

ABBREVIATIONS	
AB	ANCHOR BOLT
ABV	ABOVE
ADJ	ADJACENT
AFF	ABOVE FINISH FLOOR
ADGR	ADJUGATE
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARCH	ARCHITECTURAL
BD	BOARD
BLDG	BUILDING
BLOCK	BLOCKING
BM	BEAM
BN	BOUNDARY NAILING
BT	BOTTOM OF
BTM	BOTTOM
BRG	BEARING
BTWN	BETWEEN
CBM	CAMBER
CANFL	CANTILEVERED
CTR	CENTERED
CTRLINE	CENTERLINE
CLR	CLEAR
CMU	CONC MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS
J	JENNY
CSJA	CHAMFER
DBL	DOUBLE
DEPT	DEPARTMENT
DIAG	DIAGONALS FR LARCH
DIAG	DIAGONAL
DTL	DETAIL
DIAM	DIAMETER
DM	DIMENSION
DN	DOWN
DWG	DRAWING
DWV	DOWNS
EACH	EACH
EXPAN	EXPANSION JOINT
ELEV	ELEVATION
ELEC	ELECTRIC
EDG	EDGE NAILING
ENCL	ENCLOSED
ENGR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXTD	EXTENDED
FD	FLOOR DRAIN
FOUND	FOUNDATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIN	FINISH
FLR	FLOOR
FRMG	FRAMING
FT	FOOT OR FEET
FTG	FOOTING
FLUR	FLOORING
GAUGE	GAUGE
GLB	GULLY LAM BEAM
GRND	GROUND
GRD	GIRDER TRUSS
GYP	GYPSPUM WALLBOARD
HDR	HEADER
HBR	HANGER
HGT	HEIGHT
HDRZ	HORIZONTAL
HTR	HIP TRUSS
INSUL	INSULATION
INT	INTERIOR
J	JOINT
JAM	JAMMATE
LAT	LATERAL
LBS	POUNDS
LSL	LAM STRAND LUMBER
LT	LIGHT
LVL	LAM VENEER LUMBER
LWB	LONG WAY
MAS	MASONRY
MAX	MAXIMUM
MCH	MECHANICAL
MFR	MANUFACTURER
MFRD	MANUFACTURED
MN	MINIMUM
MISC	MISCELLANEOUS
ND	NUMBER
N	NOT
NTS	NOT TO SCALE
O	OVER
OP	OPENING
OPNG	OPENING
PFA	POST FROM ABOVE
PLT	PLATE
PLYWD	PLYWOOD
PNL	PANEL
PREAB	PREFABRICATED
PBL	PARALLEL STRAND LUMBER
PBI	LBS PER SQ INCH
PT	POST TENSIONED
P	POUND
RAD	RADIUS
REF	REFERENCE
REIN	REINFORCING
REQD	REQUIRED
RCT	SECTION
SHTH	SHEATHING
SM	SIMILAR
SPEC	SPECIFICATIONS
SQ	SQUARE
STD	STANDARD
STGD	STAGGERED
STR	STEEL
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
SW	SHEAR WALL
SPN	SOLE PLATE NAILING
SW	SHORT WAY
T&G	TONGUE AND GROOVE
T&B	TOP AND BOTTOM
THR	THICK
TD	TOP OF
TRIMM	TRIMMER
TR	TRUSS
TS	TUBE STEEL
TS LBL	TIMBERSTRAND BEAM
TYP	TYPICAL
UNL	UNLESS NOTED OTHERWISE
VERT	VERTICAL
W	WITH
WS	WOOD SCREW
WT	WEIGHT

GENERAL

- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODE: THE INTERNATIONAL BUILDING CODE, 2018 EDITION, OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
- THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE ABOVE ITEMS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- DIMENSIONS SHALL TAKE PRECEDENCE OVER THE SCALE SHOWN ON DRAWINGS.
- NOTES AND DETAILS ON PLANS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- SEE ARCHITECTURAL PLANS FOR THE FOLLOWING:
 - SIZE AND LOCATION OF ALL DOOR AND WINDOW OPENINGS.
 - SIZE AND LOCATION OF ALL INTERIOR AND EXTERIOR NON-BEARING PARTITIONS.
 - SIZE AND LOCATION OF ALL CONCRETE CURBS, FLOOR DRAINS, SLOPS, DEPRESSION AREAS, CHANGES IN LEVEL, CHAMFER, GROOVES, INSERTS, ETC.
 - SIZE AND LOCATION OF FLOOR AND ROOF OPENINGS.
 - FLOOR AND ROOF FINISHES.
 - STAIR FRAMING AND DETAILS.
 - DIMENSIONS NOT SHOWN ON STRUCTURAL PLANS.
- SEE MECHANICAL, PLUMBING, AND ELECTRICAL PLANS FOR THE FOLLOWING:
 - PIPE RUNS, SLEEVES, HANGERS, TRENCHES, WALL AND SLAB OPENINGS, ETC., (EXCEPT AS SHOWN OR NOTED).
 - ELECTRICAL CONDUIT RUNS, BOXES, OUTLETS IN WALLS AND SLABS.
 - CONCRETE INSERTS FOR ELECTRICAL, MECHANICAL, OR PLUMBING FIXTURES.
 - SIZE AND LOCATION OF MACHINE EQUIPMENT BASES, OR ANCHOR BOLTS FOR MOUNTS.
 - SIZE AND LOCATION OF ALL MECHANICAL UNITS.
- OPENINGS, POCKETS, ETC. LARGER THAN 4 INCHES SHALL NOT BE PLACED IN SLABS, DECKS, BEAMS, JOISTS, COLUMNS, WALLS, ETC., UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL PLANS.
- ASTM SPECIFICATIONS NOTED SHALL BE THE LATEST REVISION.
- THE CONTRACTOR SHALL INVESTIGATE THE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS CESSPOOLS, CISTERNS, FOUNDATIONS, ETC. IF ANY SUCH STRUCTURES ARE FOUND, THE ENGINEER OF RECORD SHALL BE NOTIFIED IMMEDIATELY.
- CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FLOORS OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.
- WHERE THE LONGEST HORIZONTAL CEILING DIMENSION IS EQUAL TO OR GREATER THAN 20'-0", IT IS RECOMMENDED THAT RESIDENT CHANNEL BE USED TO HELP LIMIT DRYWALL CRACKING.

DESIGN CRITERIA

	LIVE LOAD	DEAD LOAD
FLOOR LOAD	40 PSF	15 PSF
ROOF LOAD	20 PSF	22 PSF
ROOF SNOW LOAD	≤10 PSF	---
STAR & EXT LOAD	---	---
STORAGE LOAD	---	---

★ SEE FRAMING NOTES FOR SPECIAL LOADING CONDITIONS.	
BASIC WIND SPEED	100 MPH (RFD), 78 MPH (ASD)
WIND RISK CATEGORY	II
WIND EXPOSURE CATEGORY	C
INTERNAL PRESSURE COEFFICIENT	+0.18
SEISMIC RISK CATEGORY & IMPORTANCE	II I _e = 1.0
TYPICAL SPECTRAL RESPONSE ACCELERATIONS	S ₁ = 0.487 & S ₂ = 0.164
SPECTRAL RESPONSE COEFFICIENTS	S _{DS} = 0.422 & S _{DS} = 0.164
SITE CLASS	C
LATERAL FORCE RESISTING SYSTEM	LIGHT FRAME WALLS WITH SHEAR PANELS. R = 6.5
SEISMIC RESPONSE COEFFICIENT, C _s	0.065
DESIGN BASE SHEAR	C _s × DEAD WEIGHT(W)
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
SEISMIC DESIGN CATEGORY	C

FOUNDATION

- THIS IS TO CERTIFY THE FOUNDATION DEPICTED HEREIN HAS BEEN DESIGNED IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRACTICE FOR CONDITIONS AS CLASSIFIED BY THE PROJECT GEOTECHNICAL REPORT.

CONSULTANT: ACTION TECHNOLOGIES AND ENGINEERING, INC
PROJECT NO. 7205
DATED: JANUARY 7, 2017
UPDATED:
CONSULTANT: DUPONT ENGINEERING, INC.
PROJECT NO. 184789
DATED: DECEMBER 15, 2019
- FOOTINGS ARE DESIGNED BASED ON AN ALLOWABLE BEARING PRESSURE OF 2000 PSF PER SOIL REPORT.
- SOILS PREPARATION AND FOUNDATION CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE GEOTECHNICAL REPORT.
- SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF BULKHEADS AND OPENINGS, ETC.
- THE CONTRACTOR SHALL PROVIDE FOR PROPER DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER, SEEPAGE, ETC. (FOOTINGS SHALL NOT BE PLACED UNDER WATER).
- FOOTINGS SHALL BE PLACED ACCORDING TO DEPTHS SHOWN ON THE STRUCTURAL PLANS. ALL ABANDONED FOOTINGS, UTILITIES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
- CONCRETE PLACEMENT SHALL BE IN ONE CONTINUOUS OPERATION UNLESS OTHERWISE SPECIFIED AND SLAB SURFACE SHALL BE CURED WITH HUNTS COMPOUND OR EQUAL.
- FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE PER THE REQUIREMENTS OF THE GEOTECHNICAL REPORT. FLOODING WILL NOT BE PERMITTED.

