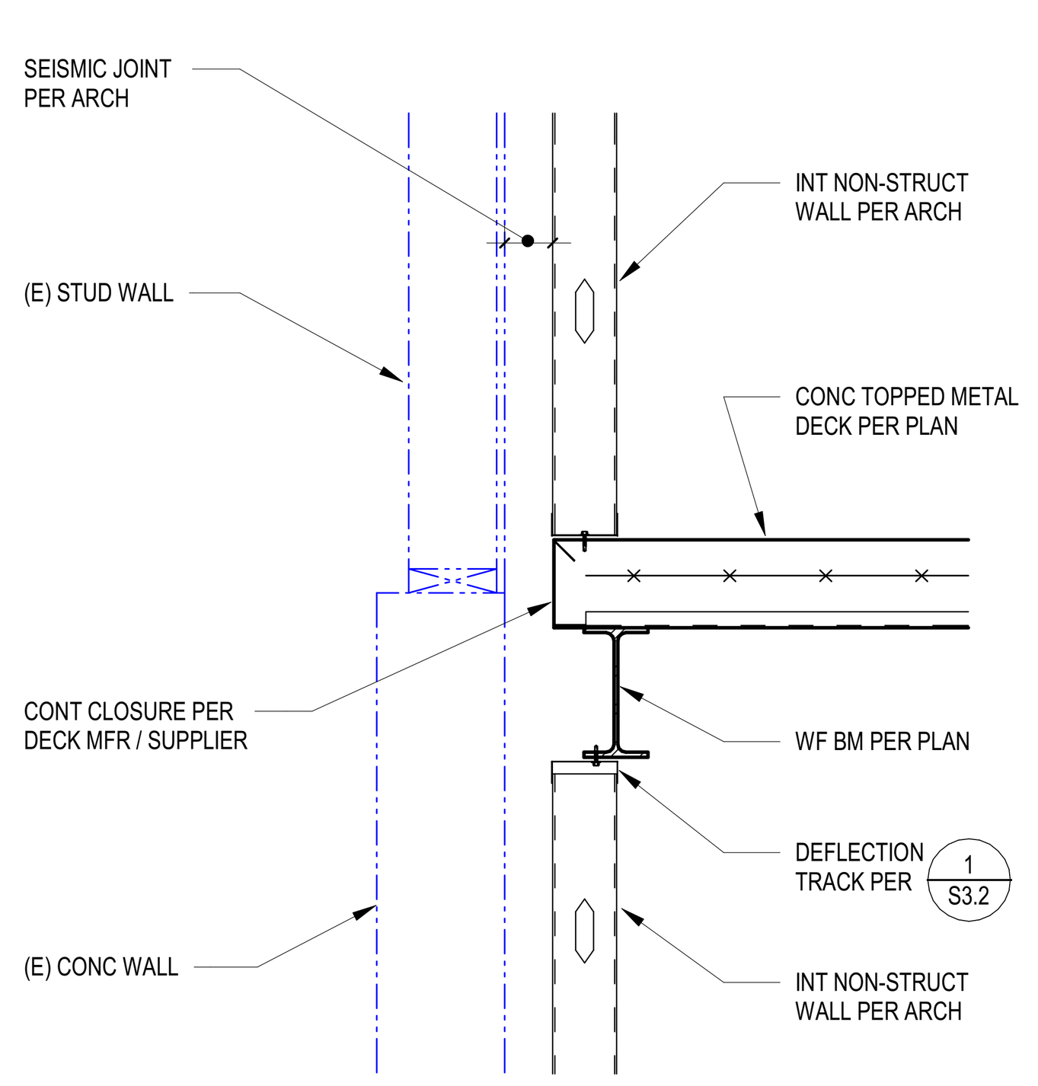
1" = 1'-0"



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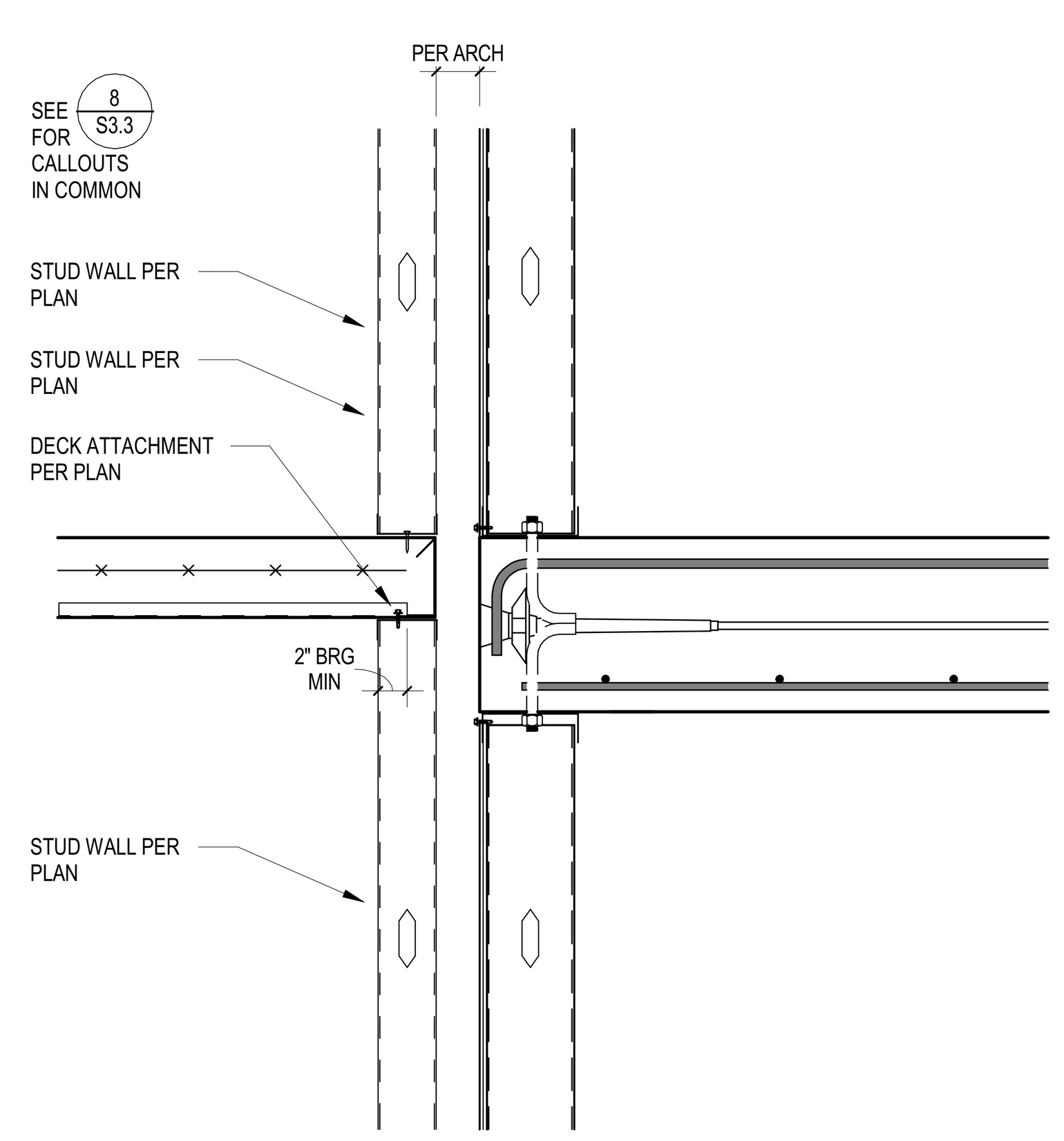
1" = 1'-0"



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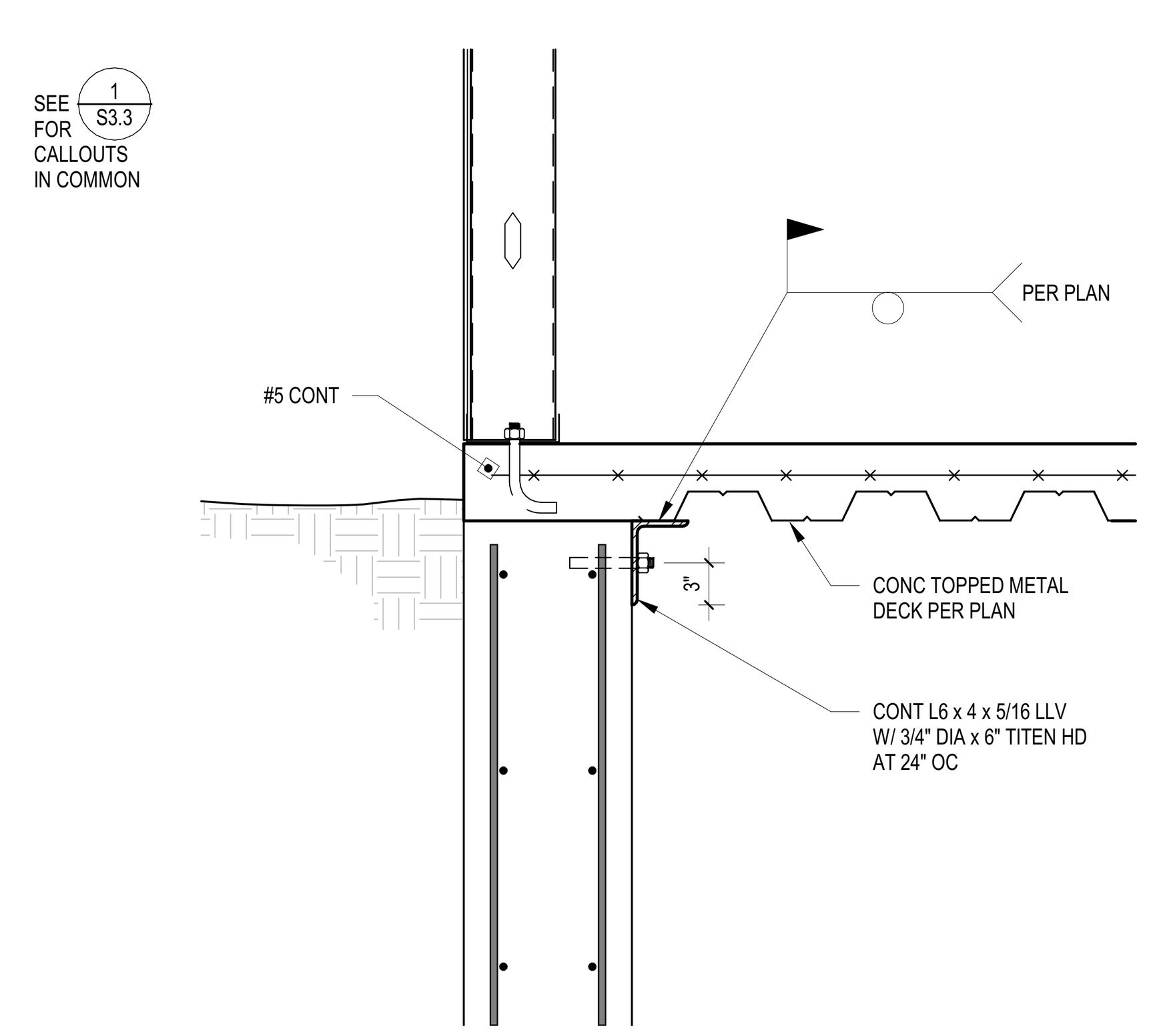

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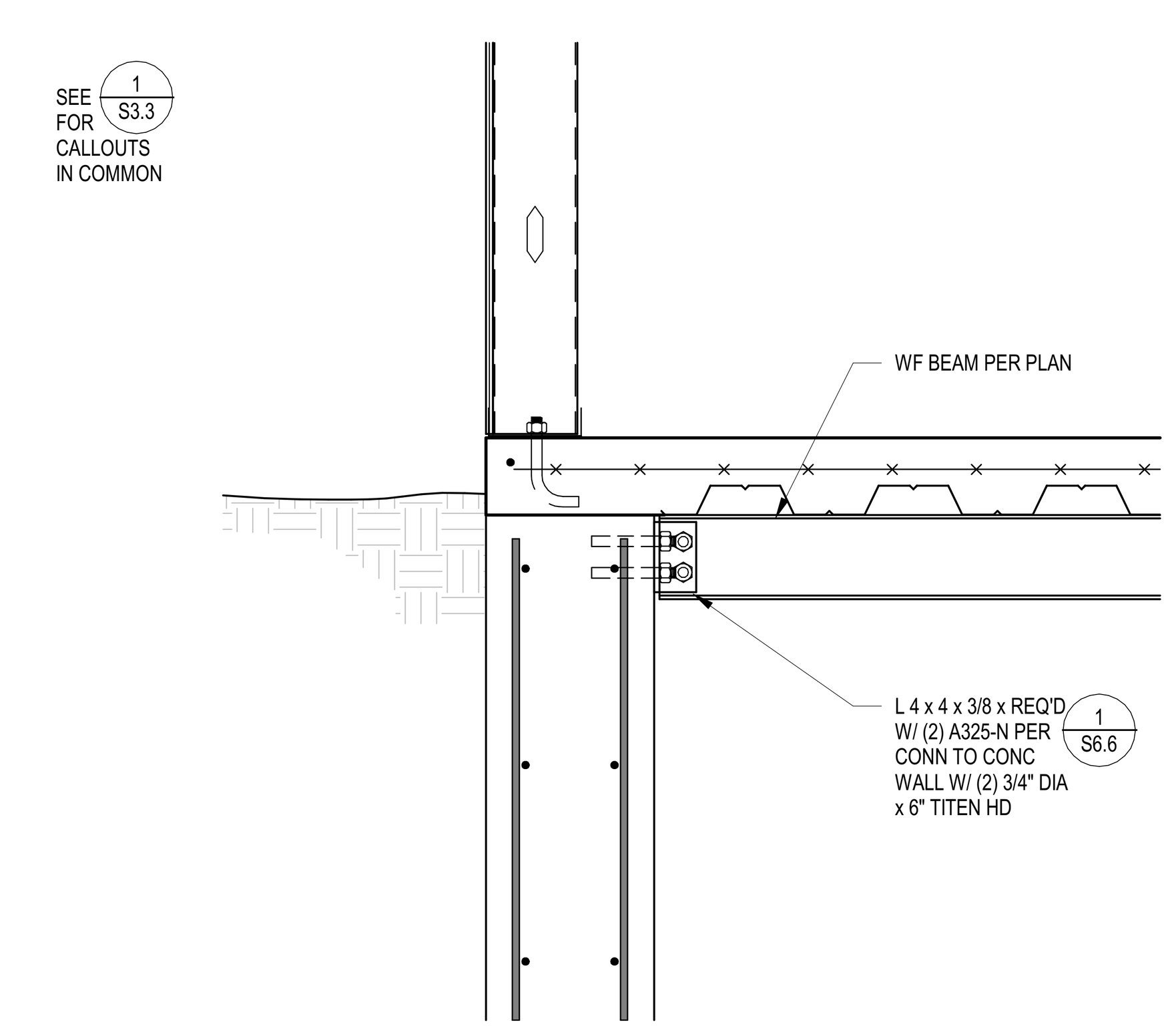

12 SECTION
1" = 1'-0"

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

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PHASE 2 - CARE CENTER

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CONCRETE FLOOR DETAILS

S3.3

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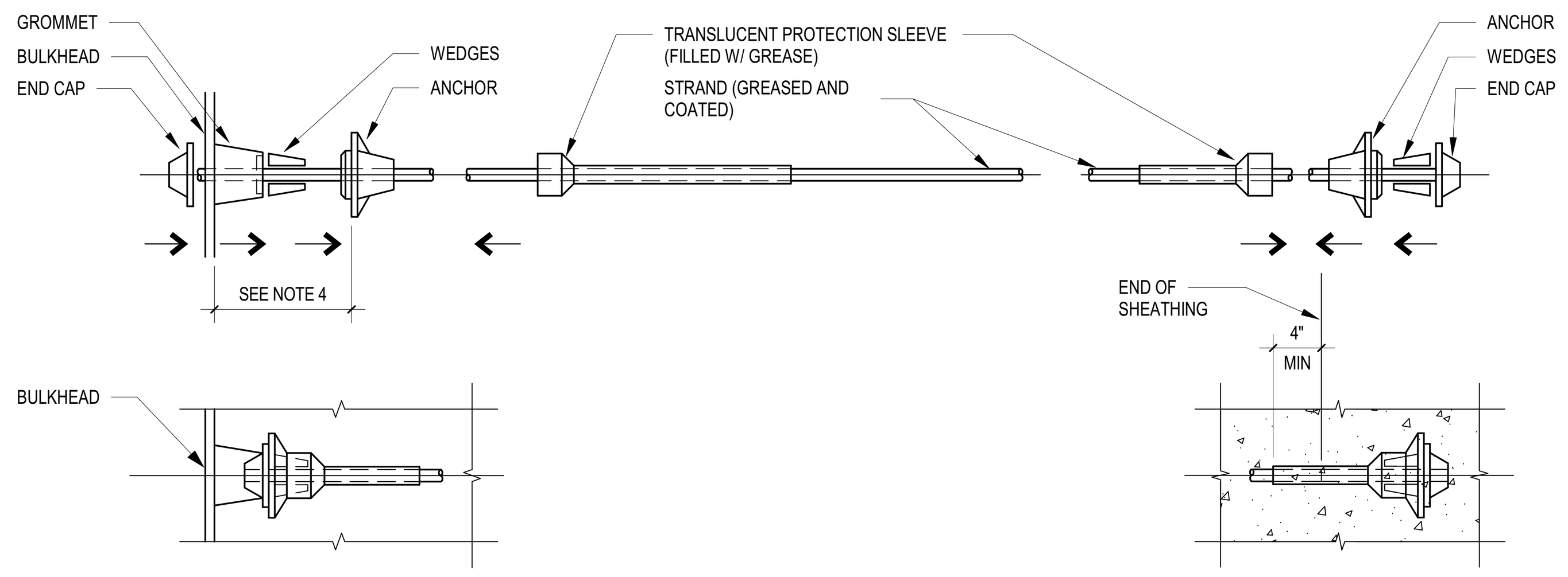


AT STRESSING END

NOTES:

1. LOCATE ANCHOR AT BULKHEAD PER FRAMING PLANS.
2. INSTALL GROMMET FLUSH BETWEEN BULKHEAD AND ANCHOR FOR TIGHT SEAL.
3. SLIDE GREASE-FILLED PROTECTION SLEEVE TIGHT AGAINST ANCHOR PROVIDING 4" MIN OVERLAP BETWEEN SLEEVE AND END OF SHEATHING.
4. AFTER POURING, AT TIME OF STRESSING, REMOVE GROMMET AND INSERT WEDGES.
5. AFTER STRESSING AND ENGINEER'S APPROVAL OF STRESSING RECORD, CUT STRAND 1 1/2" - 1" BEYOND WEDGES PER SHEET S0.1 AND GREASE END CAP PRIOR TO INSERTING IT TIGHT AGAINST ANCHOR. SEE STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
6. FILL STRESSING POCKET PER STRUCTURAL NOTES.

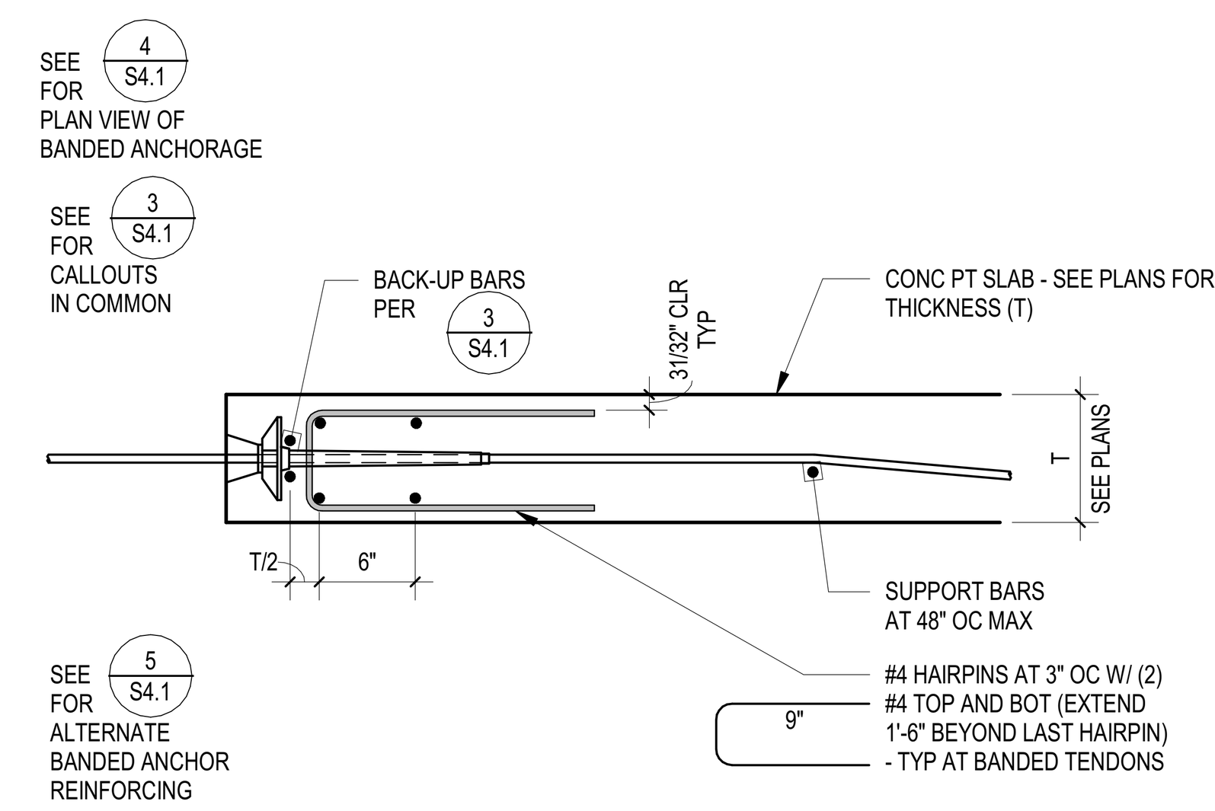
AT DEAD END

NOTES:

1. LOCATE ANCHOR AT BULKHEAD PER FRAMING PLANS.
2. IF FABRICATED IN SHOP INCLUDE WEDGES, GREASE CAP AND GREASE-FILLED.
3. IF FIELD SEATING IS REQUIRED, BE SURE ALL COMPONENTS ARE TIGHT TO ANCHOR.

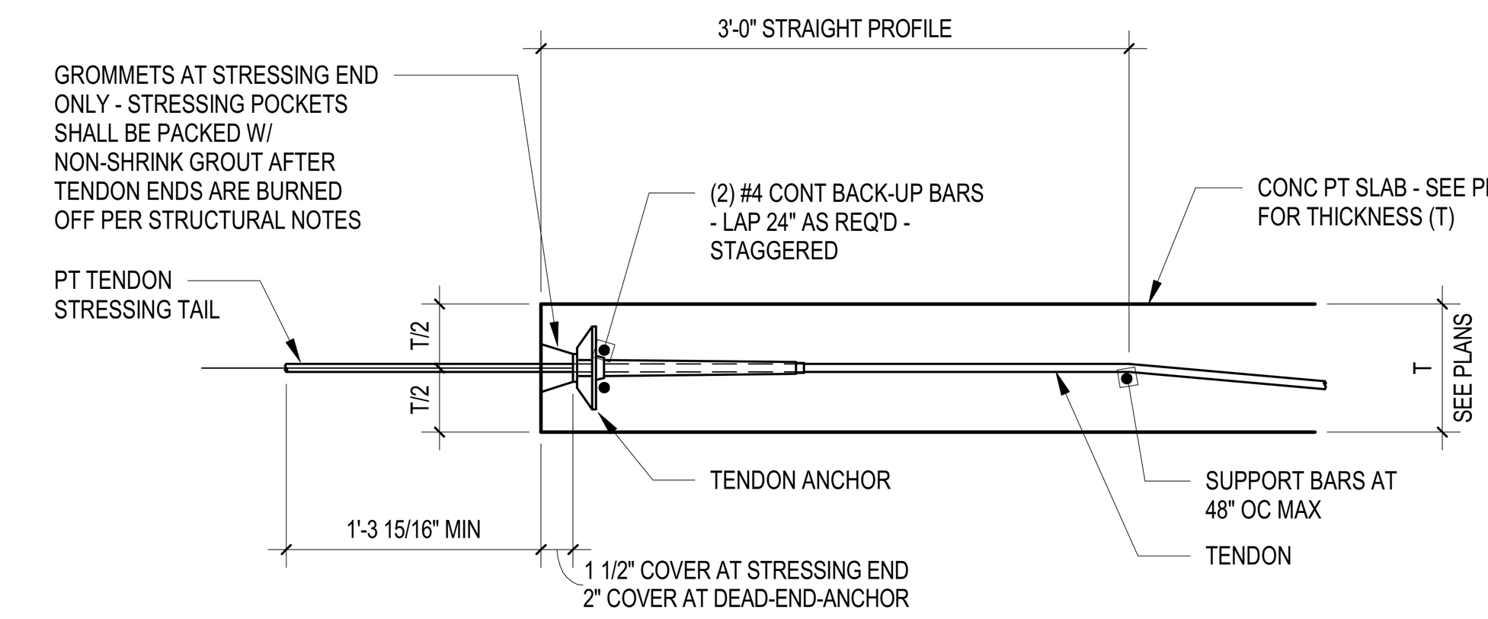
TYPICAL POST-TENSIONING ENCAPSULATION DETAILS

1 SECTION
NTS 1 / S4.1-B



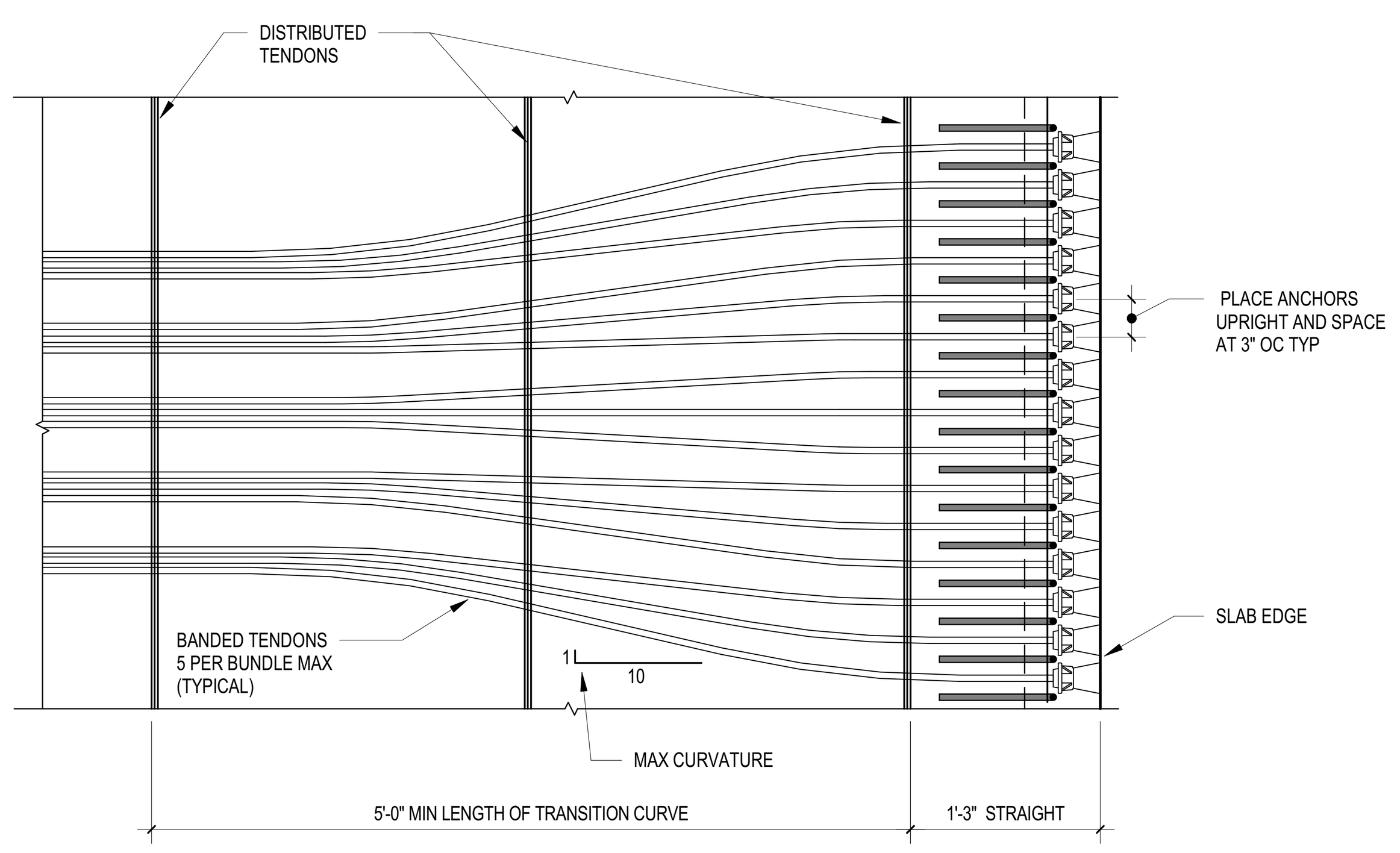
TYPICAL SLAB EDGE AT BANDED TENDONS

2 SECTION
1" = 1'-0" 2 / S4.1-B



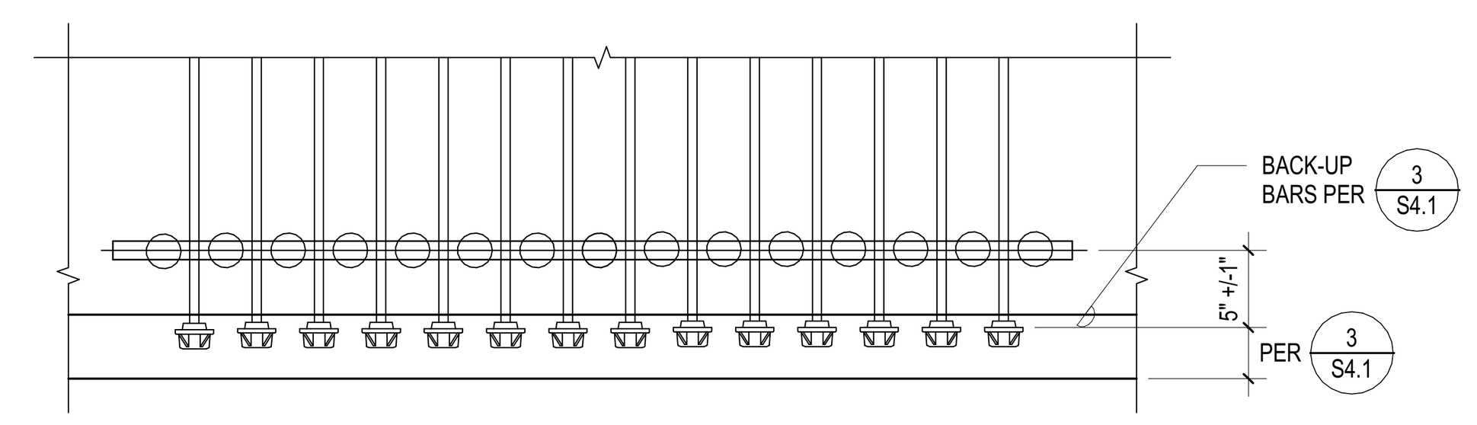
TYPICAL SLAB EDGE AT DISTRIBUTED TENDONS

3 SECTION
1" = 1'-0" 3 / S4.1-B

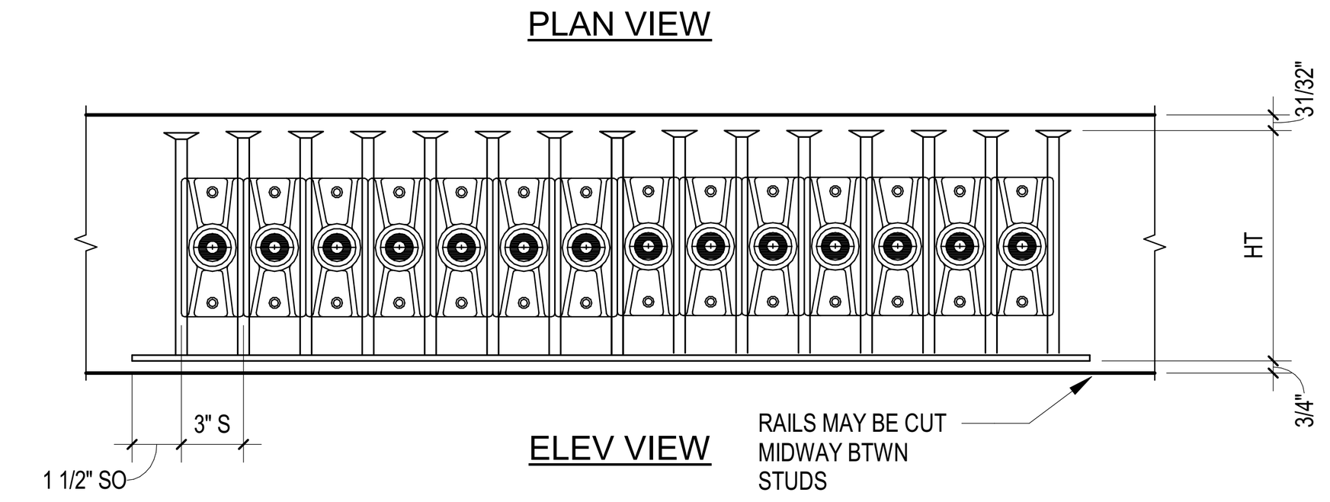


TYPICAL PLAN VIEW OF BANDED TENDON ANCHORAGE

4 SECTION
NTS 4 / S4.1-B



PLAN VIEW

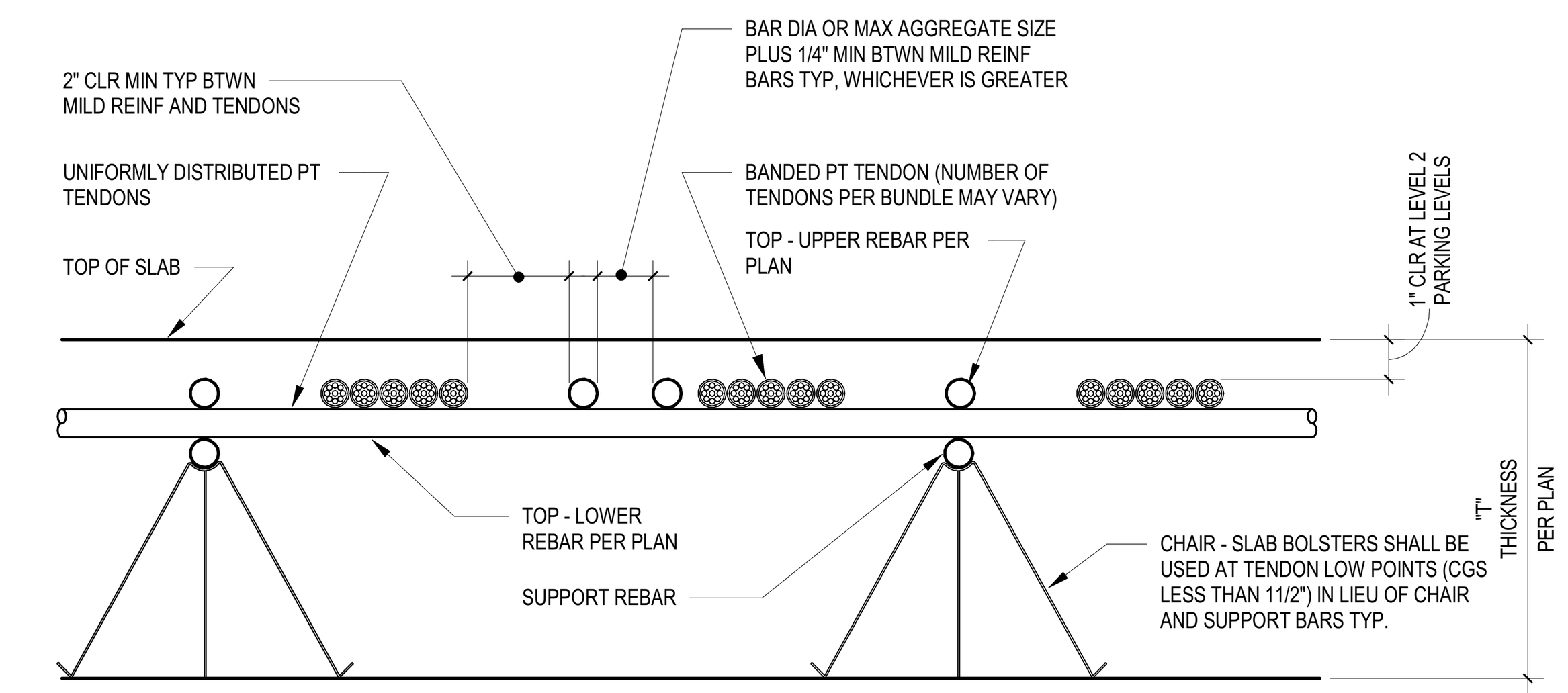


ELEV VIEW

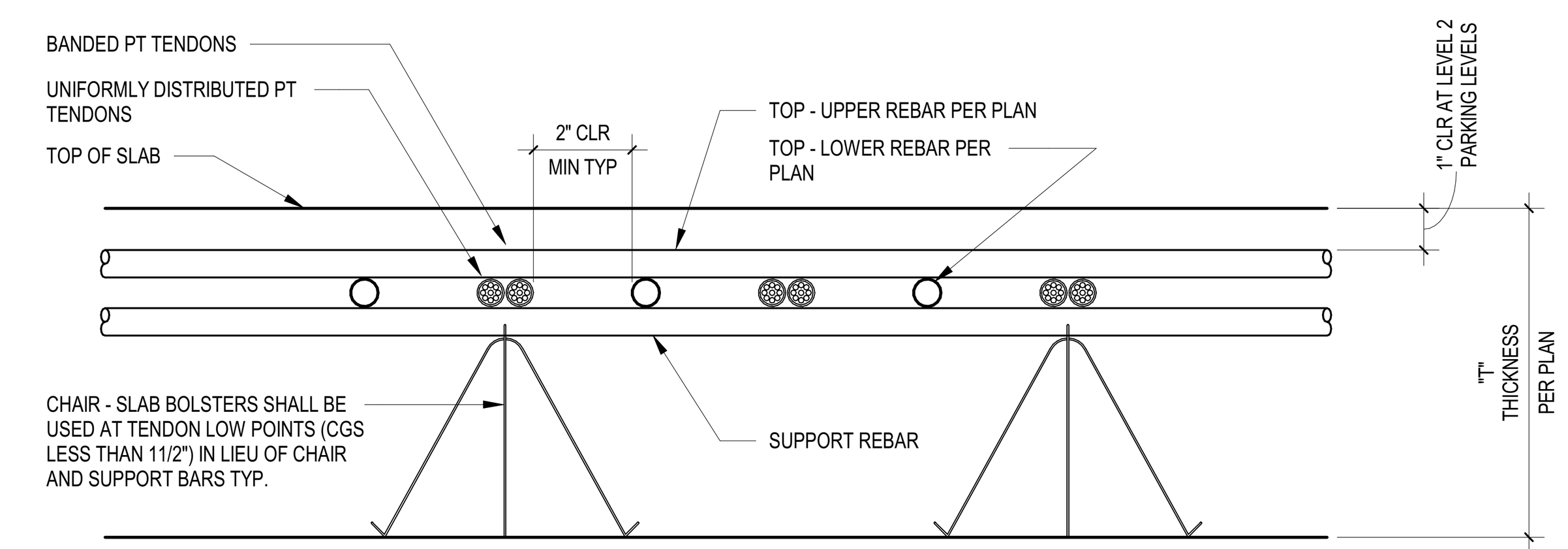
USE NUMBER OF RAILS AS REQUIRED TO ENCLOSE ALL BANDED TENDONS AT STRESSING ENDS.

ALTERNATE BANDED ANCHOR REINFORCING			
	8" SLAB	9" SLAB	12" SLAB
NUMBER OF RAILS	AS REQD	AS REQD	AS REQD
STUD PER RAILS	AS REQD	AS REQD	AS REQD
SO	1 1/2"	1 1/2"	1 1/2"
STUD DIA	3/8"	3/8"	3/8"
STUD SPACING, S	3"	3"	3"
O.A. RAIL HT	6 1/4"	7 1/4"	10 1/4"

5 TYPICAL
1" = 1'-0" 5 / S4.1-B



TYPICAL SECTION THRU BANDED PT TENDONS

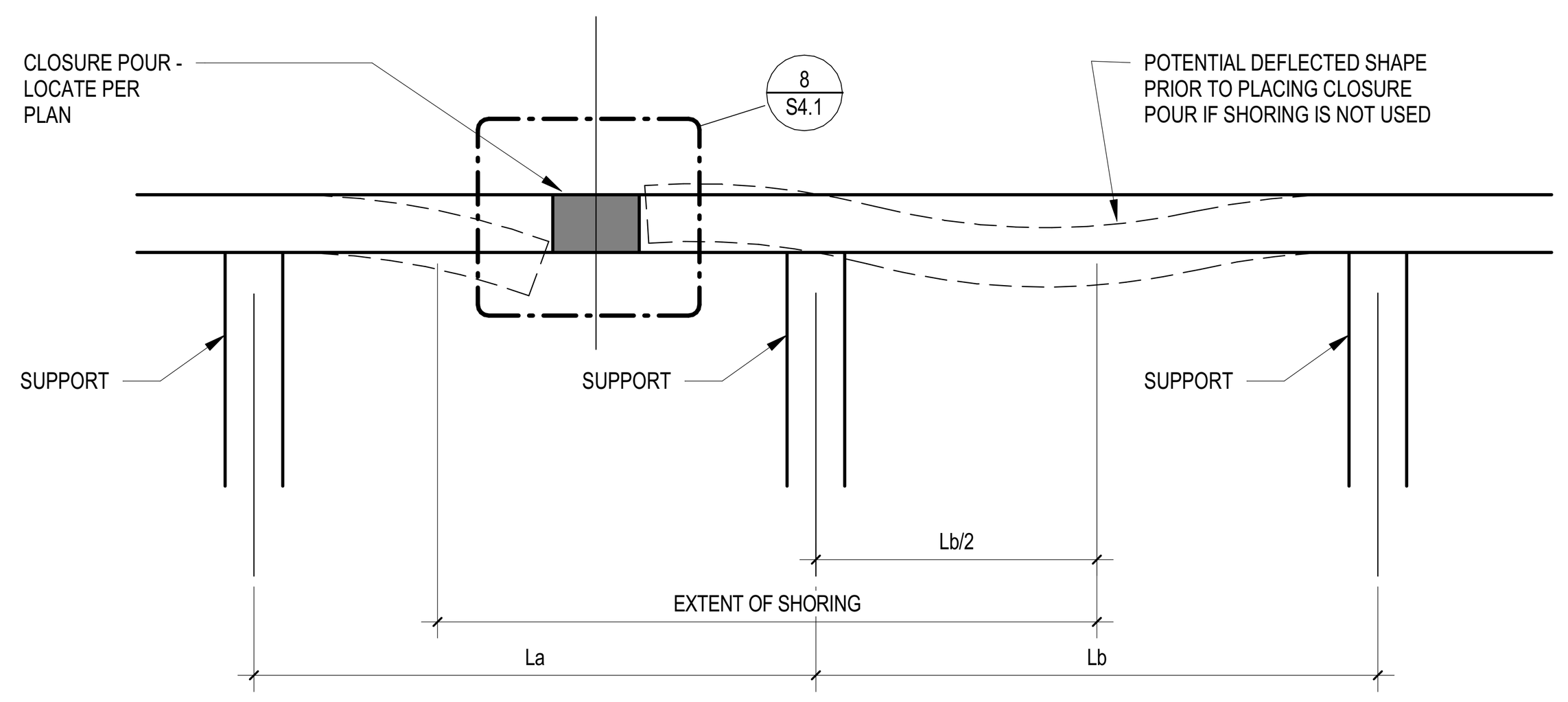


TYPICAL SECTION THRU UNIFORMLY DISTRIBUTED PT TENDONS

6 TYPICAL
NTS 6 / S4.1-B

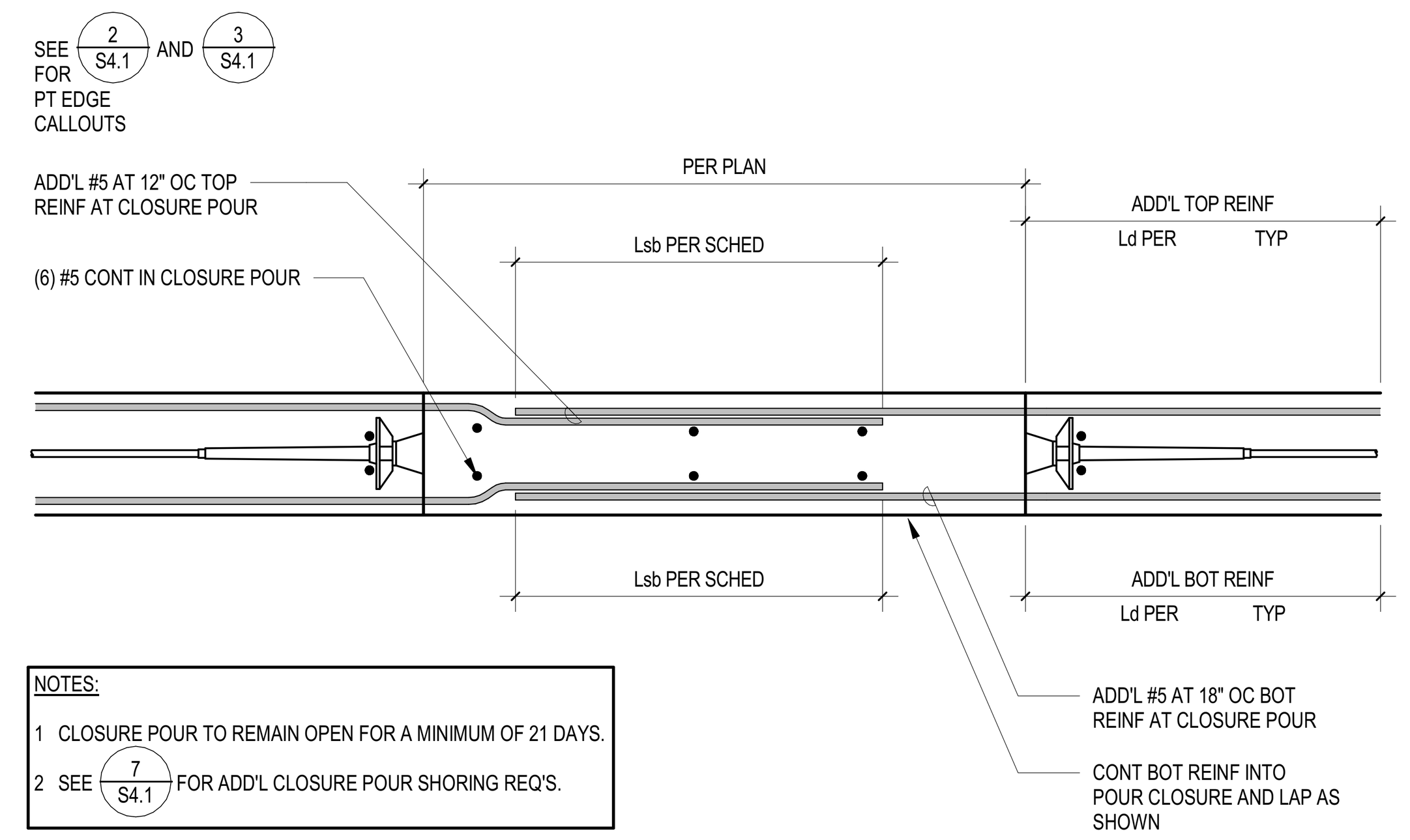
NOTES:

1. SHORING MUST BE SIZED FOR WEIGHT OF SLAB PLUS ALL CONSTRUCTION LOADS.
2. RE-SHORING CAN BE DONE PROVIDED THE RE-SHORE SYSTEM DOES NOT DEFLECT AXIALLY AND IF THE RE-SHORING PROCEDURE DOES NOT ALLOW THE SLAB TO DEFLECT VERTICALLY.



CLOSURE POUR SHORING REQUIREMENTS

7 SECTION
NTS 7 / S4.1-B



NOTES:

1. CLOSURE POUR TO REMAIN OPEN FOR A MINIMUM OF 21 DAYS.
2. SEE 7 S4.1 FOR ADD'L CLOSURE POUR SHORING REQ'S.

CLOSURE POUR DETAILS

8 SECTION
1" = 1'-0" 8 / S4.1-B

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707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

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PHASE 2 - CARE CENTER

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2215 North 30th Street, Suite 300, Tacoma,WA 98403
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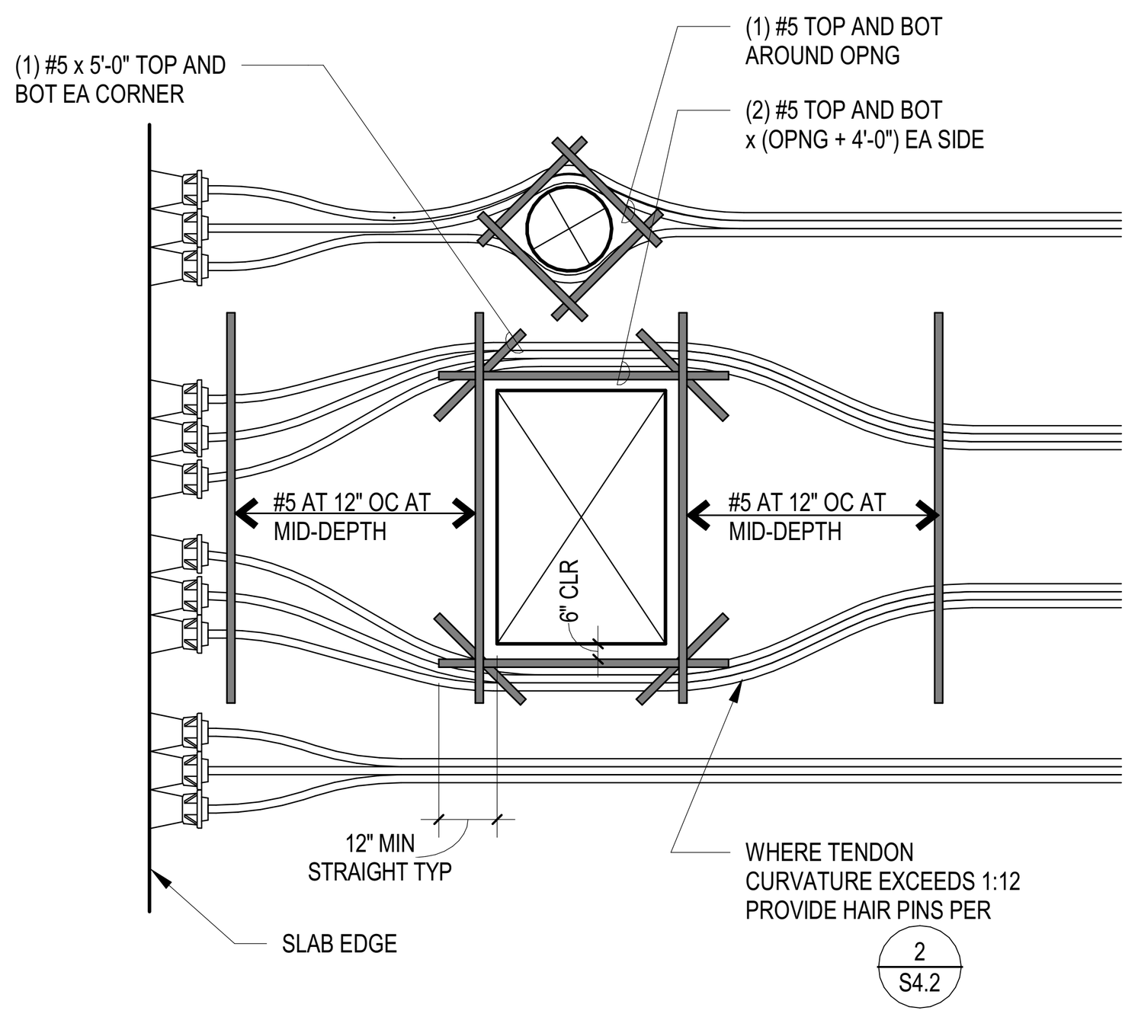
POST-TENSIONED SLAB DETAILS

S4.1



NOTES:

1. OPENING SHALL NOT BE PLACED WITHIN 4'-0" OF ANY COLUMN UNLESS EXACT LOCATIONS OF OPENINGS ARE COORDINATED WITH STRUCTURAL ENGINEER.
2. ROUND OPENINGS MAY BE GROUPED AND REINFORCED SIMILAR TO RECTANGULAR OPENINGS.
3. SPACING OF CIRCULAR OPENINGS:

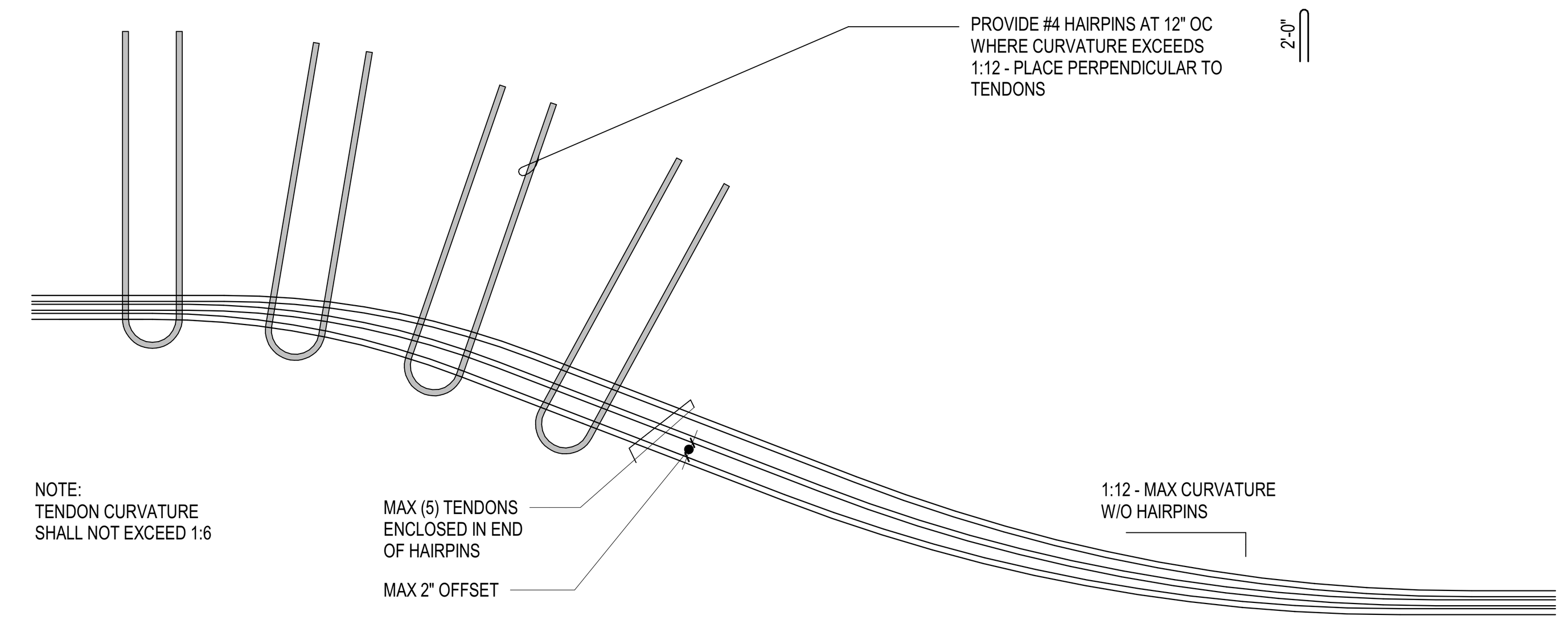
D1 D2

LARGER OF D1 OR D2

4. MAX OPENING SIZE IF LOCATED NEAR MID - SPAN: ROUND: 48" DIA RECTANGULAR: 36" x 36"

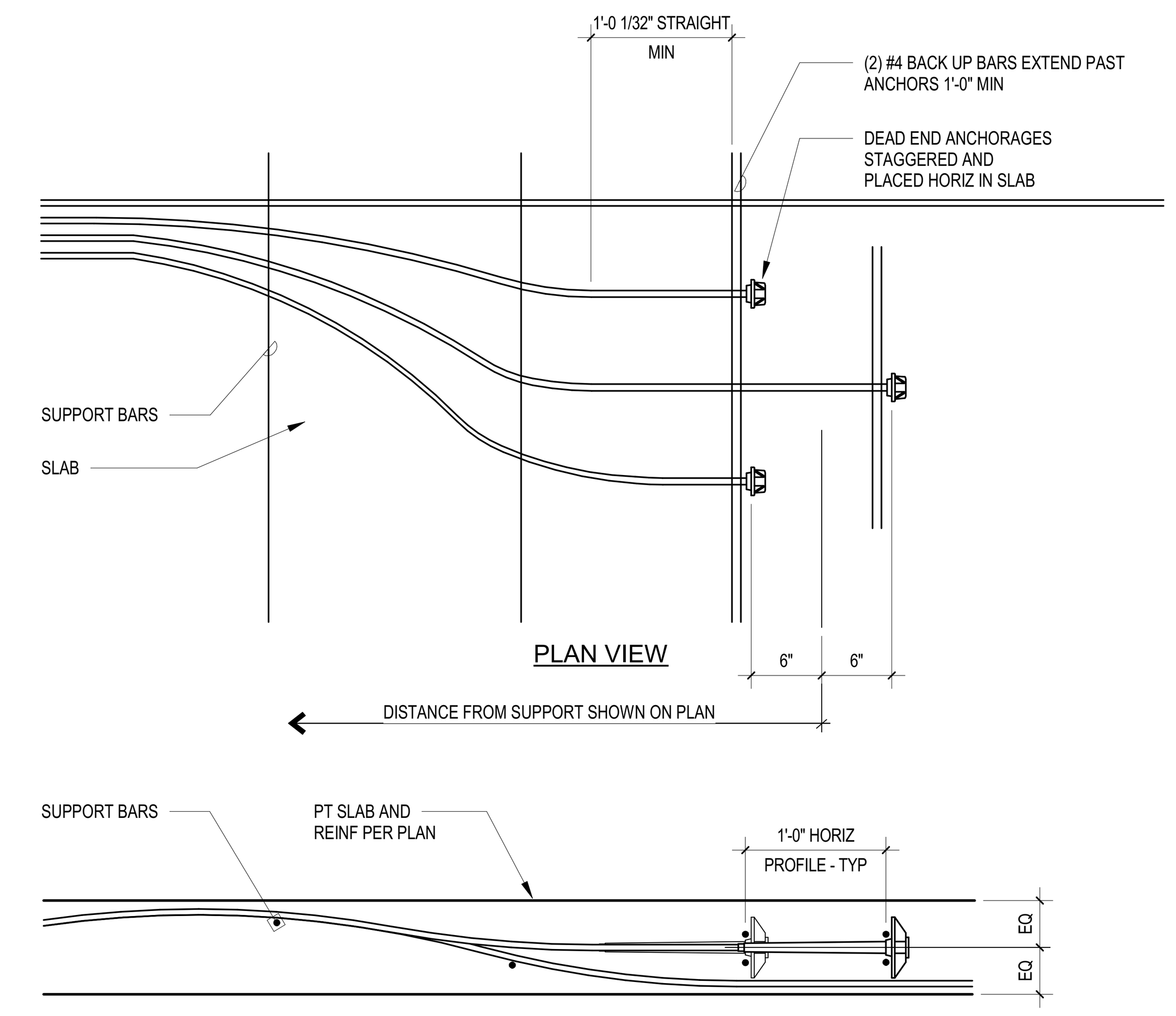
TYPICAL HORIZONTAL TENDON CURVATURE AND TRIM BARS AROUND OPENINGS

1 PLAN
NTS 1 / S4.2



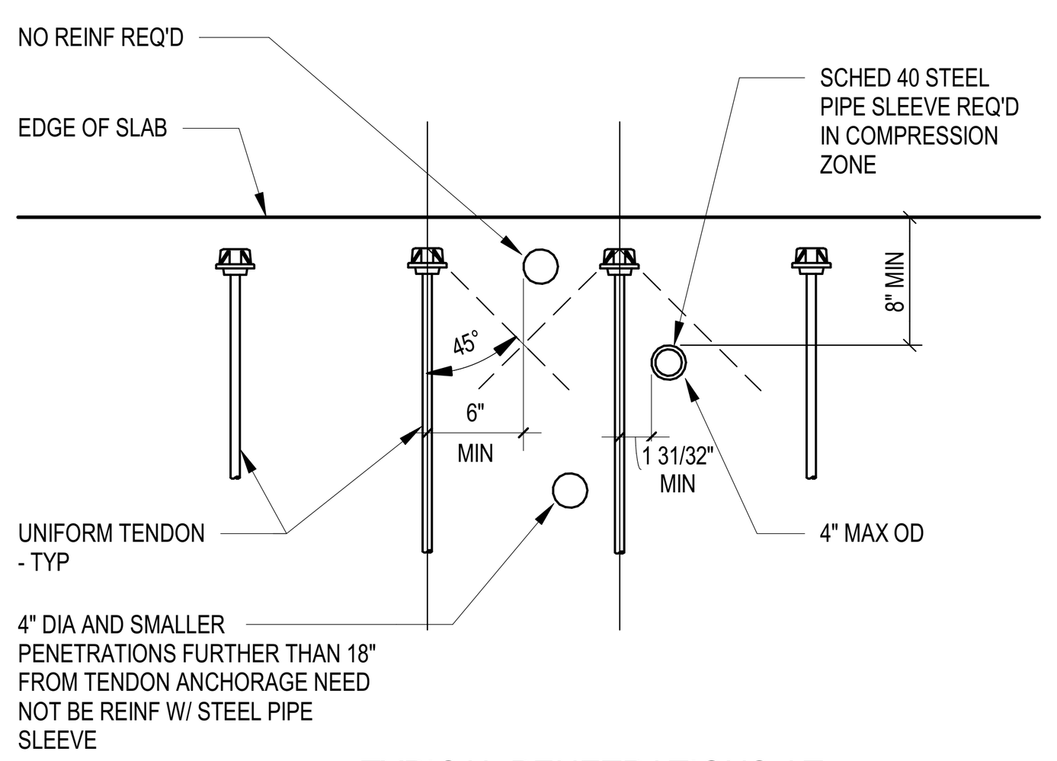
TYPICAL HAIRPINS AT HORIZONTAL TENDON CURVES

2 PLAN
1" = 1'-0" 2 / S4.2



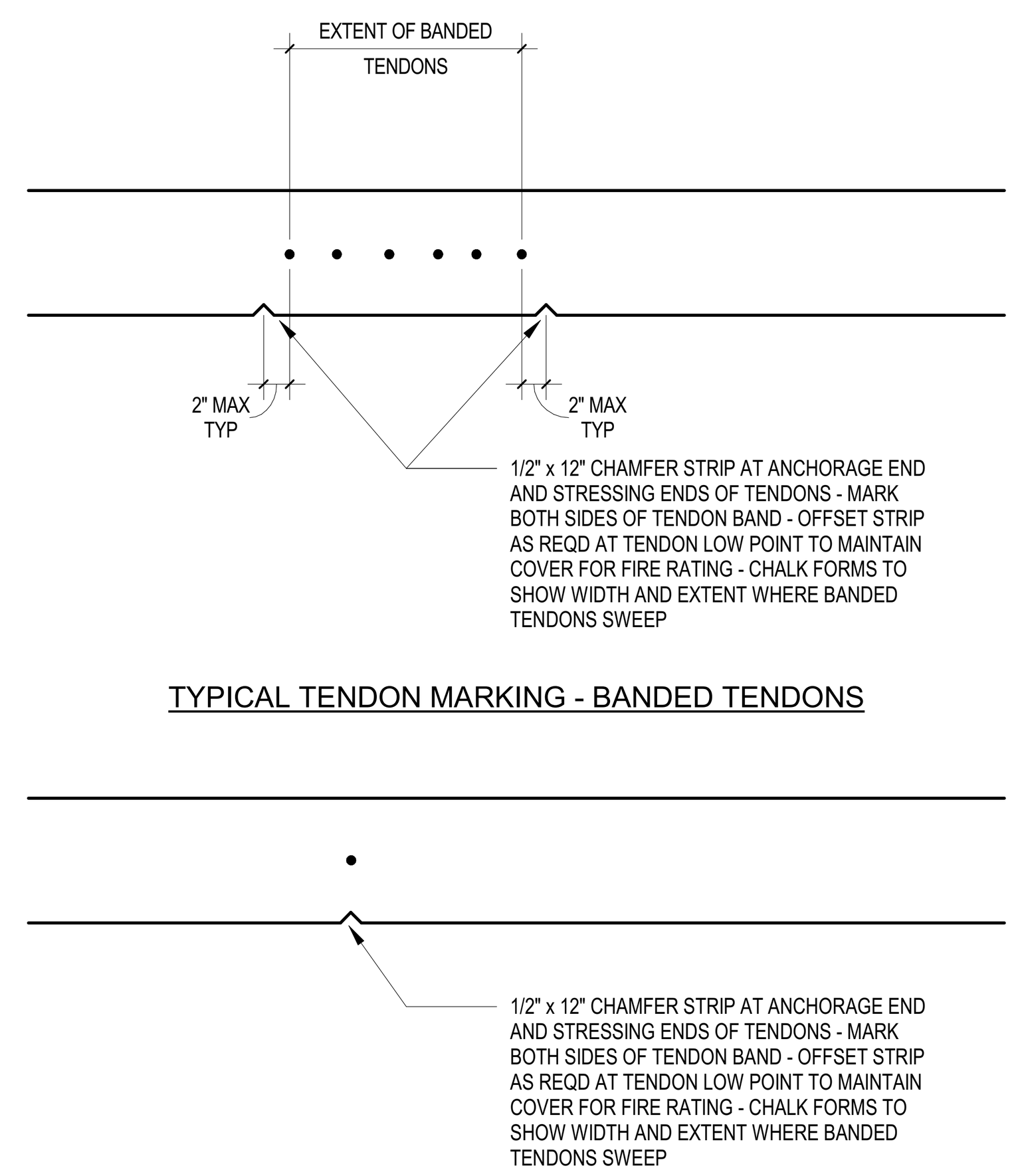
TYPICAL PLACEMENT OF ADDED TENDONS

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



TYPICAL PENETRATIONS AT TENDON ANCHORS

4 PLAN
1" = 1'-0" 4 / S4.2

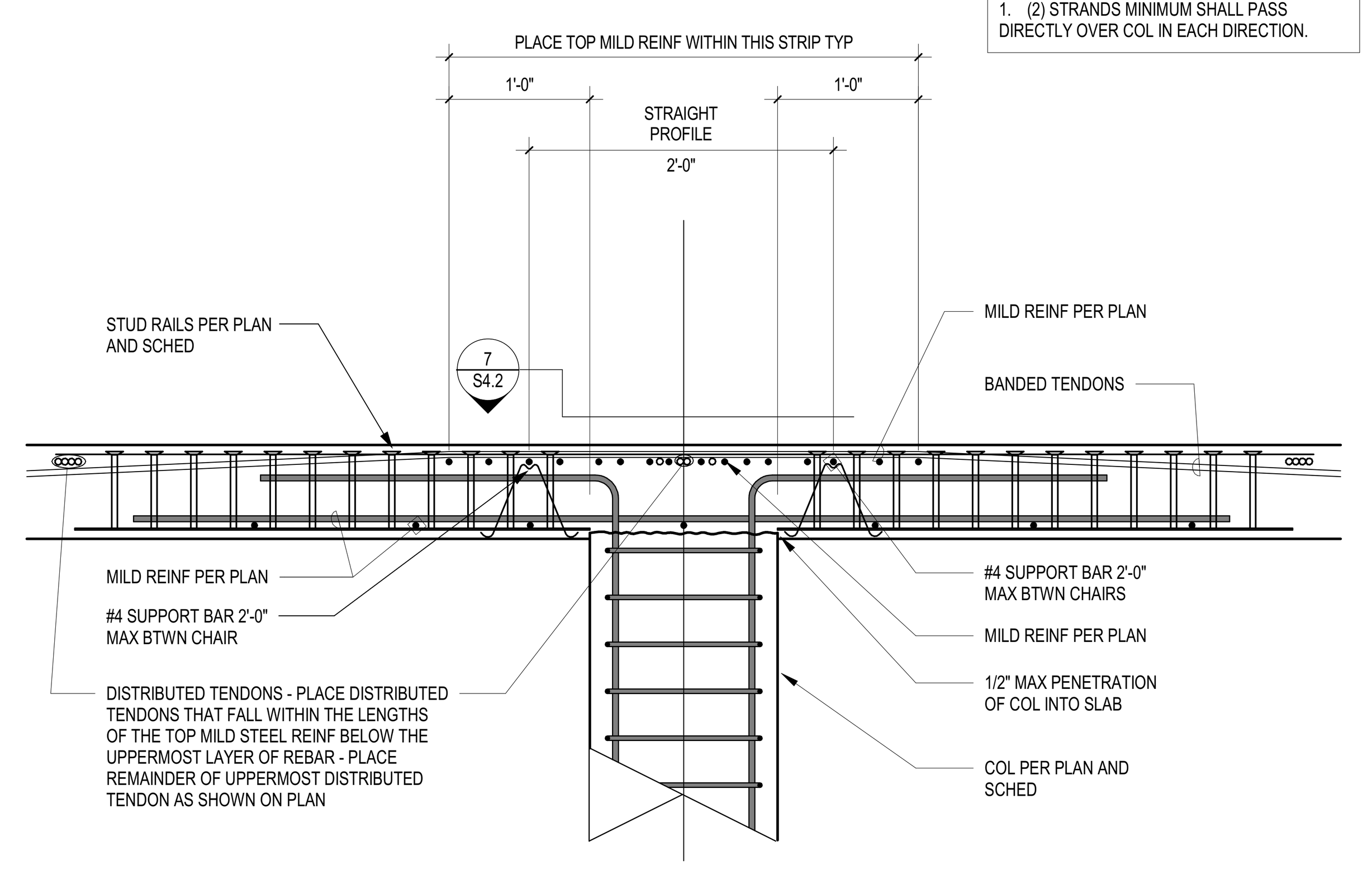


TYPICAL TENDON MARKING - DISTRIBUTED TENDONS

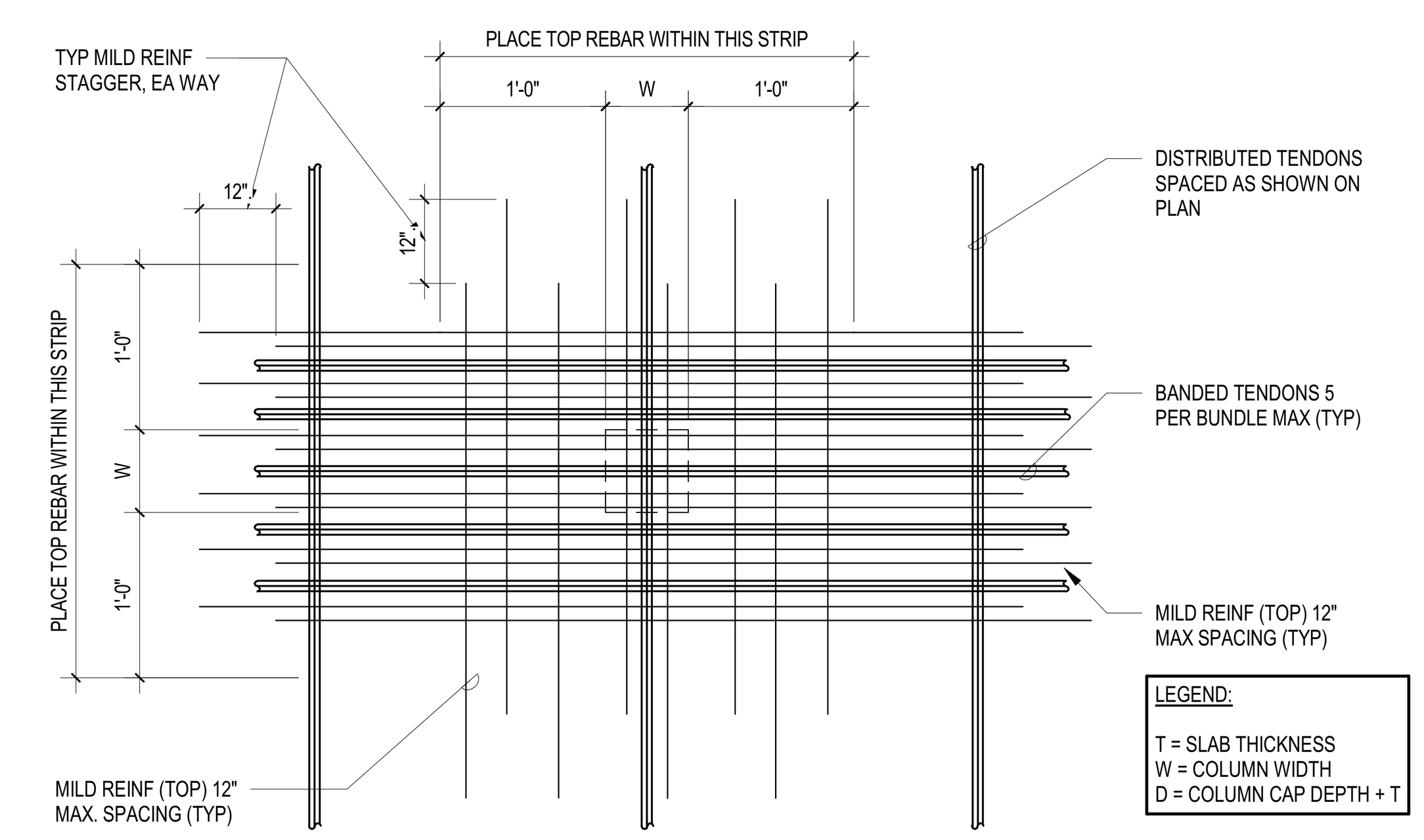
5 SECTION
1" = 1'-0" 5 / S4.2

NOTES:

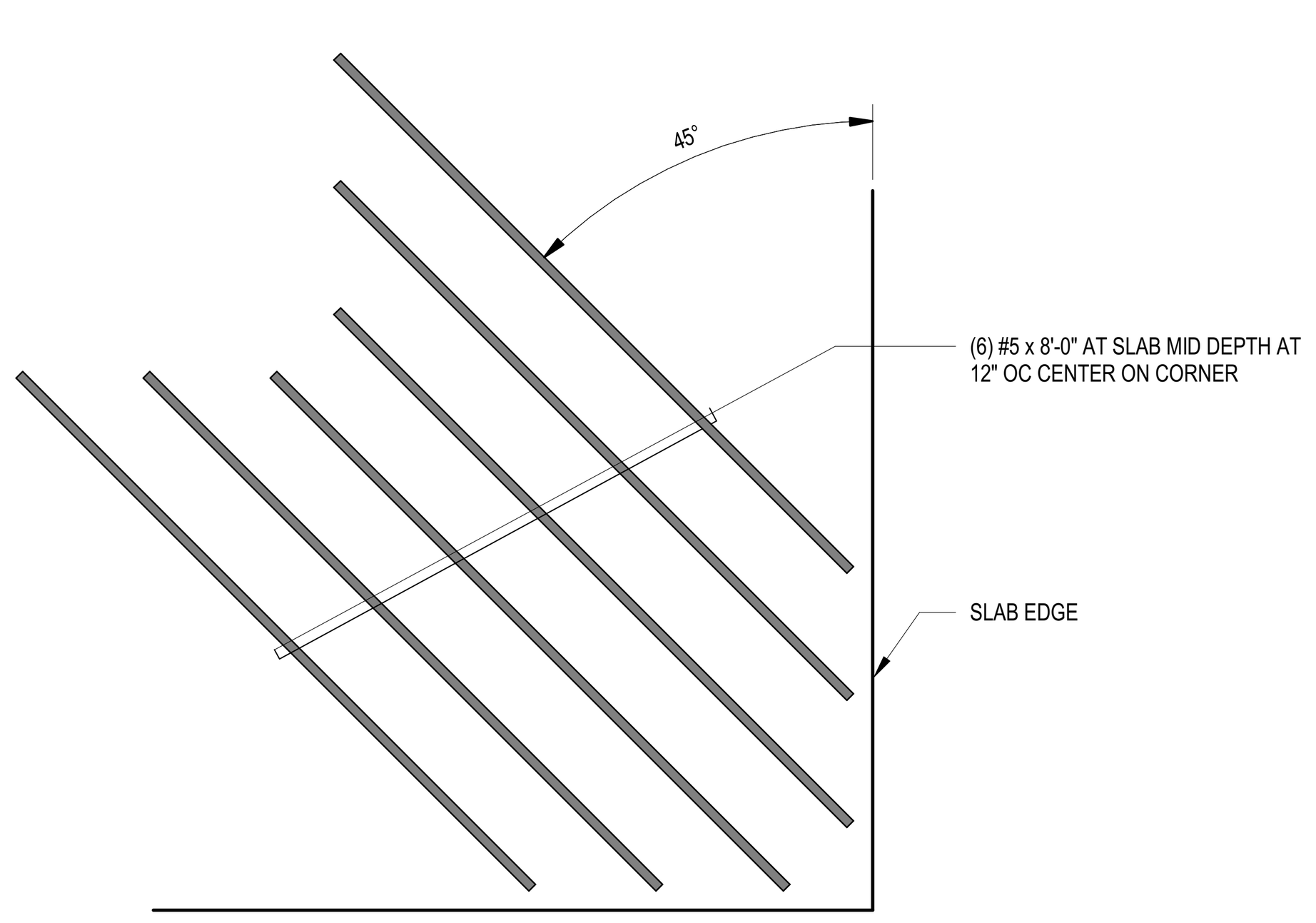
1. (2) STRANDS MINIMUM SHALL PASS DIRECTLY OVER COL IN EACH DIRECTION.



6 SECTION
1" = 1'-0" 6 / S4.2

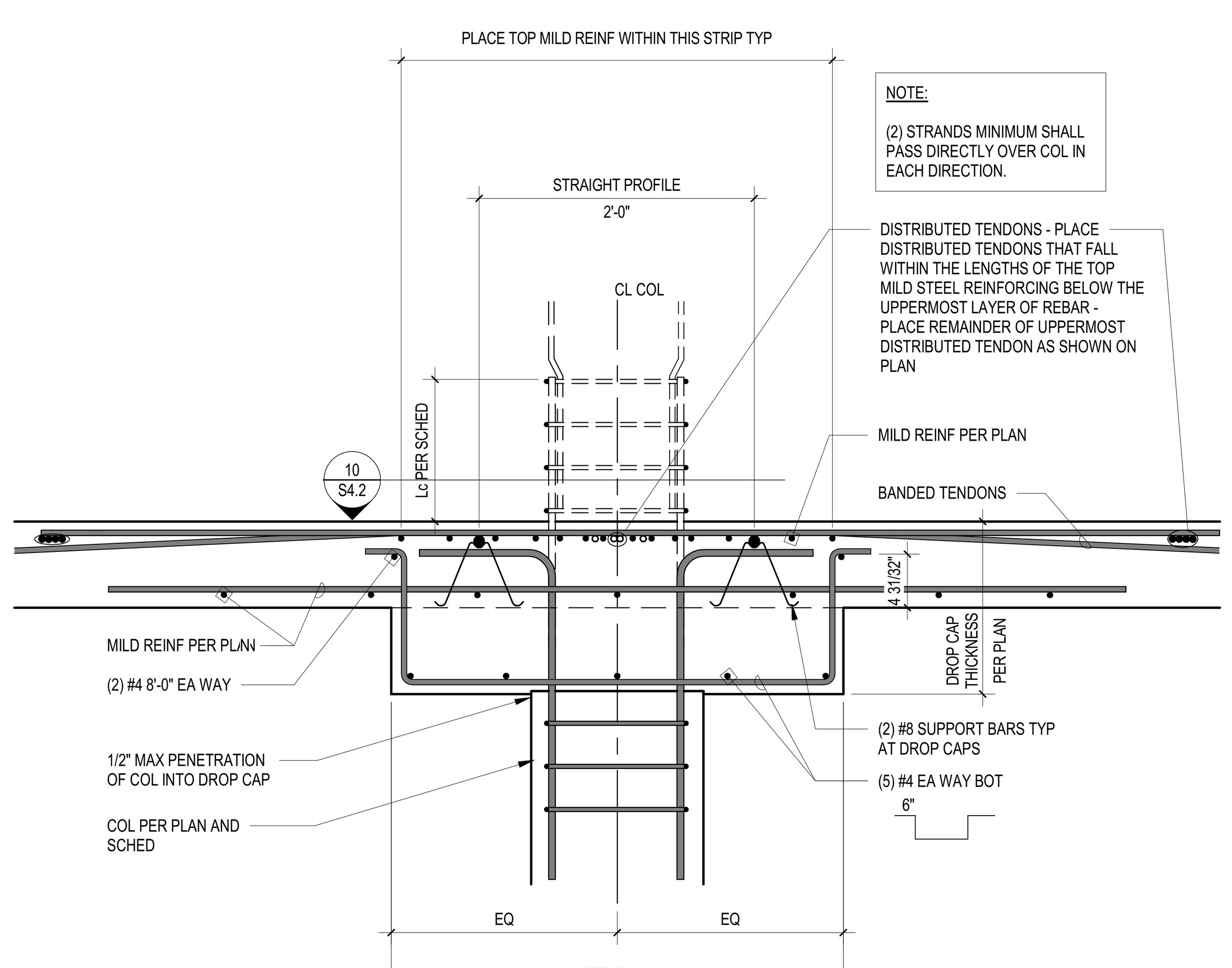


7 PLAN
1" = 1'-0" 7 / S4.2

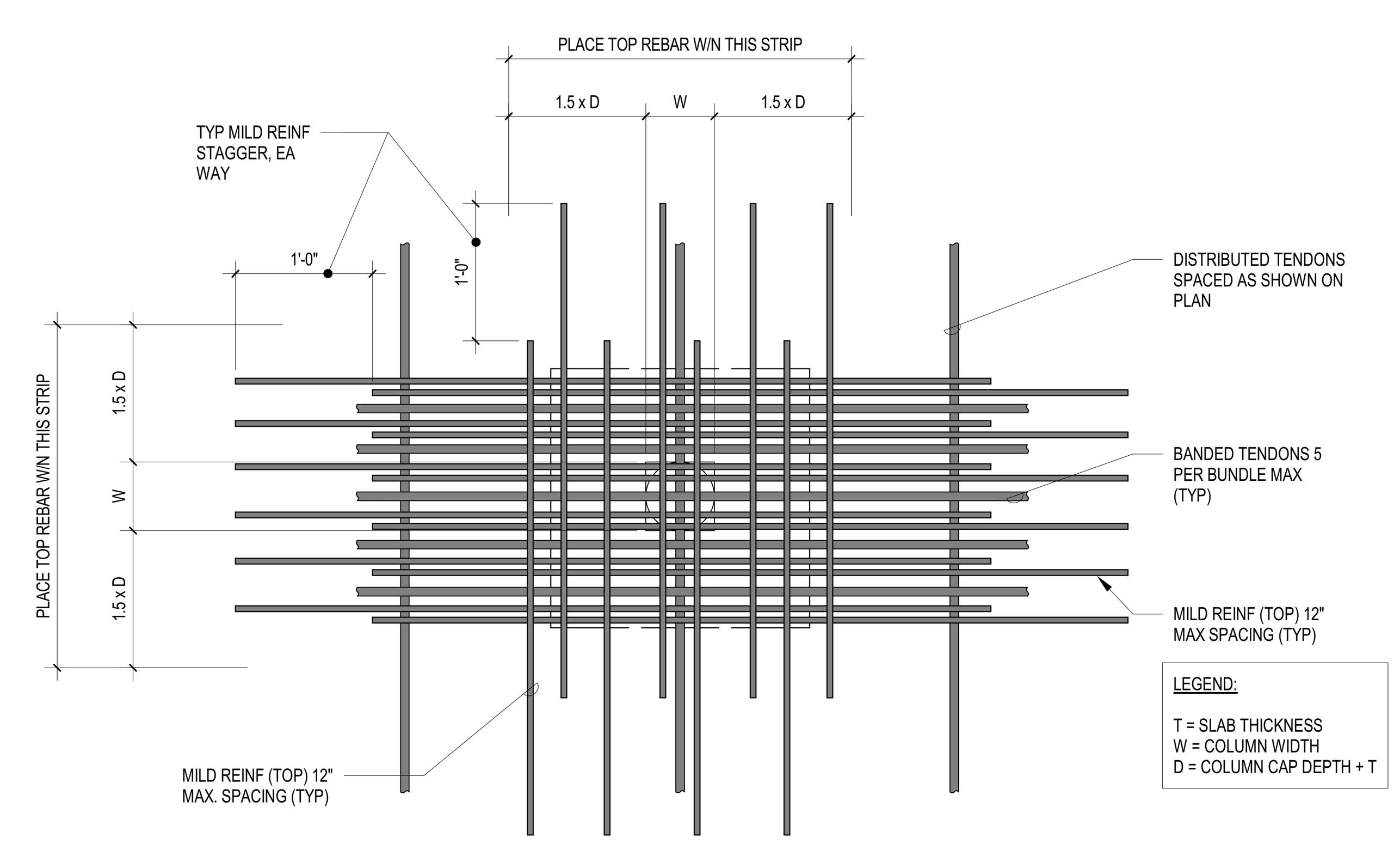


TYPICAL SLAB OUTSIDE CORNER

8 PLAN
1" = 1'-0" 8 / S4.2



9 SECTION
1" = 1'-0" 9 / S4.2



10 PLAN
1" = 1'-0"

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POST TENSIONED DETAILS

S4.2

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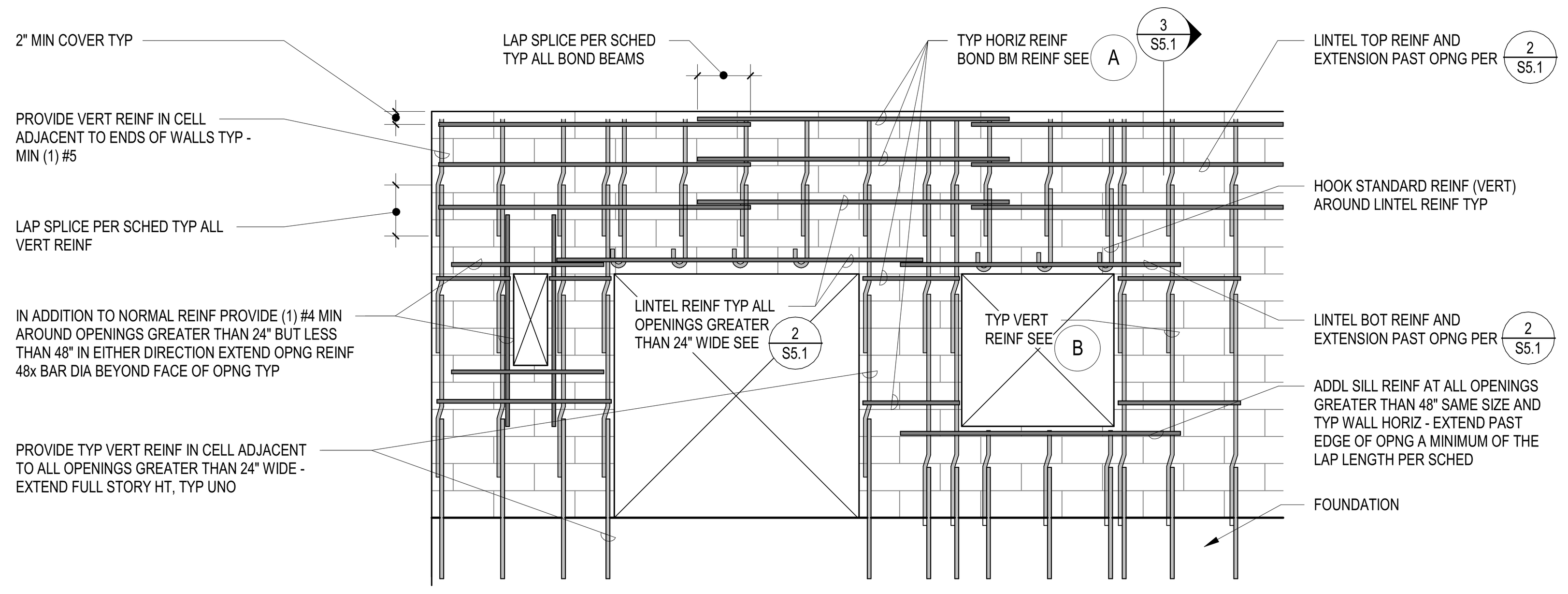
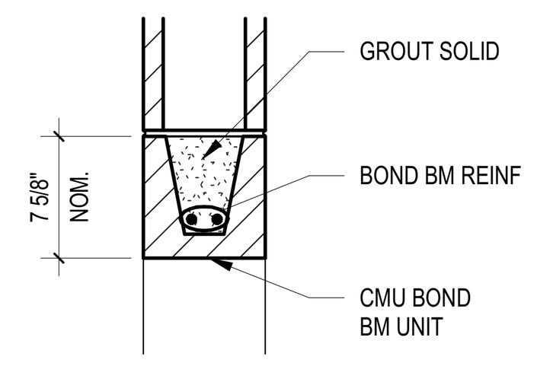
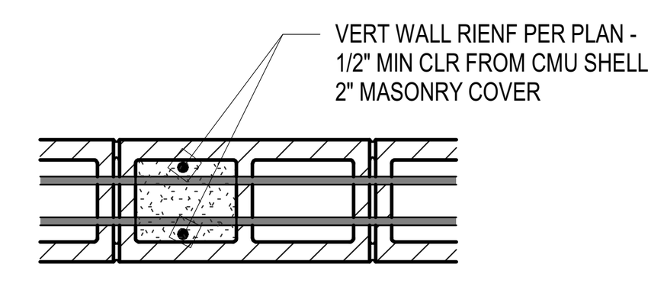


CMU WALL ELEVATION NOTES:

1. TYPICAL REINFORCEMENT SHOWN. PROVIDE MORE IF REQUIRED BY DETAILS.
2. PROVIDE CONTINUOUS BOND BM AT TOP OF WALL.
3. FOR CORNER BARS USE SAME SIZE AND SPACING OF TYPICAL HORIZONTAL REINFORCING. LAP CORNER BARS WITH TYPICAL HORIZONTAL REINFORCING WITH A LAP SPLICE PER SCHEDULE.
4. HOOK ALL REINFORCING THAT CANNOT BE EXTENDED.
5. GROUT ALL CELLS CONTAINING REINFORCING, ANCHOR BOLTS OR OTHER EMBEDDED ITEMS.