FOUNDATION REQUIREMENTS

- THICKEN SLAB AS REQUIRED FOR CONCRETE COVERAGE AT ANCHOR BOLTS PER AC 318 WHICH OCCURS: THE CONCRETE CONTRACTOR SHALL VERIFY LOCATION OF ALL BOLTS, THE DOWNS POST ANCHORS, ETC. WITH THE ARCHITECTURAL PLANS PRIOR TO COMMENCING WORK AND BE RESPONSIBLE FOR SAME.
- UNO BOLT SILL PLATES TO THE FOUNDATIONS WITH MIN 1/2" NOMINAL DIA ANCHOR BOLT WITH PLATE WASHERS. BOLTS SHALL BE SPACED NOT MORE THAN 72" O.C. THERE SHALL BE A MIN OF (2) BOLTS PER PIECE. ONE BOLT SHALL BE LOCATED NOT MORE THAN 12" AND NOT LESS THAN 4" FROM EACH END, OR FROM EACH SIDE OF A NOTCH GREATER THAN 1/2 THE WIDTH OF THE PLATE. EMBED BOLTS AT LEAST 7" INTO REINFORCED MASONRY OR CONCRETE. SILL PLATE ANCHOR BOLTS MAY BE WET SET.
- PROVIDE 3" X 3" X 0.239" PLATE WASHERS ON ALL ANCHOR BOLTS AT SHEAR WALLS. PLATE WASHERS SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE SILL PLATE ON THE SIDES) WITH SHEATHING PROVIDE STANDARD CUT WASHERS UNDER BOLT HEADS AND NUTS WHEN SLOTTED PLATE WASHERS ARE USED. PROVIDE CUT OR SLOTTED WASHERS AGAINST WOOD AT ALL REMAINING WALLS.
- ALL 1/2" DIA. ANCHOR BOLTS MAY BE REPLACED WITH:
 - 1/2" DIA THREADED ROD EPOXY DOWELED TO FOUNDATION WITH SIMPSON SET-UP EPOXY (ICC REPORT ESR-2608) IN 3/8" DIA HOE. PROVIDE A MIN. OF 4" EMBEDMENT AND 1 3/4" EDGE DISTANCE FROM ANY SLAB EDGE.
 - 1/2" DIA SIMPSON ITEM HD HIGH STRENGTH THREADED ANCHOR (ICC ESR-2713). PROVIDE A MIN. OF 4" EMBEDMENT AND 1 3/4" EDGE DISTANCE FROM ANY SLAB EDGE.
 - SIMPSON MASAMASAP MIDSILL ANCHORS (ICC ESR-2655). INSTALLATION OF THE MIDSILL ANCHOR SHALL BE PER MANUFACTURERS TYPICAL OR ALTERNATE INSTALLATION METHOD. DO NOT WET SET THE MIDSILL ANCHOR. INSTALL WITH ONE LEG UP OR INSTALL OVER PLYWOOD OR OSB. FOLLOW ALL MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS DURING INSTALLATION. DO NOT USE WHEN ANCHOR SPACING IS < 8 INCHES.
- AT INTERIOR NON-BEARING AND NON-SHEARWALLS, 1/2" DIA ANCHOR BOLTS MAY BE REPLACED WITH MINIMUM 3/16" DIA X 2 7/8" POWDER DRIVEN FASTENERS AT A MAXIMUM SPACING OF 24" O.C. (PLTI ESR-2579 OR SIMPSON ESR-2138 OR EQUIVALENT)
- PROVIDE REINFORCING BAR FOR HOLDOWNS PER DETAILS SHEET SD-1, UNO.
- HOLDOWNS SPECIFIED ON PLANS MAY BE POST INSTALLED (RETRO-FITTED) AS NOTED BELOW. DRILL COMPLETELY THRU THE FOOTING AND PROVIDE THREADED ROD WITH BEARING PLATE, WASHER AND NUT. BACKFILL ALL AROUND THE ROD, WASHER AND NUT TO PROVIDE A MINIMUM OF 3" COVER USING LEAN CONCRETE MIX. THREADED ROD AND BEARING PLATE SHALL BE PER THE TABLE PROVIDED. SEE RETROFIT DETAIL SHEET SD-1. THE USE OF POST INSTALLED ANCHORS UNLESS NOTED OTHERWISE, E.G. EXPANSION ANCHORS OR EPOXY ANCHORS, IS NOT ALLOWED WITHOUT PRIOR REVIEW AND AUTHORIZATION BY THE ENGINEER OF RECORD. CONTACT THE ENGINEER OF RECORD FOR REQUEST OF ALTERNATE ANCHORAGE SOLUTIONS.

POST-TENSION CABLE REQUIREMENTS

- INSTALLATION, STRESSING AND FINISHING OF UNBONDED TENDONS SHALL BE PER THE LATEST EDITION OF P.T.I. "CONSTRUCTION AND MAINTENANCE PROCEDURES" MANUAL FOR POST-TENSIONED SLAB ON-GROUND CONSTRUCTION.
 - PLACE STRESSING END ANCHOR AND POCKET FORMER TO BULKHEAD AND NAIL ANCHORS WITH (2) NAILS TOP TO THE BULKHEAD, ATTACH FRIED END ANCHOR TO BULKHEAD W/ (2) NAILS MAINTAINING MINIMUM OF 1 1/2" BETWEEN FACE OF ANCHOR AND BULKHEAD.
 - STRESS UNBONDED TENDONS TO REQUIRED ELONGATION SHOWN ON THE FOUNDATION PLAN (PLUS SEATING LOSS).
 - JACKING FORCE SHALL NOT EXCEED 0.8 FPU.
 - PAINT EXPOSED STRAND AND ANCHORAGE WITH APPROVED PRIMER, AND GROUT OPENINGS WITH TWO PARTS CEMENT TO ONE PART SAND MIXTURE. FINISH SURFACE TO MATCH SLAB.
 - TENDONS SHALL CONFORM TO PT1 SPECIFICATIONS FOR UNBONDED SINGLE STRAND TENDONS AND ACI 423.6/423.6R-01 SPECIFICATION FOR UNBONDED SINGLE STRAND TENDONS AND COMMENTARY.
- TENDON PROPERTIES:
- DIAMETER = 1/2" (MAXIMUM) LARGER THAN THE BOLT SIZE. RE-TIGHTEN ALL NUTS PRIOR TO CLOSING IN.
- GRADE = ASTM A-416 GRADE 270
AREA = 0.153"
MIN. BREAKING STRENGTH OF STRAND = 41,300 LBS
E = 28,500,000 PSI
- STRESSING SHALL NOT TAKE PLACE UNTIL CONCRETE HAS ATTAINED A STRENGTH OF 2000 PSI AS DETERMINED BY STANDARD CYLINDER TESTS. NOR SHALL STRESSING OCCUR MORE THAN 10 DAYS AFTER CONCRETE IS PLACED.
 - THE MEASURED ELONGATION SHOULD NOT VARY FROM THE SPECIFIED ELONGATION BY MORE THAN ± 5% AT EACH TENDON.

REINFORCING STEEL

- REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615 GRADE 60.
- WELDED REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-706 GRADE 60.
- ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
- WELDED WIRE REINFORCEMENT (WWR) SHALL BE PER ASTM A108 AND SHALL BE SUPPLIED IN SHEETS. WWR FPM ROLLS SHALL NOT BE USED.
- MINIMUM LAP OF WELDED WIRE FABRIC SHALL BE 8 INCHES OR ONE AND ONE HALF SQUARES, WHICHEVER IS GREATER.
- ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN PLACE INSPECTION IS MADE.
- REBAR SPLICES ARE TO BE CLASS 'B' (UNO). MAINTAIN 2 BAR DIA CLEAR SPACE BETWEEN ADJACENT SPLICES.
- REINFORCING SPICES SHALL BE MADE ONLY WHERE INDICATED ON THE DRAWINGS.
- DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING OR NUMBER AS THE VERTICAL REINFORCING, RESPECTIVELY, UNO.

REBAR SIZE	3	4	5	6	7	8	9	10	11
MINIMUM LAP LENGTH (INCHES)	22	29	36	43	49	78	88	98	107
STD HOOK LENGTH (INCHES)	4 1/2	6	7 1/2	9	10 1/2	12	13 1/2	15 1/2	16 1/2

# OF 16# SINKERS	1	2	3	4	5	6	7	8	9	10	11	12
# OF 131 X 3 1/4" GUN NAILS	2	3	4	5	6	7	8	9	11	12	13	14

SPACING OF 16# SINKERS	2' OC	4' OC	6' OC	8' OC	10' OC	12' OC
SPACING OF 131 X 3 1/4" GUN NAILS	1 1/2' OC	3 1/2' OC	5' OC	7' OC	8 1/2' OC	10 1/2' OC



STRUCTURAL GENERAL NOTES

CONCRETE

- ALL PHASES OF WORK PERTAINING TO THE CONCRETE CONSTRUCTION SHALL CONFORM TO THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318 LATEST ADOPTED EDITION), WITH MODIFICATIONS AS NOTED IN THE DRAWINGS AND SPECIFICATIONS.
- REINFORCED CONCRETE DESIGN IS BY THE "ULTIMATE STRENGTH DESIGN METHOD". SCHEDULE OF STRUCTURAL CONCRETE 28-DAY STRENGTHS AND TYPES:

LOCATION IN STRUCTURE	STRENGTH	FS TYPE
SLABS ON GRADE	4000 PSI	HARD ROCK
FOOTINGS	4000 PSI	HARD ROCK

- DESIGN BASED ON 2800 PSI, 28-DAY STRENGTH, THEREFORE SPECIAL INSPECTION IS NOT REQUIRED.
- CONCRETE MIX DESIGN SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL WITH THE FOLLOWING REQUIREMENTS:
 - COMPRESSIVE STRENGTH AT AGE 28 DAYS AS SPECIFIED ABOVE.
 - LARGE AGGREGATE HARDROCK 3/4" MAXIMUM SIZE CONFORMING TO ASTM C-30.
 - CEMENT ASTM C-150, TYPE I PORTLAND CEMENT.
 - MAXIMUM SLUMP: 5 INCHES.
 - NO ADMIXTURES, EXCEPT FOR ENTRAINED AIR, AND AS APPROVED BY THE ENGINEER.
 - WATER/CEMENT RATIO SHALL BE AS FOLLOWS:
 - f_c = 4000 PSI, w/c = 0.45
 - f_c = 4000 PSI, w/c = PER MIX DESIGN
 - FLY ASH ASTM C618
 - SLAG ASTM C989
 - SILICA FUME ASTM C2140
 - LIGHTNING ROD AGGREGATE ASTM C330
 - AIR ENTRAINING ADMIXTURE ASTM C200
 - WATER REDUCERS: ASTM C494, TYPE A OR F
 - CONCRETE MIXING OPERATIONS, ETC. SHALL CONFORM TO ASTM C-94.
 - PLACEMENT OF CONCRETE SHALL CONFORM TO ACI STANDARD 814 AND PROJECT SPECIFICATIONS.

WOOD

- FRAMING LUMBER, UNO:
 - 2X AND 4X TO BE DOUGLAS FIR LARCH (DFL) NO. 2 GRADE. SEE FRAMING PLANS AND NOTES FOR WALL STUD REQUIREMENTS.
 - 6X TO BE DOUGLAS FIR LARCH NO. 1 GRADE.
 - ALL LUMBER SHALL HAVE A MOISTURE CONTENT OF LESS THAN 19%.
- BOLT HOLES SHALL BE 1/8" (MAXIMUM) LARGER THAN THE BOLT SIZE. RE-TIGHTEN ALL NUTS PRIOR TO CLOSING IN.
- ALL SILLS OR PLATES RESTING ON CONCRETE OR MASONRY SHALL BE PRESSURE TREATED DOUGLAS FIR USING BORON BASED PRESERVATIVES OR LSL TREATED WITH ZINC BORATE.
- DO NOT NOTCH JOISTS, RAFTERS OR BEAMS, EXCEPT WHERE SHOWN IN DETAILS. OBTAIN ENGINEERS APPROVAL FOR ANY HOLES OR NOTCHES NOT DETAILED.
- WHERE A POST OCCURS AT AN UPPER LEVEL, ADD THE SAME POST DIRECTLY BELOW IT ON THE LOWER LEVELS AND IN BETWEEN FLOOR SHEATHING AND LOWER LEVEL WALL TOP PLATES.
- FACE NAIL EACH PLY OF MULTIPLE 2X POSTS WITH 16D SINKERS AT 6" O.C.
- PROVIDE MULTIPLE 2X POST AT ALL GIRDER TRUSS AND BEAM BEARING LOCATIONS, WIDTH TO MATCH BEAM OR TRUSS, MIN (2) 2X UNO.
- CONNECTION HARDWARE SHALL BE SIMPSON OR EQUAL AND MUST BE I.C.C. APPROVED.
- FOR CONNECTIONS NOT DETAILED, PROVIDE FASTENERS PER TABLE 2304.9.1 OF THE LATEST ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE.
- DO NOT NOTCH TOP PLATES OR STUDS EXCEPT AS SHOWN IN DETAILS. OBTAIN ENGINEERS APPROVAL FOR ANY HOLES OR NOTCHES NOT DETAILED.
- NON-BEARING WALLS SHALL HAVE STUDS SPACED AT 24" O.C. (MAX). REFER TO ARCHITECTURAL DRAWINGS FOR SIZE. TOP PLATES SHALL BE SUCH THAT A 1/2" GAP BETWEEN THE TOP OF THE PLATES AND THE BOTTOM OF THE TRUSSES AND/OR BLOCKING PANELS EXISTS AFTER THE ROOF IS LOADED.
- TYPICAL FASTENER SIZE NOTED IN DRAWINGS:
 - 80 COMMON NAILS = 0.131" DIA X 2 1/2"; 10d COMMON NAILS = 0.148" DIA
 - 16d COMMON NAILS = 0.162" DIA - 16d SINKER NAILS = 0.148" DIA X 3 1/4"
- 16d SINKERS NOTED IN THESE DRAWINGS MAY BE REPLACED WITH 0.131 X 3 1/4" GUN NAILS PER THE FOLLOWING TABLES:

# OF 16# SINKERS	1	2	3	4	5	6	7	8	9	10	11	12
# OF 131 X 3 1/4" GUN NAILS	2	3	4	5	6	7	8	9	11	12	13	14

MANUFACTURED BEAMS

- GLUE LAMINATED BEAMS (GLB)
 - GLB SHALL BE 24FV4, CONTINUOUS AND CANTILEVERED GLB SHALL BE 24FV8) AND HAVE THE FOLLOWING MINIMUM PROPERTIES: FB = 2400 PSI, FV = 240 PSI
FC (PERPENDICULAR) = 650 PSI
E = 1,800,000 PSI
 - ALL BEAMS SHALL BE FABRICATED USING EXTERIOR GLUE. FABRICATION AND HANDLING PER LATEST AISC AND WCA STANDARDS. BEAMS TO BEAR GRADE STAMP AND AISC STAMP AND CERTIFICATE.
 - MOISTURE CONTENT SHALL BE LIMITED TO A MAXIMUM OF 12%.
 - ALL GLB SHALL HAVE STANDARD CAMBER, UNO, ON PLANS.
- LAMINATED STRAND LUMBER (1.3E OR 1.5E LSL)
 - LSL BEAMS SHALL HAVE I.C.C. APPROVAL AND HAVE THE FOLLOWING MINIMUM PROPERTIES:
 - LSL (1.3E) - E = 1,300,000 PSI, FB = 1700 PSI, FV = 400 PSI
FC (PERPENDICULAR) = 650 PSI, FC (PARALLEL) = 3000 PSI
 - LSL (1.5E) - E = 1,500,000 PSI, FB = 2250 PSI, FV = 400 PSI
FC (PERPENDICULAR) = 750 PSI, FC (PARALLEL) = 1650 PSI
 - ALL MULTI-PLY LVL MEMBERS SPECIFIED ON PLANS MAY BE REPLACED WITH SOLID MEMBERS OF EQUAL OR GREATER PROPERTIES WITH EQUAL OR GREATER WIDTH AND DEPTH WITHOUT FURTHER REVIEW.
- LAMINATED VENEER LUMBER (LVL)
 - LVL BEAMS SHALL HAVE I.C.C. APPROVAL AND HAVE THE FOLLOWING MINIMUM PROPERTIES:
 - LVL (1.7E) - E = 1,700,000 PSI, FB = 2650 PSI, FV = 285 PSI
FC (PERPENDICULAR) = 750 PSI, FC (PARALLEL) = 3000 PSI
 - LVL (1.9E) - E = 1,900,000 PSI, FB = 2650 PSI, FV = 285 PSI
FC (PERPENDICULAR) = 750 PSI, FC (PARALLEL) = 2910 PSI
 - LVL (2.0E) - E = 2,000,000 PSI, FB = 2850 PSI, FV = 285 PSI
FC (PERPENDICULAR) = 750 PSI, FC (PARALLEL) = 3000 PSI
 - MULTIPLE LVL BEAMS SHALL BE NAILED TOGETHER AS FOLLOWS:
 - 2X (2) ROWS OF 16D SINKERS AT 12" O.C. FOR BEAMS ≤ 11 7/8" DEEP.
 - 2X (2) ROWS OF 16D SINKERS AT 12" O.C. FOR BEAMS > 11 7/8" DEEP.
 - ALL MULTI-PLY LVL MEMBERS SPECIFIED ON PLANS MAY BE REPLACED WITH SOLID MEMBERS OF EQUAL OR GREATER PROPERTIES WITH EQUAL OR GREATER WIDTH AND DEPTH WITHOUT FURTHER REVIEW.
- PARALLEL STRAND LUMBER (PSL)
 - PSL BEAMS SHALL HAVE I.C.C. APPROVAL AND HAVE THE FOLLOWING MINIMUM PROPERTIES:
 - E = 2,000,000 PSI, FB = 2900 PSI, FV = 290 PSI
FC (PERPENDICULAR) = 750 PSI, FC (PARALLEL) = 2900 PSI