TYPICAL BOND BEAM (A)

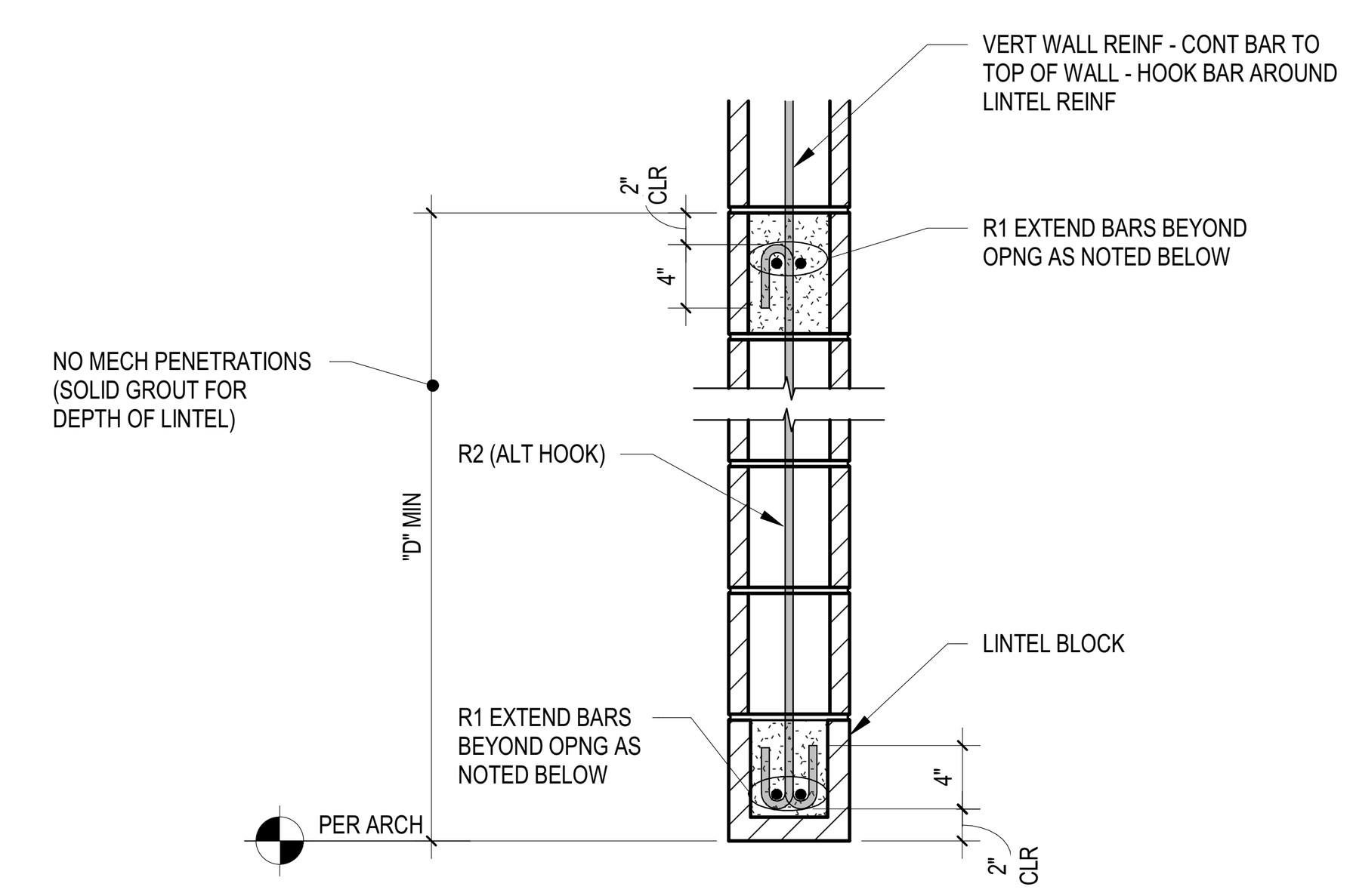


TYPICAL PLACEMENT OF VERT REINF WHEN (2) BARS REQ'D (B)

TYPICAL MASONRY WALL ELEVATION

1 SECTION

1" = 1'-0" TYPICAL



CMU LINTEL SCHEDULE				
MARK	"D" INCHES	R1	R2	REMARKS
ML1	16"	(2) #5	#4 AT 8" OC	EXTEND R1 REINF 3'-6" PAST OPNG EA SIDE

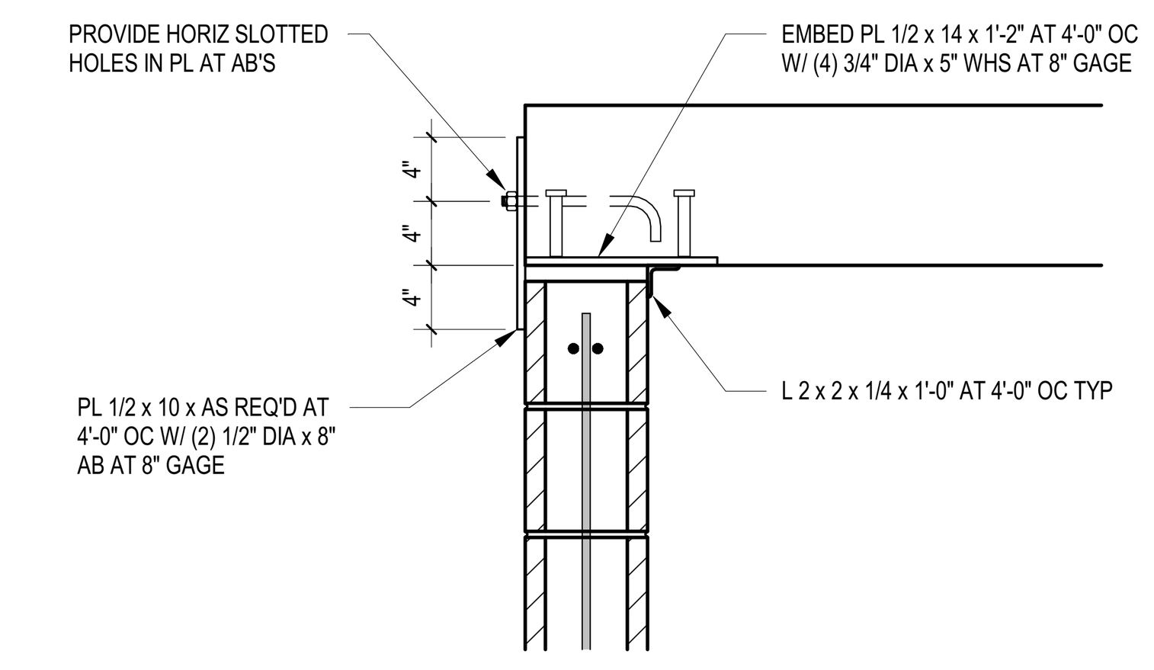
CMU LINTEL SCHEDULE NOTES:

1. PROVIDE ML1 LINTEL TYP FOR ALL OPNGS 24" WIDE OR GREATER.

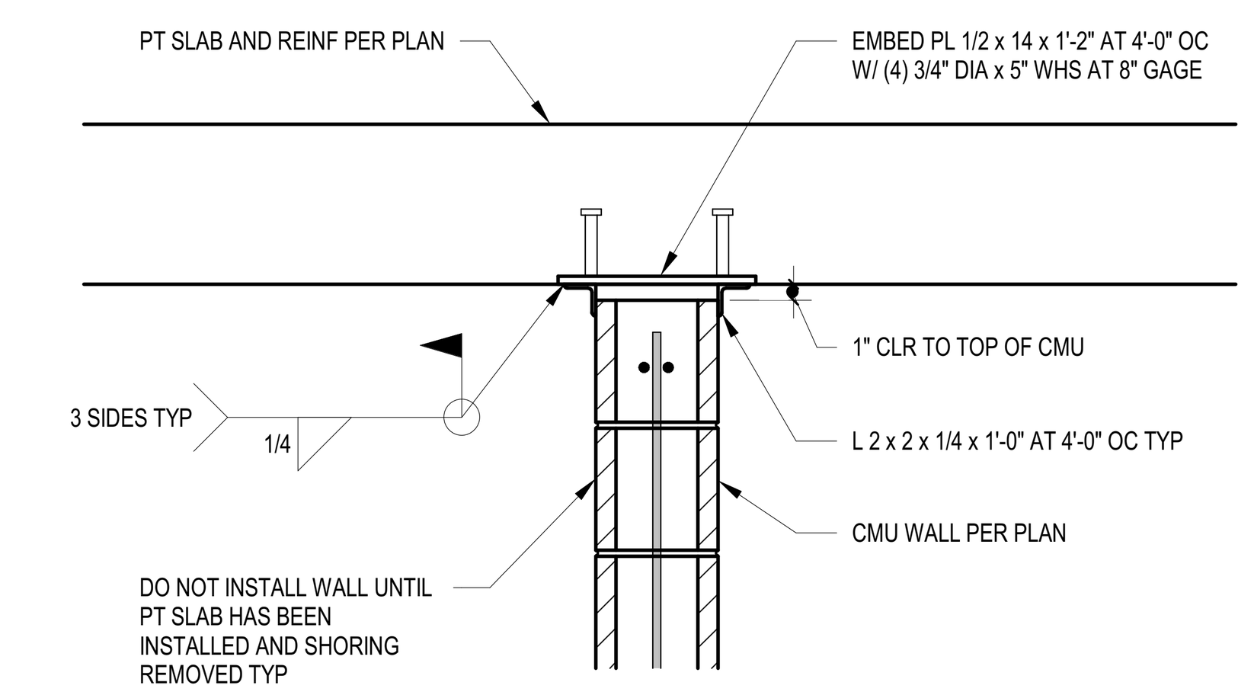
TYPICAL LINTEL DETAIL

2 SECTION

1" = 1'-0" TYPICAL

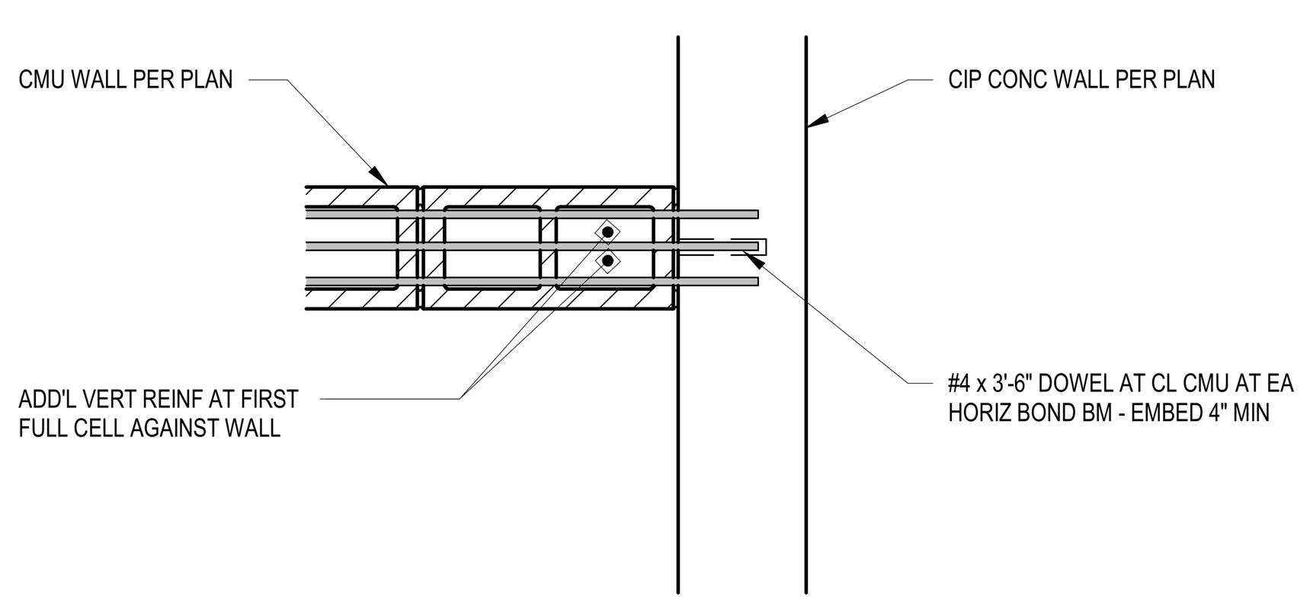


CONDITION AT EDGE OF PT SLAB



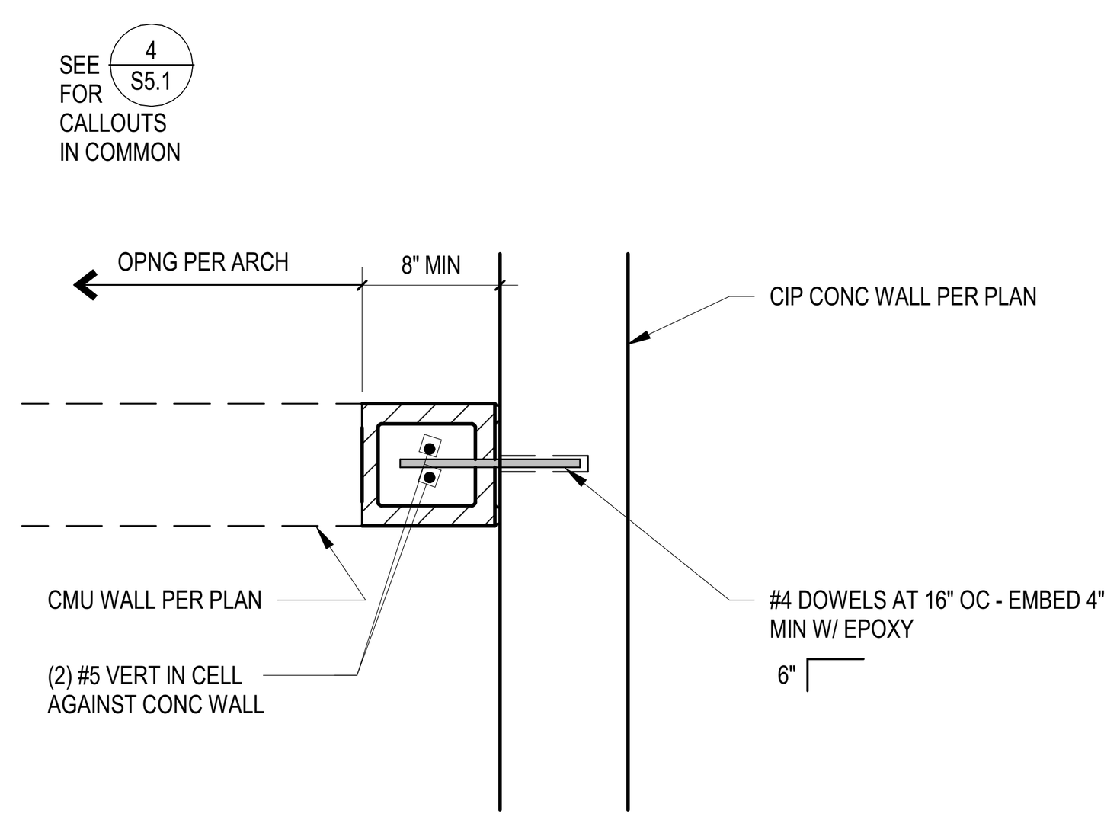
3 SECTION

1" = 1'-0" TYPICAL



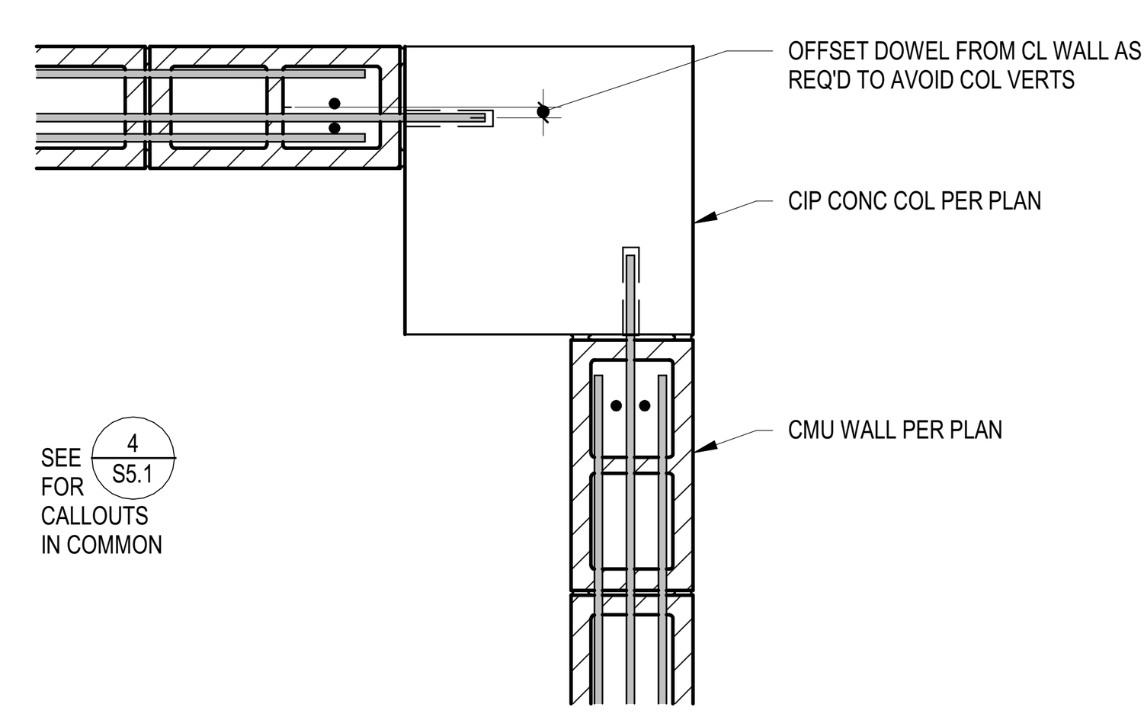
4 PLAN

1" = 1'-0" 4 / S5.1-B



5 PLAN

1" = 1'-0" 5 / S5.1-B



6 PLAN

1" = 1'-0" 6 / S5.1-B

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ANDREW DEAN McEACHERN — STATE OF WASHINGTON — STRUCTURAL — PROFESSIONAL ENGINEER

NOTICE:

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER
707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

ORIGINAL ISSUE: 08/11/17

REVISIONS

No.	Description	Date

2220236.20
PROJECT NUMBER

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ADM — CHECKED BY

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER

AHBL
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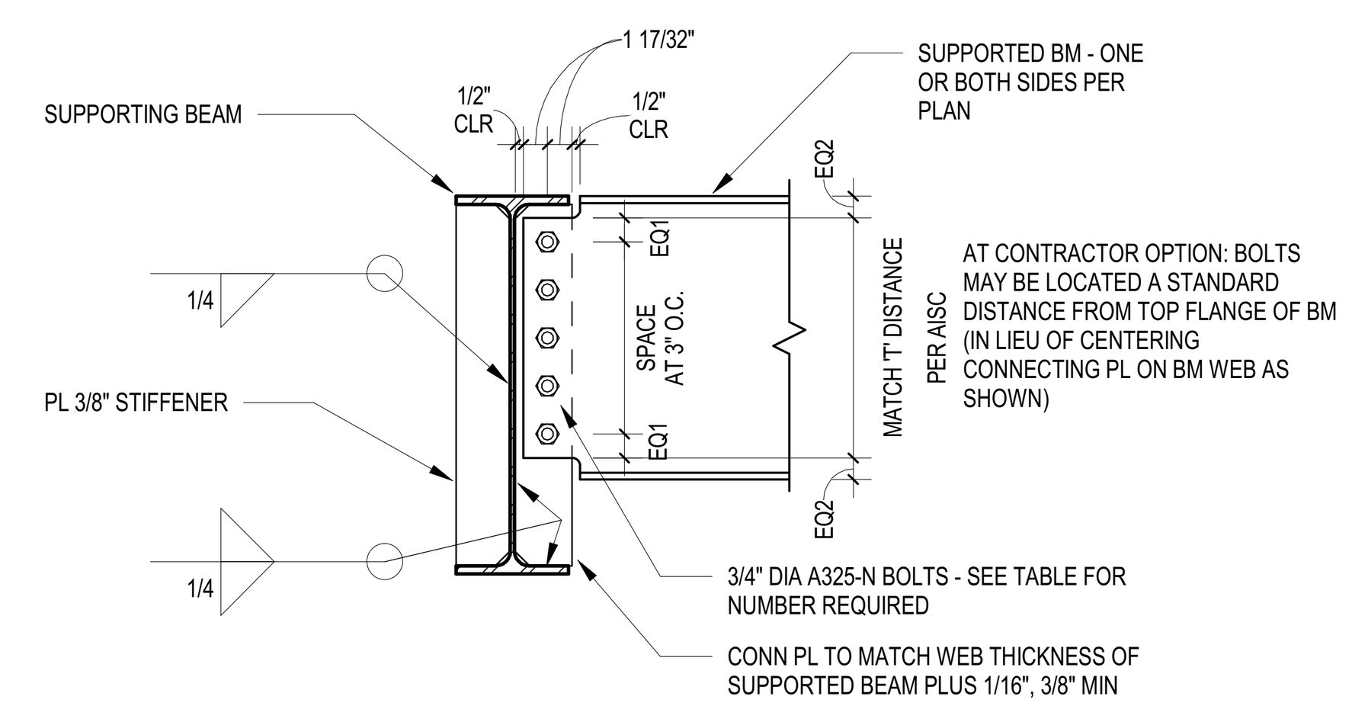
CMU WALL DETAILS

S5.1

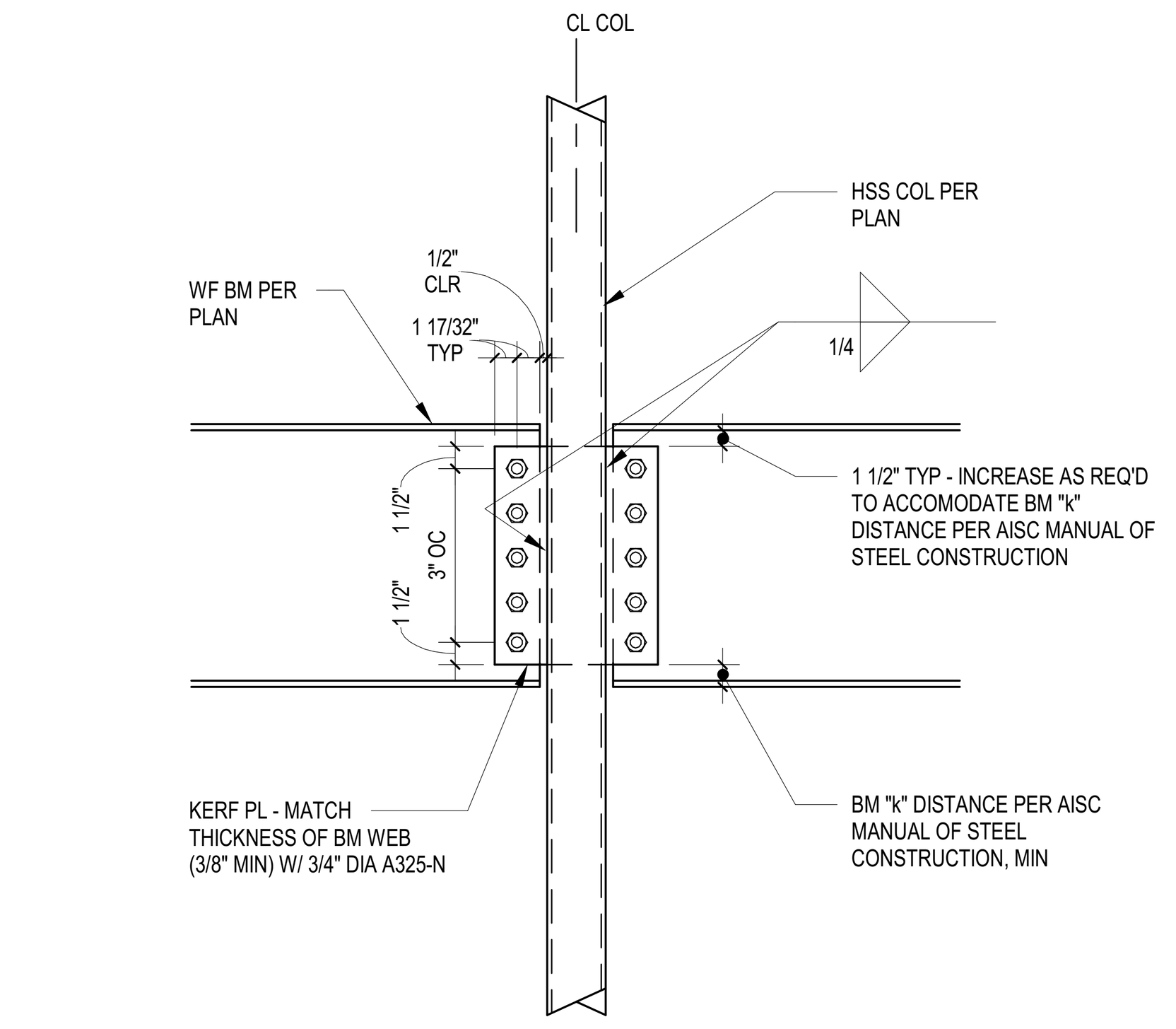
10/13/2023 11:54:58 AM



SUPPORTED BM SIZE	NUMBER OF A325-N
W 6x	1
W 8x	2
W 10x	2
W 12x	3
W 14x	3
W 16x	4
W 18x	5
W 21x	6
W 24x	7

NOTE:
A325-N BOLTS DO NOT REQUIRE PRETENSION AND MAY BE USED WITH THREADS INCLUDED IN THE SHEAR PLANE

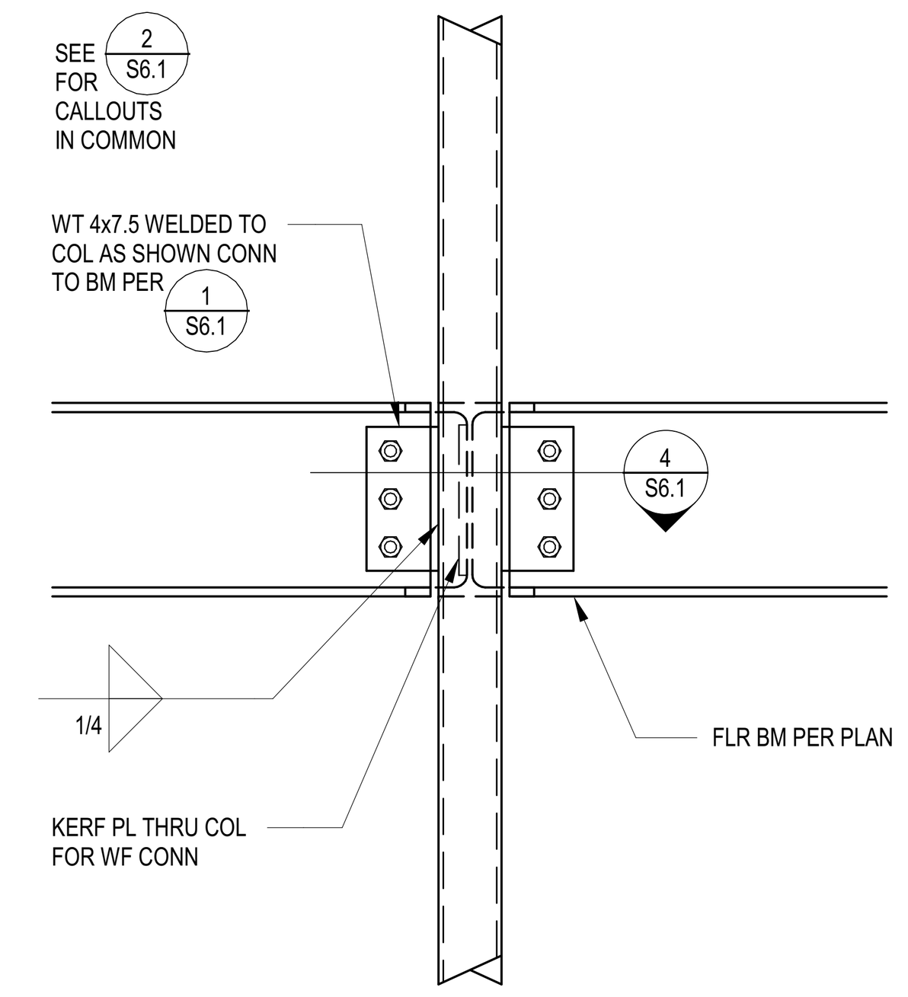
1 SECTION
1" = 1'-0" 1 / S6.1



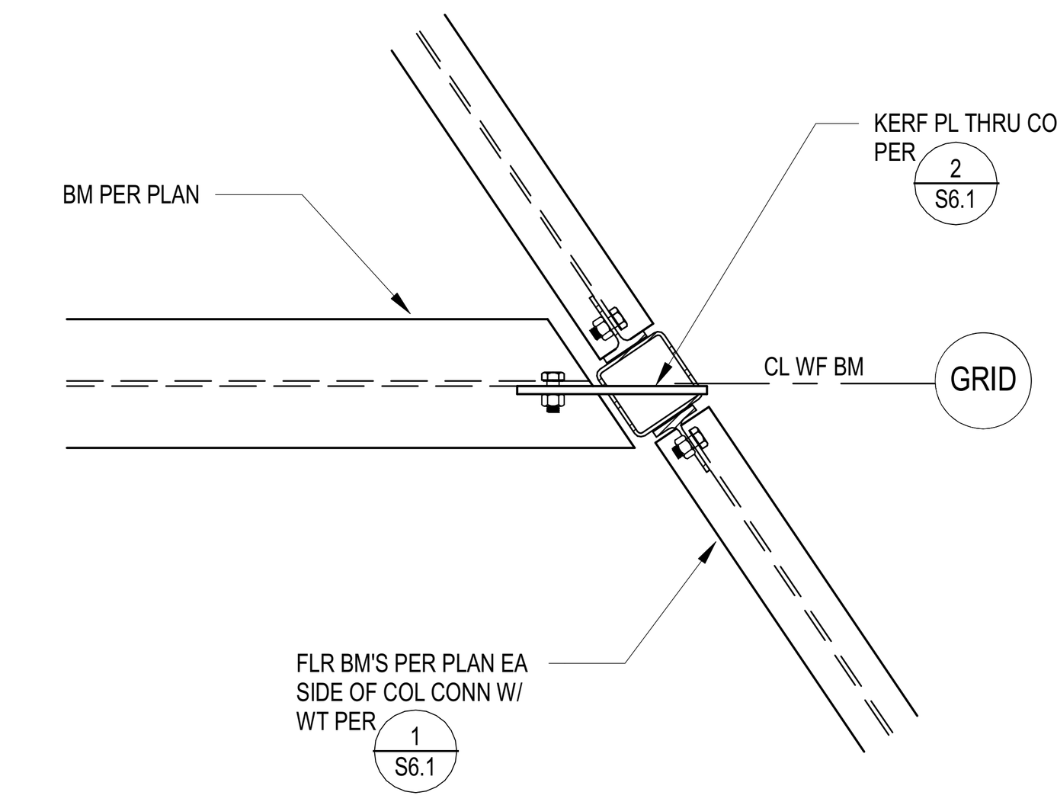
NOTES:

1. A325-N BOLTS DO NOT REQUIRE PRETENSION AND MAY BE USED WITH THREADS INCLUDED IN THE SHEAR PLANE
2. AT GC OPTION: HORIZONTAL SHORT SLOTTED HOLES MAY BE USED IN THE SHEAR PLATE PROVIDE BOLTS ARE INSTALLED WITH ASTM F436 HARDENED WASHERS OVER THE SLOT

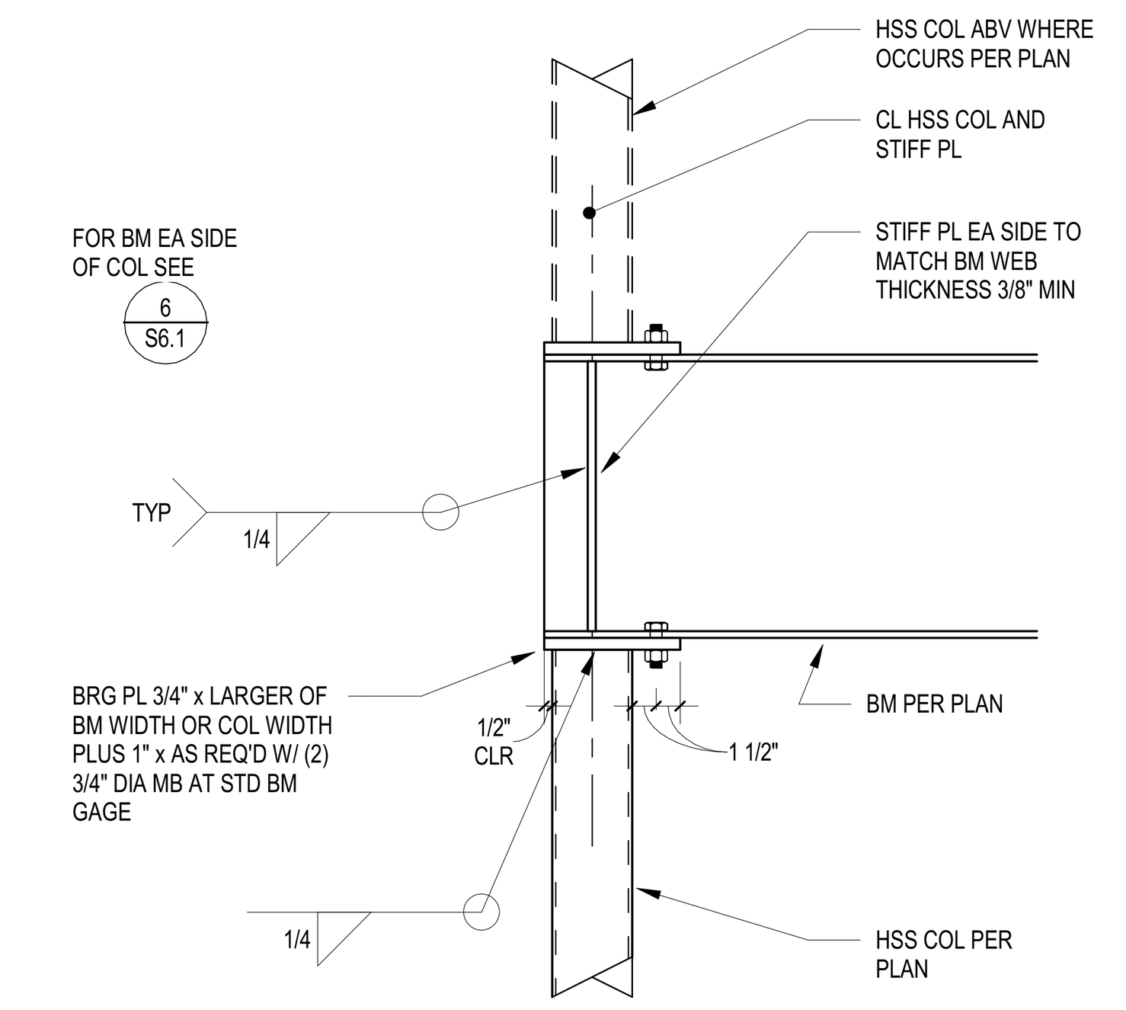
2 SECTION
1" = 1'-0" 2 / S6.1



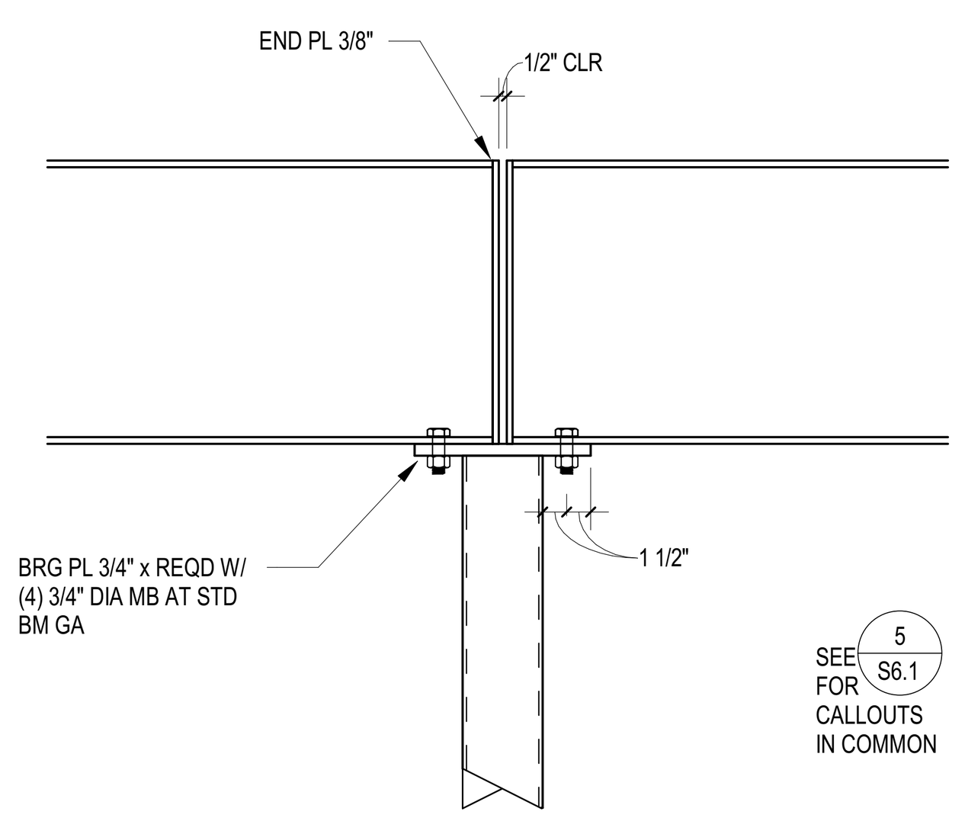
3 SECTION
1" = 1'-0" 3 / S6.1



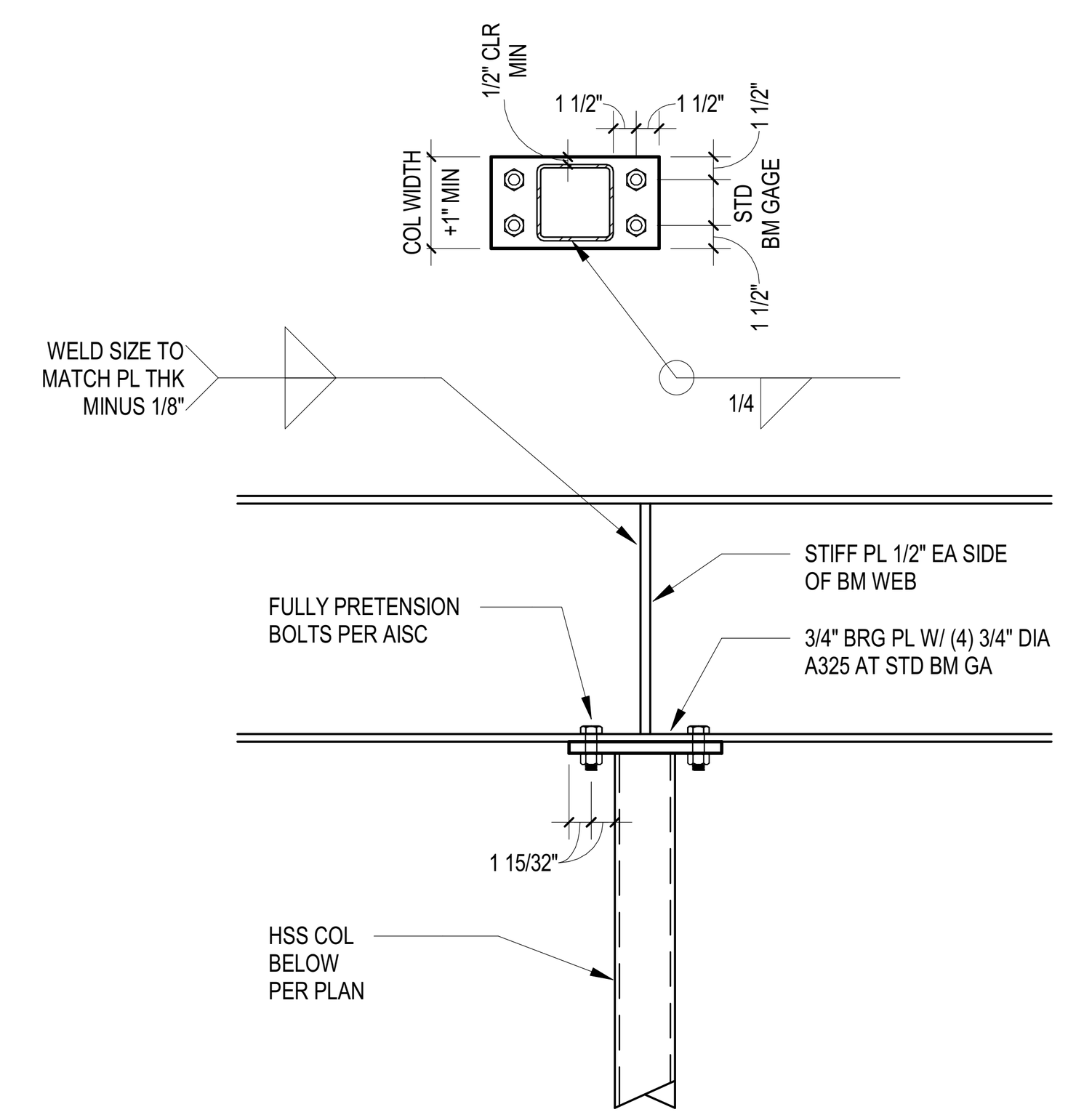
4 SECTION
1" = 1'-0" 4 / S6.1



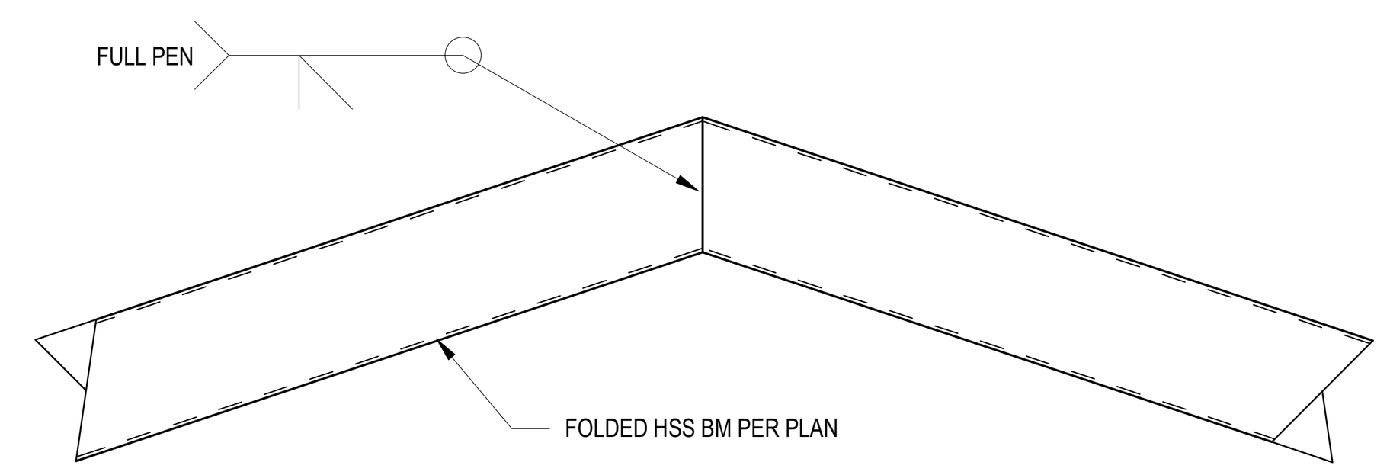
5 SECTION
1" = 1'-0" 5 / S6.1



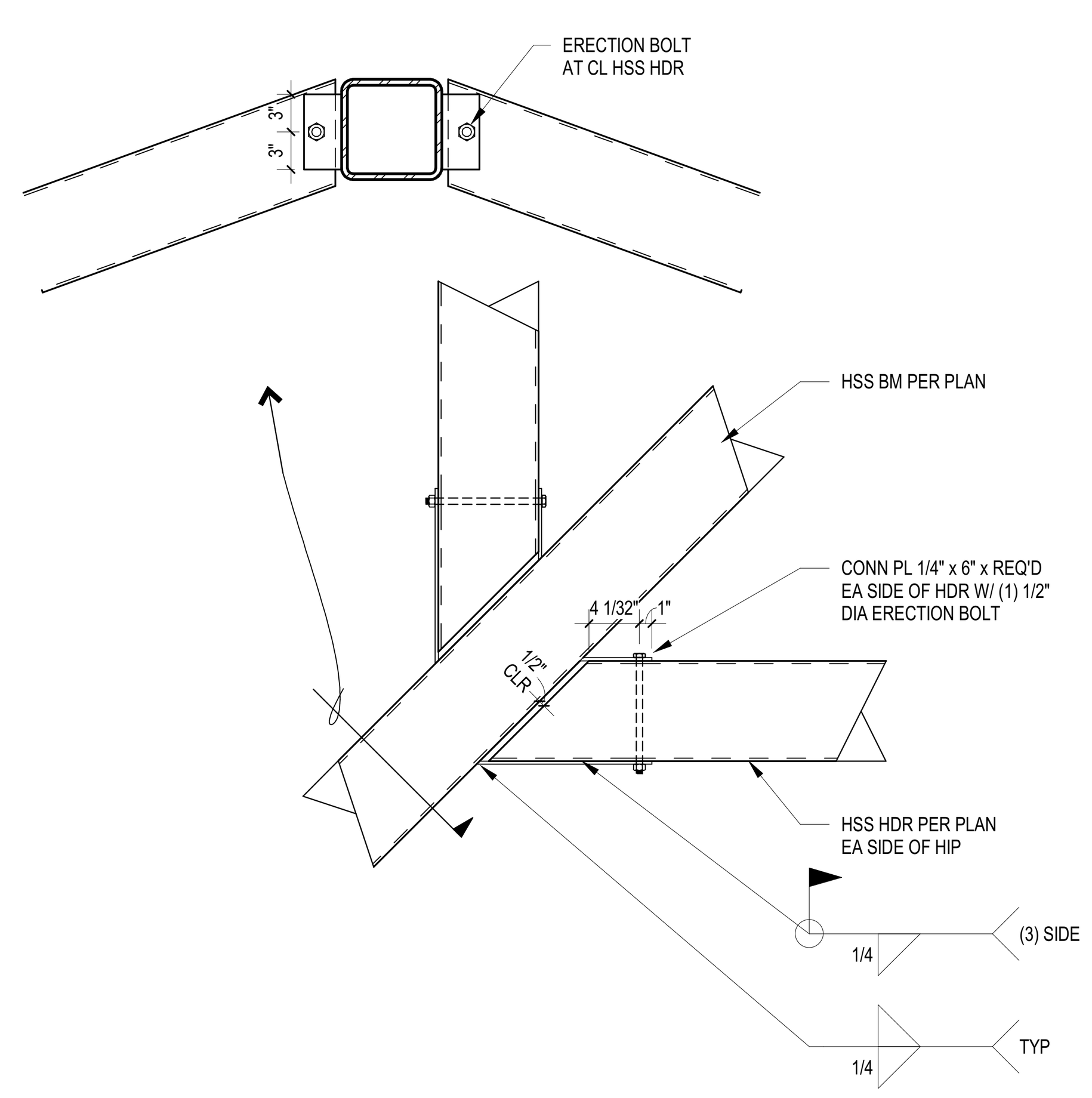
6 SECTION
1" = 1'-0" 6 / S6.1



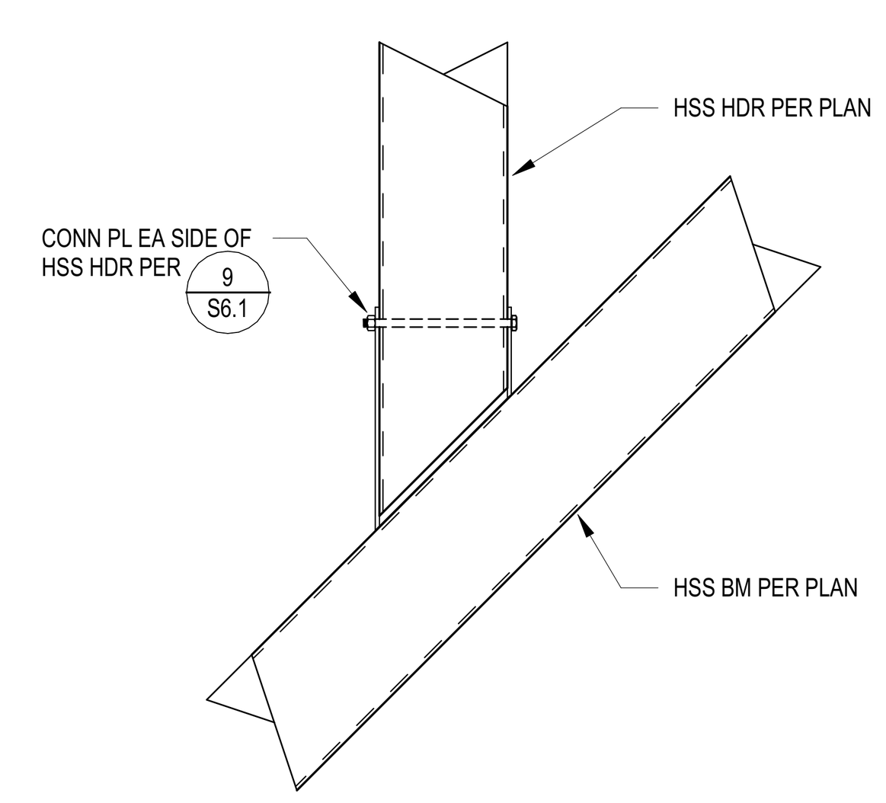
7 SECTION
1" = 1'-0" 7 / S6.1



8 SECTION
1" = 1'-0" 8 / S6.1



9 PLAN
1" = 1'-0" 9 / S6.1



10 PLAN
1" = 1'-0" 10 / S6.1

10/13/2023 11:55:01 AM

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NOTICE:

WESLEY BRADLEY PARK
PHASE 2 - CARE CENTER
707 39TH AVENUE SE
PUYALLUP, WA 98374

PERMIT SET
10/16/2023

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REVISIONS

No.	Description	Date

2220236.20
PROJECT NUMBER

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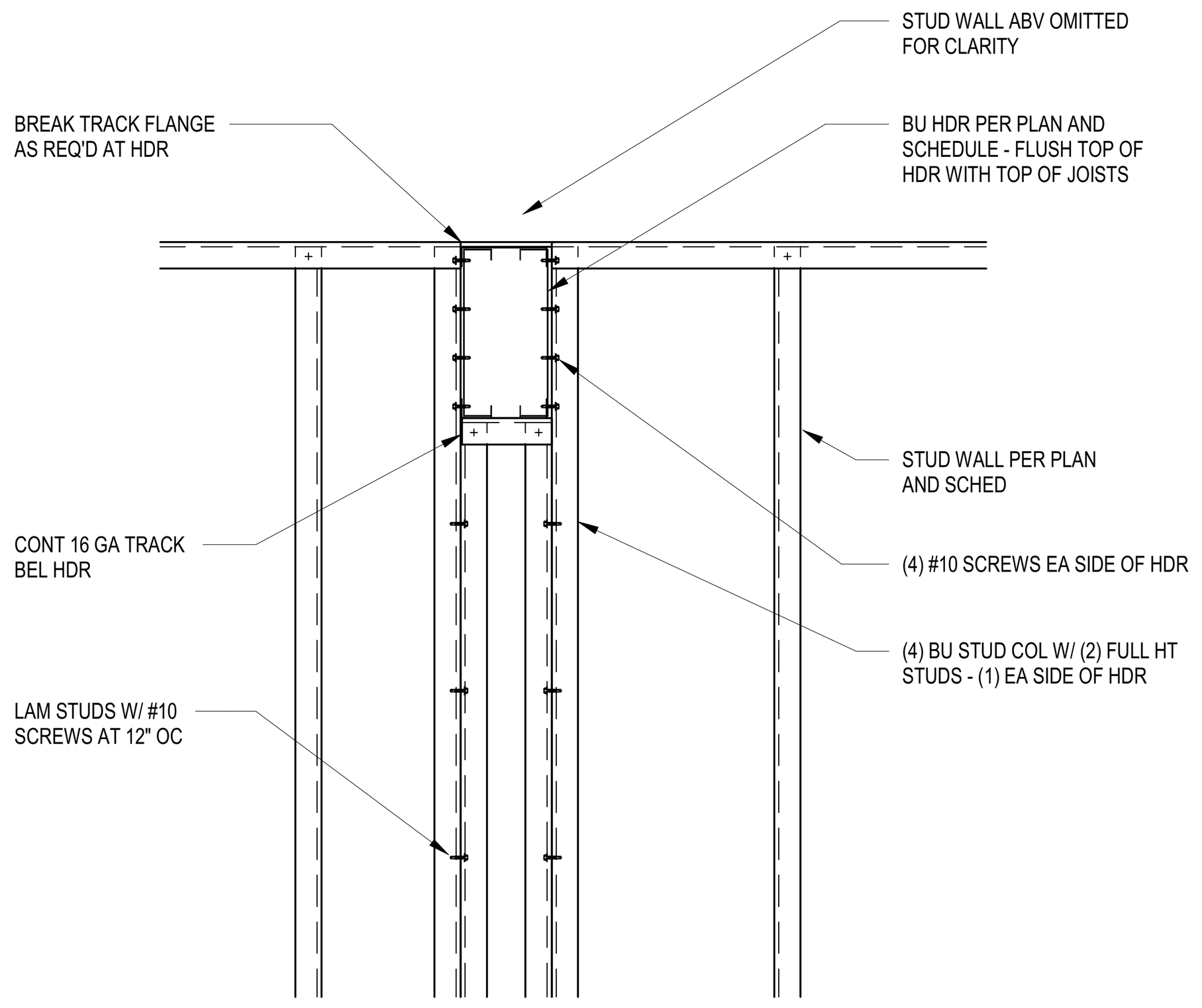
ROOF FRAMING DETAILS