PREFABRICATED WOOD TRUSSES

- PREFABRICATED WOOD ROOF TRUSSES SHALL BE AS DESIGNED BY THE TRUSS MANUFACTURER INCLUDING BRIDGING SIZE AND SPACING, UNO. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, ERECTION DRAWINGS, AND DESIGN CALCULATIONS, SEALED BY AN ENGINEER, REGISTERED IN THE STATE OF THE GOVERNING JURISDICTION FOR REVIEW PRIOR TO MANUFACTURE. CALCULATIONS AND SHOP DRAWINGS SHALL SHOW ANY SPECIAL DETAILS REQUIRED AT BEARING POINTS. ALL CONNECTORS SHALL HAVE CURRENT I.C.C. APPROVAL.
- TRUSS MANUFACTURER TO DESIGN TRUSSES FOR LATERAL LOAD (L.A.T. = XXXXX IN POUNDS, AS SHOWN ON PLANS).
- UNLESS OTHERWISE NOTED, TRUSSES TO BE DESIGNED FOR LOADS INDICATED IN THE DESIGN CRITERIA AND AS FOLLOWS:
 - TOP CHORD DEAD LOAD = XXX + ADDITIONAL 5 PSF AT OVERFRAMING.
 - BOTTOM CHORD DEAD LOAD = XXX.
 - WIND LOAD: WHEN CALCULATING NET UPLIFT REACTIONS, USE MAXIMUM RESISTING DEAD LOAD = XXX PSF ON TOP CHORD AND XXX PSF ON BOTTOM CHORD.
- TRUSS MANUFACTURER TO DESIGN TRUSSES TO SUPPORT MECHANICAL EQUIPMENT AS REQUIRED. ADDITIONAL TRUSSES MAY BE SUPPLIED AS REQUIRED.
- ALL TRUSS TO TRUSS CONNECTORS PER TRUSS MANUFACTURER.
- WHERE POST OCCURS ABOVE A MANUFACTURED TRUSS, A VERTICAL WEB SHALL BE PROVIDED UNDER THE POST. THE WEB SECTION AREA SHALL BE EQUAL TO OR LARGER THAN POST SECTION AREA. MULTIPLE 2X4S MAY BE USED FOR THE VERTICAL WEB.
- THE TOP CHORD OF ALL TRUSSES SHALL HAVE A SPECIES WITH SPECIFIC GRAVITY EQUAL TO OR GREATER THAN 0.42.
- TRUSS MANUFACTURER SHALL LIMIT TOTAL LOAD DEFLECTIONS TO LESS THAN L/240 AND LIVE LOAD DEFLECTIONS TO LESS THAN L/80. DEFLECTION SHALL BE LIMITED SO AS NOT TO CREATE A BEARING CONDITION AT NON-BEARING WALLS. REFER ALSO TO NOTE 11 OF THE WOOD SECTION.
- CONNECTION OF MANUFACTURED TRUSSES FOR UPLIFT SHALL BE PER THE TABLES ON SHEET S1.1.
- TRUSSES SHALL BE DESIGNED TO SUPPORT A 250 POUND CONCENTRATED LOAD AT ANY LOCATION ALONG THE BOTTOM CHORD.

TRUSS TYPE & TOTAL LENGTH	HARDWARE REQUIRED	NAILING REQUIRED
JACK TRUSSES ≤ 10'-0"	NONE REQUIRED	UPLIFT IS RESISTED BY EXISTING NAILED CONNECTION OF TRUSS TO PLATE
HP-COMMON TRUSSES ≤ 30'-0"	NONE REQUIRED	UPLIFT IS RESISTED BY EXISTING NAILED CONNECTION OF TRUSS TO PLATE
HP-COMMON TRUSS 30'-0" ≤ L ≤ 50'-0"	H1 OR H2.5	(6) 8x x 1 1/2" INTO TRUSS (8) 8x x 1 1/2" INTO PLATE
ALL HP-COMMON DRAG TRUSSES L ≤ 50'-0"	H1 OR H2.5	(6) 8x x 1 1/2" INTO TRUSS (4) 8x x 1 1/2" INTO PLATE
HP-COM. GIRDER IFT SETBACK L ≤ 50'-0"	H10 OR (2) H2.5	(8) 8x x 1 1/2" INTO TRUSS (8) 8x x 1 1/2" INTO PLATE
HP-COM. GIRDER IFT SETBACK L ≤ 40'-0"	HTS20	(12) 16d x 1 1/2" INTO TRUSS (12) 16d x 1 1/2" INTO PLATE & STUD BW

SHEARWALL SCHEDULE ^(1, 2, 3, 4, 5, 6, 8, 11, 12, 13)					
SHEARWALL ^(7, 17)		ONE SIDED SHEARWALL TWO SIDED SHEARWALL ⁽⁶⁾		SEISMIC	WIND
MARK	MATERIAL ^(4, 14)	NAILING	UPPER FLOOR SILL PL. CONN ^(1, 18)	ANCHOR BOLTS ⁽³⁾ (UNO ON FOUNDATION PLAN)	ALLOWABLE SHEAR
P1	3/8" APA SHEATHING ⁽¹⁵⁾	8dN AT 6" OC EDGES, 12" FIELD ⁽¹⁶⁾	16dS AT 4" OC (STGD) UNO	1/2" DIA X 10" AT 32" OC	260#/FT 365#/FT
P2	3/8" APA SHEATHING ⁽¹⁵⁾	8dN AT 4" OC EDGES, 12" FIELD ⁽¹⁶⁾	16dS AT 3" OC (STGD) UNO	1/2" DIA X 10" AT 24" OC	350#/FT 532#/FT
P3	3/8" APA SHEATHING ⁽¹⁵⁾	8dN AT 3" OC EDGES, 12" FIELD ⁽¹⁶⁾	1/4x6 SCREWS AT 4" OC (STGD), UNO	1/2" DIA X 10" AT 16" OC	490#/FT 685#/FT
P4	3/8" APA SHEATHING ⁽¹⁵⁾	8dN AT 2" OC EDGES, 12" FIELD ⁽¹⁶⁾	1/4x6 SCREWS AT 4" OC (STGD), UNO	1/2" DIA X 10" AT 12" OC	600#/FT 895#/FT
P5	15/32" APA SHEATHING ⁽¹⁵⁾	10dN AT 2" OC EDGES, 12" FIELD ⁽¹⁶⁾	1/4x6 SCREWS AT 3" OC (STGD), UNO	1/2" DIA X 10" AT 9" OC	770#/FT 1078#/FT

SCHEDULE NOTES:

- SEE DETAIL 7/SD-2 FOR ADDTL INFO AT UPPER FLOOR SILL PLATE CONNECTION FOR MULTI-STORY PLANS ONLY. DOES NOT APPLY TO SINGLE STORY PLANS. SEE PLAN FOR SILL PLATE AND SHEAR CONNECTIONS AT EXTERIOR WALLS.
- OPENINGS IN SHEARWALL SHEATHING SHALL NOT EXCEED 8 INCHES IN ANY DIRECTION FOR A SINGLE OPENING OR THE SUM OF ANY TWO OR MORE OPENINGS ON COMMON OR OVERLAPPING VERTICAL OR HORIZONTAL LINES. OPENINGS NOT GREATER THAN 8 INCHES DO NOT REQUIRE BLOCKING AROUND THE PENETRATION. CONTACT THE ENGINEER OF RECORD FOR REQUIREMENTS AT OPENINGS NOT OTHERWISE DETAILED.
- MINIMUM (2) 1/2" DIA ANCHORS PER SHEAR WALL. SEE FOUNDATION HARDWARE NOTES, NOTE 2 ON THE GENERAL NOTES SHEET, S1. ALL ANCHOR BOLTS SHALL HAVE 3" x 3" x 0.229" PLATE WASHERS.
- APA RATED (STRUCTURAL II) PLYWOOD OR OSB.
- SEE DETAIL 11/SD-2 WHERE WALL FRAMING STEPS OR PERPENDICULAR WALL INTERSECTS SHEAR WALL.
- FOR SHEAR PANELS ON TWO SIDES OF WALL, USE ONE-HALF THE SPACING GIVEN IN THE SCHEDULE FOR SILL PLATE CONNECTION AND ANCHOR BOLT SPACING, UNO.
- DOUBLE SIDED SHEARWALLS SHALL HAVE VERTICAL PANEL JOINTS OFFSET TO FALL ON DIFFERENT STUDS OR USE SINGLE 3" NOMINAL STUDS (MIN) AT JOINTS. AT THE ENDS OF THE SHEARWALL, 4X NOMINAL MEMBERS ARE REQUIRED. NAILS ON EACH SIDE SHALL BE STAGGERED.
- ALL SHEARWALLS REQUIRE DOUBLE 2X TOP PLATES, U.N.O. AT NON-BEARING SHEAR WALLS, SHORTEN STUDS 1/4 INCH TO PROVIDE DEFLECTION CLEARANCE.
- P2, P3 AND P4 SHEARWALLS SHALL REQUIRE THE FOLLOWING:
 - STAGGER NAILING ALONG PLYWOOD JOINTS AND SILL PLATES.
 - SINGLE 3" NOMINAL MEMBERS AT ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ADJUTING PANELS. 3" NOMINAL MEMBERS AT SINGLE SIDED SHEARWALL MAY BE CONSTRUCTED W/ (2) 2X MEMBERS FASTENED TOGETHER W/ (2) ROWS OF 16d SINKERS AT 4" OC.
- P5 SHEARWALLS SHALL REQUIRE SINGLE 3" NOMINAL MEMBERS AT ALL FRAMING MEMBERS RECEIVING EDGE NAILING FROM ADJUTING PANELS (MIN), STAGGER JOINT AND SILL PLATE NAILING.
- ALL SHEARWALL LENGTHS NOTED ON PLAN ARE MINIMUM REQUIRED AND MAY BE INCREASED WITHOUT REVIEW.
- SHEATHING MAY BE PLACED ON EITHER FACE OF DESIGNATED WALL, UNO.
- ALLOWABLE SHEAR CAPACITIES ARE IN ACCORDANCE WITH AF&PA SDPWS TABLE 4.3A WITH APPLICABLE OMEGA FACTORS INCLUDED.
- APA SHEATHING AND GYPSUM SHEATHING MAY BE INSTALLED WITH THE LONG OR SHORT DIRECTION PERPENDICULAR TO THE FRAMING. WHERE APA SHEATHING IS INSTALLED WITH THE SHORT DIRECTION PERPENDICULAR TO THE FRAMING, THE FRAMING MUST BE 16" ON CENTER (MAX). WHERE GYPSUM SHEATHING IS INSTALLED WITH THE SHORT DIRECTION PERPENDICULAR TO THE FRAMING ALL PANEL EDGES MUST BE BLOCKED AND NAILED.
- 3/8" SHEATHING MAY BE REPLACED WITH 7/16" OR 15/32" SHEATHING WITHOUT ADDITIONAL REVIEW.
- ALL VERTICAL AND HORIZONTAL PANEL EDGES TO BE BLOCKED AND NAILED.
- STUDS SHALL BE 24" OC (MAX). FOR 3/8" AND 7/16" SHEATHING, FIELD NAILING SHALL BE REDUCED TO 6" OC WHERE STUD SPACING IS GREATER THAN 16" OC.
- SILL PLATE CONNECTORS SHALL BE PER SHEAR TRANSFER DETAIL SPECIFIED ON PLANS.