S6.1



1 SECTION

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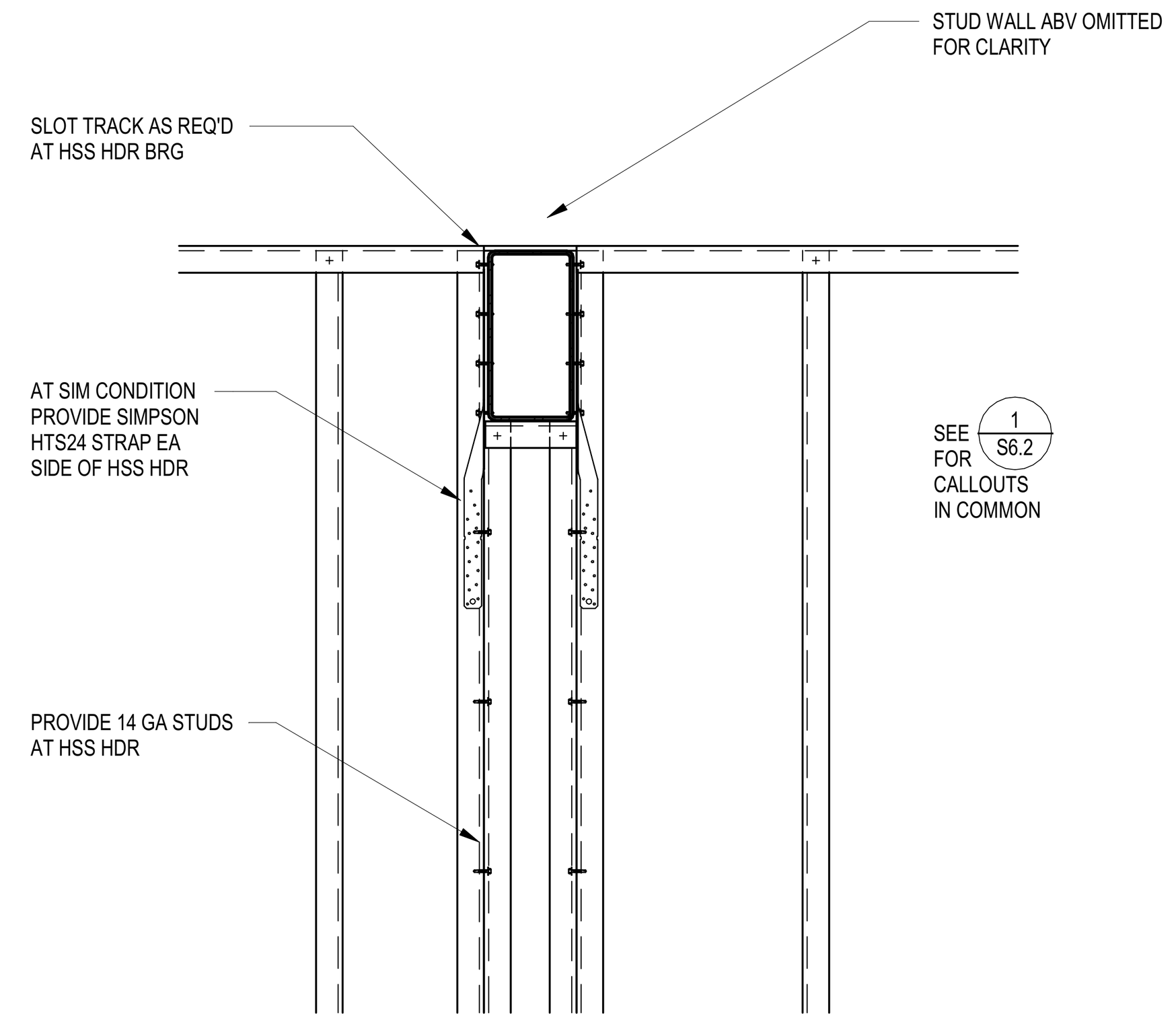

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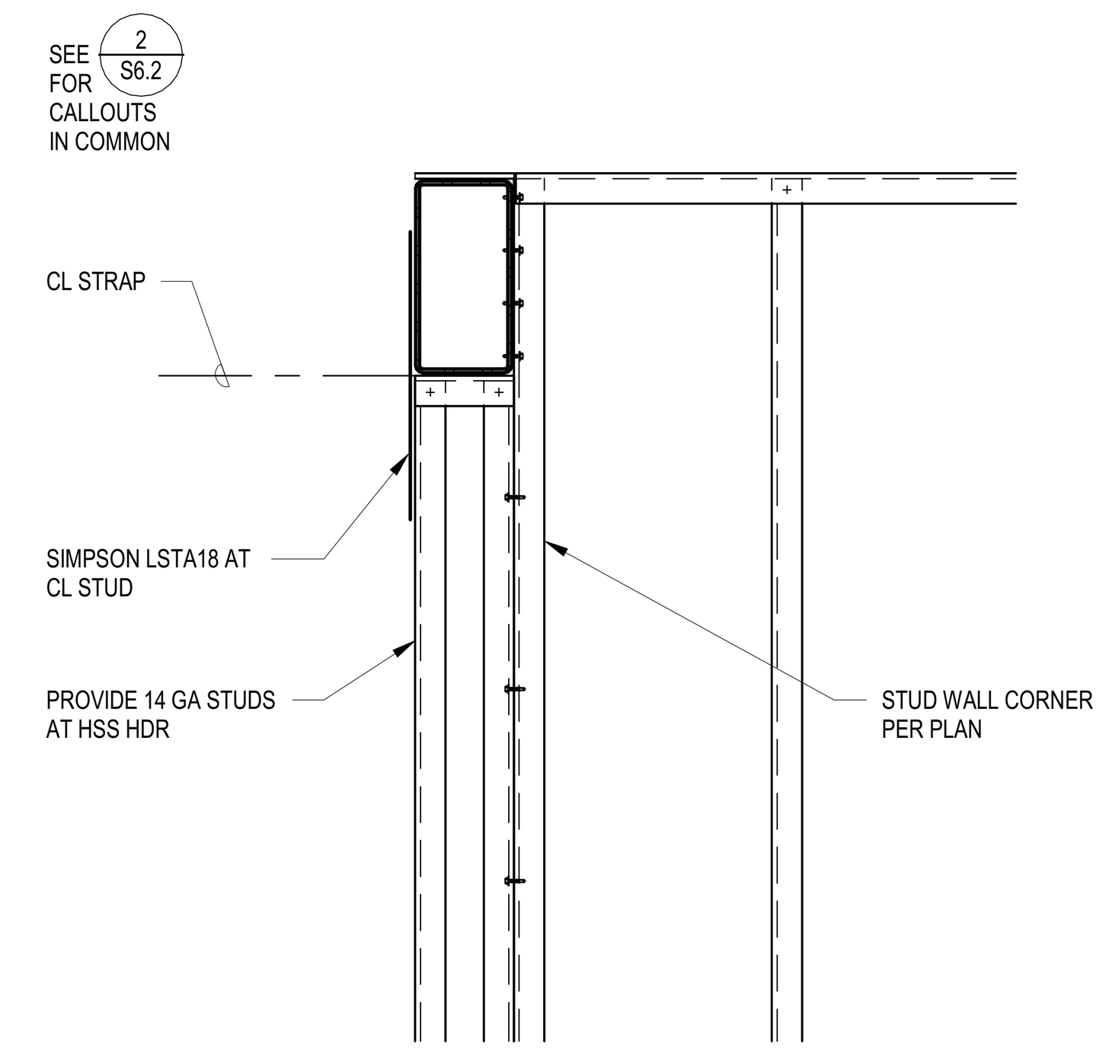

3 SECTION

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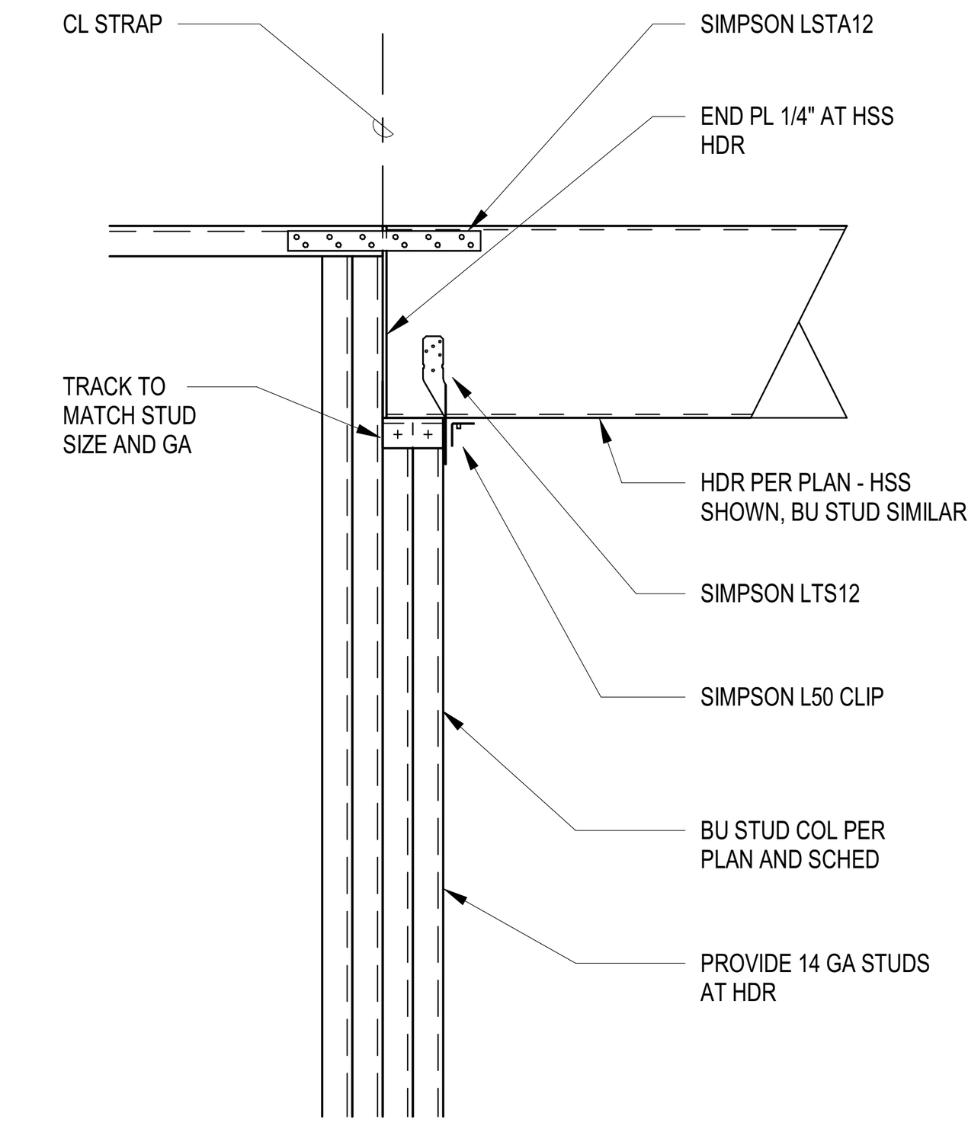
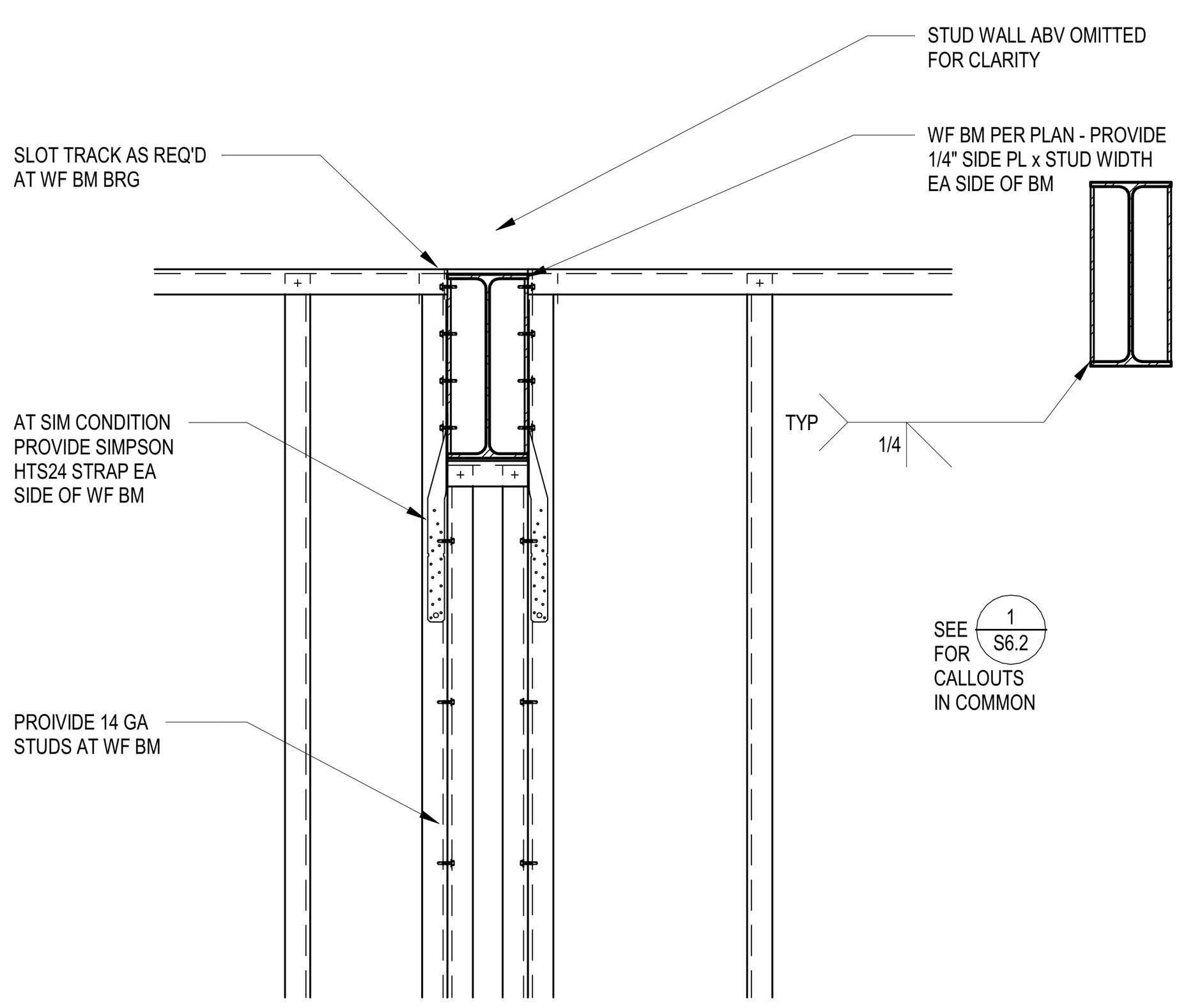


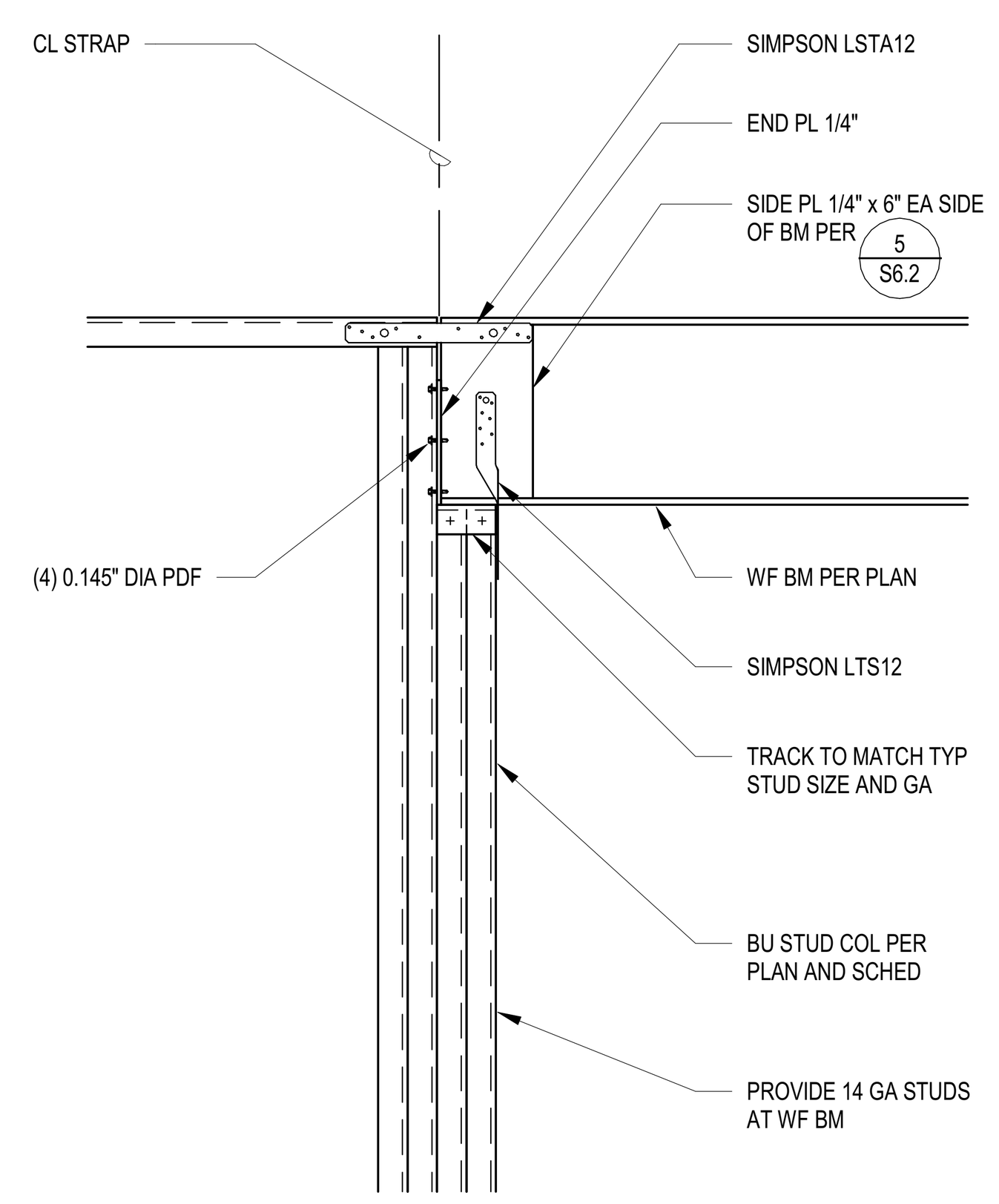
4 SECTION

1" = 1'-0" 4 / S6.2



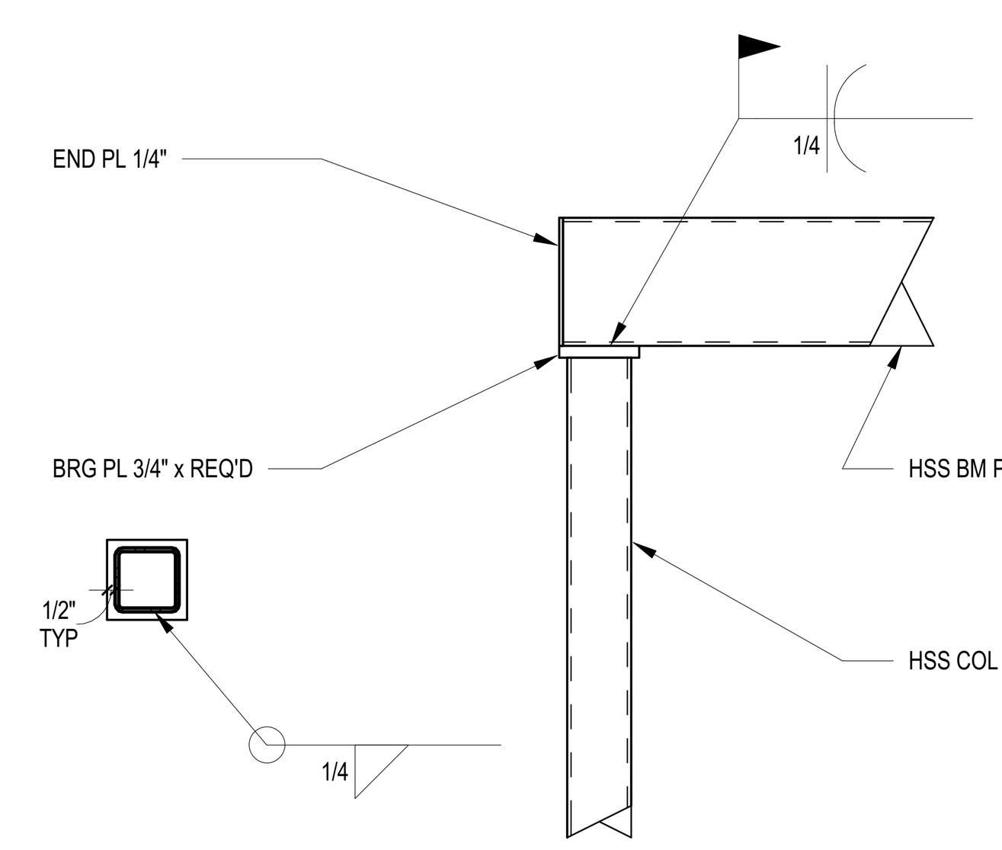
5 SECTION

1" = 1'-0" 5 / S6.2



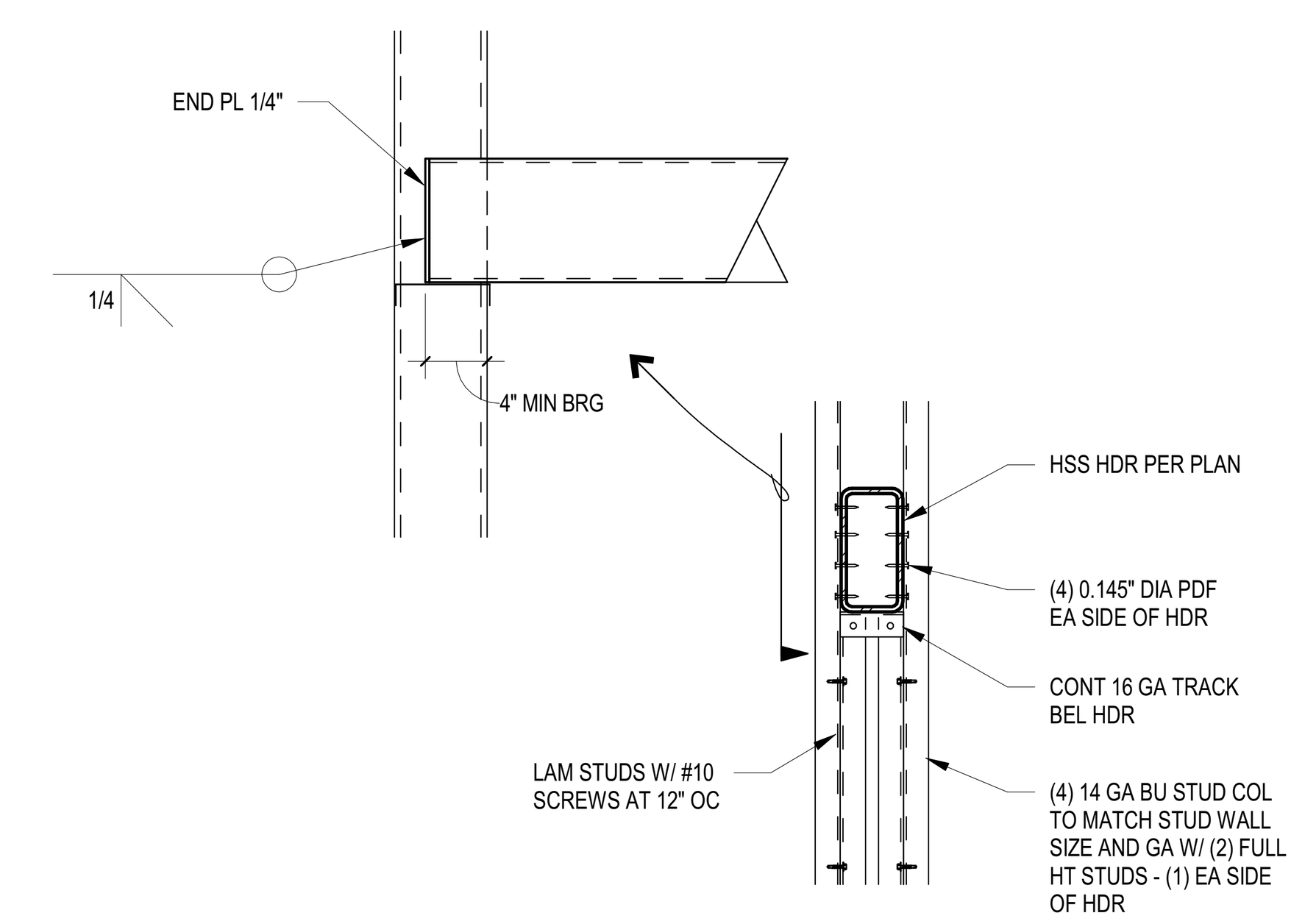
6 SECTION

1" = 1'-0" 6 / S6.2



7 SECTION

1" = 1'-0" 7 / S6.2



8 SECTION

1" = 1'-0" 8 / S6.2

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

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PERMIT SET
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ROOF FRAMING DETAILS

S6.2

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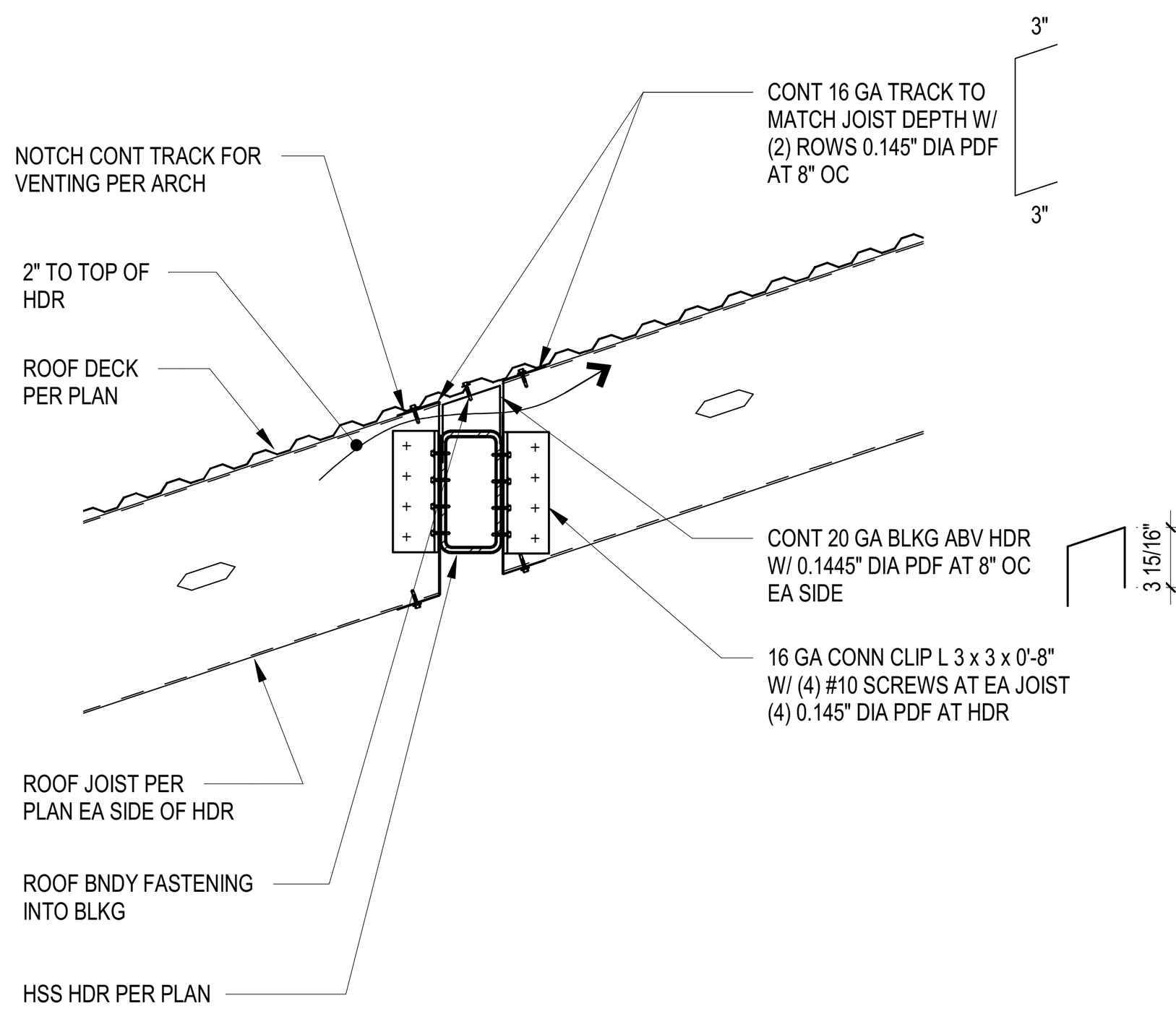

1 SECTION
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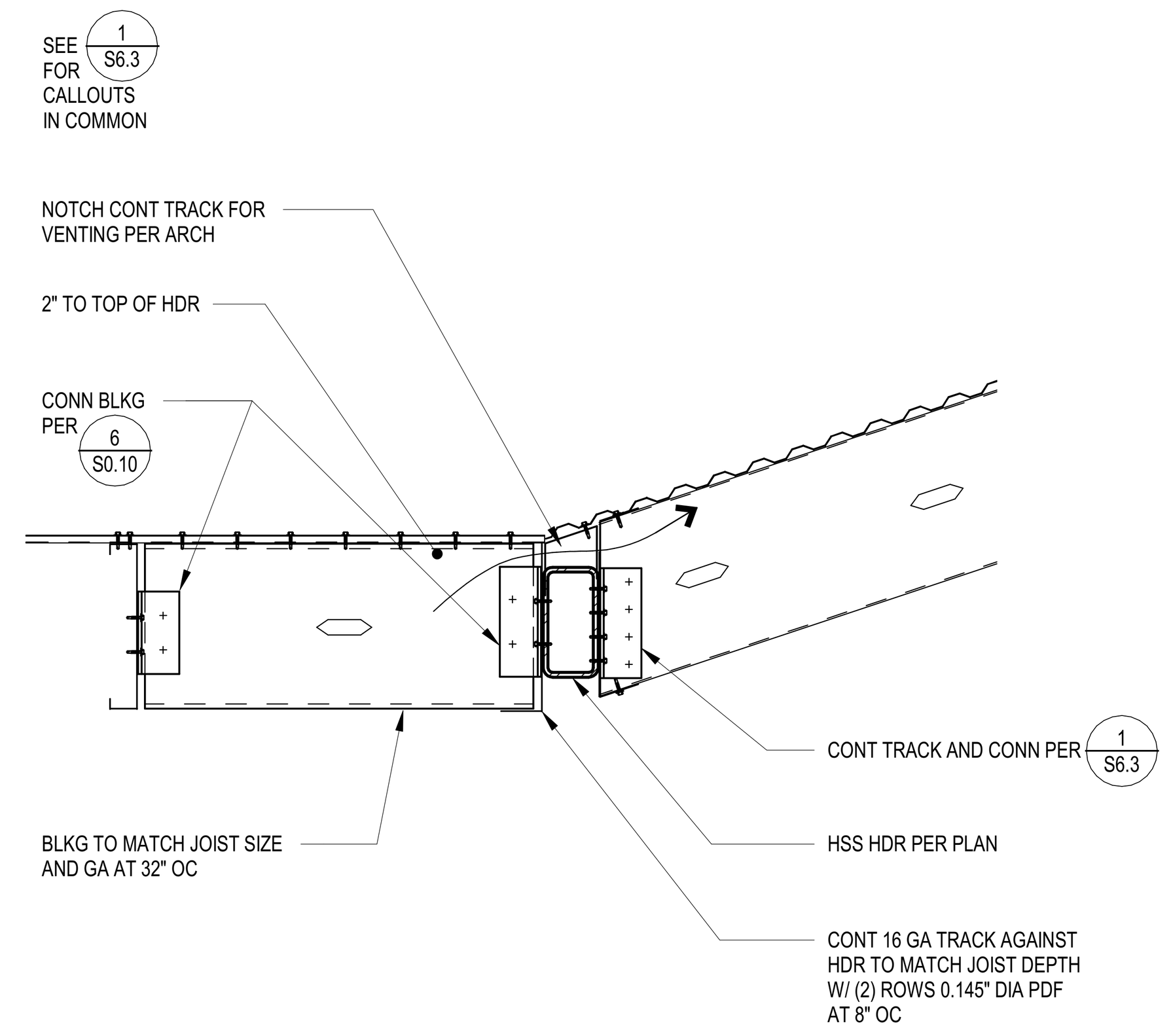

2 SECTION
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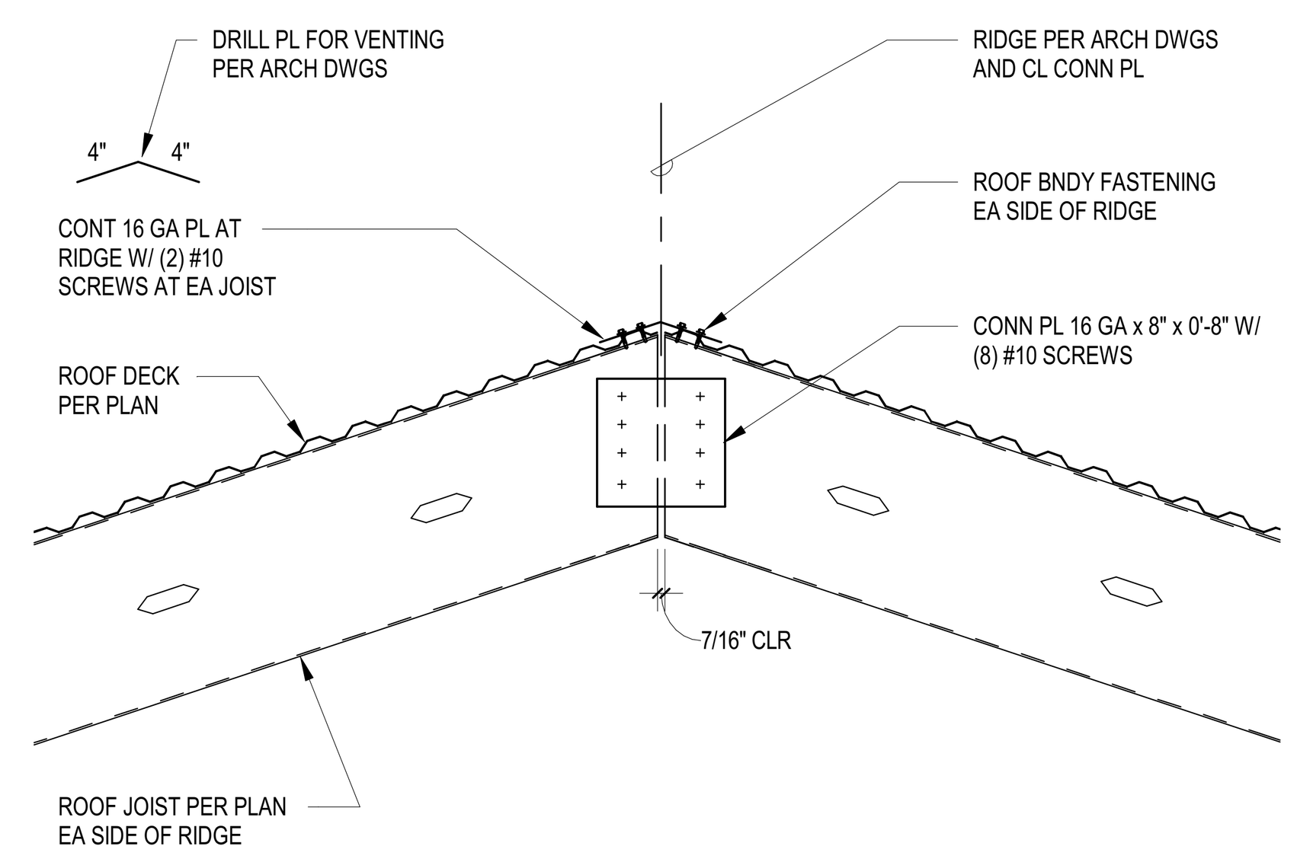

3 SECTION
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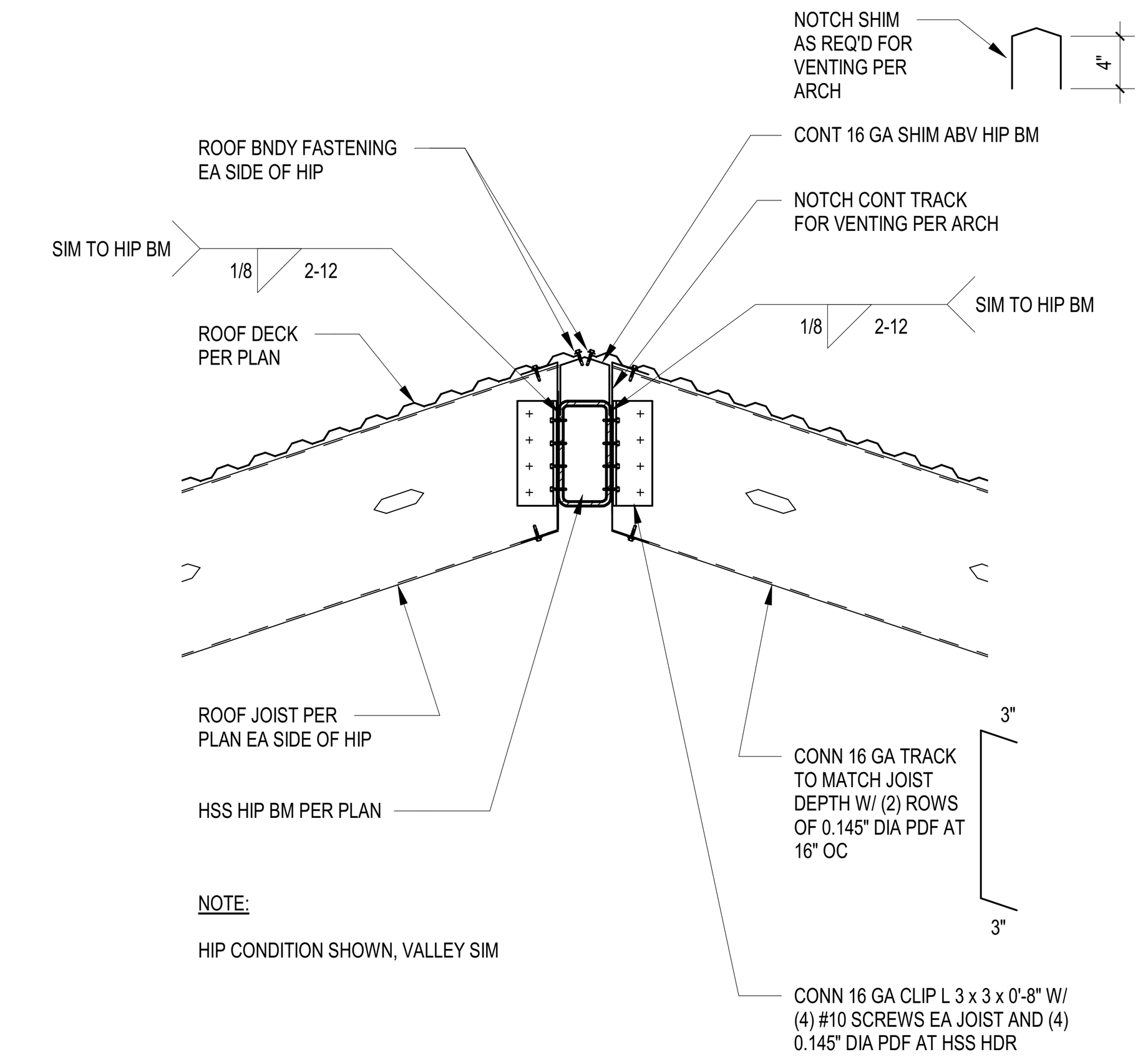

4 SECTION
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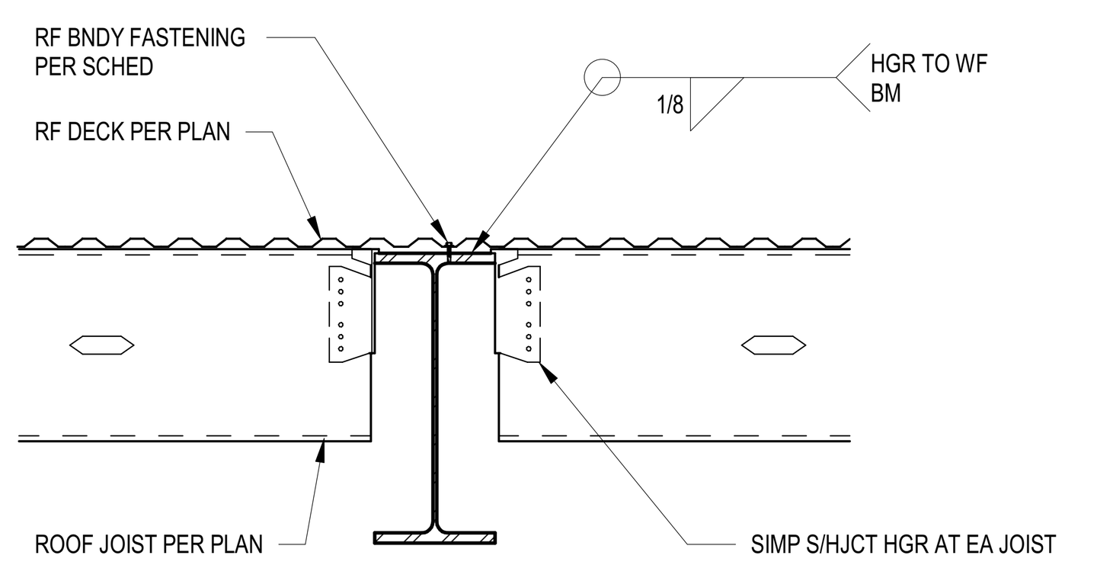
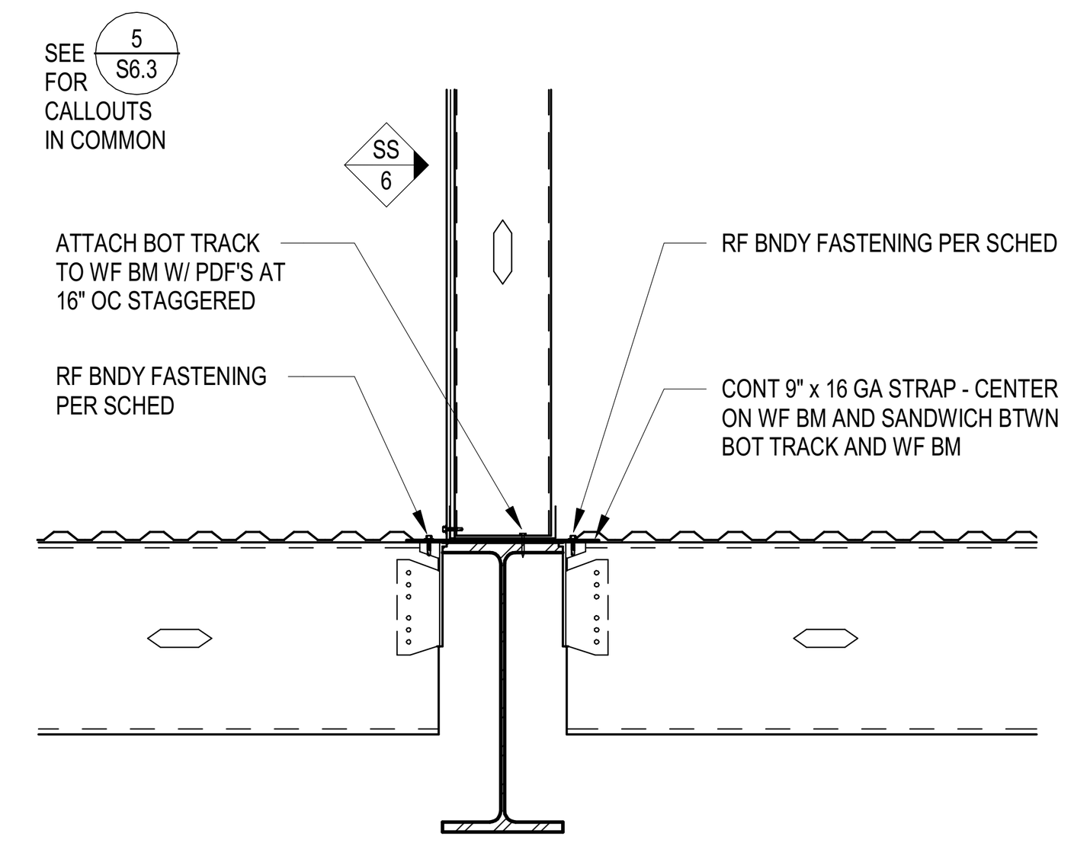
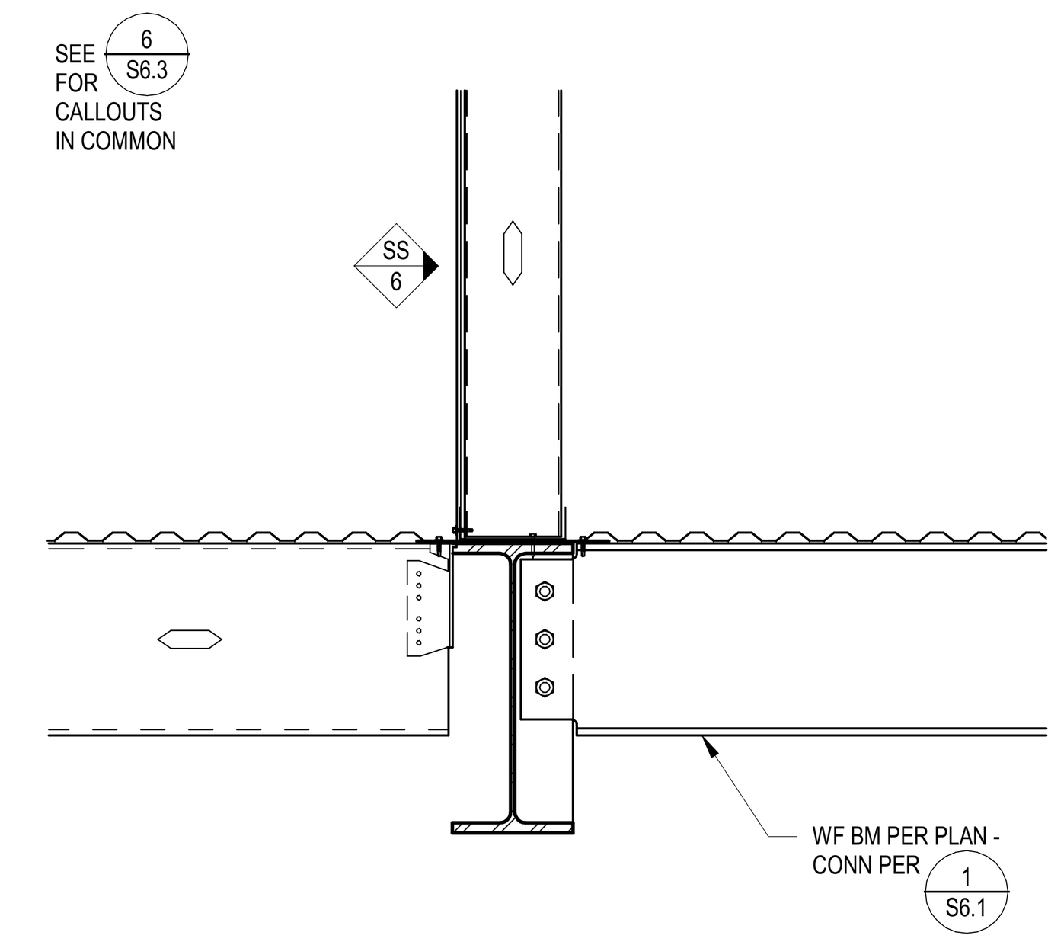


5 SECTION
1" = 1'-0" 5 / S6.3



6 SECTION
1" = 1'-0" 6 / S6.3



7 SECTION
1" = 1'-0" 7 / S6.3

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER

707 39TH AVENUE SE
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PERMIT SET
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ROOF FRAMING DETAILS

S6.3

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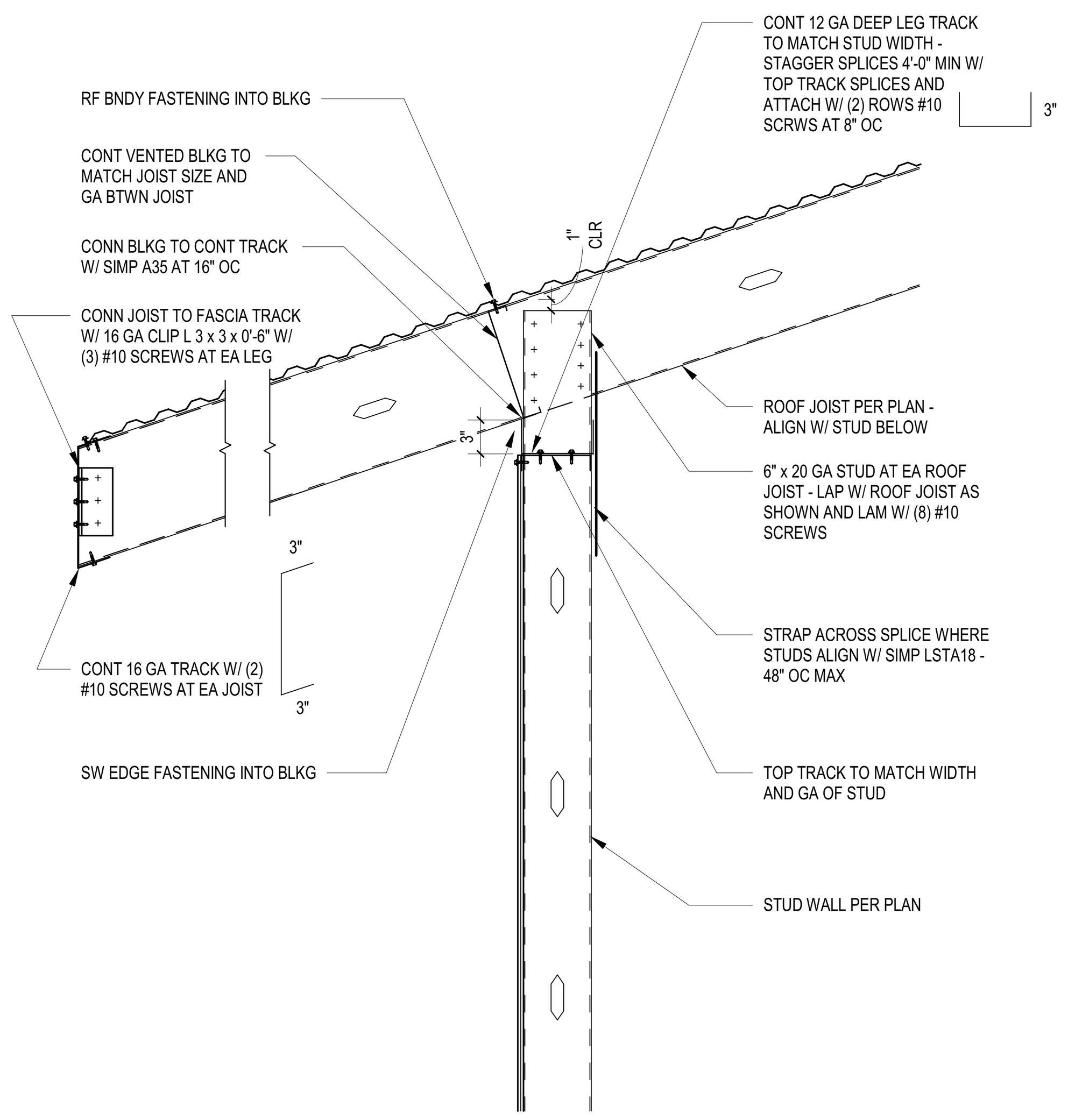

1 SECTION
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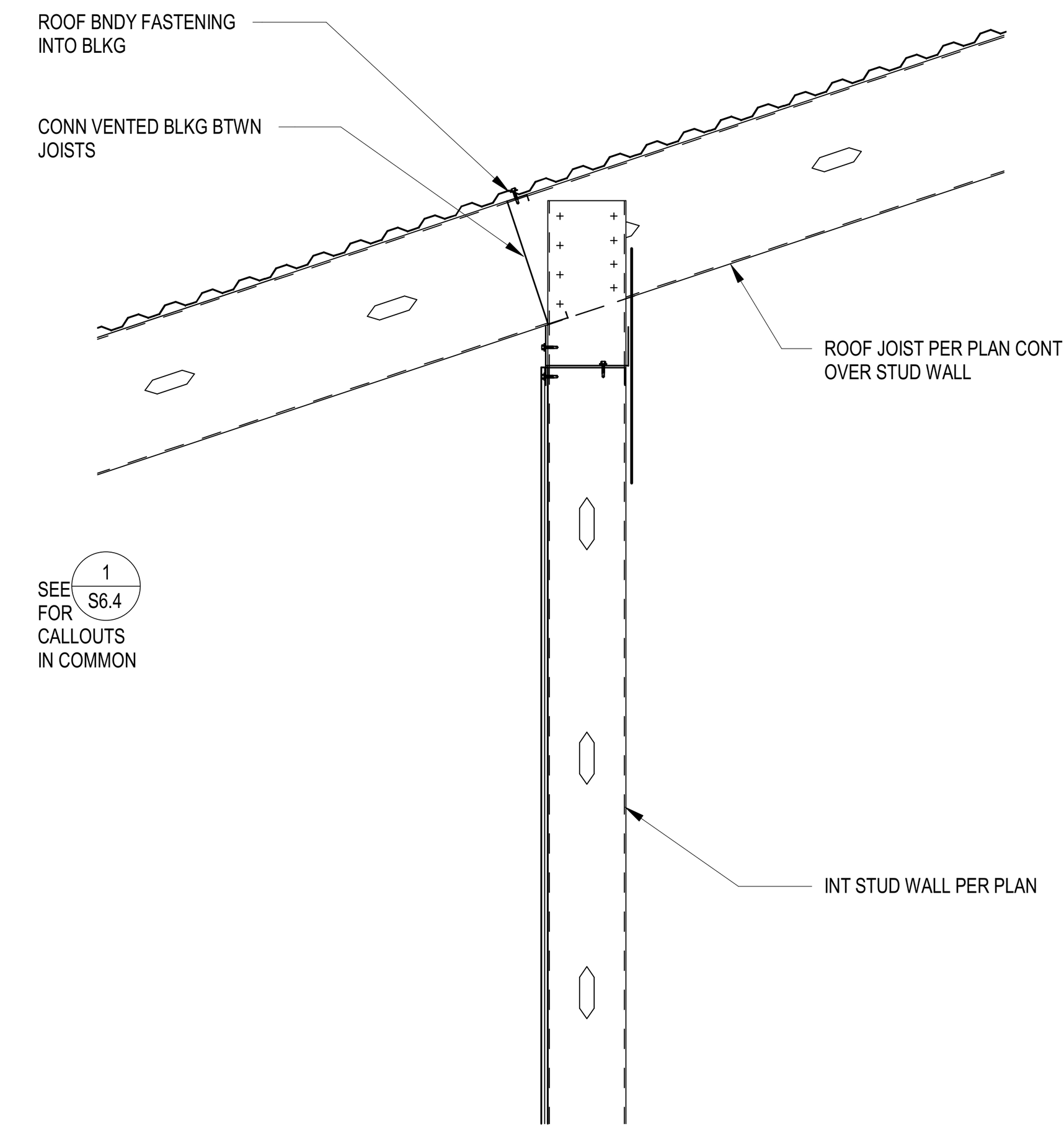

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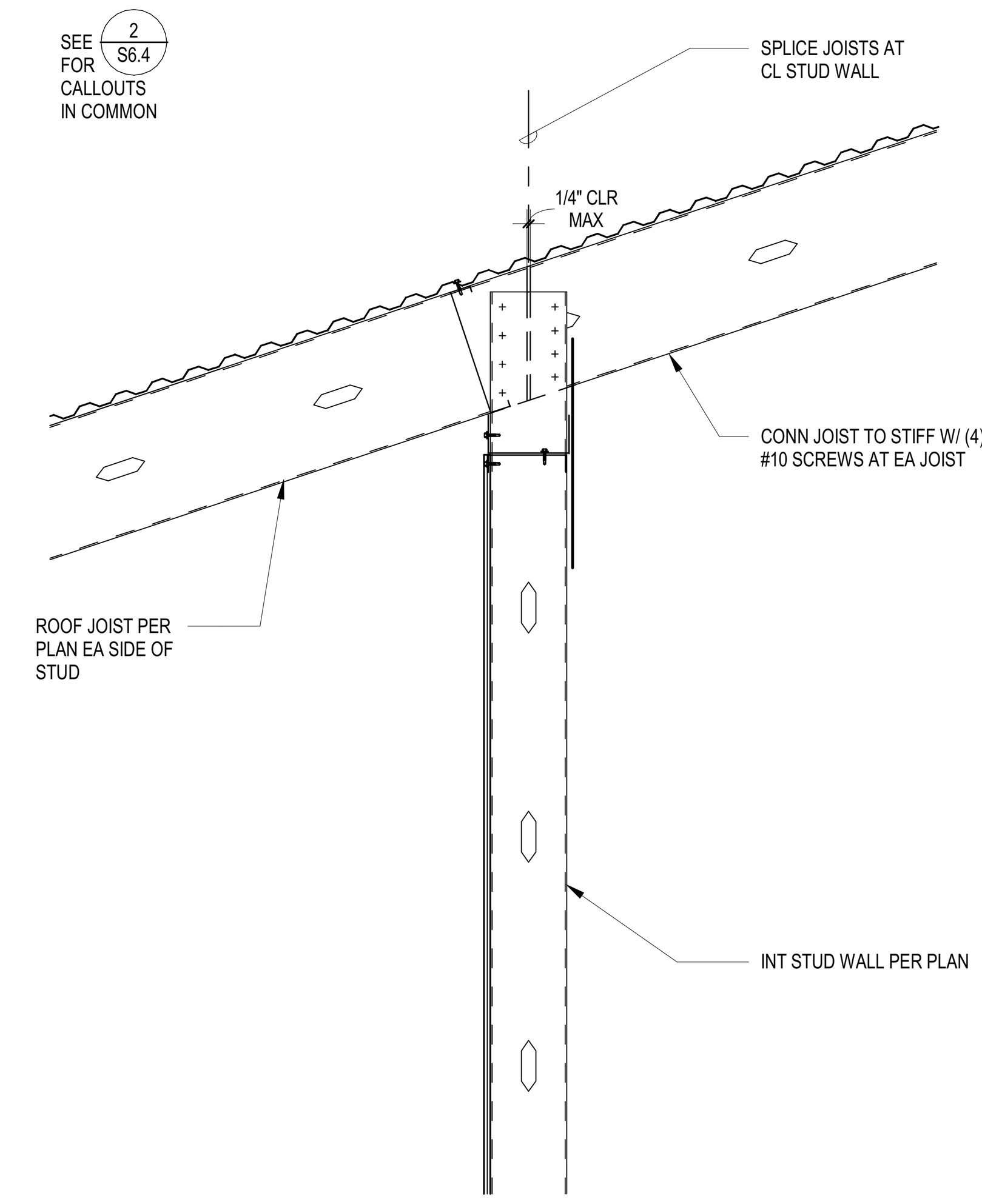

3 SECTION
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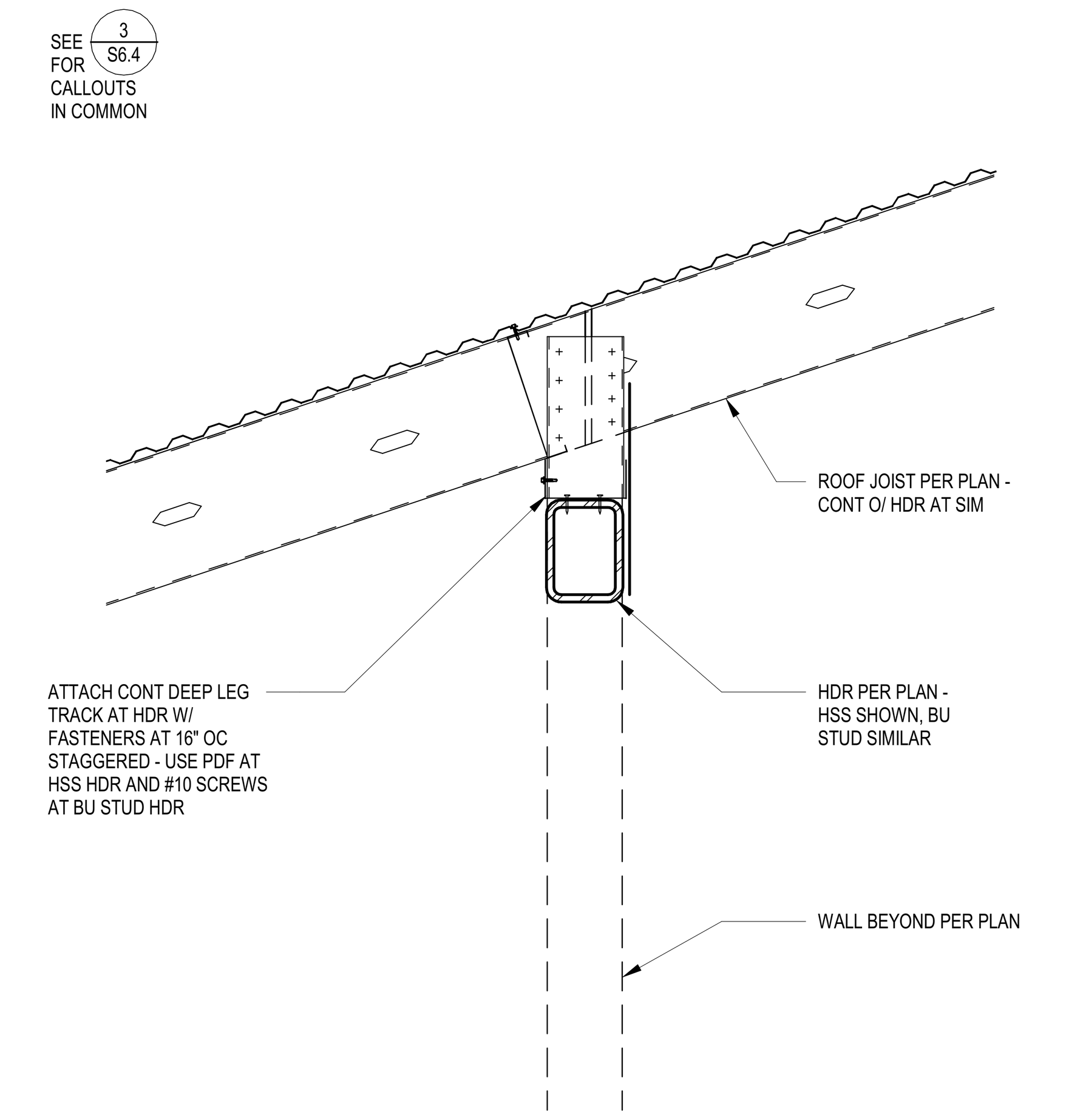

4 SECTION
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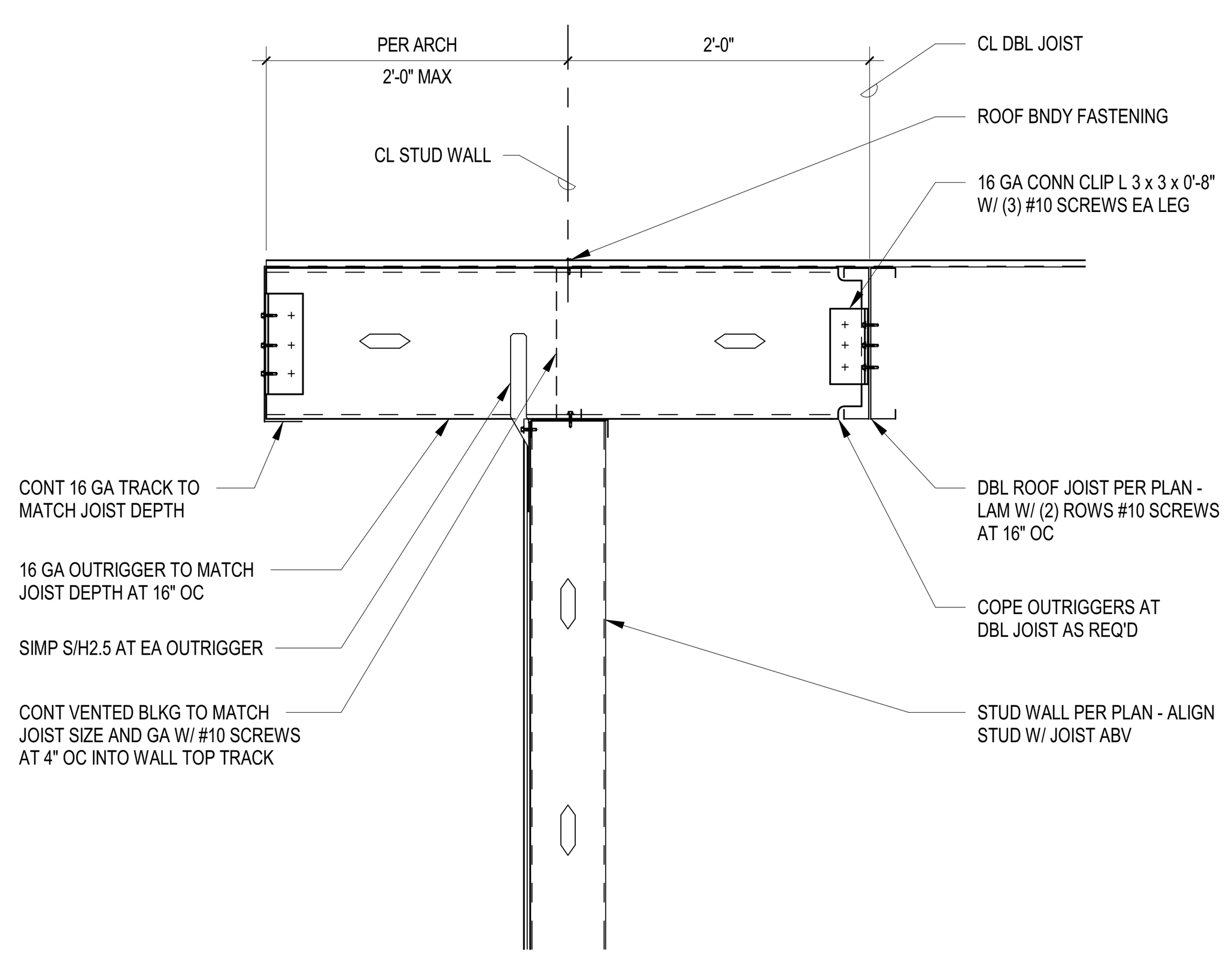
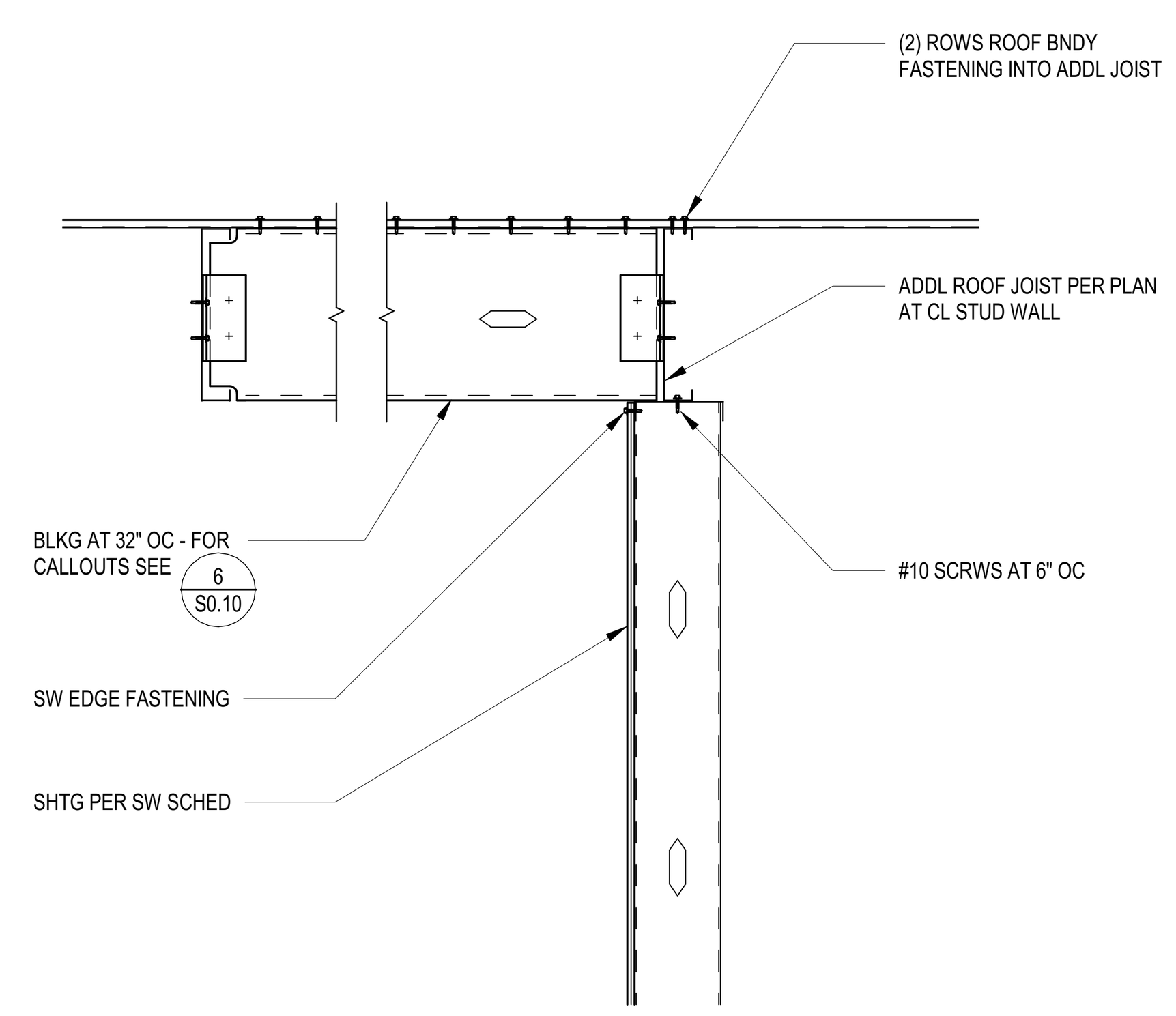


5 SECTION
1" = 1'-0" 5 / S6.4



6 SECTION
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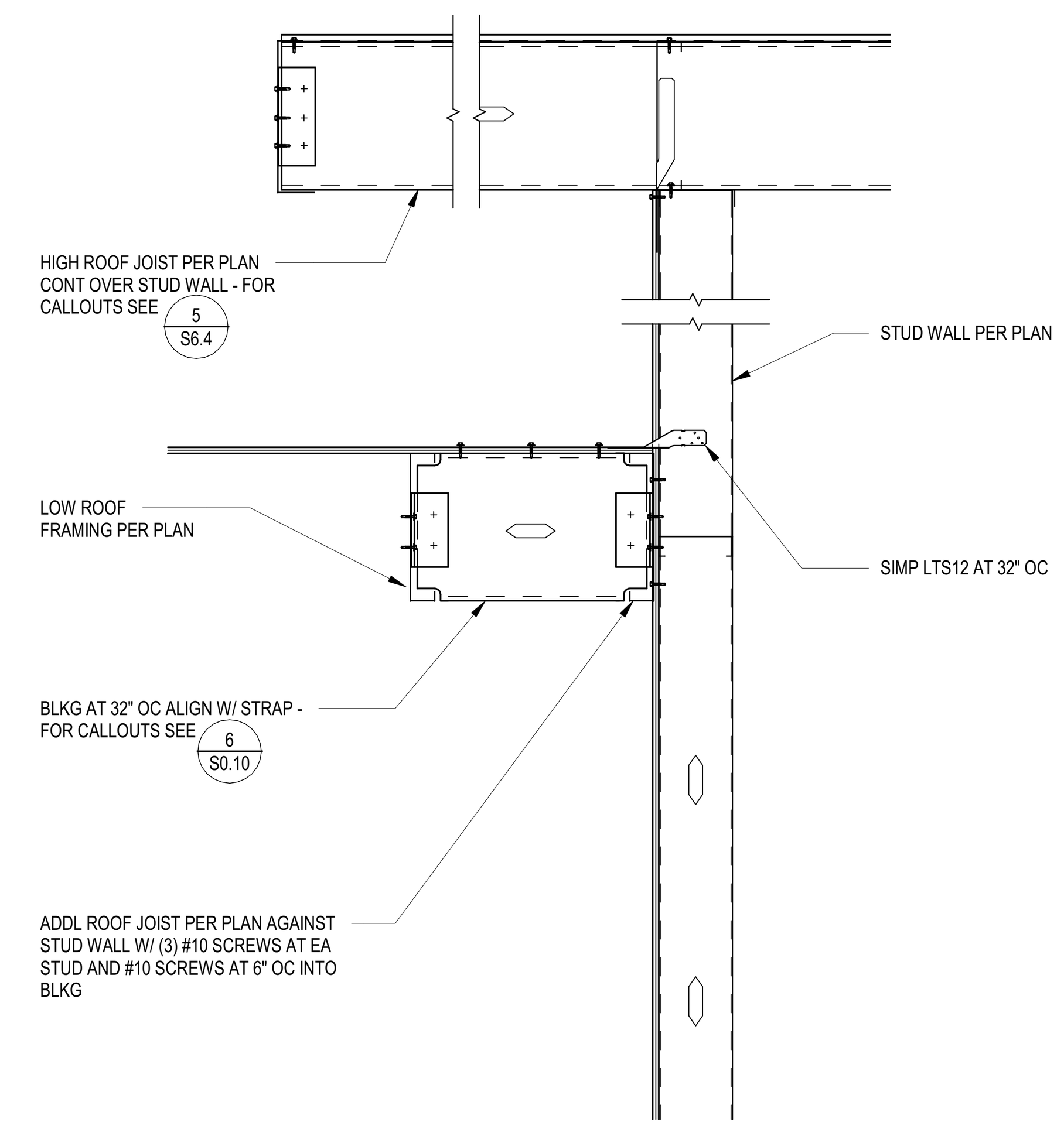

7 SECTION
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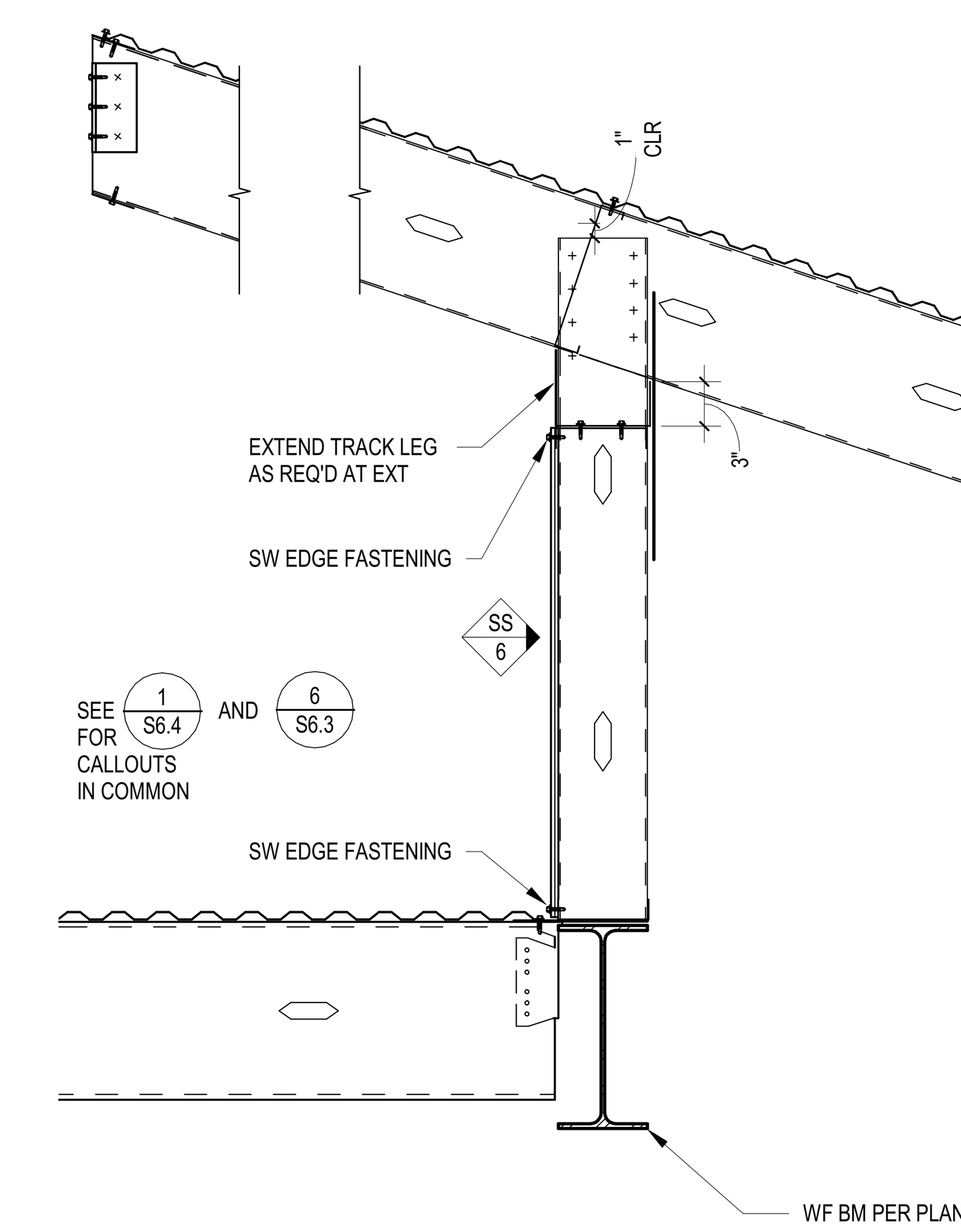
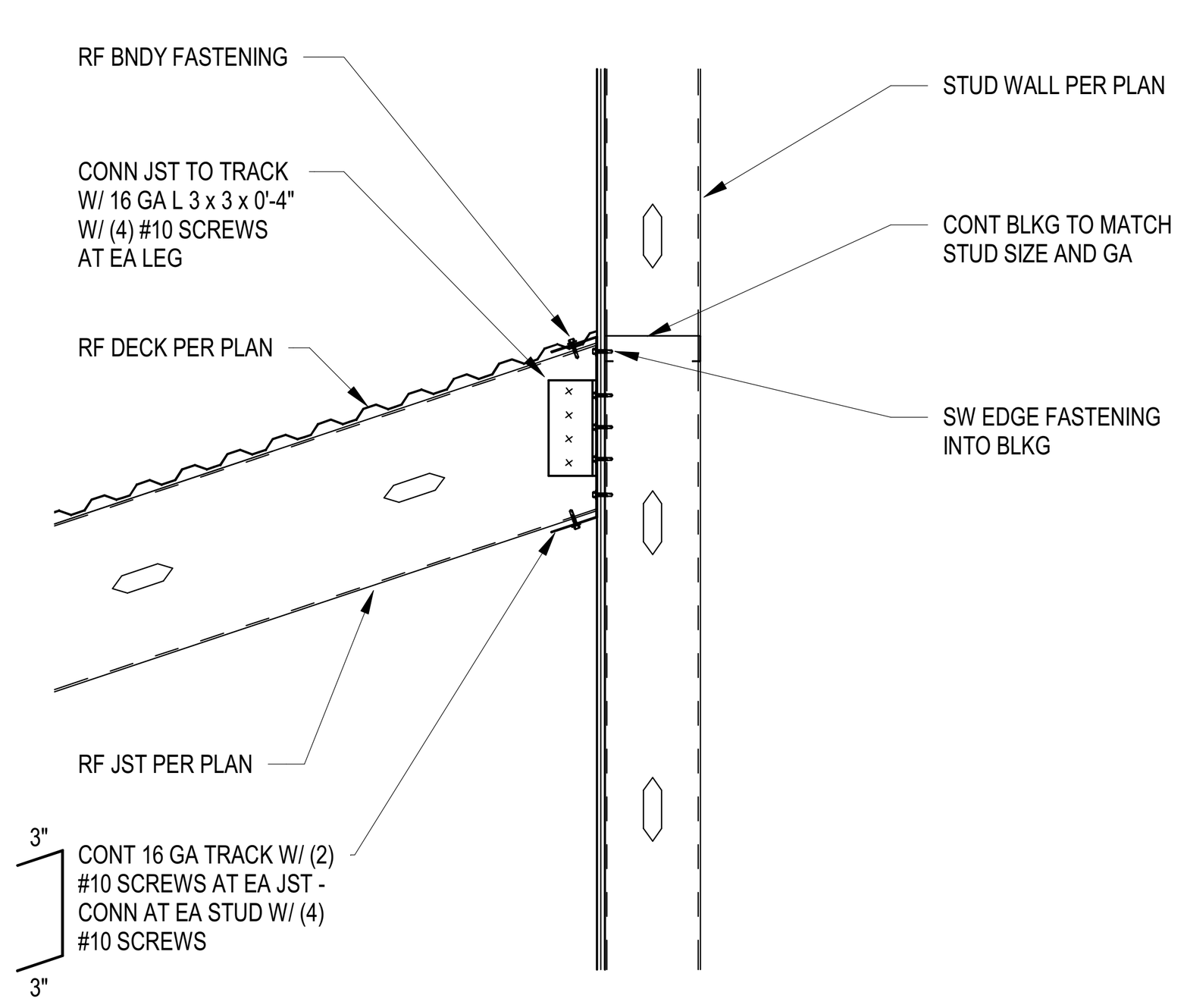
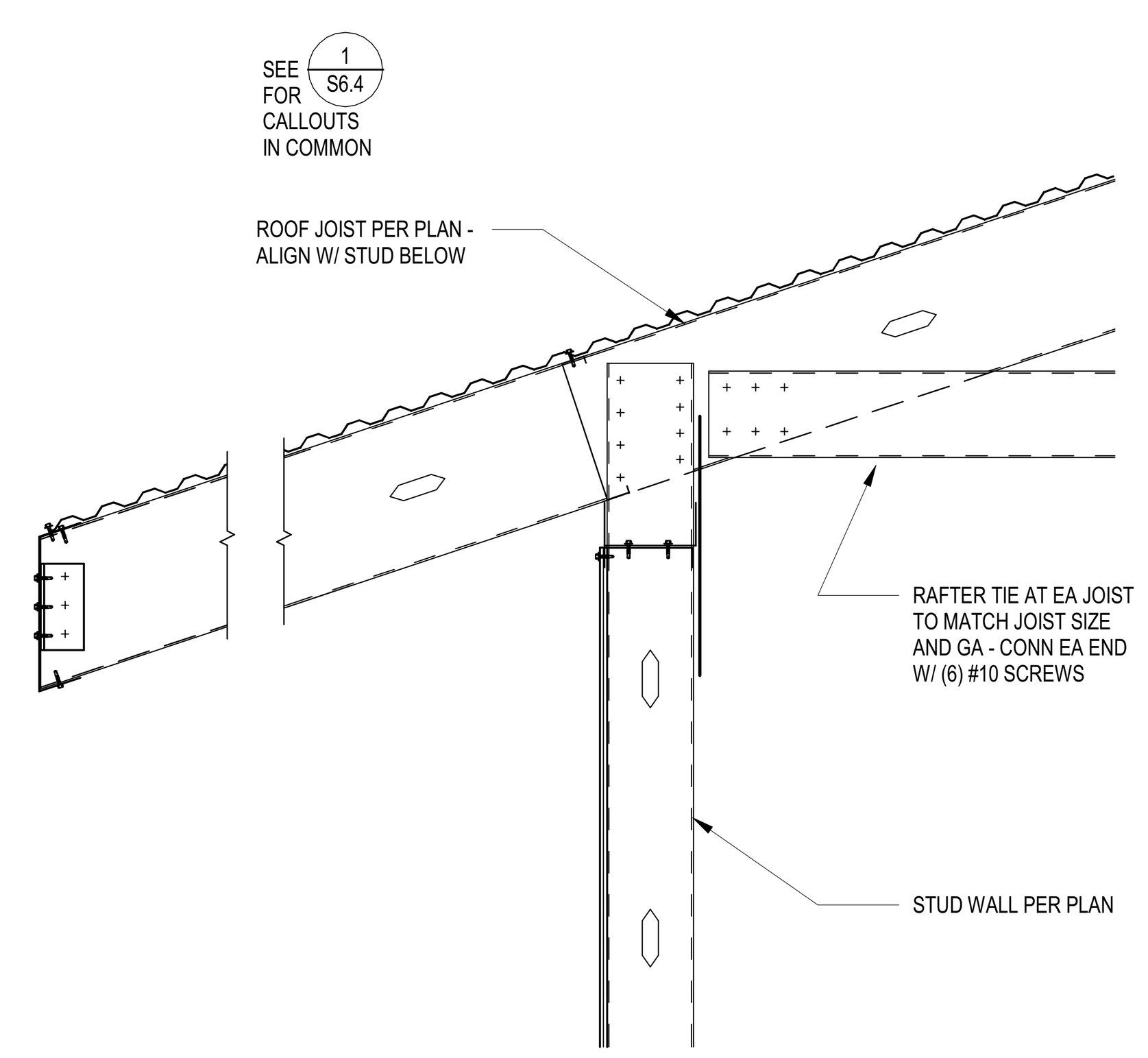


8 SECTION
1" = 1'-0" 8 / S6.4



9 SECTION
1" = 1'-0" 9 / S6.4



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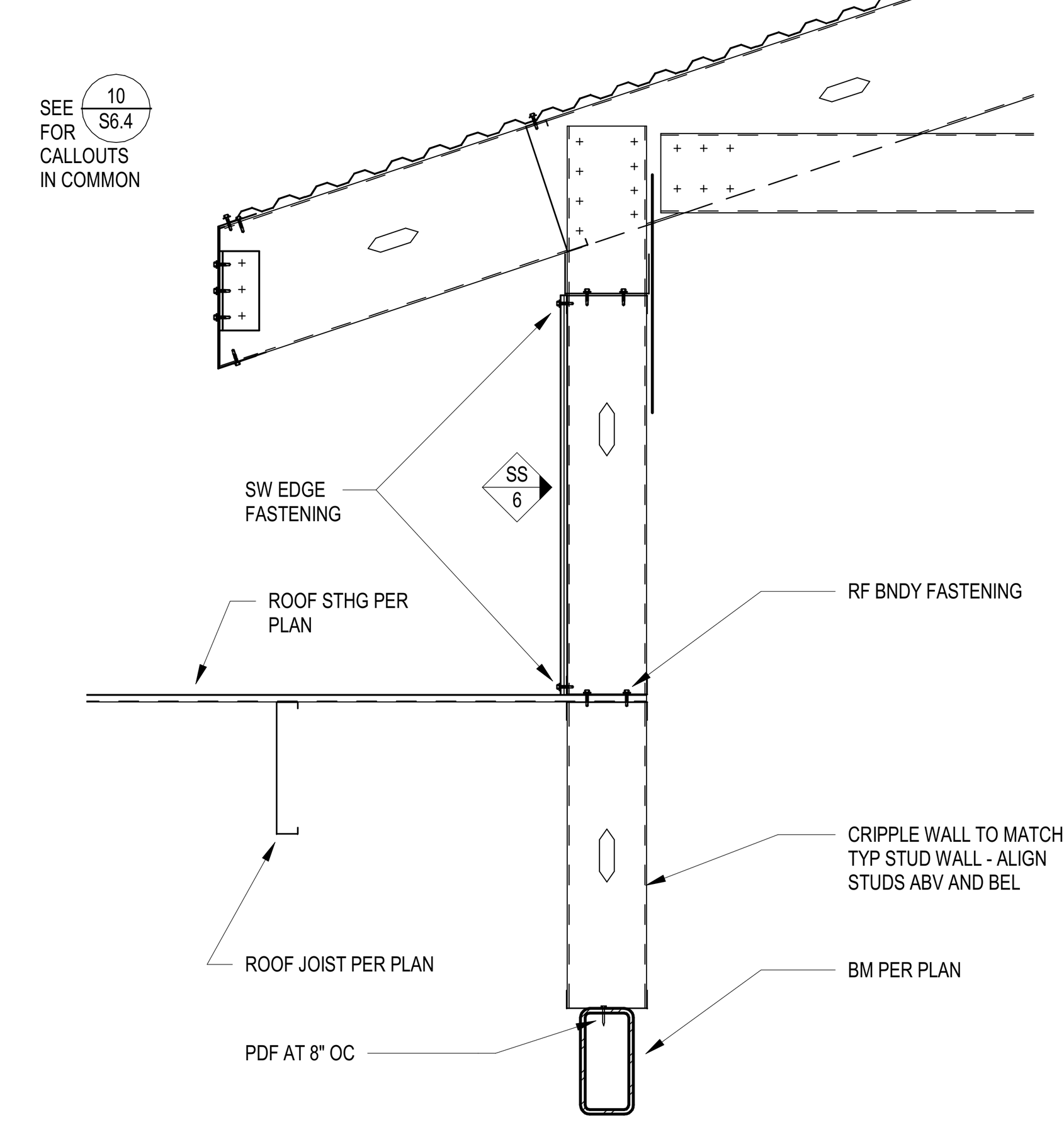

11 SECTION
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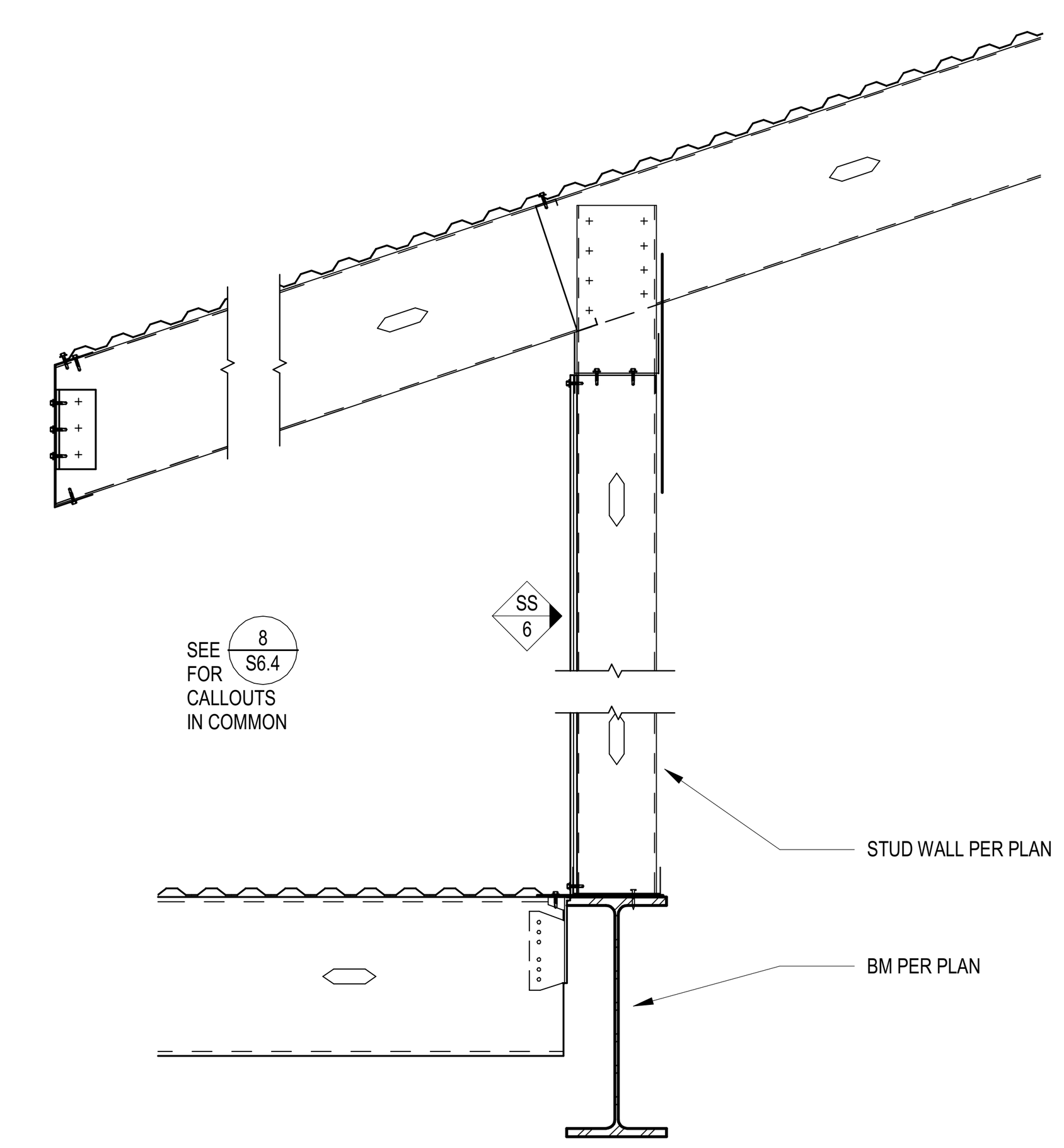

12 SECTION
1" = 1'-0" 12 / S6.4

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WESLEY BRADLEY PARK PHASE 2 - CARE CENTER
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PUYALLUP, WA 98374

PERMIT SET
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ROOF FRAMING DETAILS

S6.4

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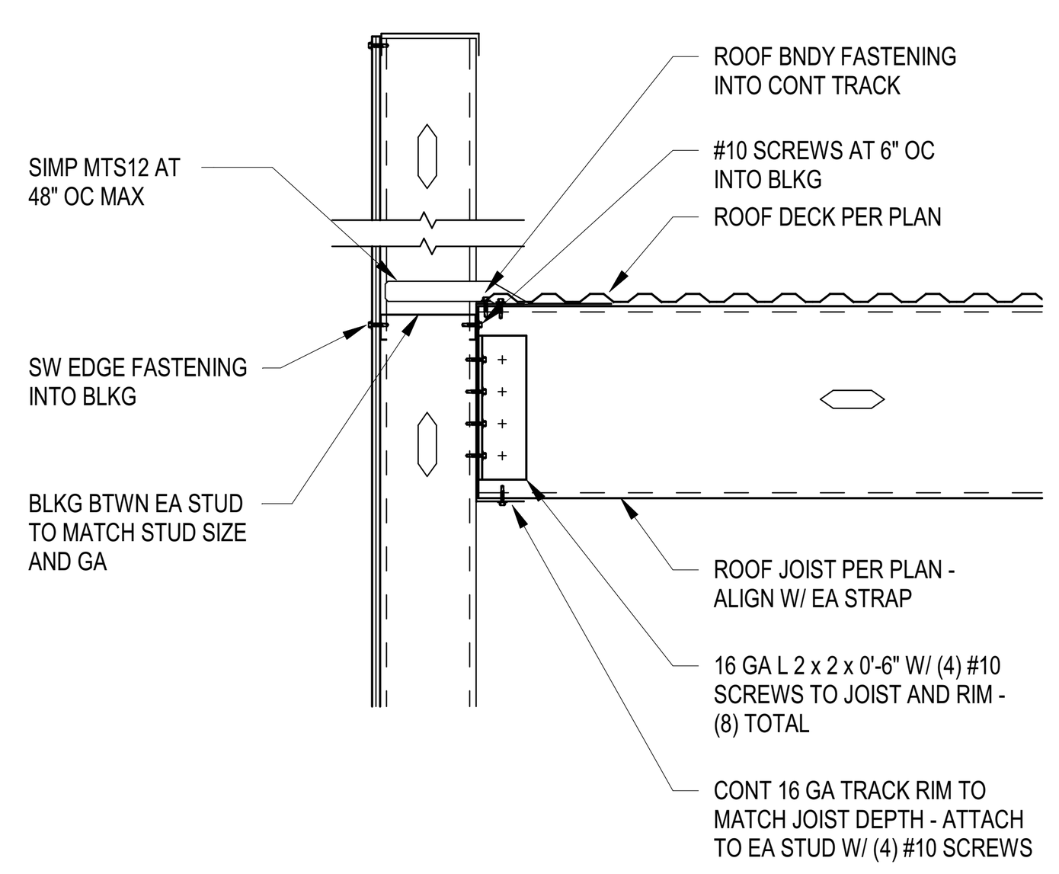