HOLDOWN/STRAP SCHEDULE ^(1, 3)		
HD/STRAP	EMBED AT END AND / OR ANCHOR BOLT	CONN TO (2) 2X STUD, UNO ^(3, 6, 10)
CS16	N/A	EXTEND STRAP 16" MIN. EA. END W/ (13) 8dN TO (2) 2X STUD ABOVE AND BELOW FLOOR FRAMING
(2) CS16	N/A	EXTEND STRAP 16" MIN. EA. END W/ (13) 8dN TO (2) 2X STUD ABOVE AND BELOW FLOOR FRAMING
CMSTC16	N/A	EXTEND STRAP 25" MIN. EA. END W/ (28) 16d SINKERS TO (2) 2X STUD ABOVE AND BELOW FLOOR FRAMING
CMST14	N/A	EXTEND STRAP 32" MIN. EA. END W/ (33) 16dN TO (3) 2X STUD ABOVE AND BELOW FLOOR FRAMING
CMST12	N/A	EXTEND STRAP 40" MIN. EA. END W/ (42) 16dN TO (3) 2X STUD ABOVE AND BELOW FLOOR FRAMING
LSTHD ^(4, 11)	8" EMBED	(20) 16d SINKERS
STHD10 ^(4, 11)	10" EMBED	(24) 16d SINKERS
STHD14 ^(4, 11)	14" EMBED	(30) 16d SINKERS
HTTS	SSTB24 W/ 21" EMBED ⁽²⁾	(26) 16dN X 2 1/2" NAILS
HDU2	SSTB24 W/ 21" EMBED ⁽²⁾	(6) SDS 1/4 X 2 1/2 SCREWS W/ MIN (2) 2X POSTS
HDU4	SSTB24 W/ 21" EMBED ⁽²⁾	(10) SDS 1/4 X 2 1/2 SCREWS W/ MIN (2) 2X POSTS
HDU5	SSTB24 W/ 21" EMBED ⁽²⁾	(14) SDS 1/4 X 2 1/2 SCREWS W/ MIN (2) 2X POSTS
HDU8	SSTB24 W/ 21" EMBED ⁽²⁾	(20) SDS 1/4 X 2 1/2 SCREWS W/ MIN (3) 2X POSTS
HDU11	1" DIA AB W/ 9" MIN EMBED W/ MIN 28" SQ X 14" DEEP FTRG ⁽⁸⁾	(30) SDS 1/4 X 2 1/2 SCREWS W/ MIN 4X8 POST ⁽⁹⁾
HDU14	1" DIA AB W/ 10" MIN EMBED W/ MIN 30" SQ X 15" DEEP FTRG ⁽⁸⁾	(36) SDS 1/4 X 2 1/2 SCREWS W/ MIN 4X8 POST ⁽⁹⁾

SCHEDULE NOTES:

- HD/STRAP SHALL BE SIMPSON OR EQUAL W/ ICC APPROVAL. ALL SUBSTITUTES SHALL BE REVIEWED BY THE ENGINEER OF RECORD BEFORE INSTALLATION.
- FIXED-LENGTH STRAPS SHALL BE INSTALLED WITH AN EQUAL LENGTH OVERLAPPING CONNECTED MEMBERS AND AN EQUAL NUMBER OF FASTENERS IN EACH MEMBER.
- STITCH NAIL EACH STUD AT MULTIPLE 2X STUDS TOGETHER WITH 16d SINKERS AT:
 - 4" OC FOR P3 AND P4 SHEAR WALLS
 - 6" OC FOR ALL OTHER SHEAR WALLS
- FOR CONCRETE SPALLS LESS THAN 4", THERE IS NO LOAD REDUCTION AND NO FURTHER REVIEW BY EOR IS REQUIRED.
- SEE DETAIL 4/SD-2 FOR ADDL CRITERIA AT UPPER FLOOR STRAPS (WHERE OCCURS).
- EDGE NAIL SHTG TO EA MEMBER OF MULTIPLE POST, OFFSET 1/2 SPACING BTWN MEMBERS.
- ASTM F1554-55 BOLT W/ HEAVY SQUARE NUT OR 1/4" X 1 3/4" X 1 3/4" PLATE WASHER REQUIRED FOR FULL LOAD. REDUCE ALLOWABLE LOAD TO 13180 LBS FOR ASTM GRADE 36 BOLT. MINIMUM EMBEDMENT IS FROM TOP OF FOOTING.
- ASTM GRADE 36 BOLT W/ SQUARE OR HEAVY HEX HEAD OR NUT REQUIRED. MINIMUM EMBEDMENT IS FROM TOP OF FOOTING.
- PROVIDE 6X8 POST AT 2X6 WALLS, MULTIPLE STUDS NOT ALLOWED.
- END POST TO BE FULL HEIGHT MEMBERS, UNO.
- STRAPS MAY BE PLACED ON EITHER FACE OF DESIGNATED WALL AND ARE NOT REQUIRED TO OCCUR ON SAME FACE AS SHEATHING, UNO.
- AT GARAGE STEMWALL LOCATIONS USE SSTBL.
- WHEN SLAB AND FOOTINGS ARE PLACED AS A MONO-POUR, SSTB28 WITH 25" EMBEDMENT MAY BE SUBSTITUTED FOR THE SSTB34 SPECIFIED.

FOUNDATION NOTES:

- AT INTERIOR BEARING WALLS, WITHOUT DEEPEENED FOOTINGS, USE 1/2" DIA TITEN HD HIGH STRENGTH SCREW ANCHORS IN LIEU OF ANCHOR BOLTS.
- SEE DETAIL 1/SD-1 FOR PERIMETER FOOTING EMBEDMENT DEPTH.
- VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

FRAMING NOTES:

- ALL EXTERIOR WALLS AND INTERIOR BEARING AND SHEAR WALLS TO BE MIN 2X4 AT 16" O.C. DFL STUD GRADE, UNO. SEE FRAMING PLANS FOR NON-TYPICAL STUD SIZE AND SPACING.
- TRIMMER / KING STUD SCHEDULE, UNO.

	OPENING SPAN (L)	TRIMMERS	KING STUDS
2X4 WALLS	L < 6'-0"	1	1
	6'-0" ≤ L < 10'-0"	2	2
2X6 WALLS	L < 8'-0"	1	1
	8'-0" ≤ L < 12'-0"	2	2
2X8 WALLS	L < 12'-0"	2	3
	12'-0" ≤ L < 20'-0"	2	3
- BLOCKED DIAPHRAGM - SEE STRUCTURAL GENERAL NOTES SHEET S1.
- FOR TYPICAL OVERFILL FRAMING WHERE REQUIRED BY TRUSS SHOP DRAWINGS, SEE DETAILS 4/SD-3 OR 5/SD-3.
- INTERIOR BEARING WALLS
- BEAM AND HEADER SIZES INDICATED ON THIS PLAN ARE MINIMUM. LARGER SIZES OR HIGHER GRADE LUMBER MAY BE SUBSTITUTED.
- TOP PLATE SPLICES PER DETAIL 3/SD-2, UNO.
- SEE DETAIL 6/SD-2 FOR ADDITIONAL FRAMING REQUIREMENTS.