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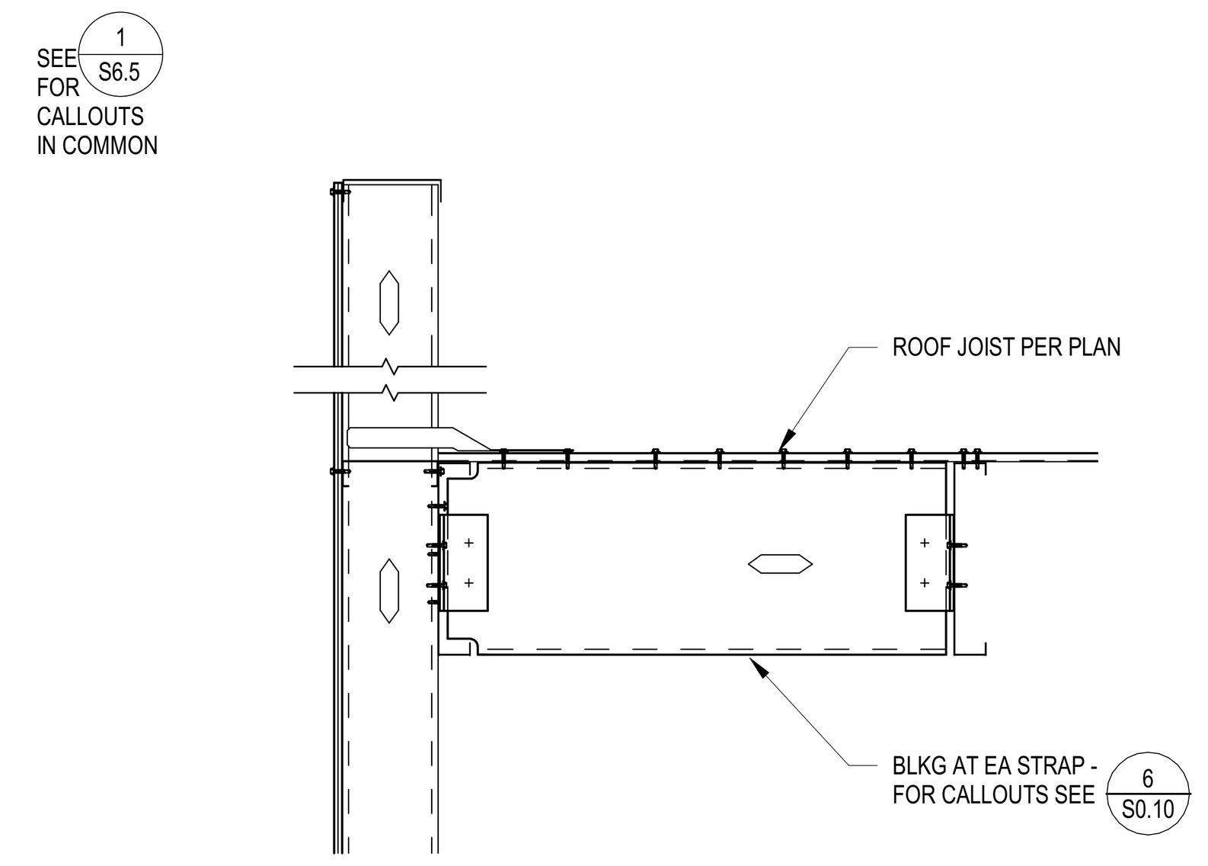
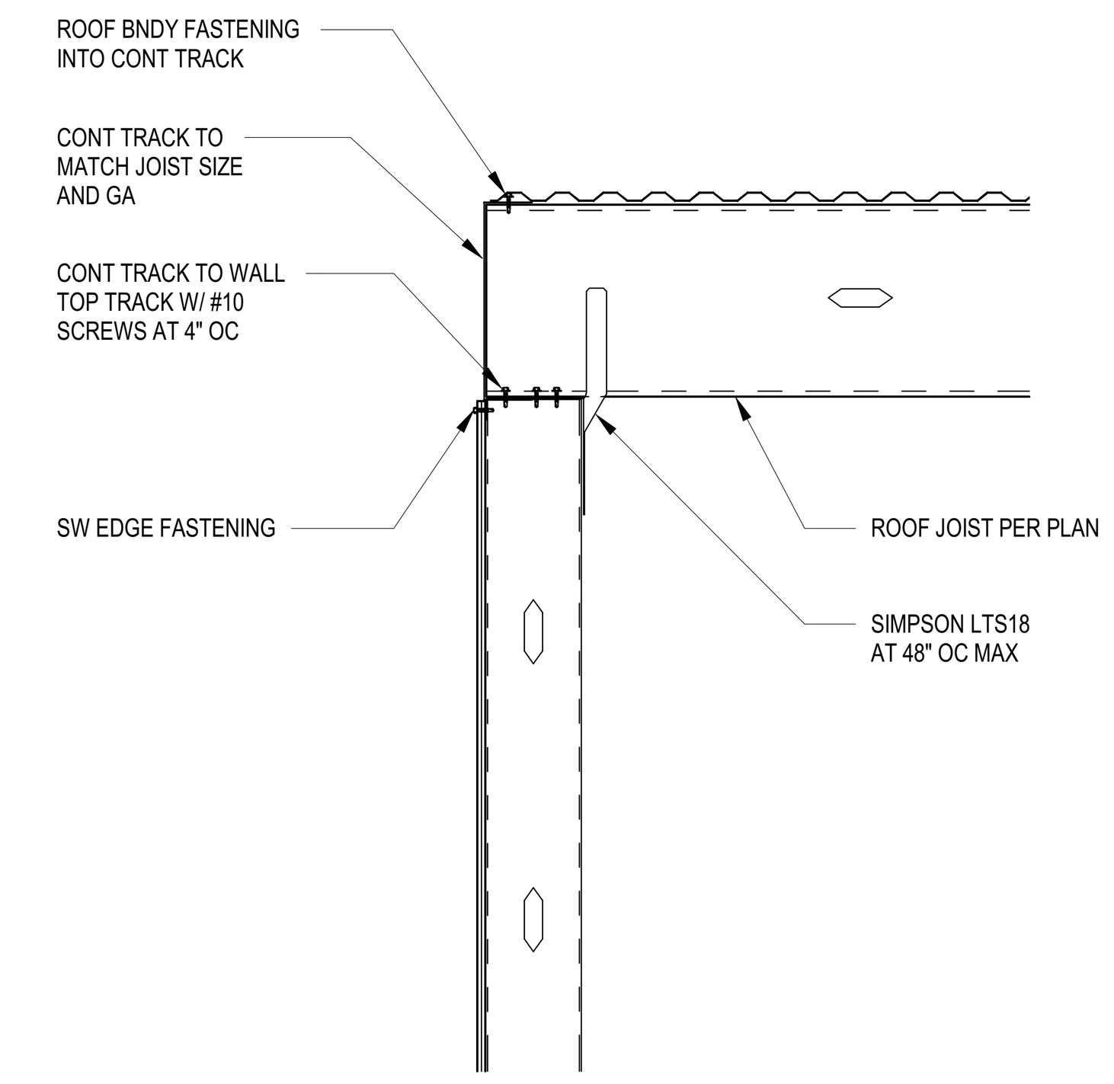
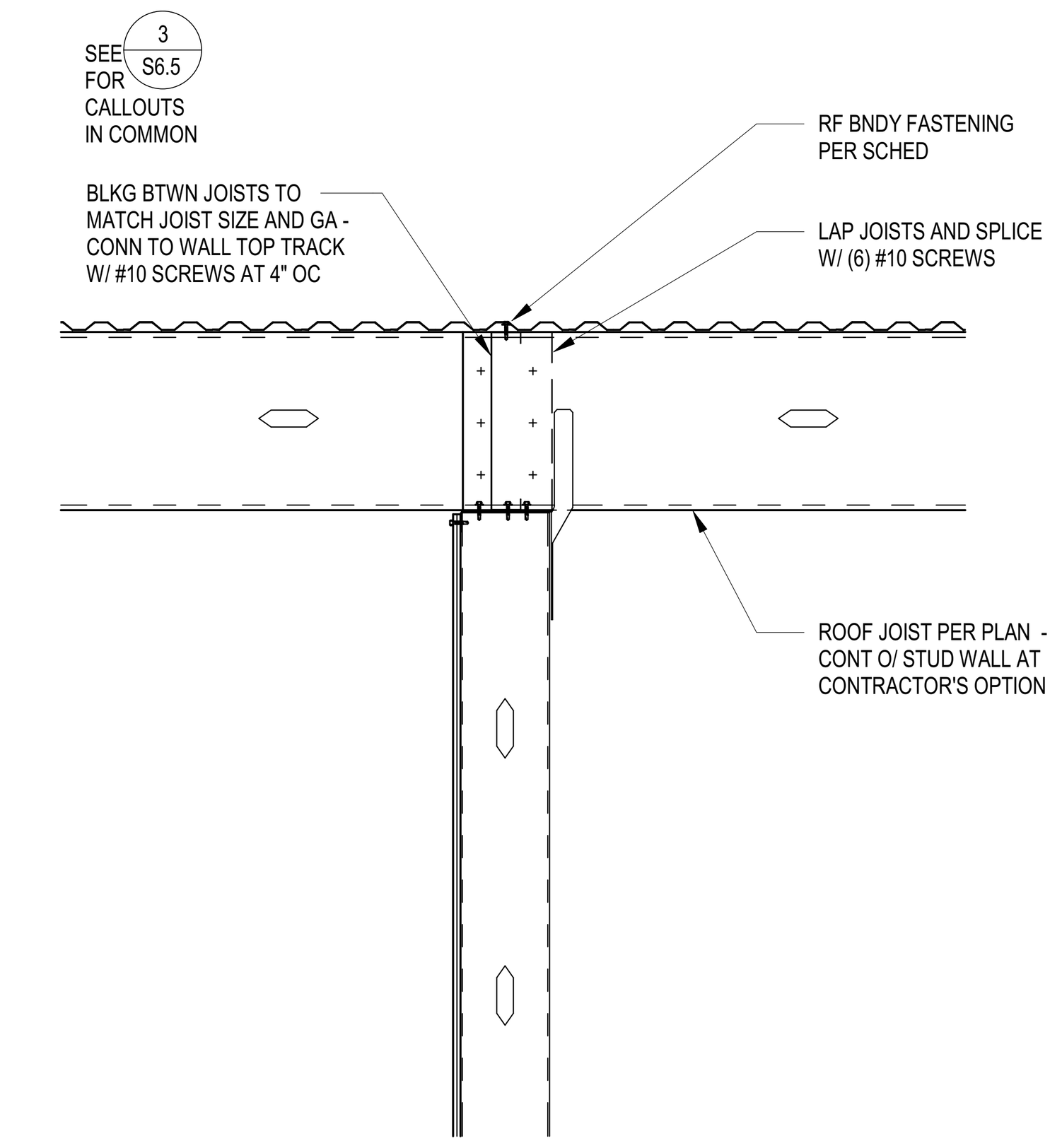


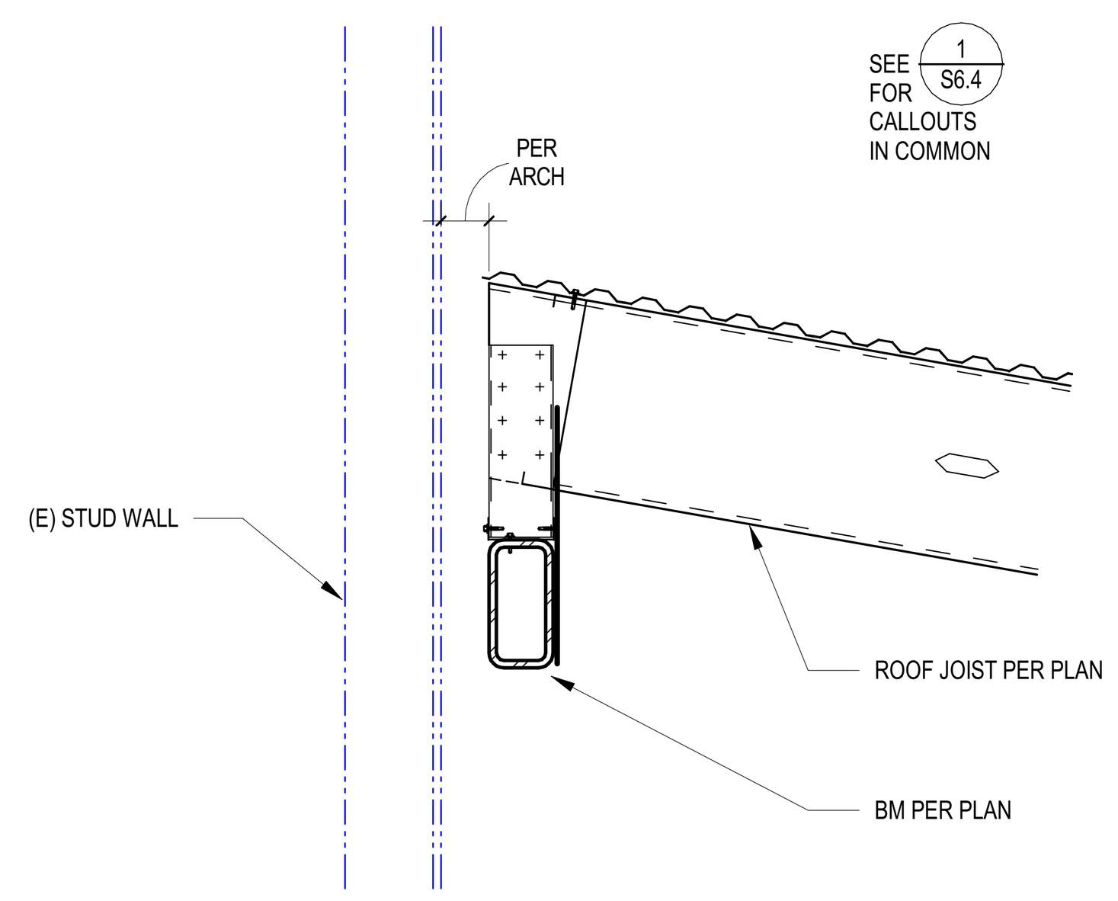
2 **SECTION**
1" = 1'-0" 2 / S6.5



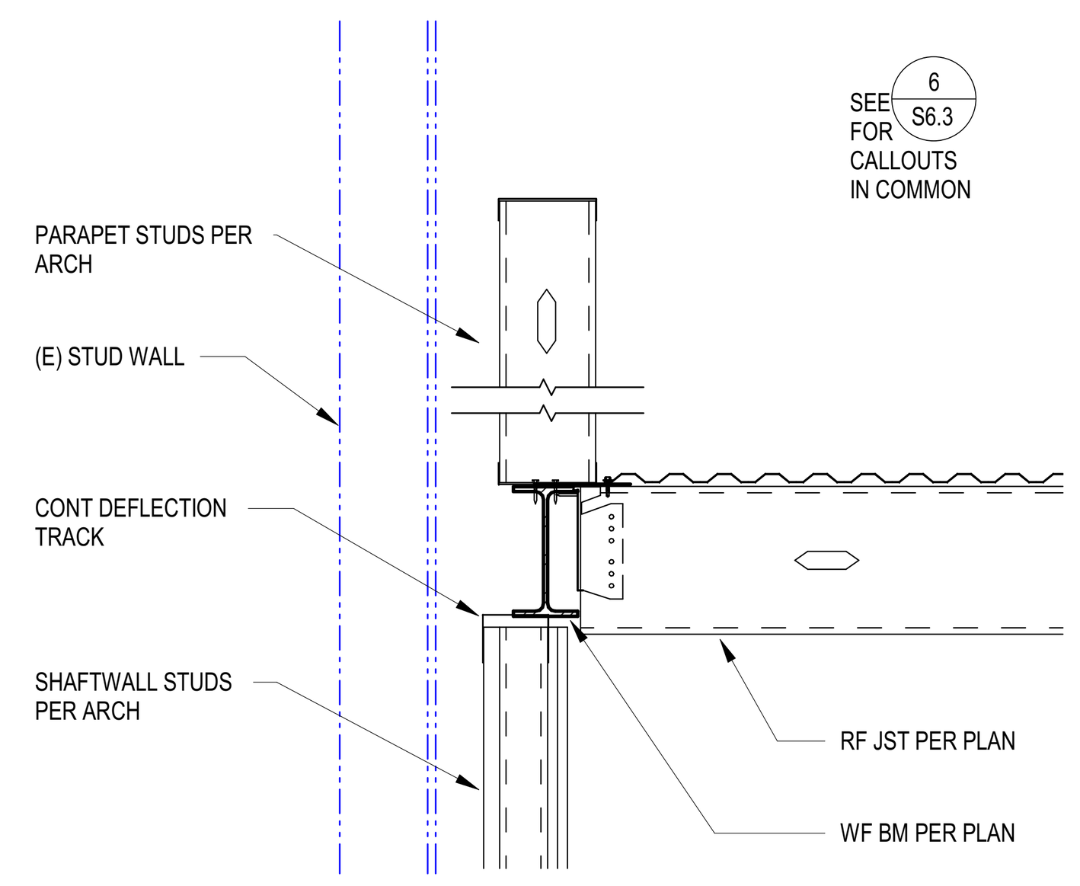
3 **SECTION**
1" = 1'-0" 3 / S6.5



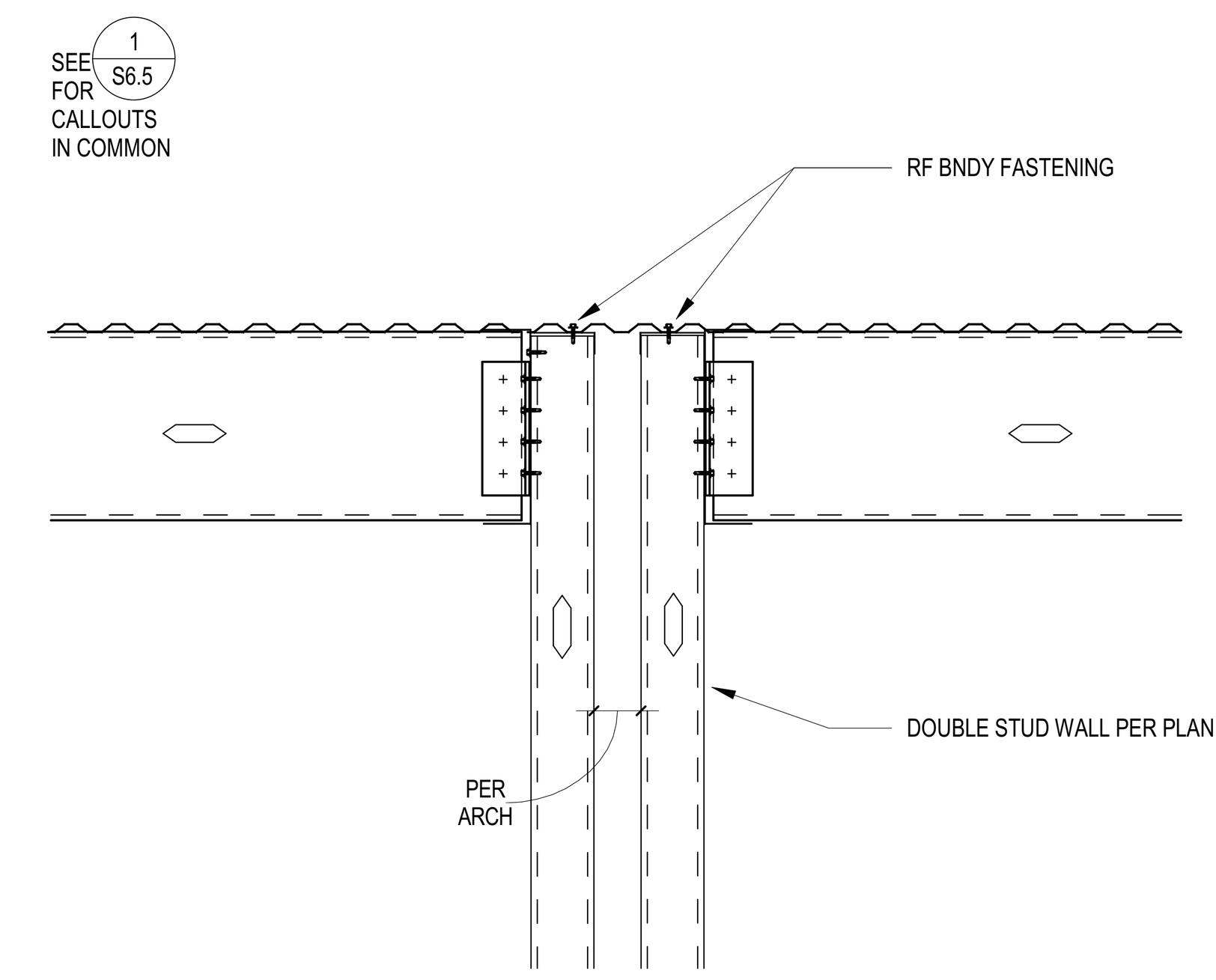
4 **SECTION**
1" = 1'-0" 4 / S6.5



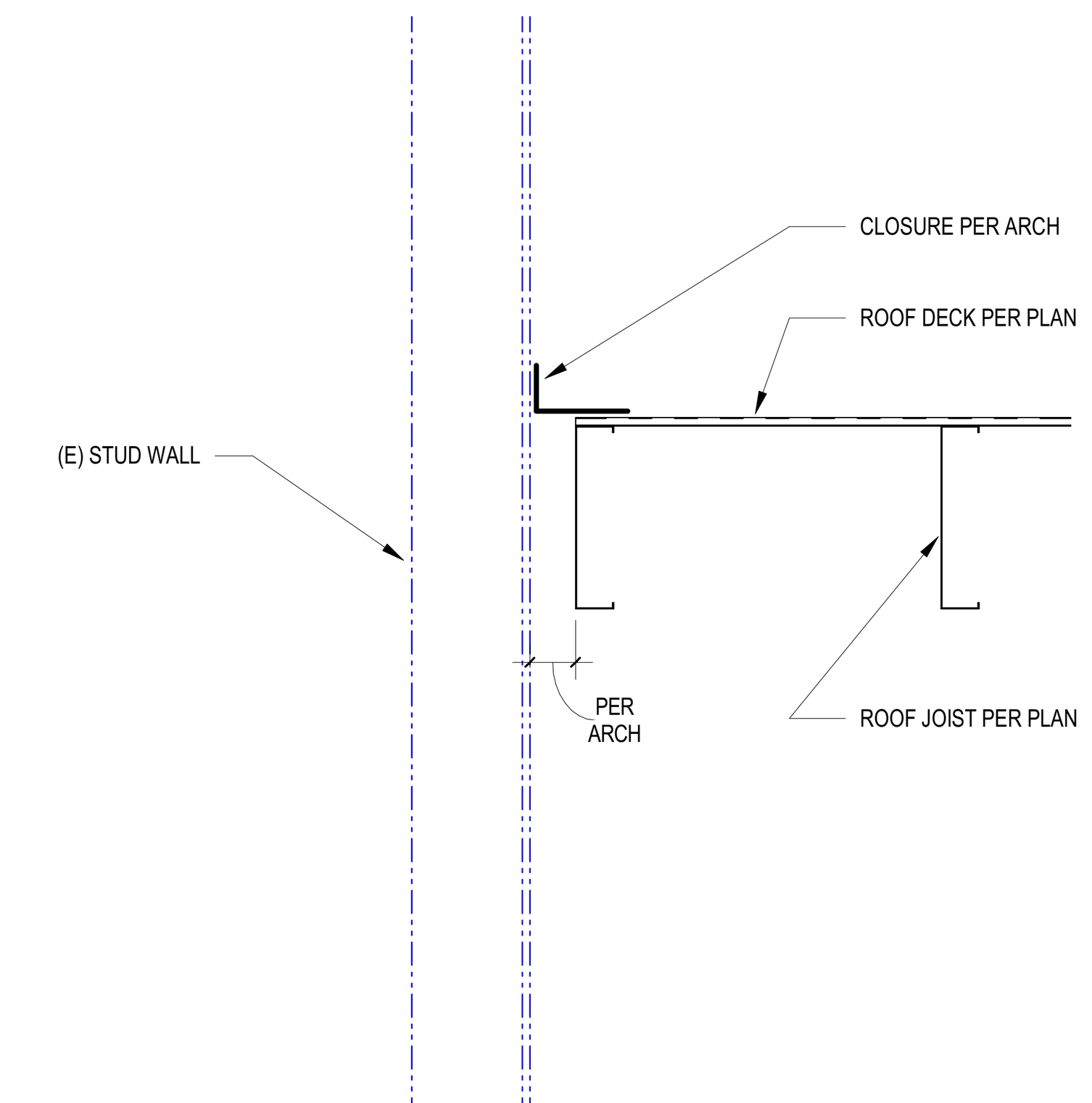
5 **SECTION**
1" = 1'-0" 5 / S6.5



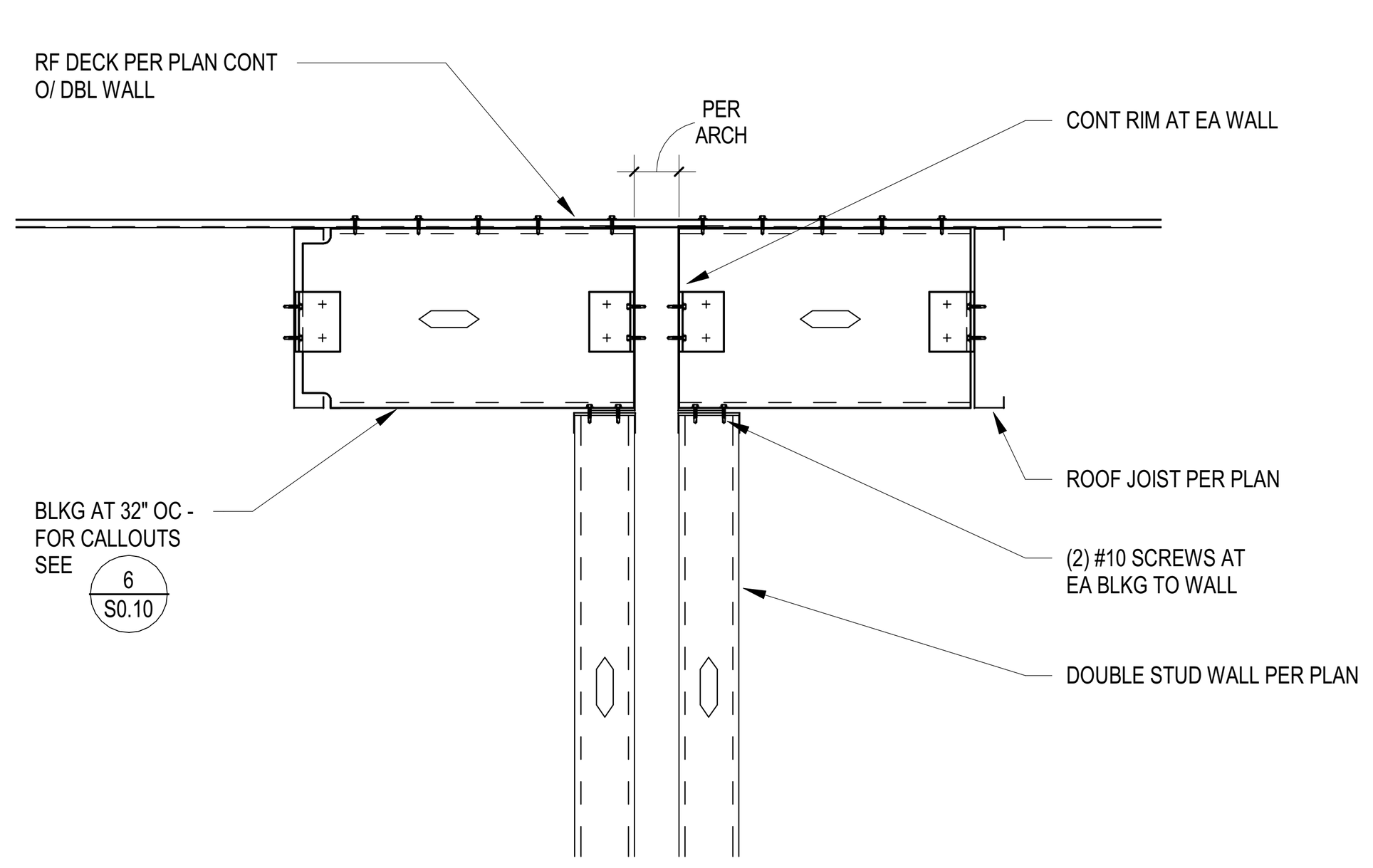
6 **SECTION**
1" = 1'-0" 6 / S6.5



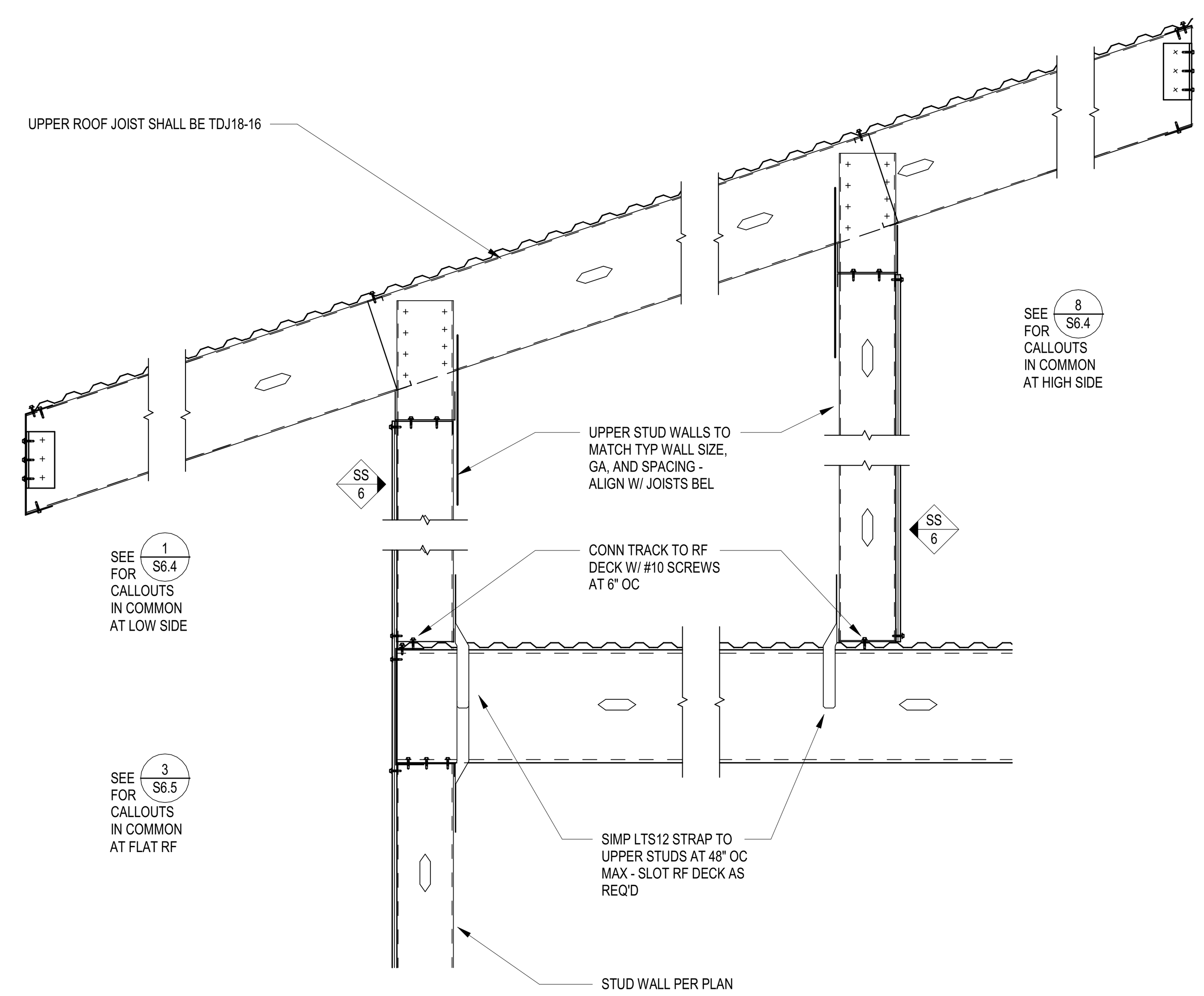
7 **SECTION**
1" = 1'-0" 7 / S6.5



8 **SECTION**
1" = 1'-0" 8 / S6.5



9 **SECTION**
1" = 1'-0" 9 / S6.5



10 **SECTION**
1" = 1'-0" 10 / S6.5

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ANDREW DEAN McEACHERN
STATE OF WASHINGTON
STRUCTURAL
PROFESSIONAL ENGINEER

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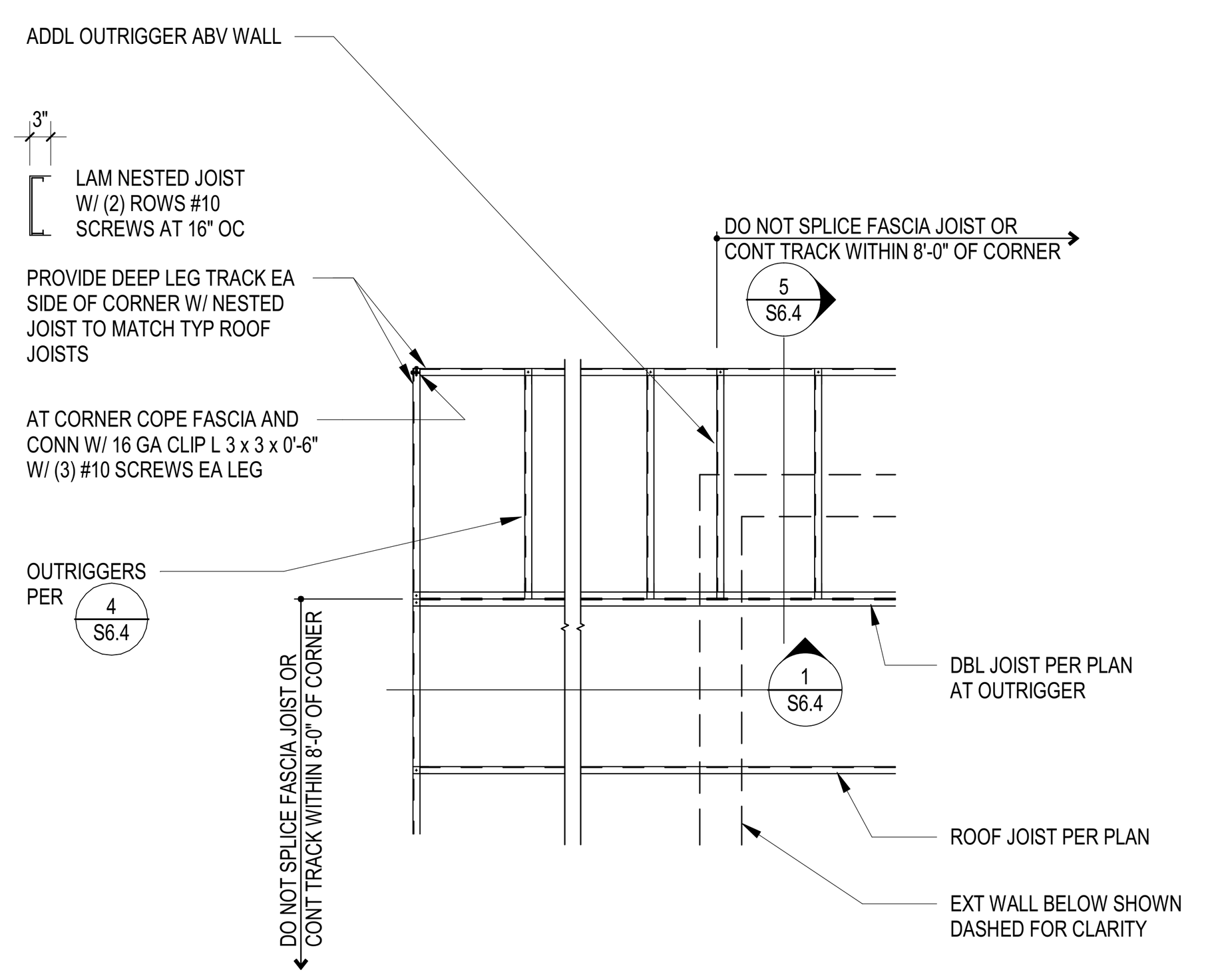
ROOF FRAMING DETAILS

S6.5



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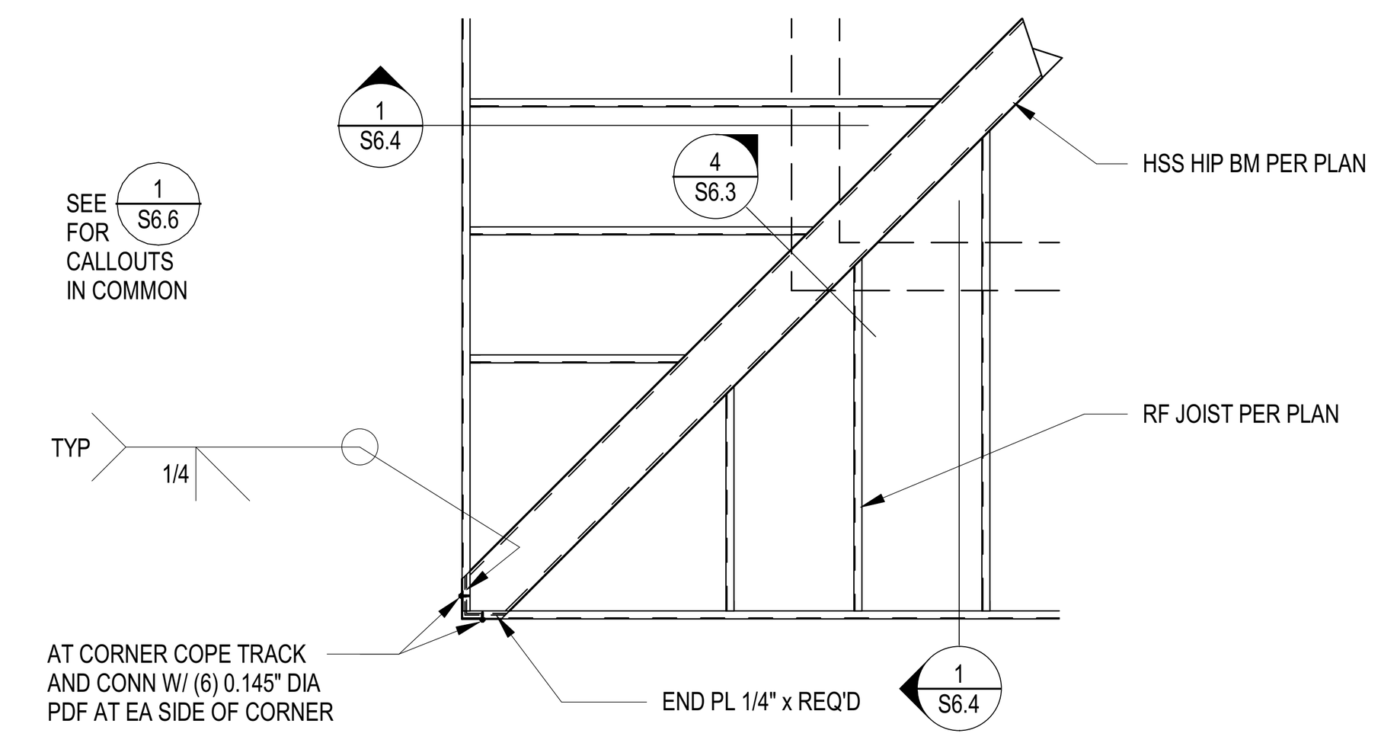

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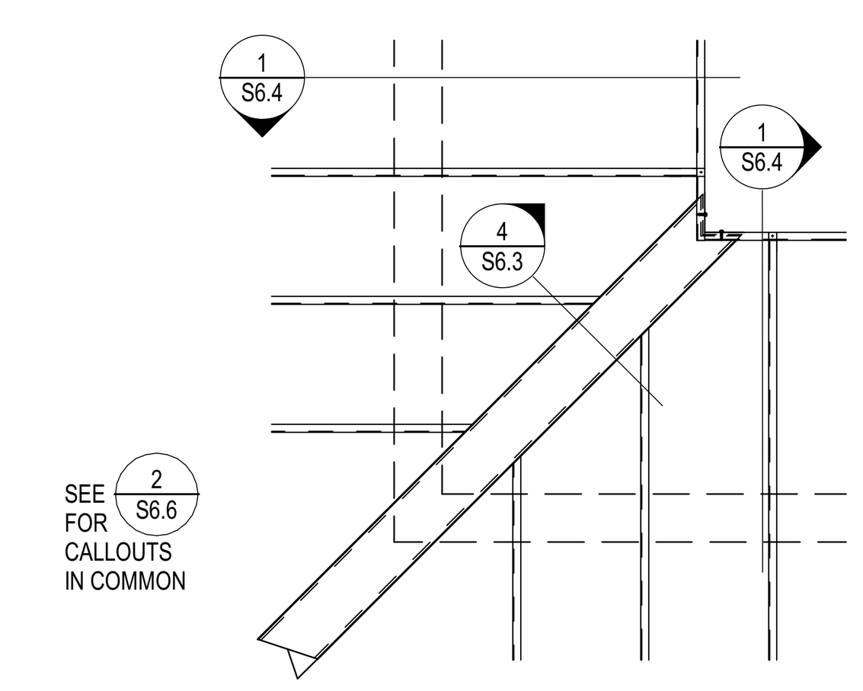

3 **SECTION**
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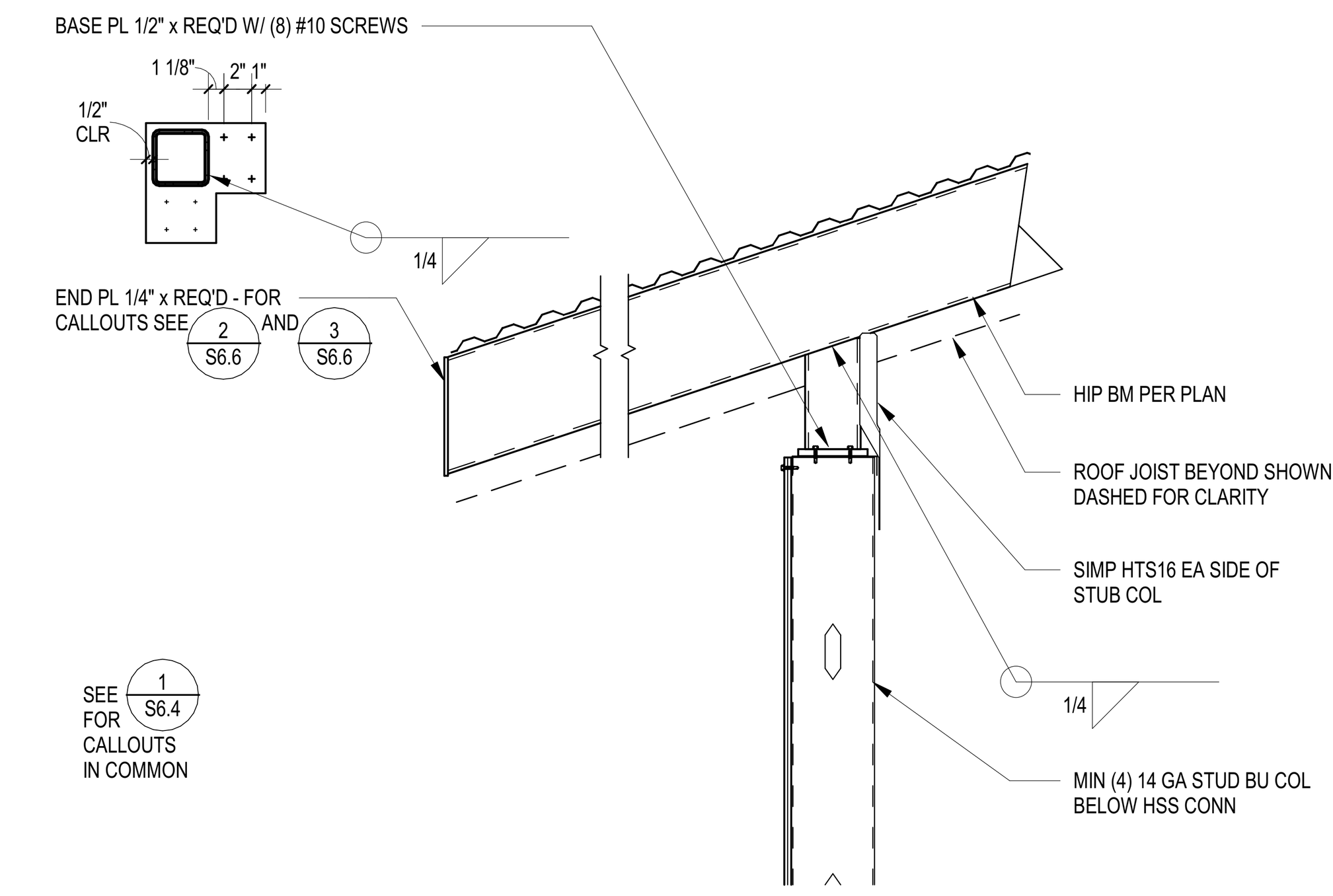

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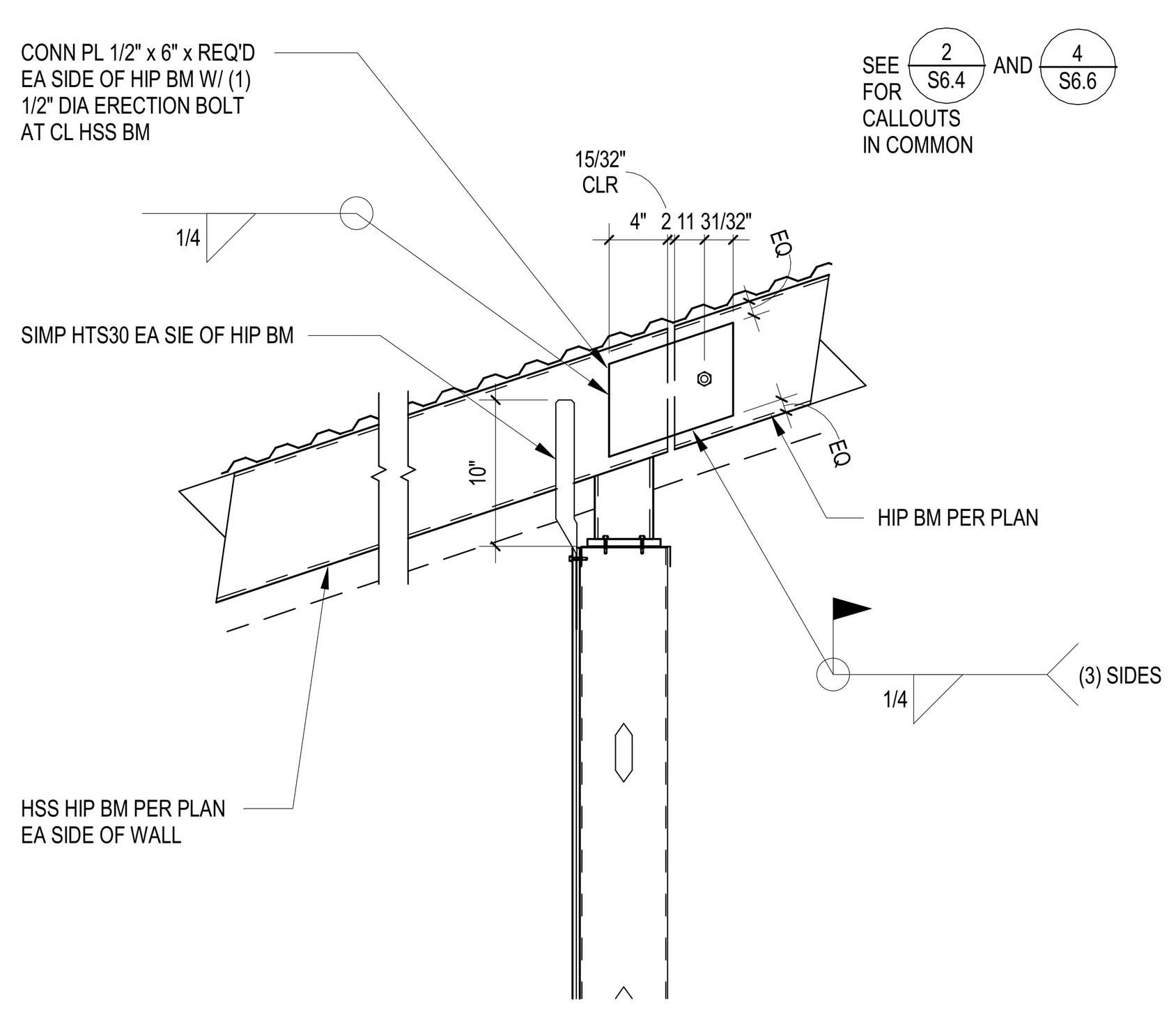

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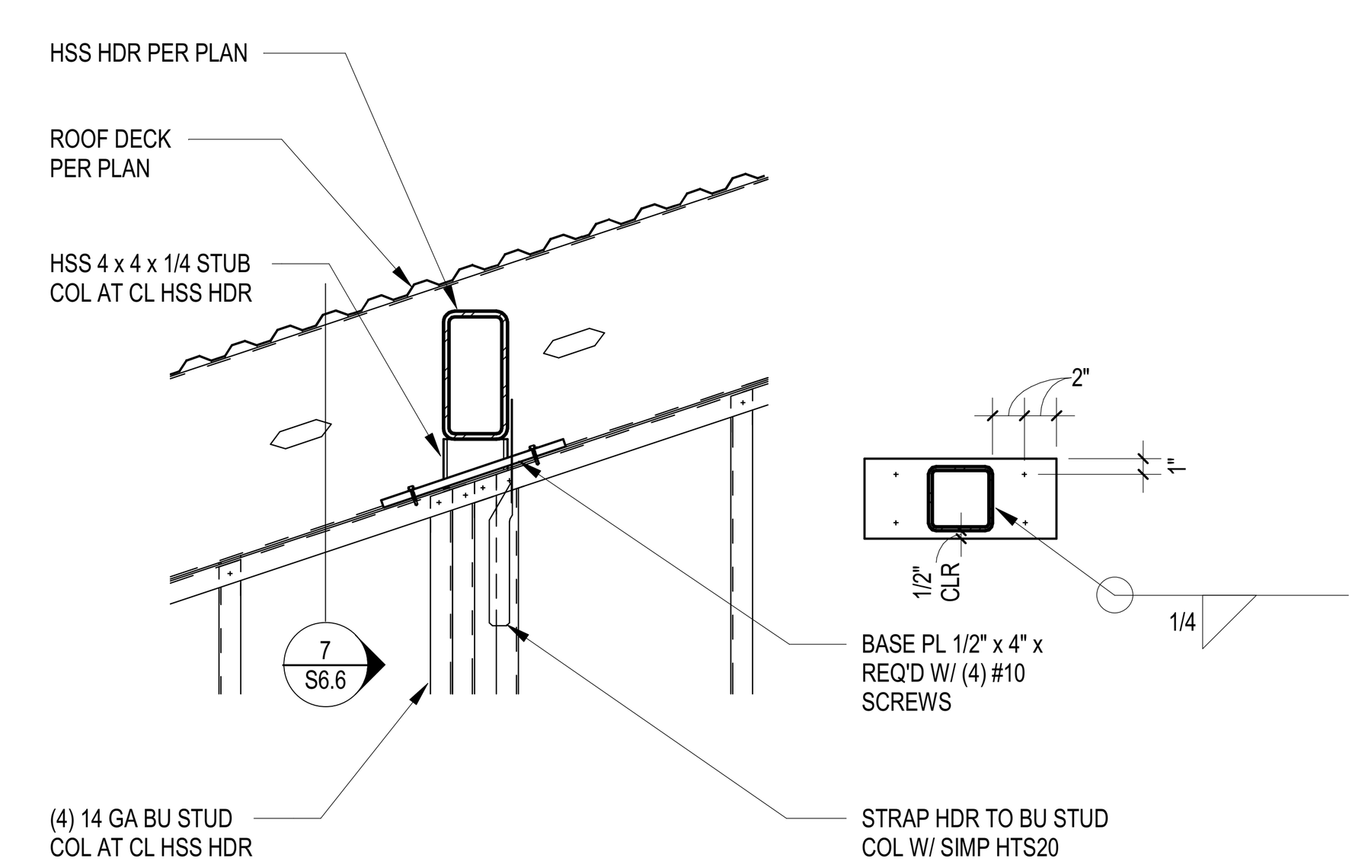

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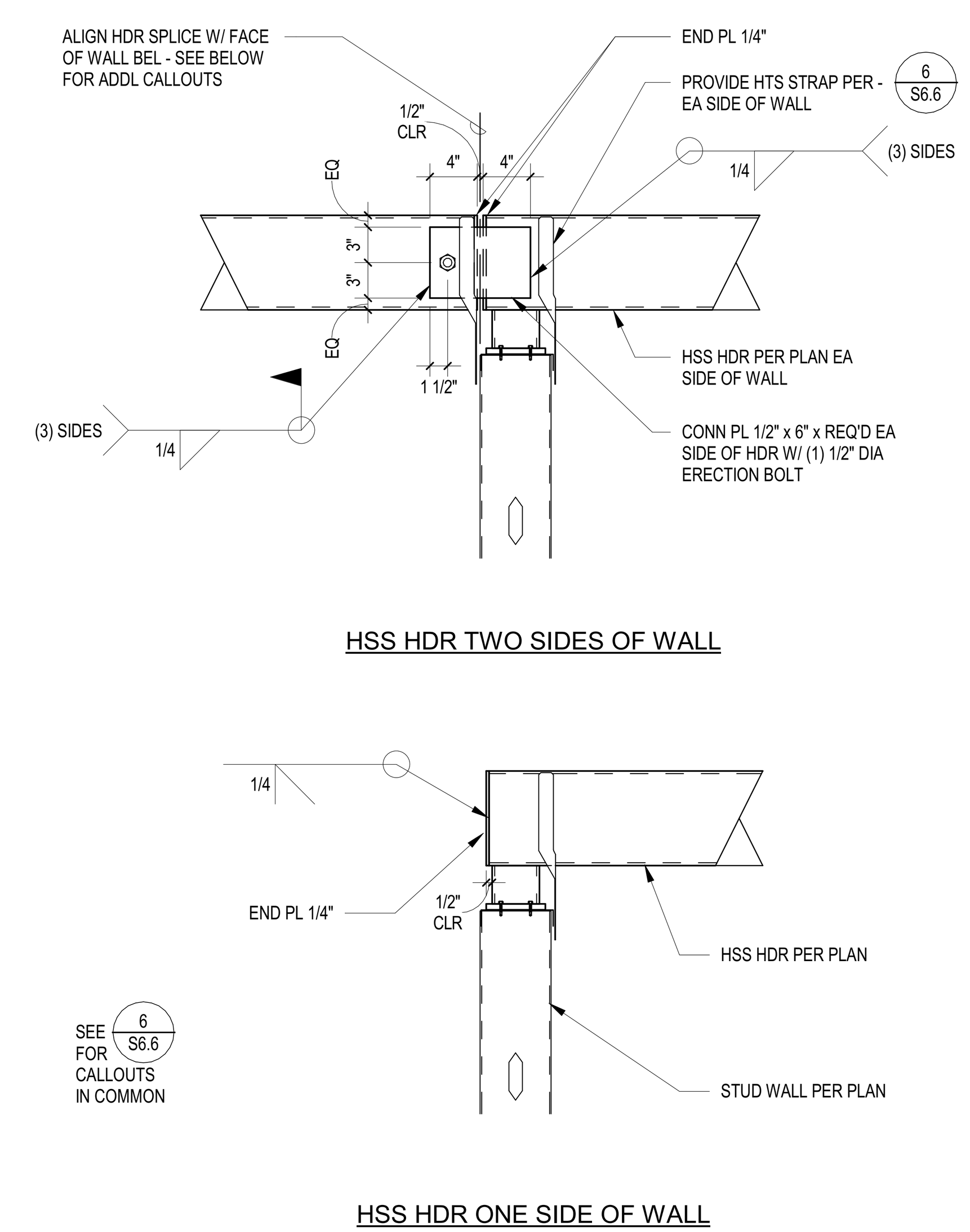

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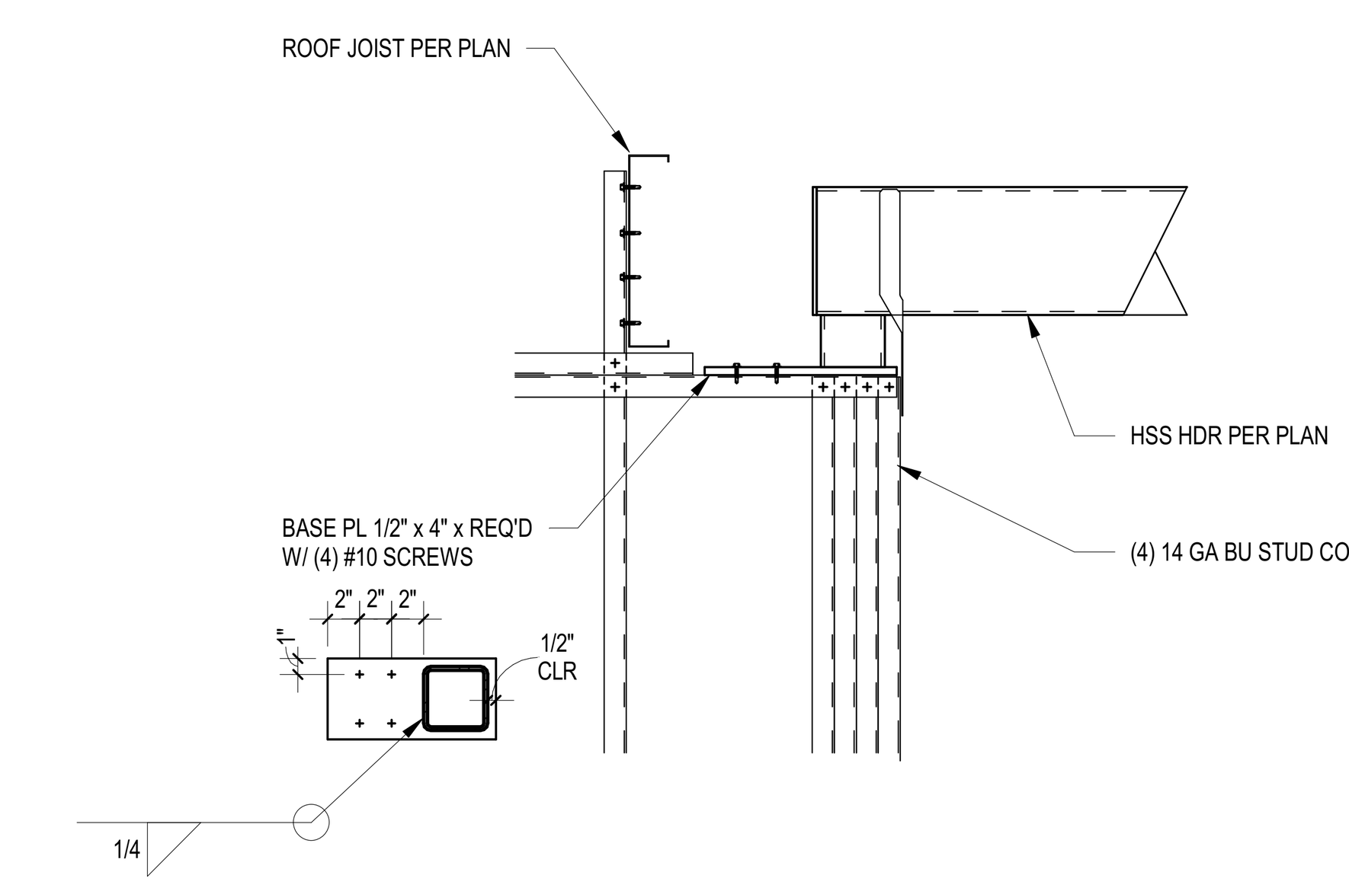

8 **SECTION**
1" = 1'-0" 8 / S6.6

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ROOF FRAMING DETAILS

S6.6

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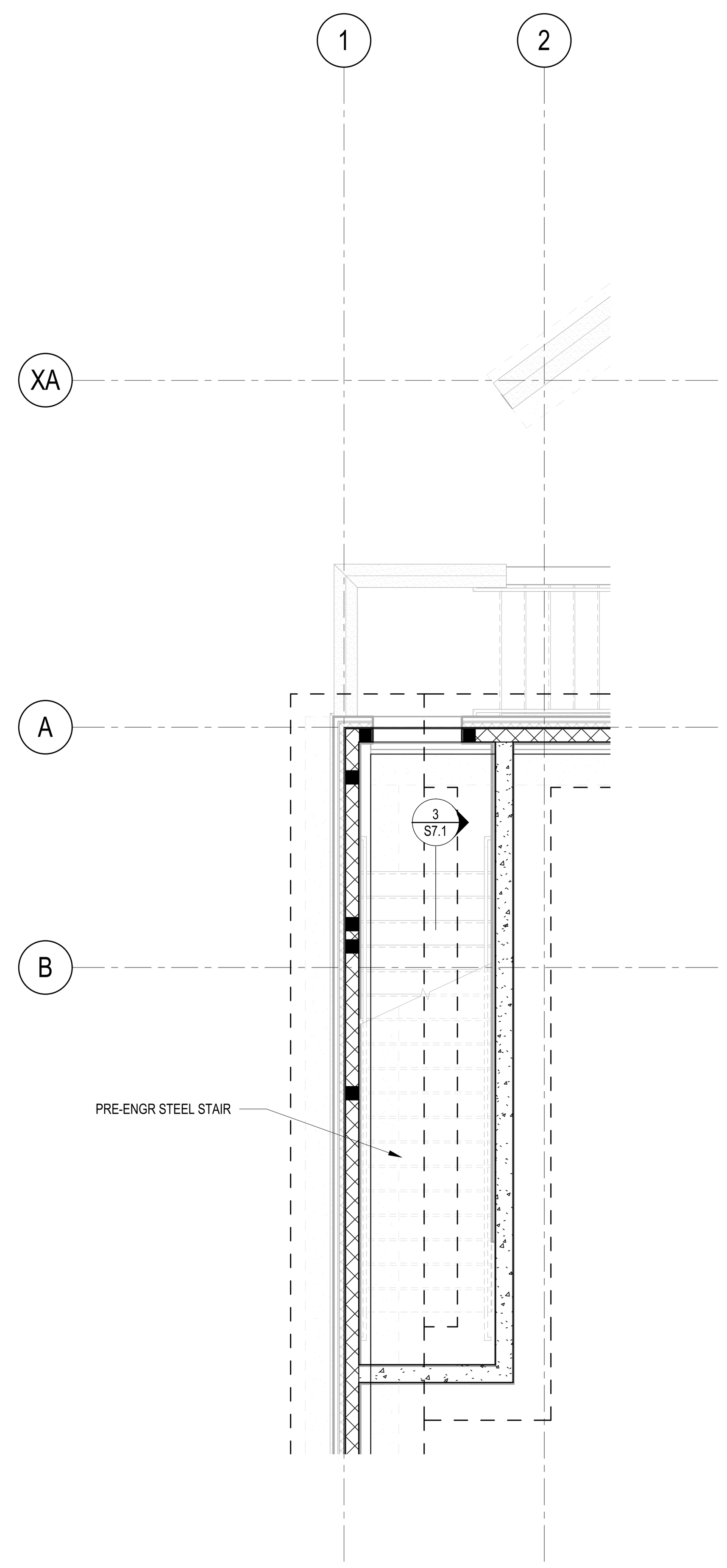
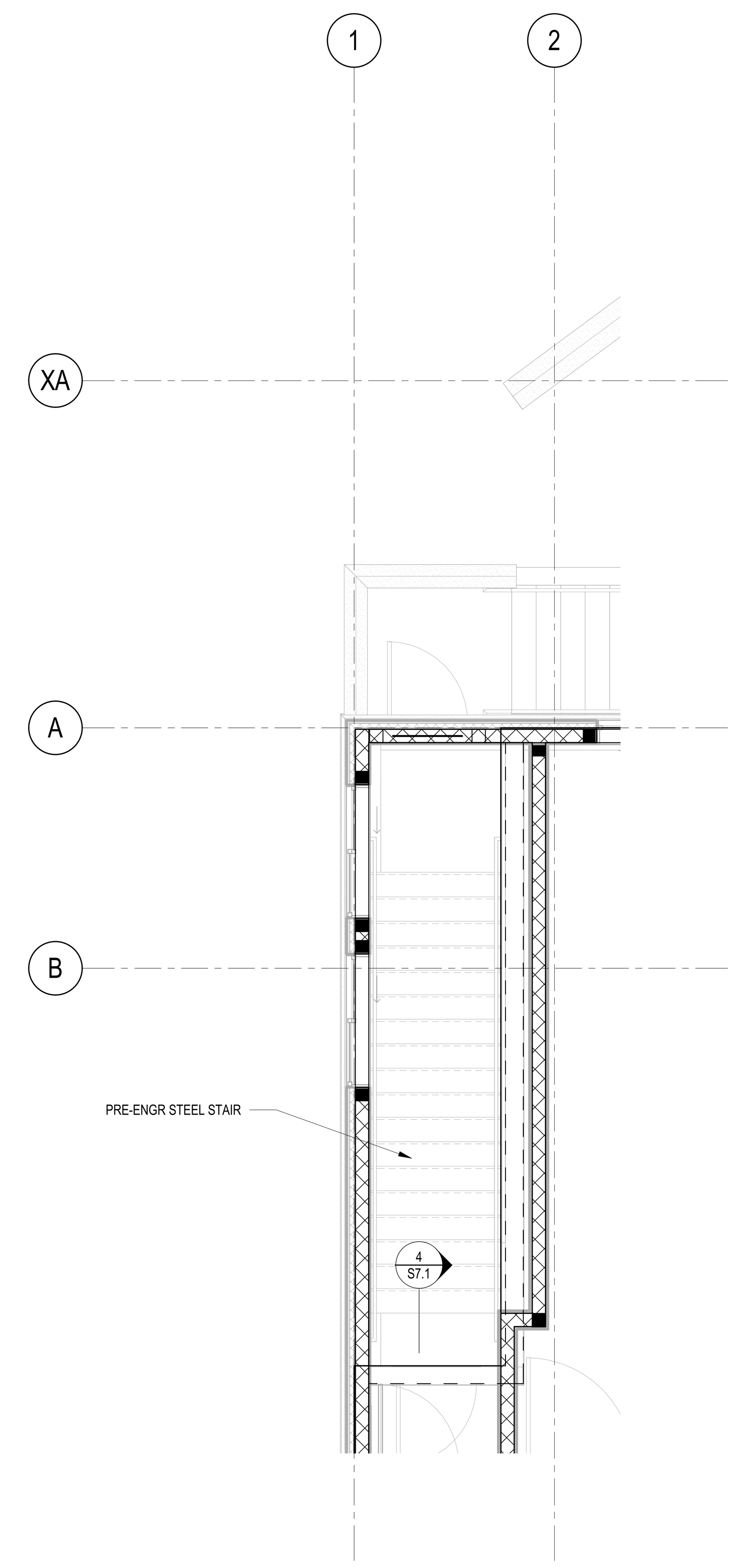


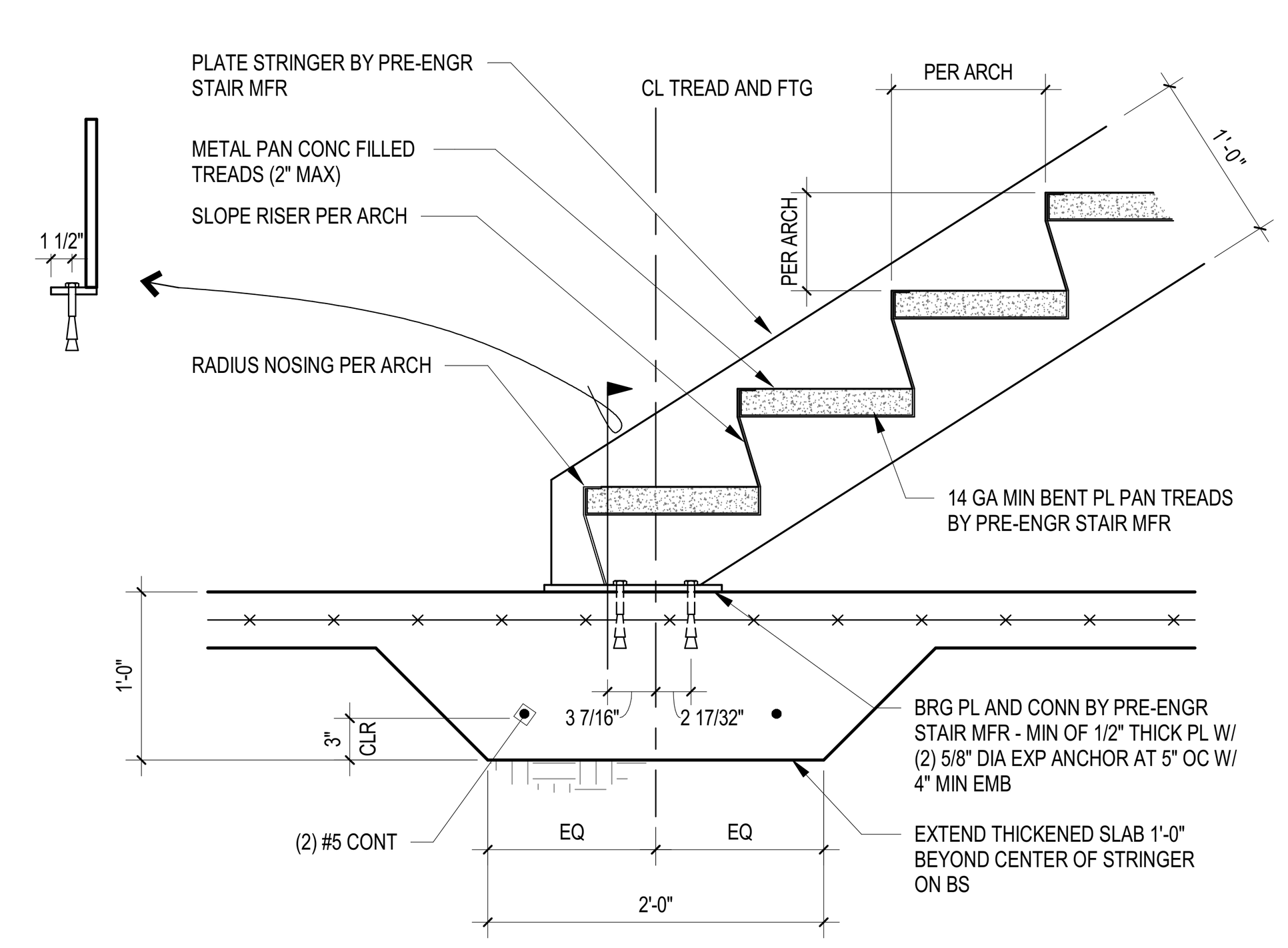
1 STAIR CC FOUNDATION PLAN

1/4" = 1'-0"



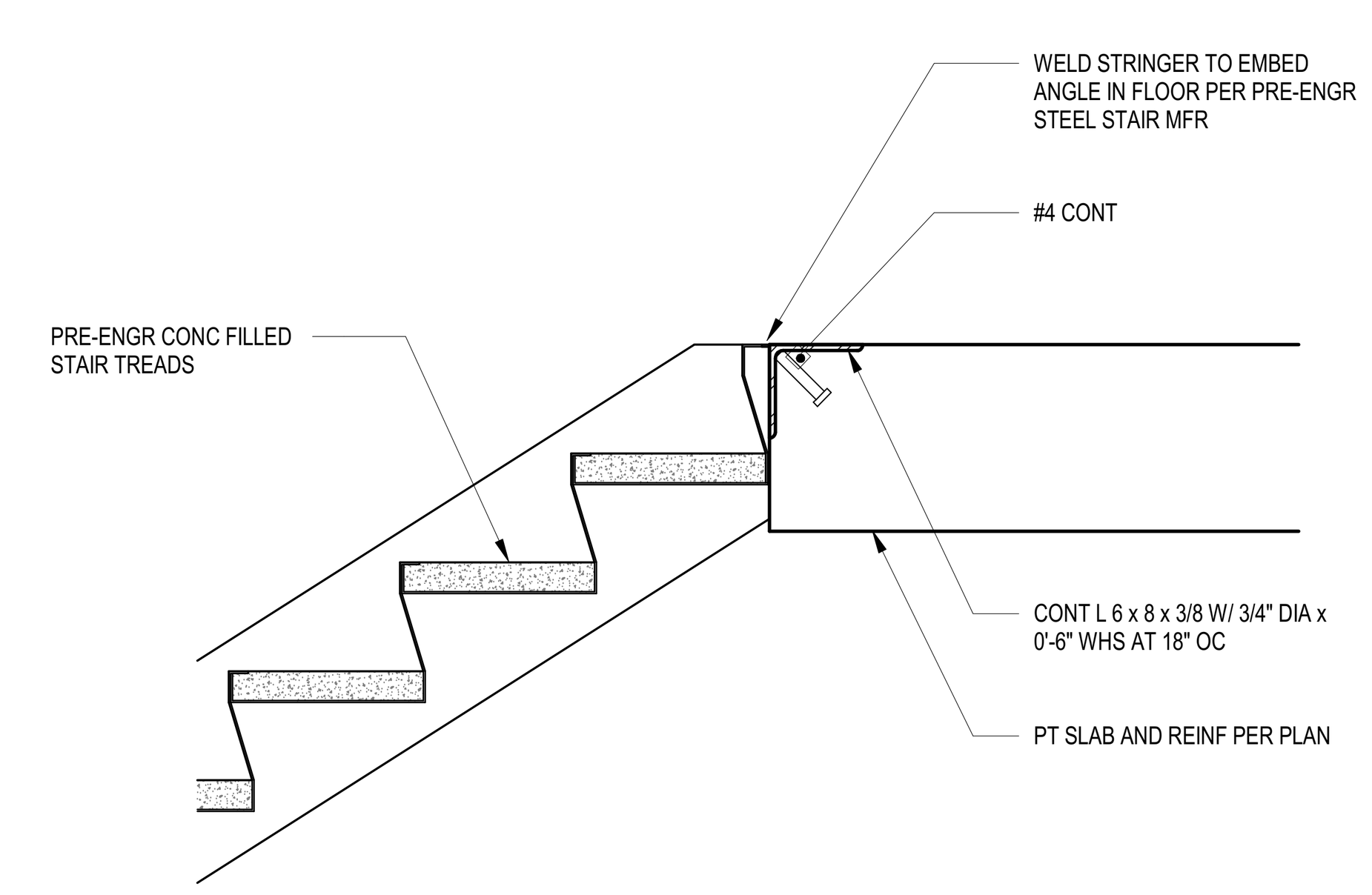
2 STAIR CC LEVEL 1 FLOOR FRAMING PLAN

1/4" = 1'-0"



3 SECTION

1" = 1'-0" 3 / S7.1



4 SECTION

1" = 1'-0" 4 / S7.1

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STAIR CC PLANS AND DETAILS

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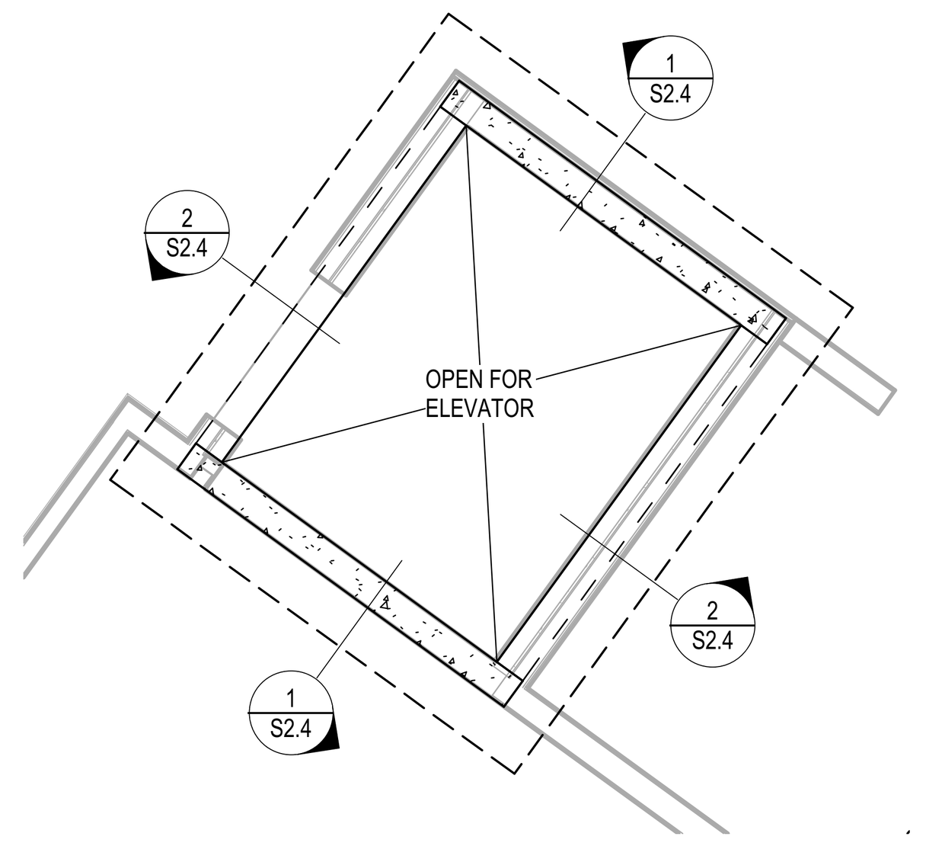
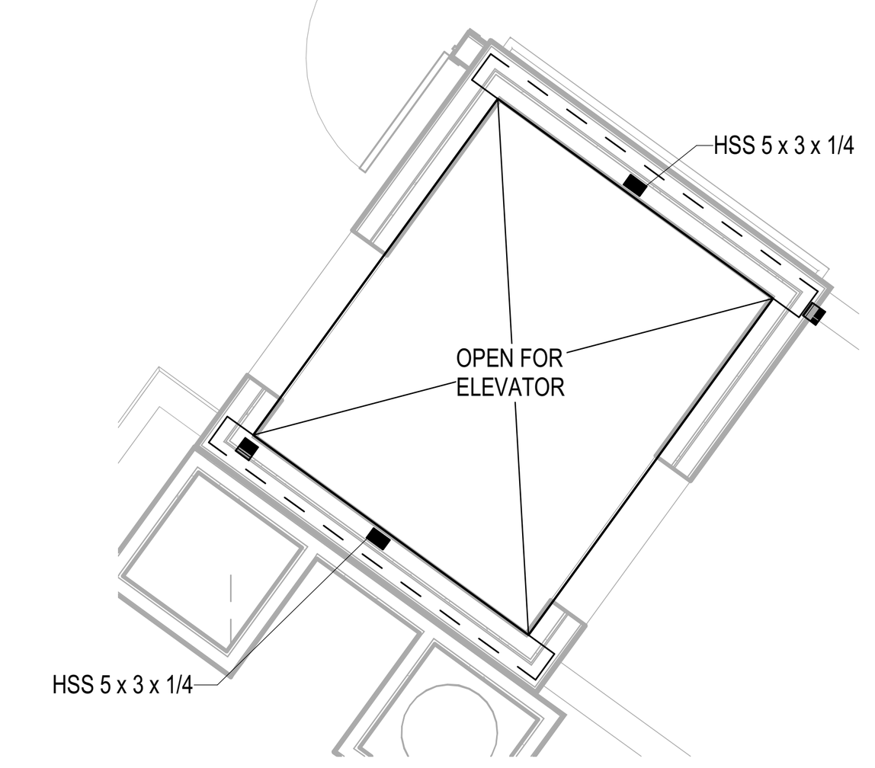
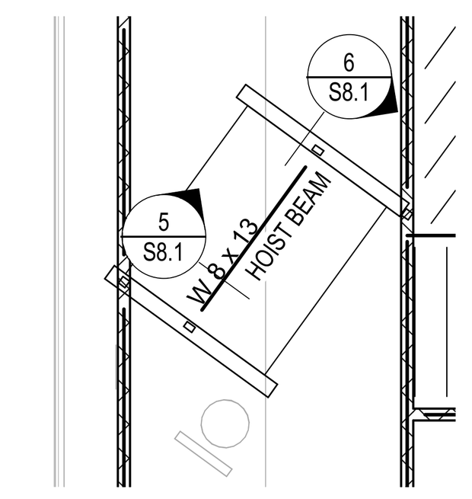
S7.1



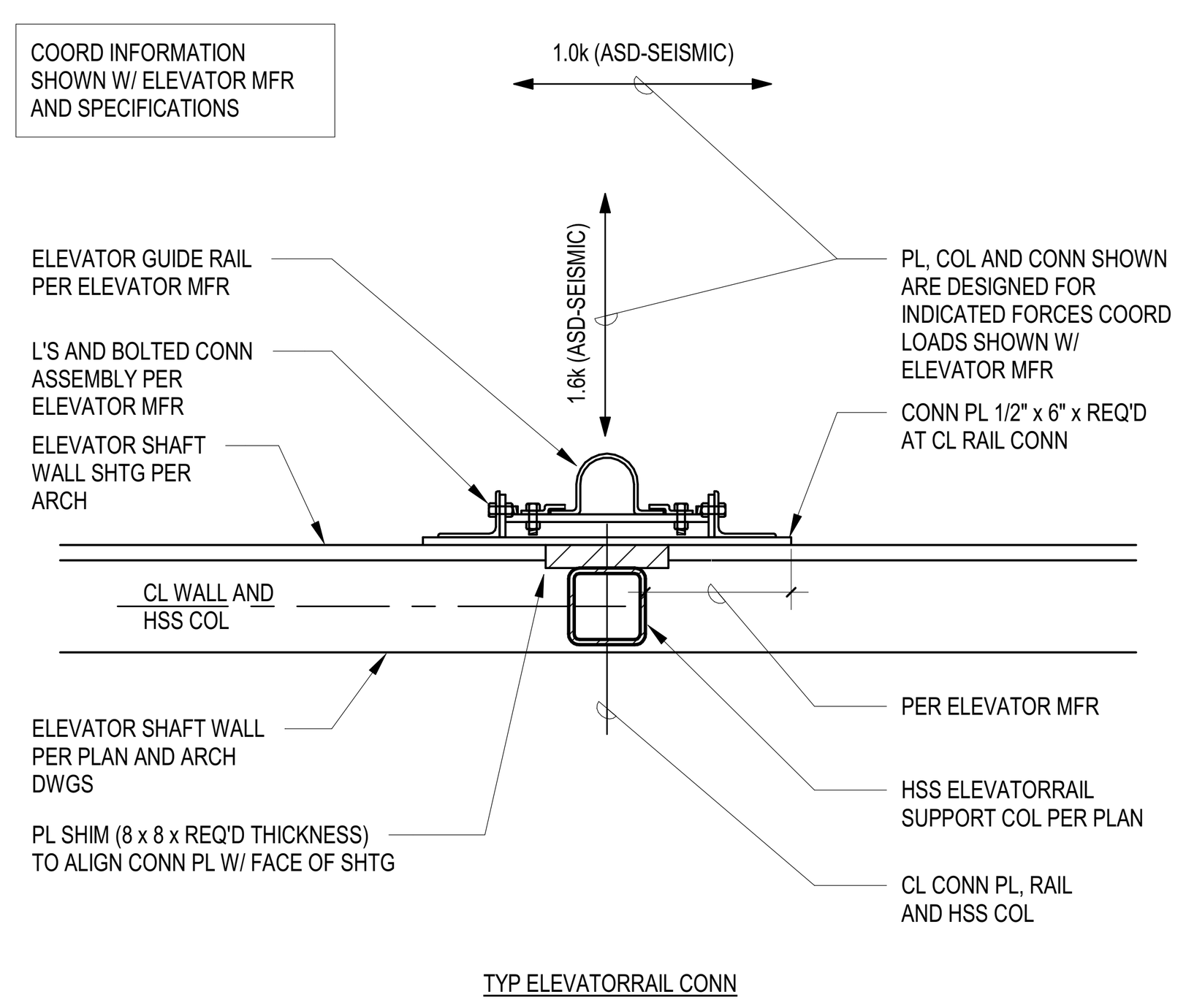
1 **ELEVATOR FOUNDATION PLAN**
1/4" = 1'-0"



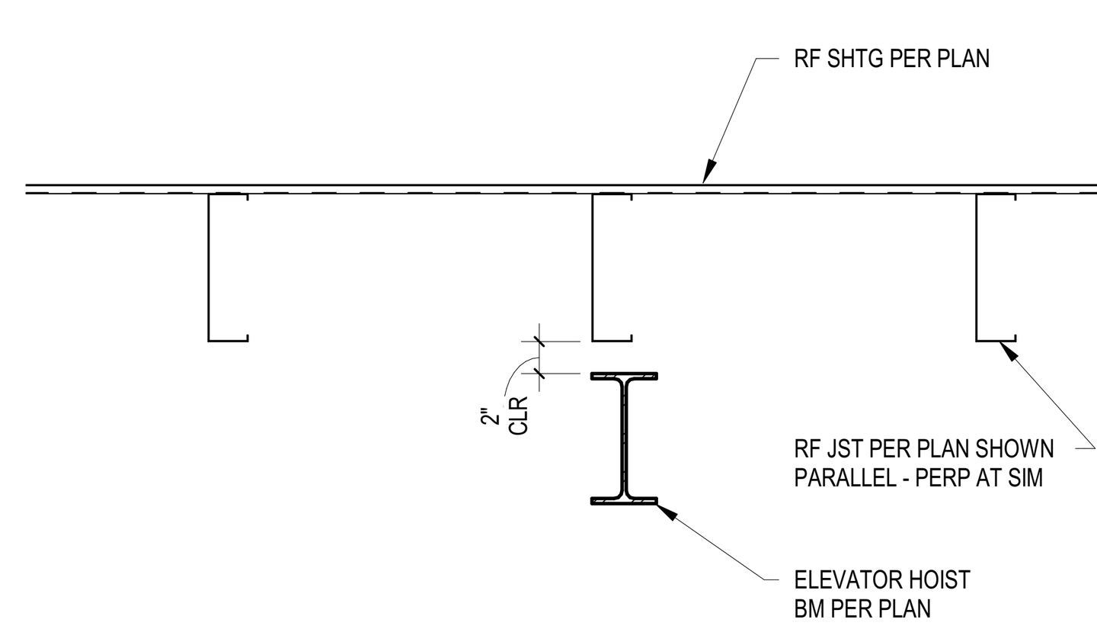
2 **ELEVATOR LEVEL 1 FLOOR FRAMING PLAN**
1/4" = 1'-0"



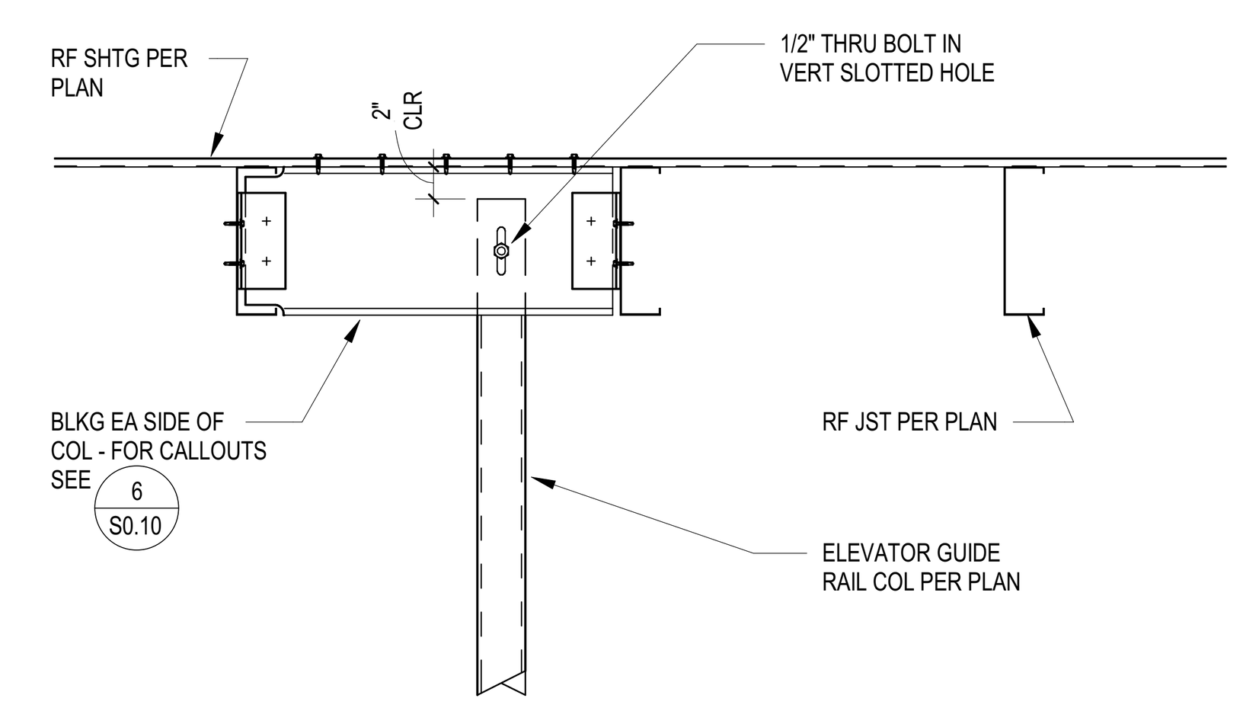
3 **ELEVATOR ROOF FRAMING PLAN**
1/8" = 1'-0"



4 **SECTION**
1" = 1'-0" 4 / S8.1



5 **SECTION**
1" = 1'-0" 5 / S8.1



6 **SECTION**
1" = 1'-0" 6 / S8.1

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ELEVATOR PLANS AND
DETAILS

S8.1

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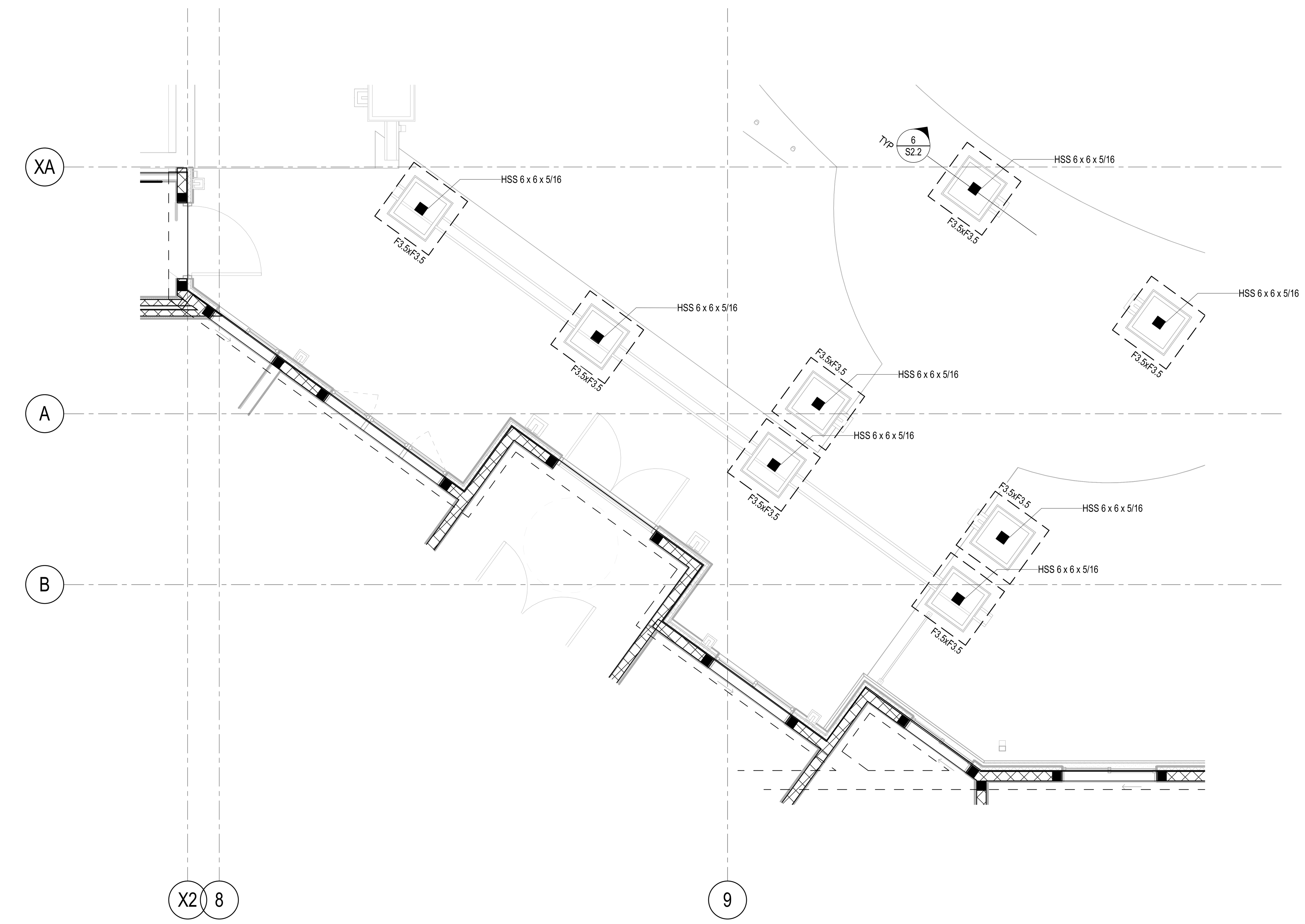
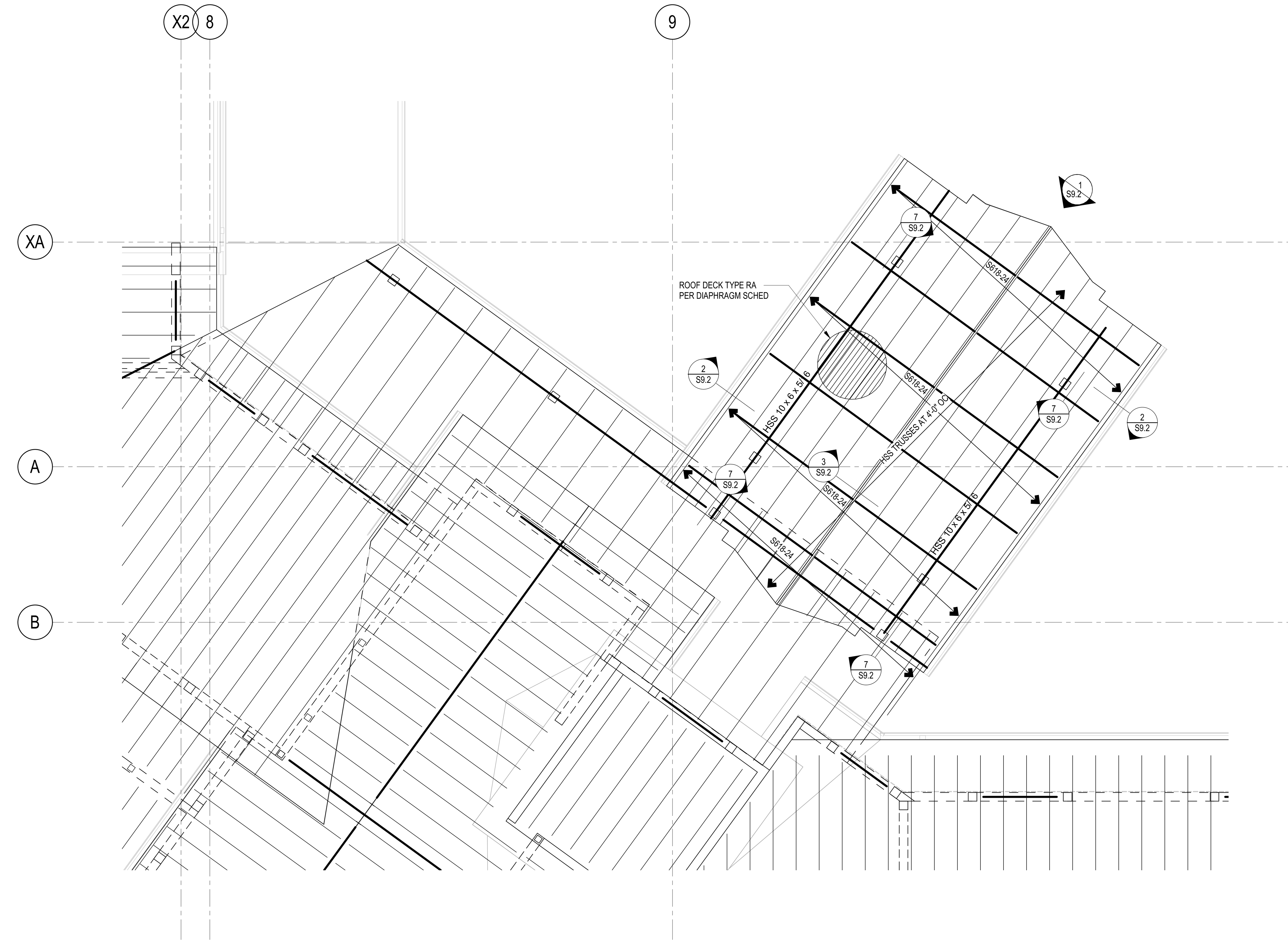


1 ENTRY CANOPY LEVEL 1 FRAMING PLAN

1/4" = 1'-0"



2 ENTRY CANOPY ROOF FRAMING PLAN

1/4" = 1'-0"