LEDGER & HANGER SCHEDULE:

UNLESS OTHERWISE NOTED 2X LEDGERS WHERE DETAILED SHALL BE AS FOLLOWS:

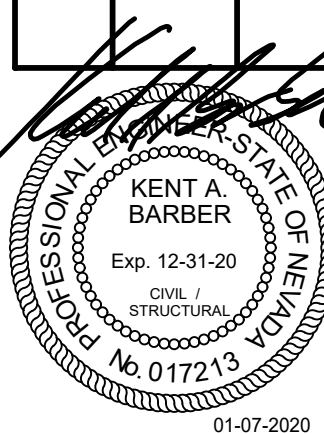
	TRUSS		LEDGER AND NAILING ^(1,2,4,10,11)	MIN HANGER, UNO ^(3,4,5,11)
	SPAN (L)	SPACING (MAX)		
ROOF LOAD	L ≤ 6'-0"	16" O.C.	2X8 W/ (8) 16d AT 16" OC	LUS24/JUS24
		24" O.C.	2X8 W/ (5) 16d AT 24" OC	LUS24/JUS24
	L ≤ 16'-0"	16" O.C.	2X8 W/ (8) 16d AT 16" OC	LUS26/JUS26
		24" O.C.	2X12 W/ (8) 16d AT 24" OC	LUS26/JUS26
L ≤ 24'-0"	16" O.C.	2X12 W/ (8) 16d AT 16" OC	LUS28/JUS28	
	24" O.C.	2X12 W/ 2 COLUMNS OF (8) 16d AT 24" OC	HUS28/HUS28	
FLOOR LOAD - 4" MEMBER	L ≤ 10'-0"	16" O.C.	2X8 W/ (8) 16d AT 16" OC	LUS46/JUS46
		24" O.C.	2X10 W/ 2 COLUMNS OF (8) 16d AT 24" OC	LUS46/JUS46
	L ≤ 20'-0"	16" O.C.	2X10 W/ 2 COLUMNS OF (8) 16d AT 16" OC	LUS48/JUS48
		24" O.C.	2X12 W/ 2 COLUMNS OF (8) 16d AT 24" OC	HUS48/HUS48
FLOOR LOAD - 2X MEMBER	L ≤ 10'-0"	16" O.C.	2X8 W/ (8) 16d AT 16" OC	LUS26/JUS26
		24" O.C.	2X10 W/ 2 COLUMNS OF (8) 16d AT 24" OC	LUS26/JUS26
	L ≤ 20'-0"	16" O.C.	2X10 W/ 2 COLUMNS OF (8) 16d AT 16" OC	LUS28/JUS28
		24" O.C.	2X12 W/ 2 COLUMNS OF (8) 16d AT 24" OC	HUS28/HUS28
DECK LOAD - 2X MEMBER	L ≤ 10'-0"	16" O.C.	2X10 W/ (2) 1/4"x3" SCREWS AT 16" OC	LUS26/JUS26
		24" O.C.	2X10 W/ 2 COLUMNS OF (2) 1/4"x3" SCREWS AT 24" OC	LUS26/JUS26
	L ≤ 15'-0"	16" O.C.	2X10 W/ 2 COLUMNS OF (2) 1/4"x3" SCREWS AT 16" OC	LUS28/JUS28
		24" O.C.	2X10 W/ 2 COLUMNS OF (3) 1/4"x3" SCREWS AT 24" OC	HUS28/HUS28

SCHEDULE NOTES:

- TWO COLUMNS OF FASTENERS REQUIRE MIN SUPPORTING MEMBER RECEIVING FASTENERS OF 3" OR (2)2X IN WIDTH (ENDS OF 4X2 OR DOUBLE TRUSSES ARE ACCEPTABLE). SPACE FASTENERS MIN 1" APART IN EACH DIRECTION.
- SPACING SHOWN EQUALS SPACING OF FRAMING MEMBERS RECEIVING FASTENERS.
- HANGERS LISTED IN ORDER ARE BY SIMPSON STRONG-TIE AND USP, RESPECTIVELY.
- LISTED HANGERS ARE MINIMUM HANGERS REQUIRED WHERE NOT OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS.
- SPACING SHOWN FOR HANGERS IS SPACING OF THE FRAMING MEMBER SUPPORTED BY THE HANGER.
- LEDGER MATERIAL SHALL BE DFL #2 OR BETTER UNO. LEDGER AT DECK SHALL BE PRESSURE-PRESERVATIVE TREATED OR NATURALLY DURABLE WOOD.
- PROVIDE TH#218 (MIN) HANGER FOR ROOF TRUSS TO BEAM CONNECTIONS FOR ALL BEAM DEPTHS GREATER THAN 10 INCHES.
- PROVIDE TH#418 (MIN) HANGER FOR FLOOR TRUSS TO BEAM CONNECTIONS FOR ALL BEAM DEPTHS GREATER THAN 10 INCHES.
- PROVIDE TH#422 (MIN) HANGER FOR FLOOR TRUSS TO BEAM CONNECTIONS FOR ALL BEAM DEPTHS GREATER THAN 18 INCHES.
- ALL SIMPSON SCREWS NOTED SHALL BE STRONG DRIVE SDS SCREWS.
- ALL USP SCREWS NOTED SHALL BE WS SCREWS.
- HANGERS AND FASTENERS WITH EXTERIOR EXPOSURE SHALL BE STAINLESS STEEL, UNLESS NOTED OTHERWISE.

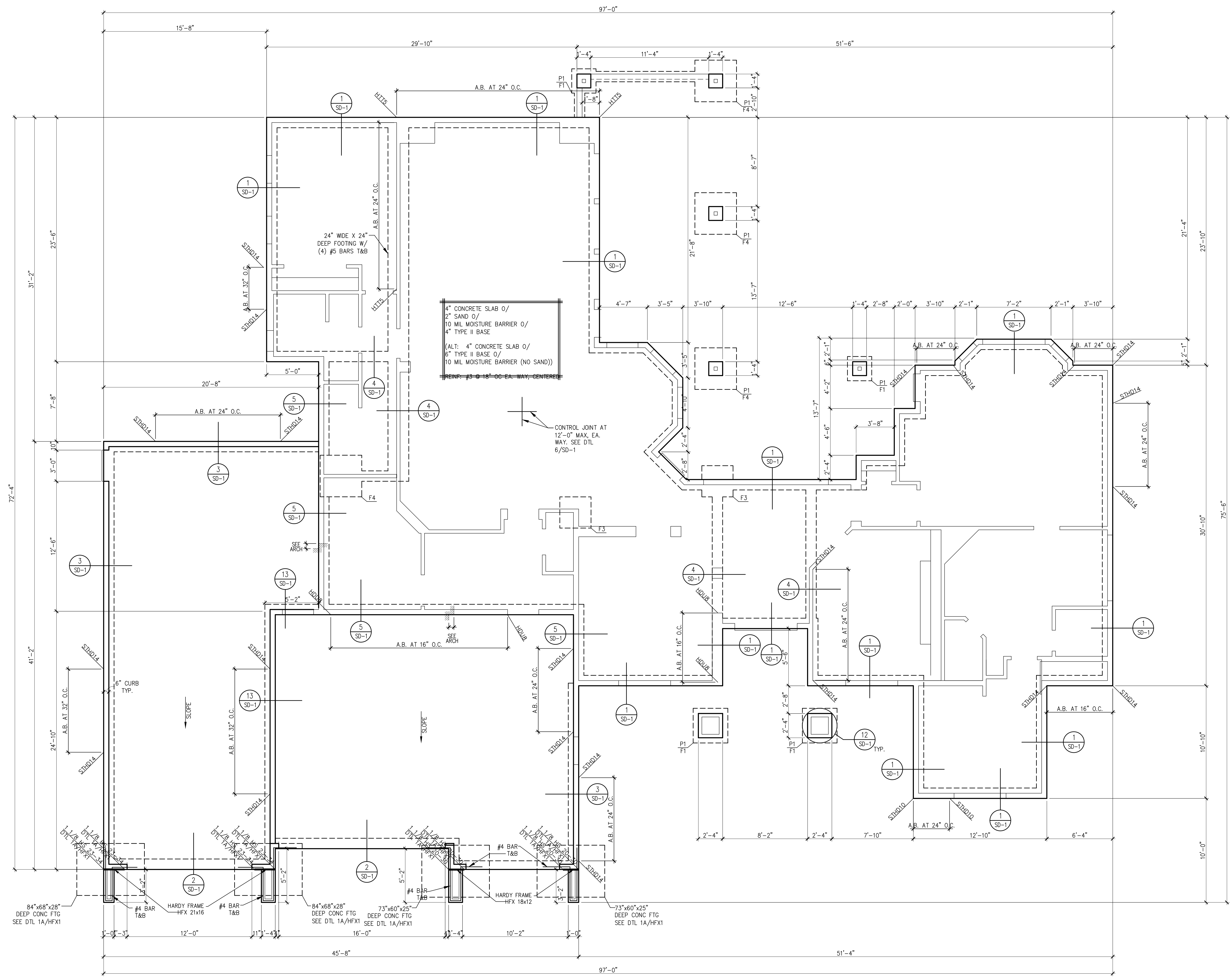
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SEE SHEET S1.1 FOR FOUNDATION NOTES AND HOLDOWN SCHEDULE

FOOTING AND PIER SCHEDULE			
F.G. = FINISHED GRADE C.G. = COMPACTED SUB-GRADE			
MARK	SIZE L x W x D	REINFORCEMENT	REMARKS
PIER			
P1	NOTE 1	(4) #4 DOWELS W/ 6" HOOK (1) #3 TIE	NOTE 2
FOOTING			
F1	L x W x 1'-0"	#4 AT 12" O.C. EA WAY BOTT	NOTE 6
F2	2'-0" SQ x 1'-0"	(2) #4 EA WAY, BOTT	
F2.5	2'-6" SQ x 1'-0"	(3) #4 EA WAY, BOTT	
F3	3'-0" SQ x 1'-0"	(3) #4 EA WAY, BOTT	
F4	4'-0" SQ x 1'-0"	(5) #4 EA WAY, BOTT	
FOOTING AND PIER NOTES: 1. SIZE TO MATCH ARCH'L BOXED COLUMN (SEE DETAIL 11/SD-1) 2. TOP OF PIER=FINISHED FLOOR 3. TIES SHALL HAVE 1 1/2" COVER & BE LOCATED 2" FROM TOP OF PIER 4. EMBEDMENT BELOW COMPACTED SUB-GRADE PER DETAIL 1/SD-1 5. SEE DETAIL 4/SD-1 FOR MINIMUM EMBEDMENT DEPTH FROM TOP OF SLAB OR LOWEST ADJACENT COMPACTED SUBGRADE 6. SIZE TO MATCH BOX COLUMN + 6" EA. SIDE			

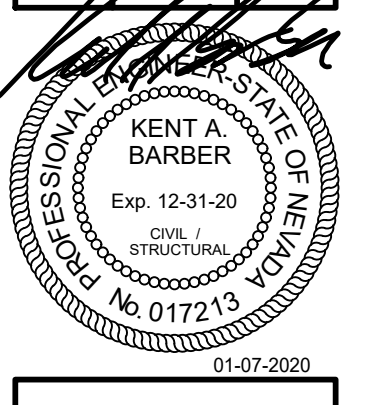


FOUNDATION PLAN
 1/4"=1'-0"

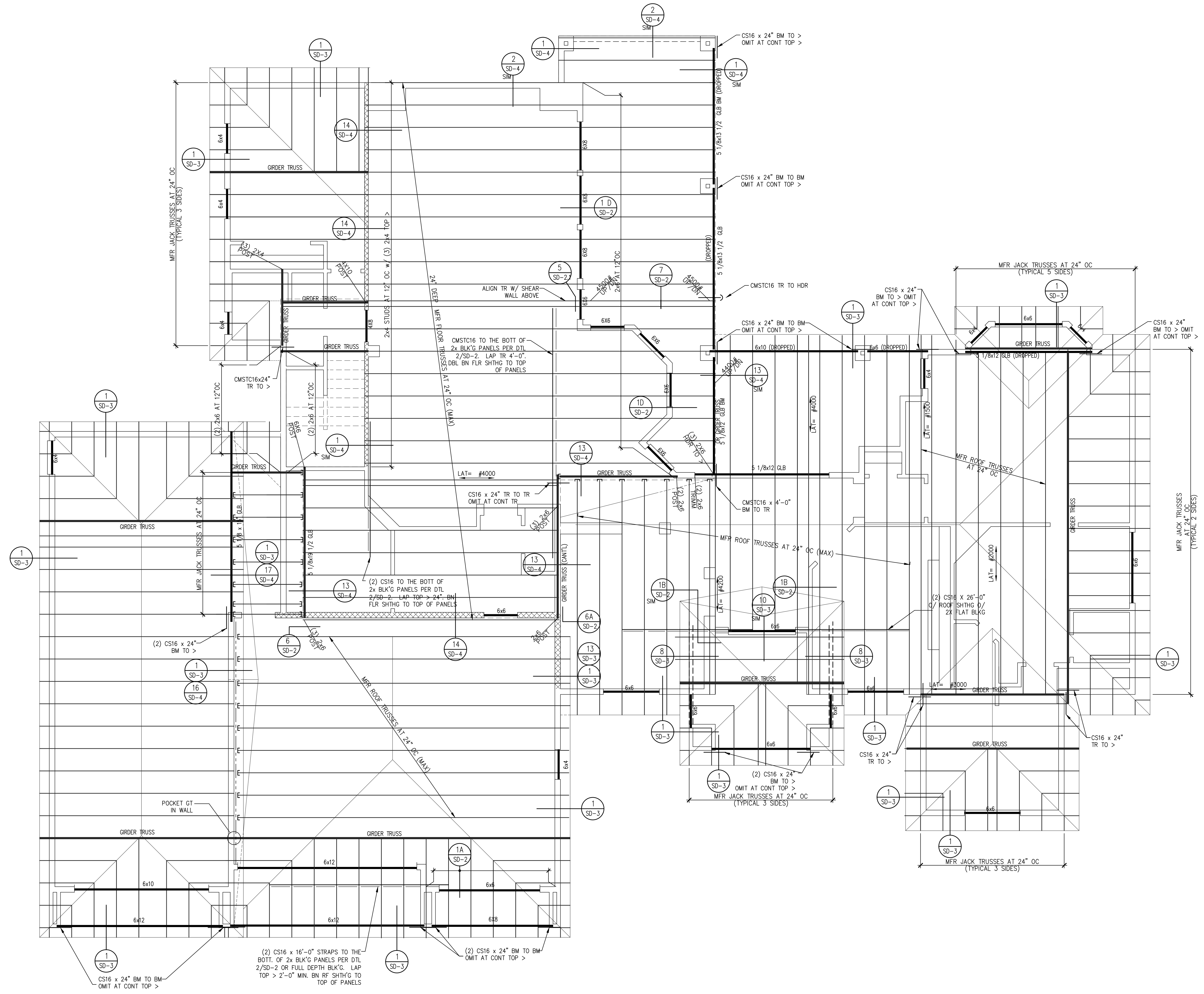
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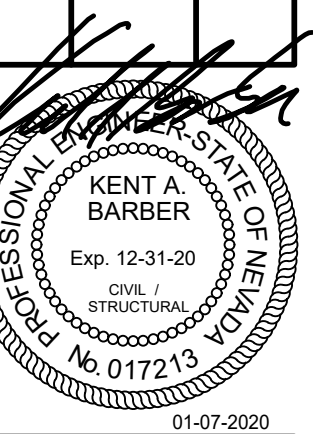
FLOOR / LOW ROOF FRAMING PLAN

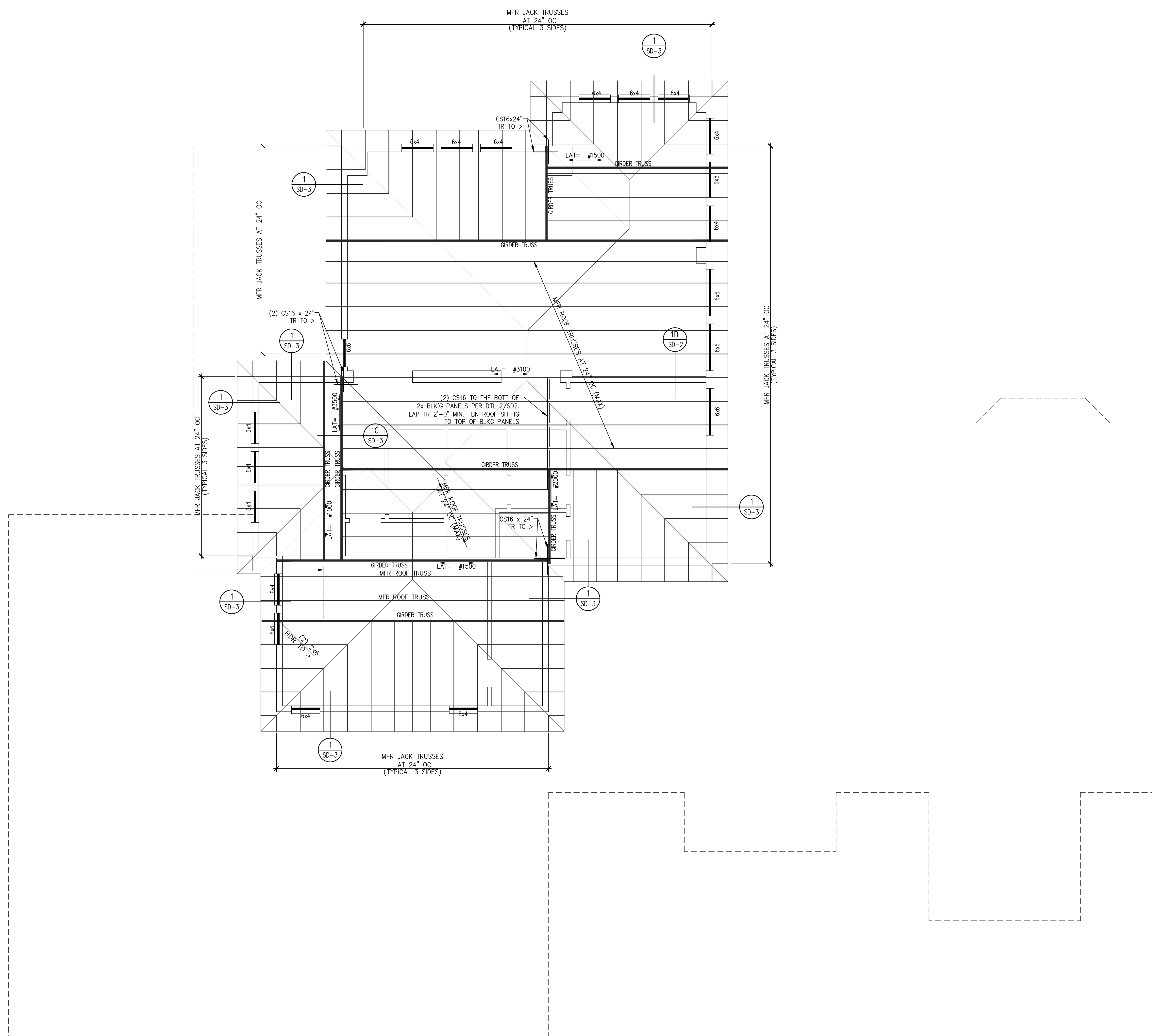
1/4"=1'-0"