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ENTRY CANOPY PLANS

S9.1

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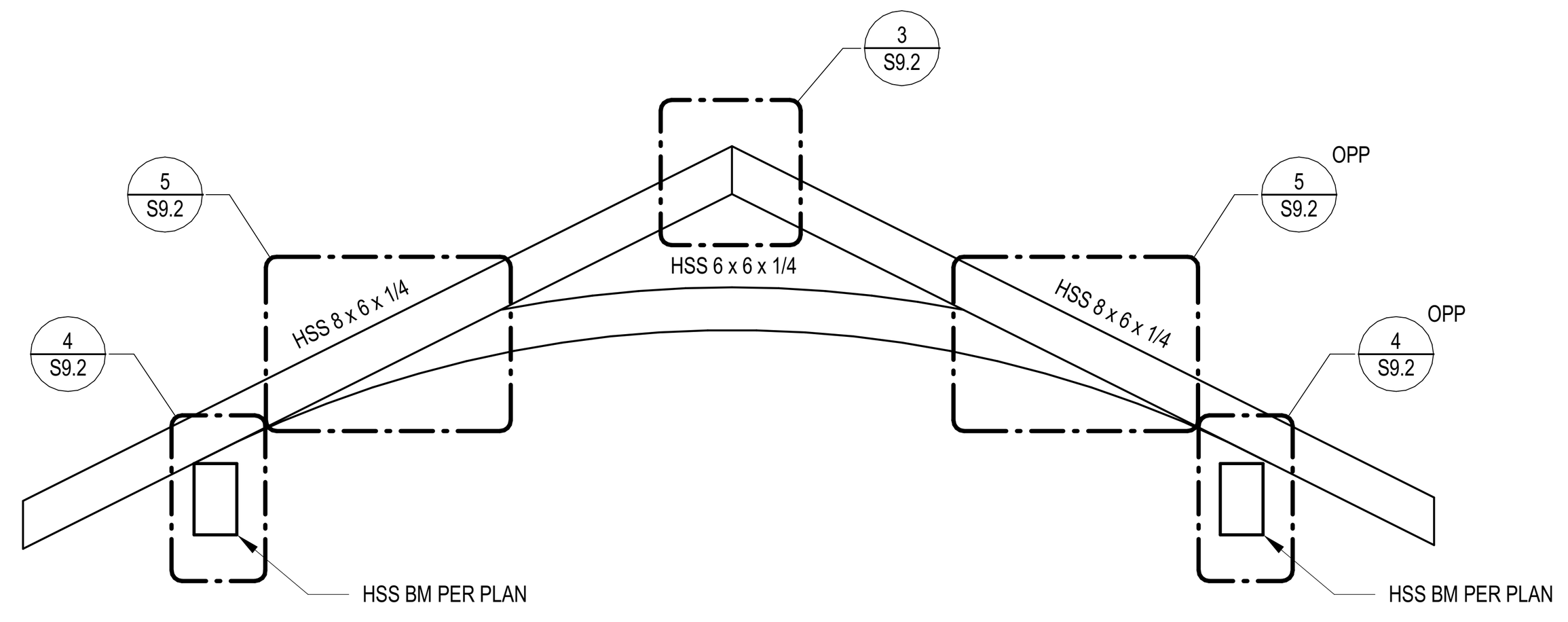
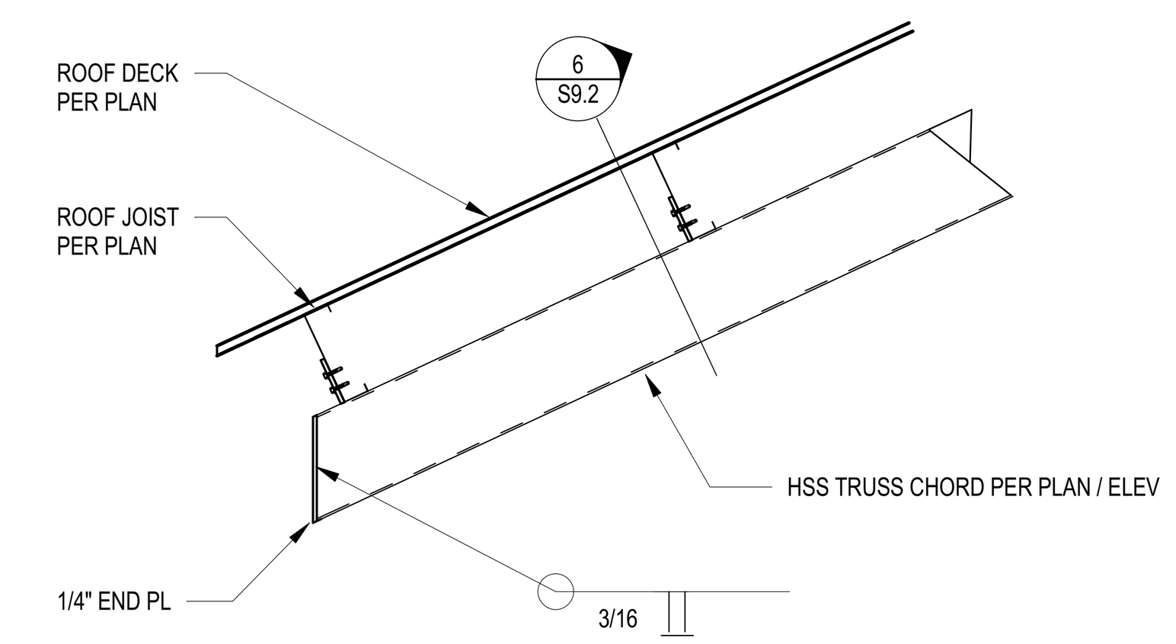
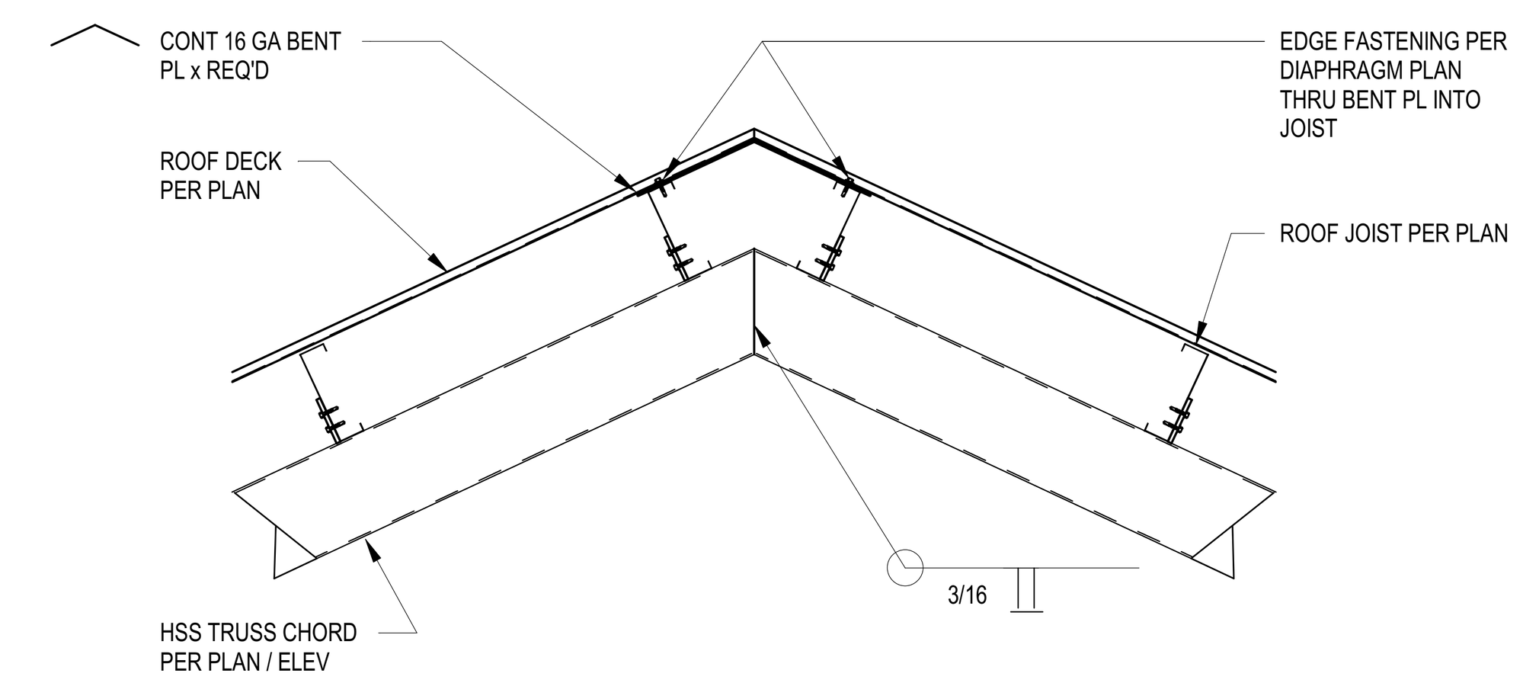


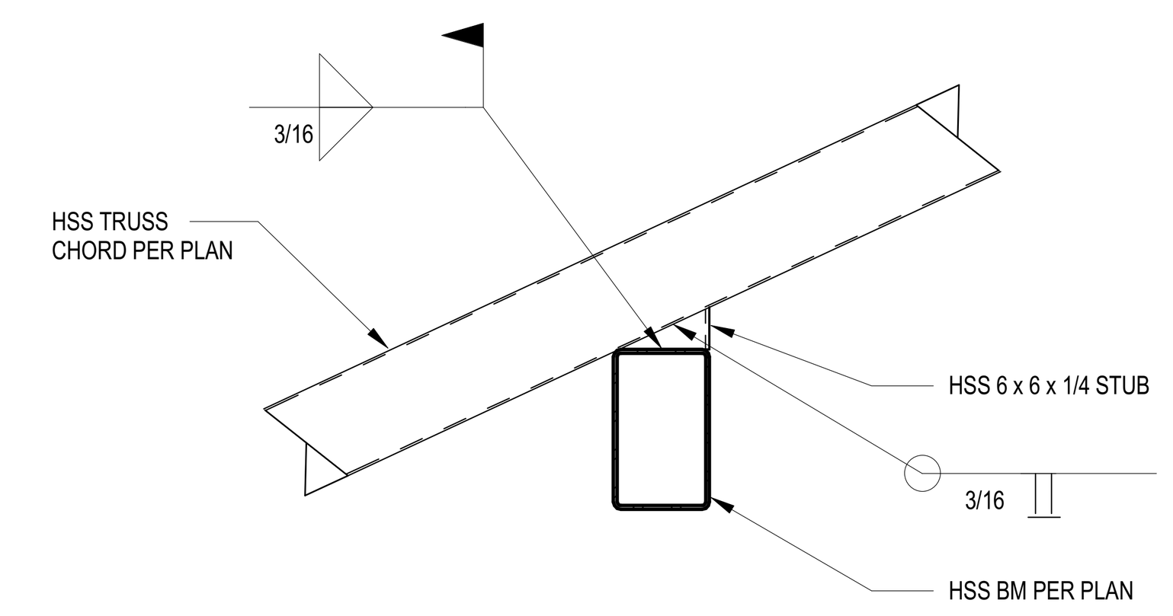
1 TRUSS ELEVATION
1/2" = 1'-0"



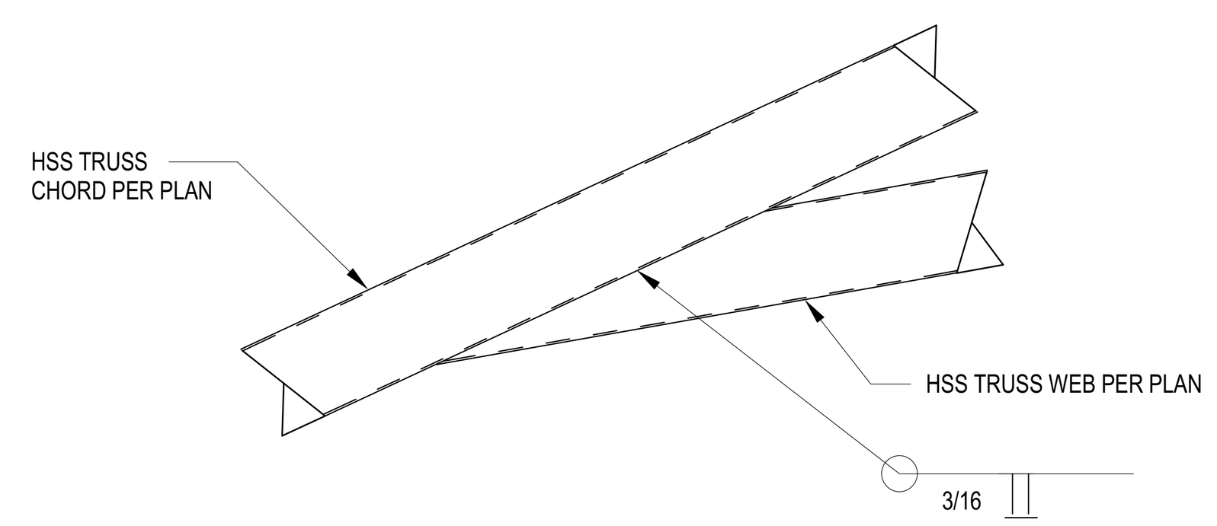
2 SECTION
1" = 1'-0" 2 / S9.2



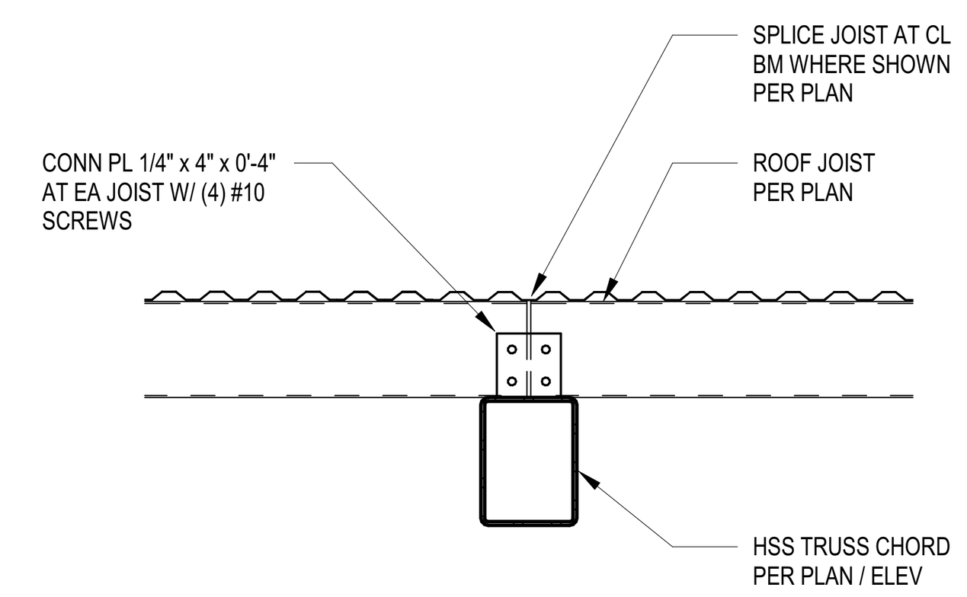
3 SECTION
1" = 1'-0" 3 / S9.2



4 SECTION
1" = 1'-0" 4 / S9.2



5 SECTION
1" = 1'-0" 5 / S9.2



6 SECTION
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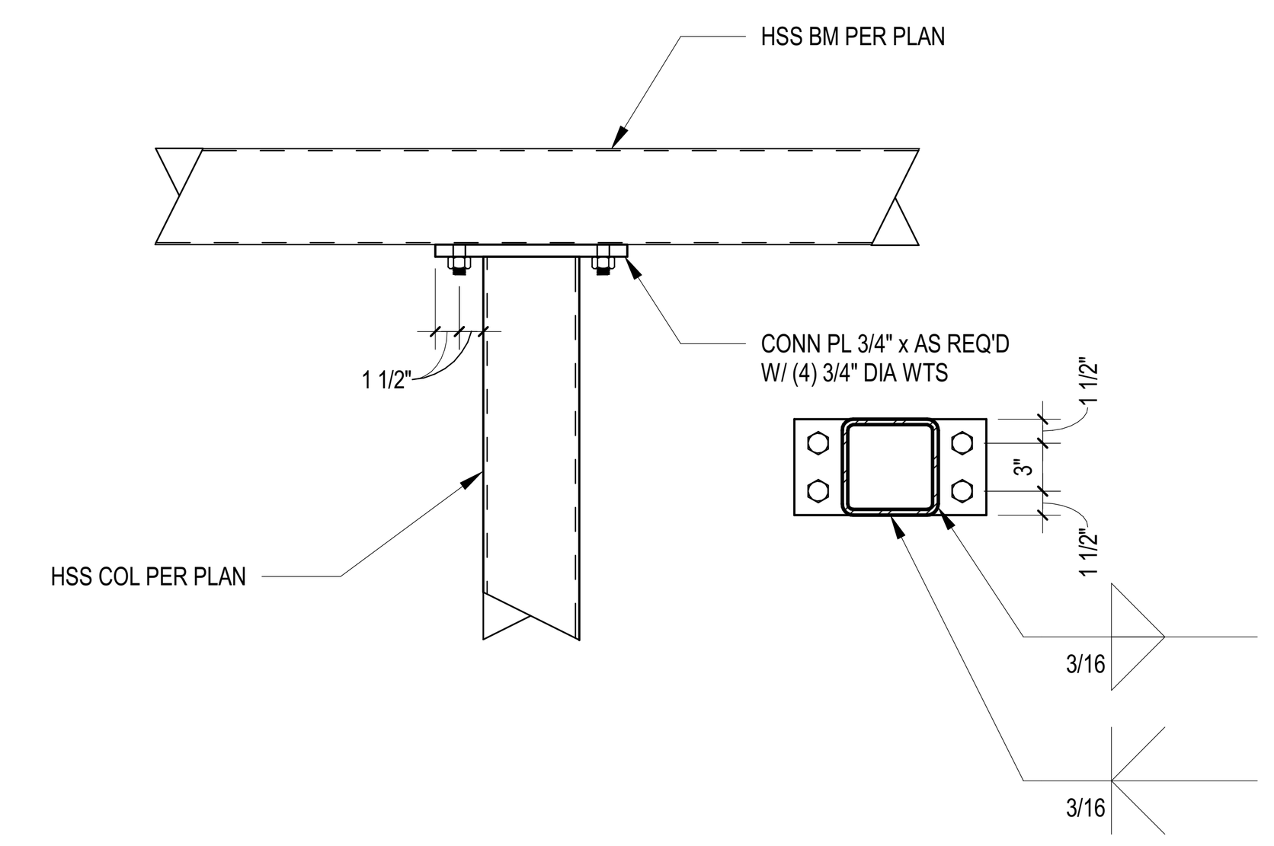

7 SECTION
1" = 1'-0" 7 / S9.2

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ENTRY CANOPY DETAILS
S9.2

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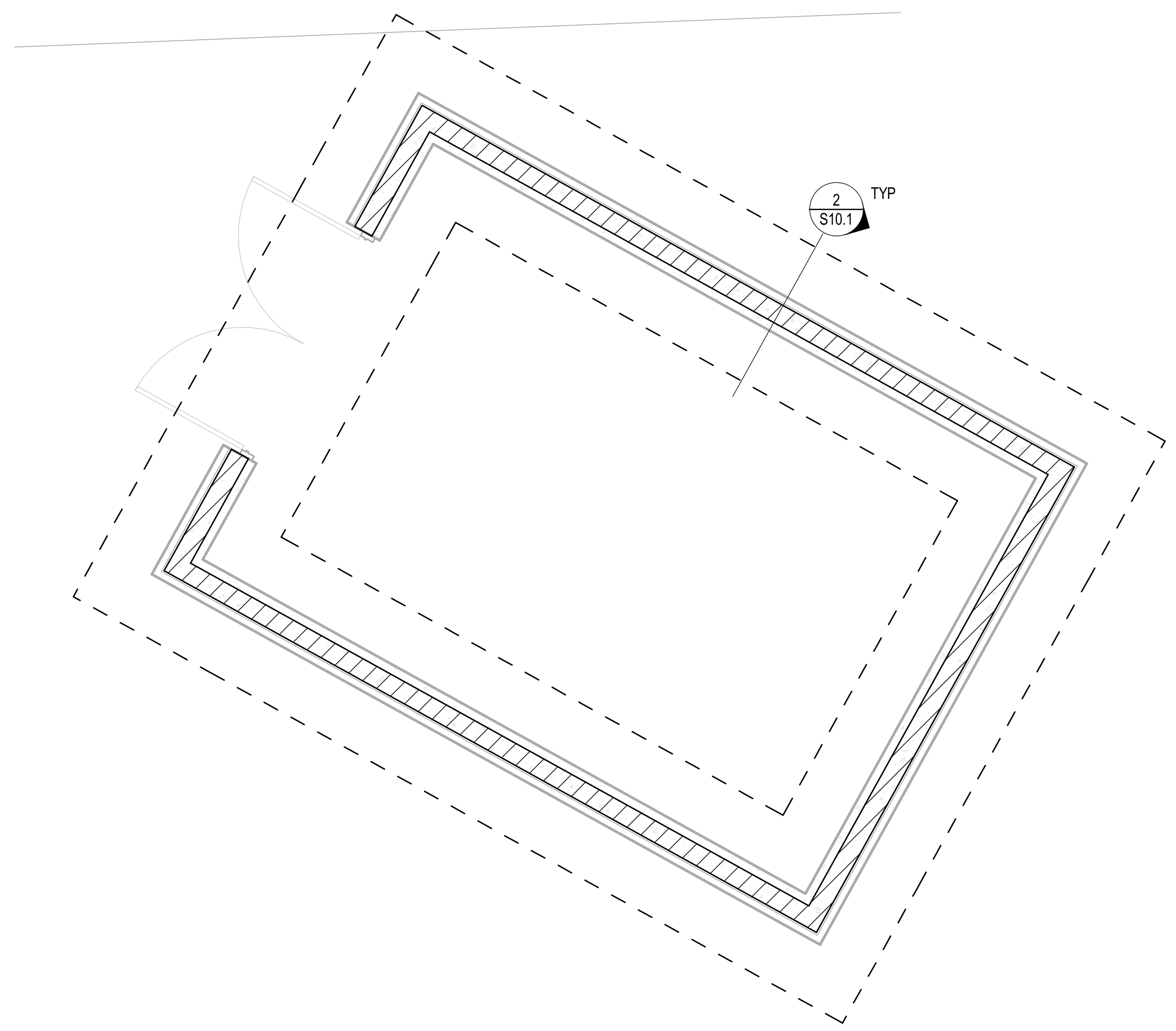
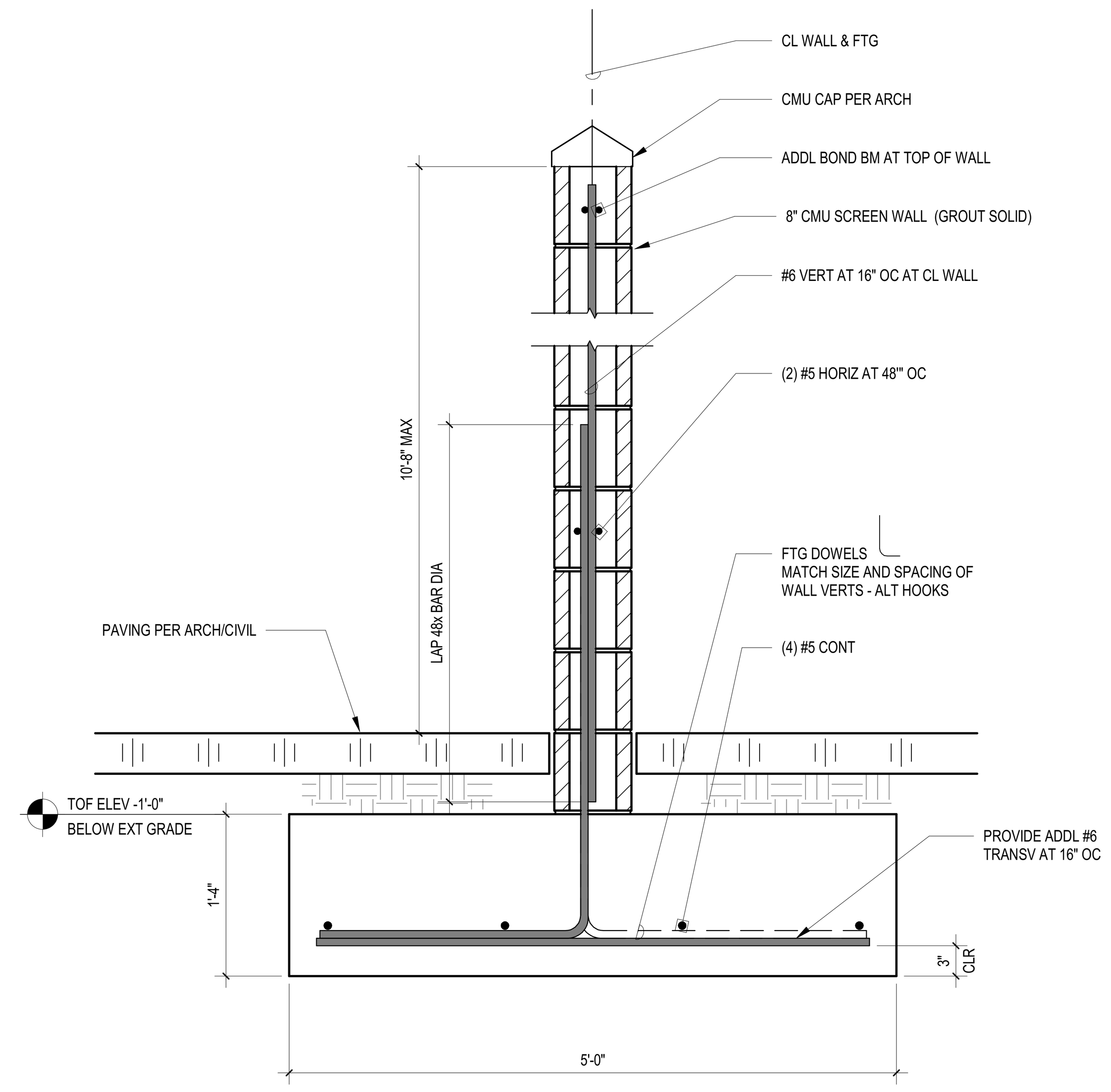


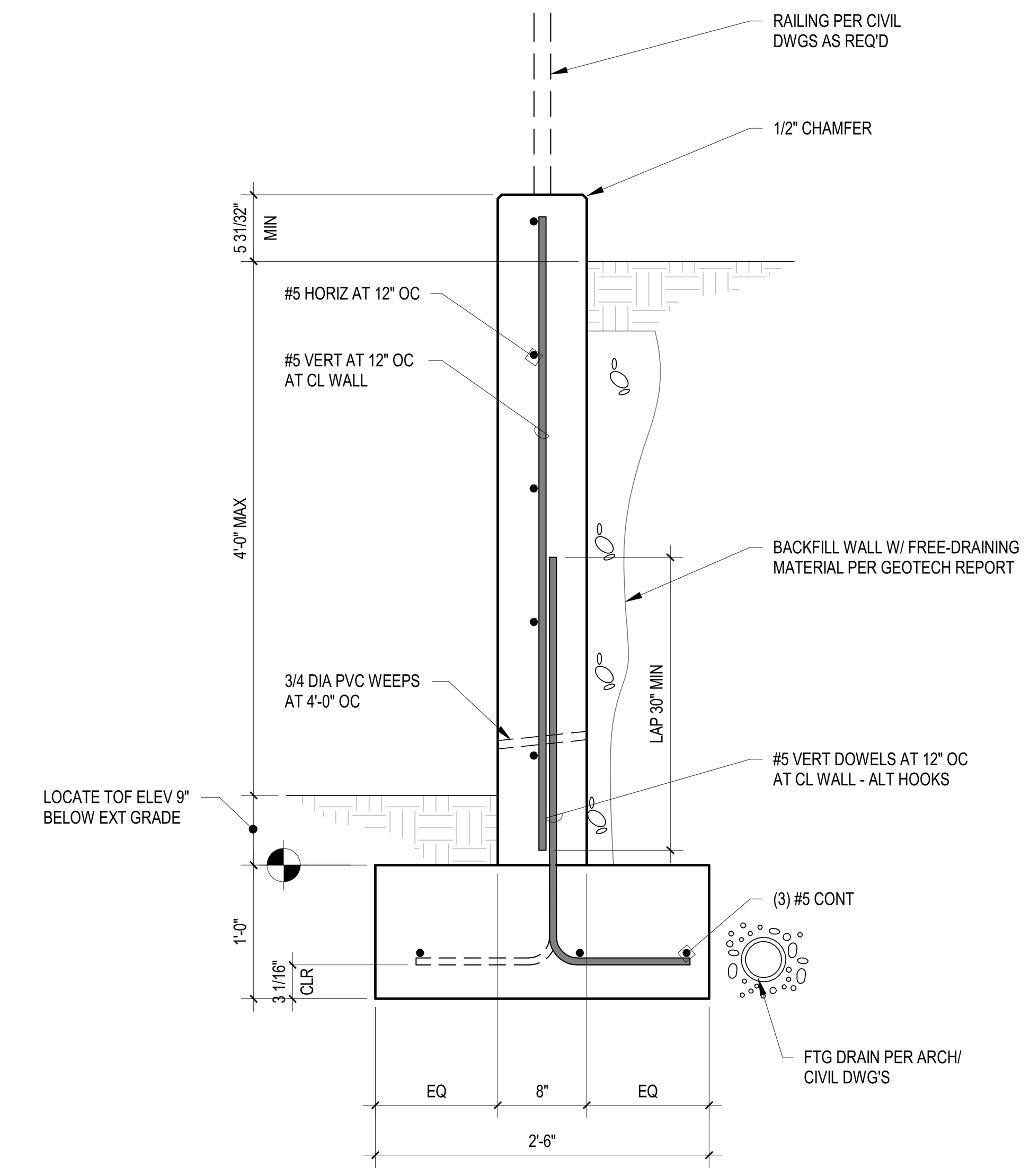
1 **TRASH ENCLOSURE PLAN**

1/4" = 1'-0"



2 **SECTION**

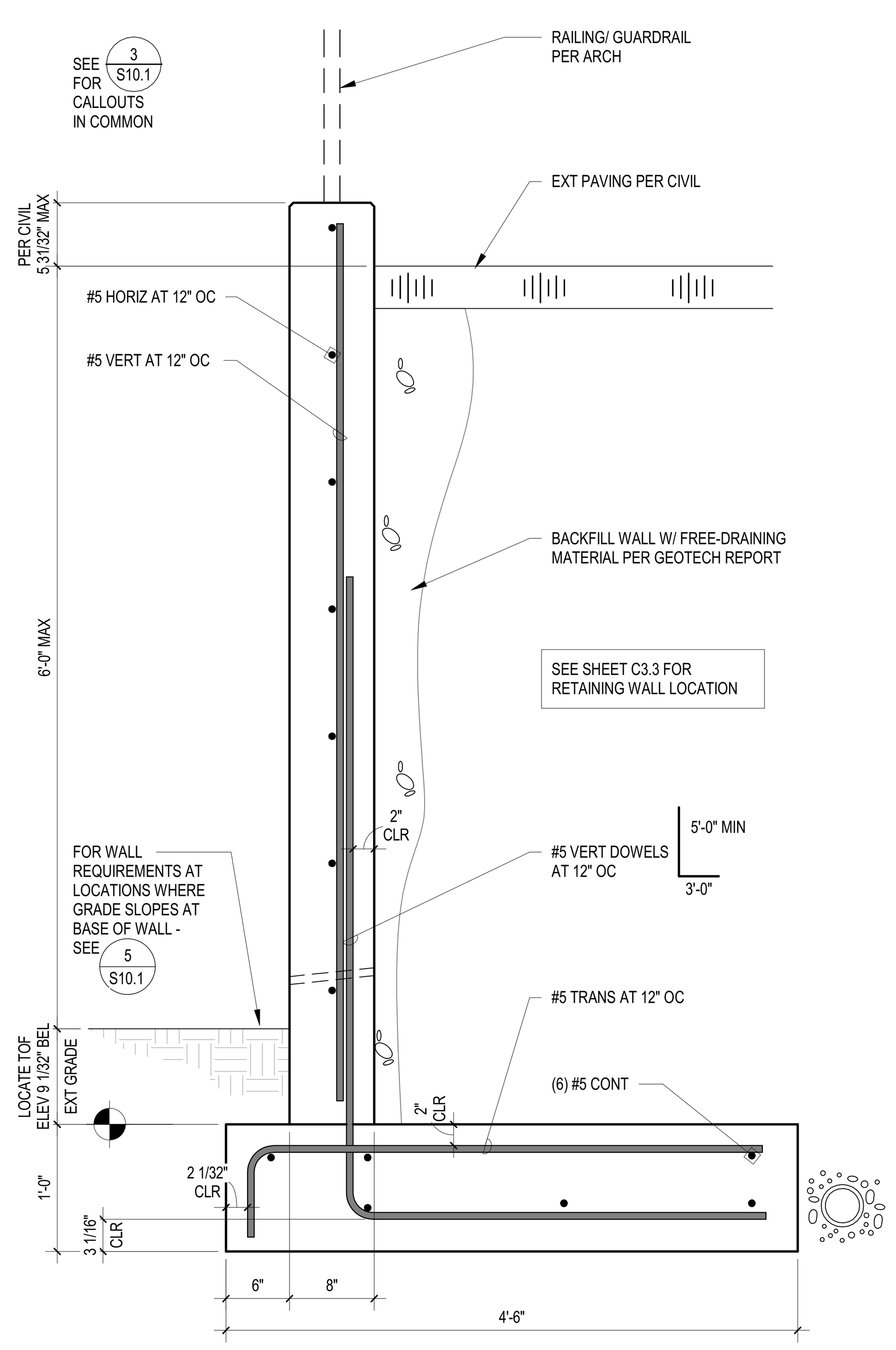
1" = 1'-0" 2 / S10.1



TYPICAL RETAINING WALL 4'-0" MAX HEIGHT

3 **SECTION**

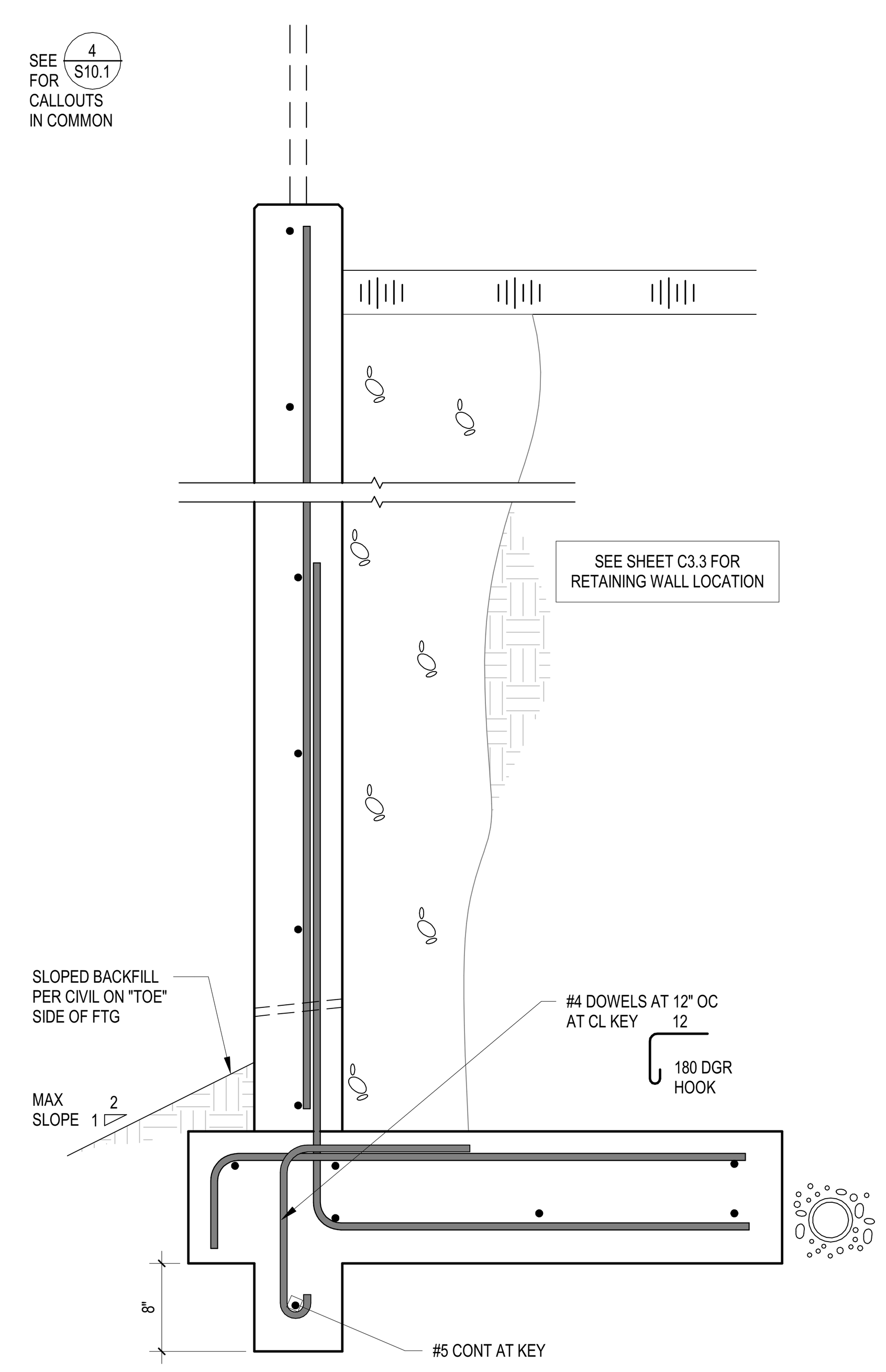
1" = 1'-0" 3 / S10.1



6'-0" MAX RETAINING WALL AT ROADWAY

4 **SECTION**

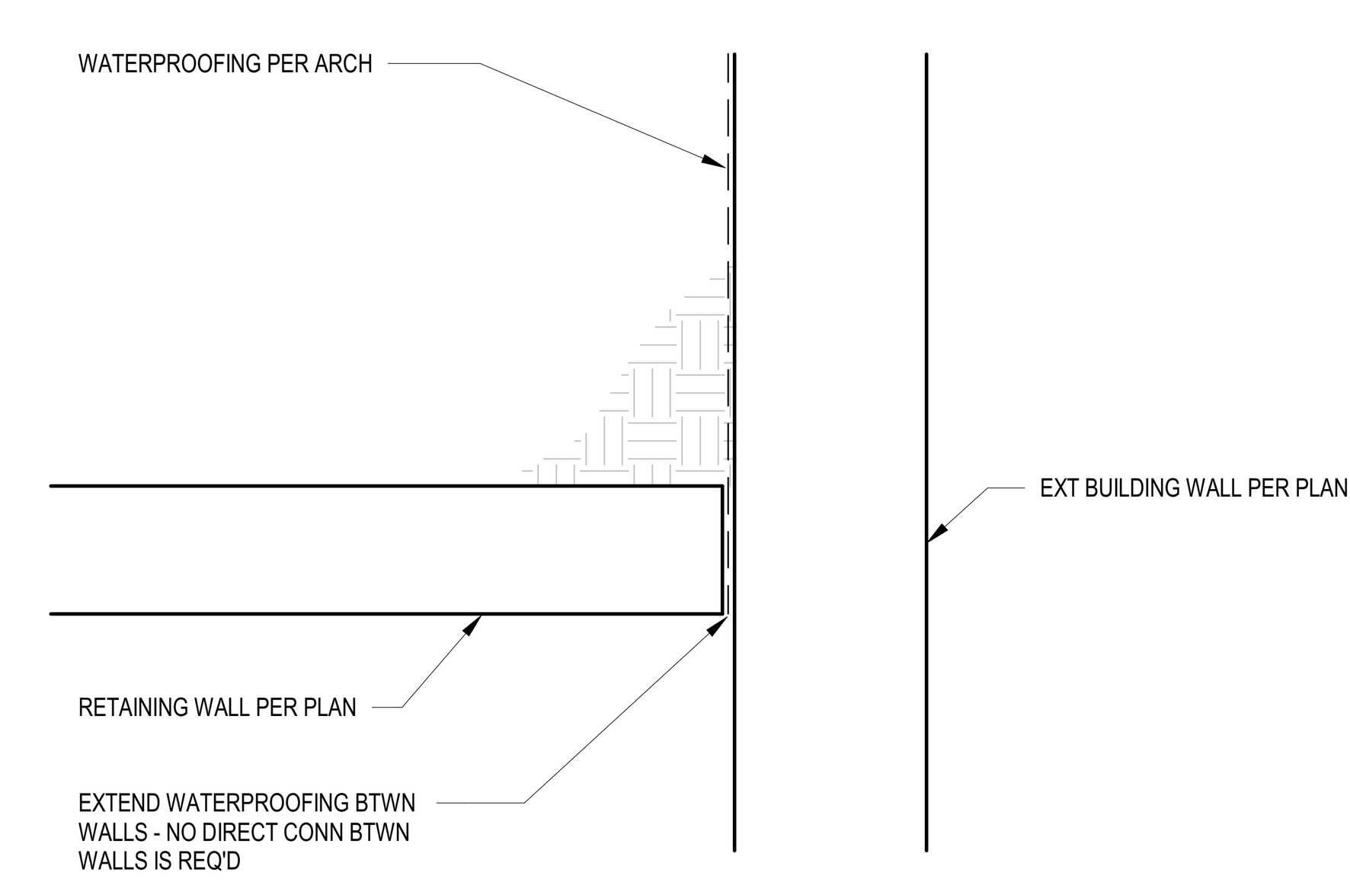
1" = 1'-0" 4 / S10.1



6'-0" MAX RETAINING WALL AT ROADWAY

5 **SECTION**

1" = 1'-0" 5 / S10.1



TYPICAL RETAINING WALL TERMINATION AT EXTERIOR BUILDING WALL

6 **SECTION**

1" = 1'-0" PLAN

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S10.1

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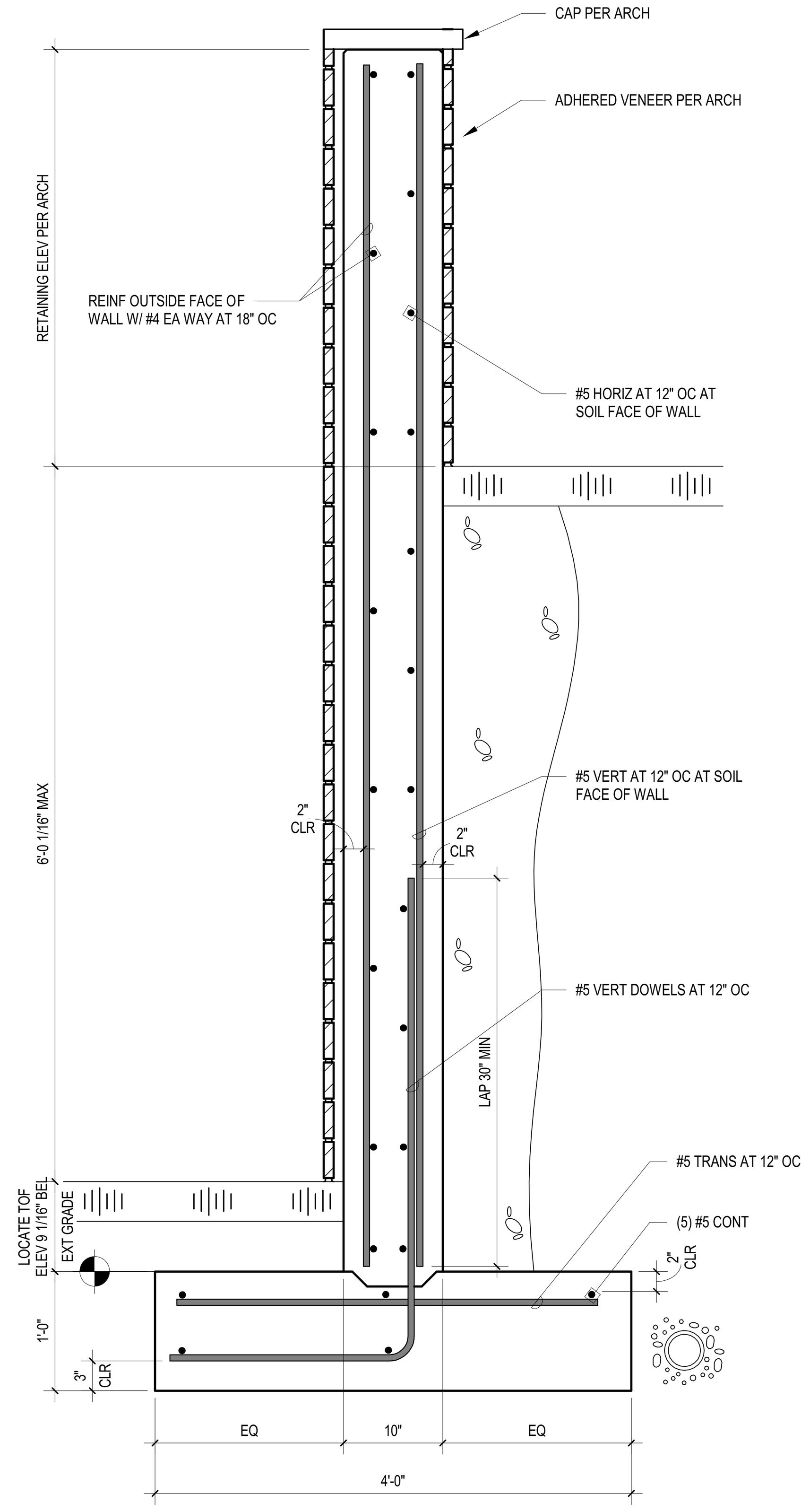
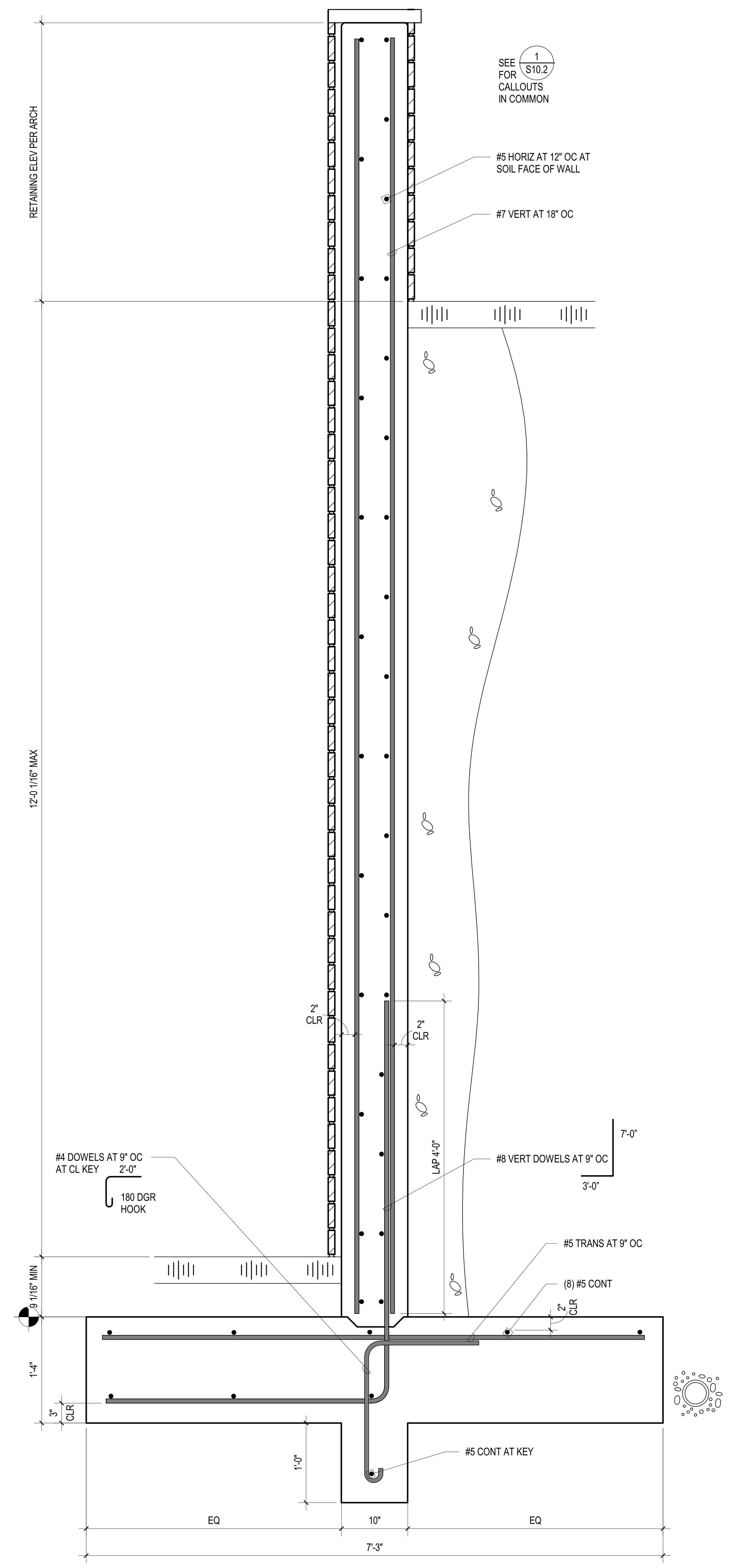


AREA "C" EXT RETAINING WALL

1 SECTION

1" = 1'-0" 1 / S10.2



AREA "C" EXT RETAINING WALL

2 SECTION

1" = 1'-0" 2 / S10.2

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SITE DETAILS

S10.2

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