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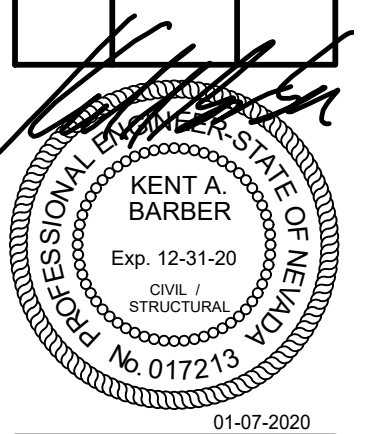


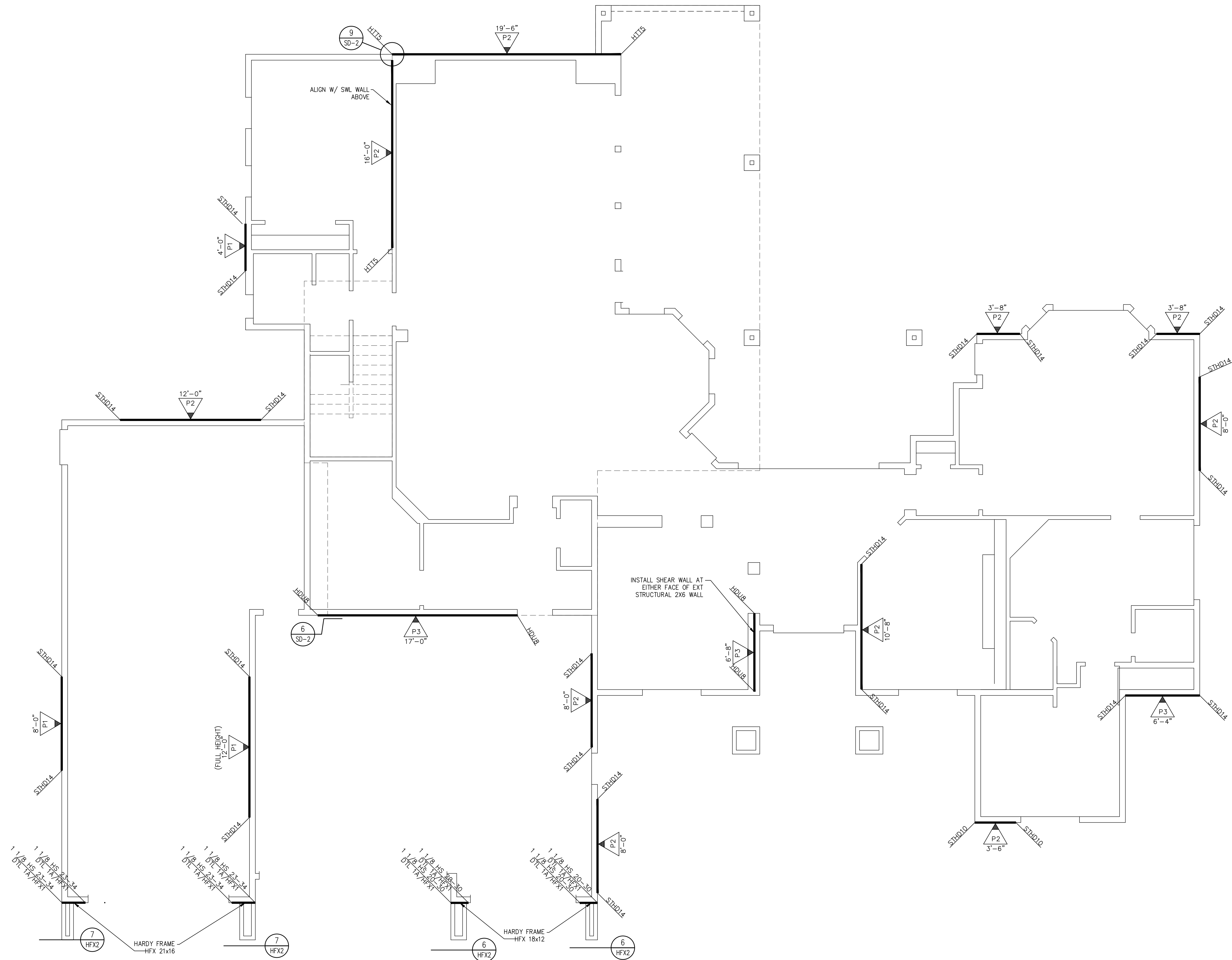


ROOF FRAMING PLAN
 1/4" = 1'-0"

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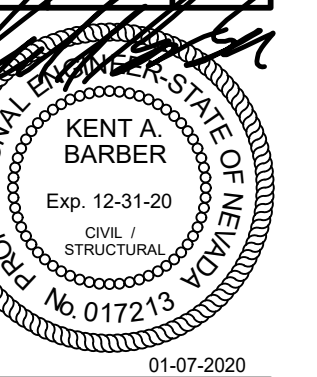
1ST STORY SHEAR WALL PLAN

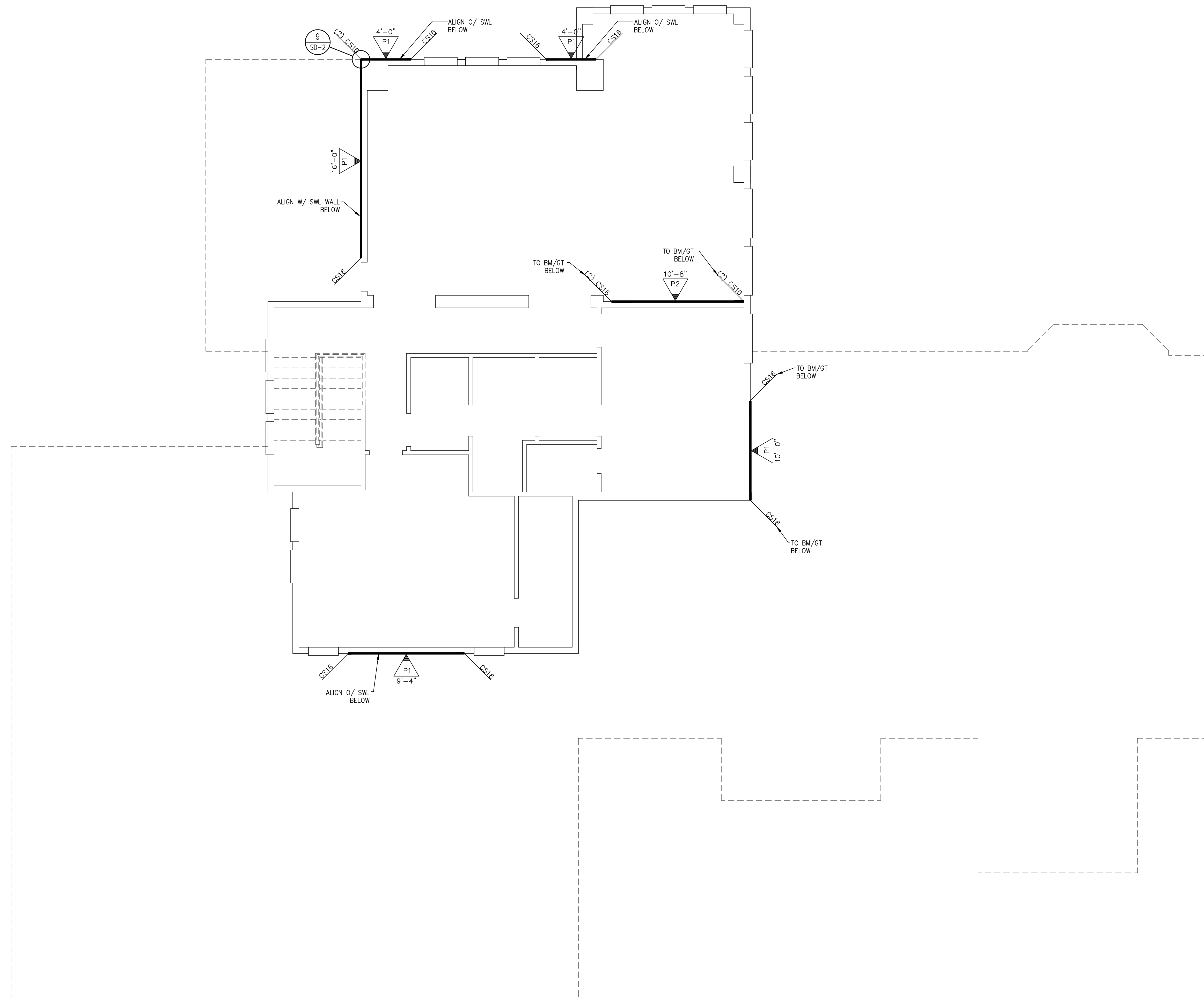
1/4"=1'-0"

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2ND STORY SHEAR WALL PLAN
 1/4"=1'-0"

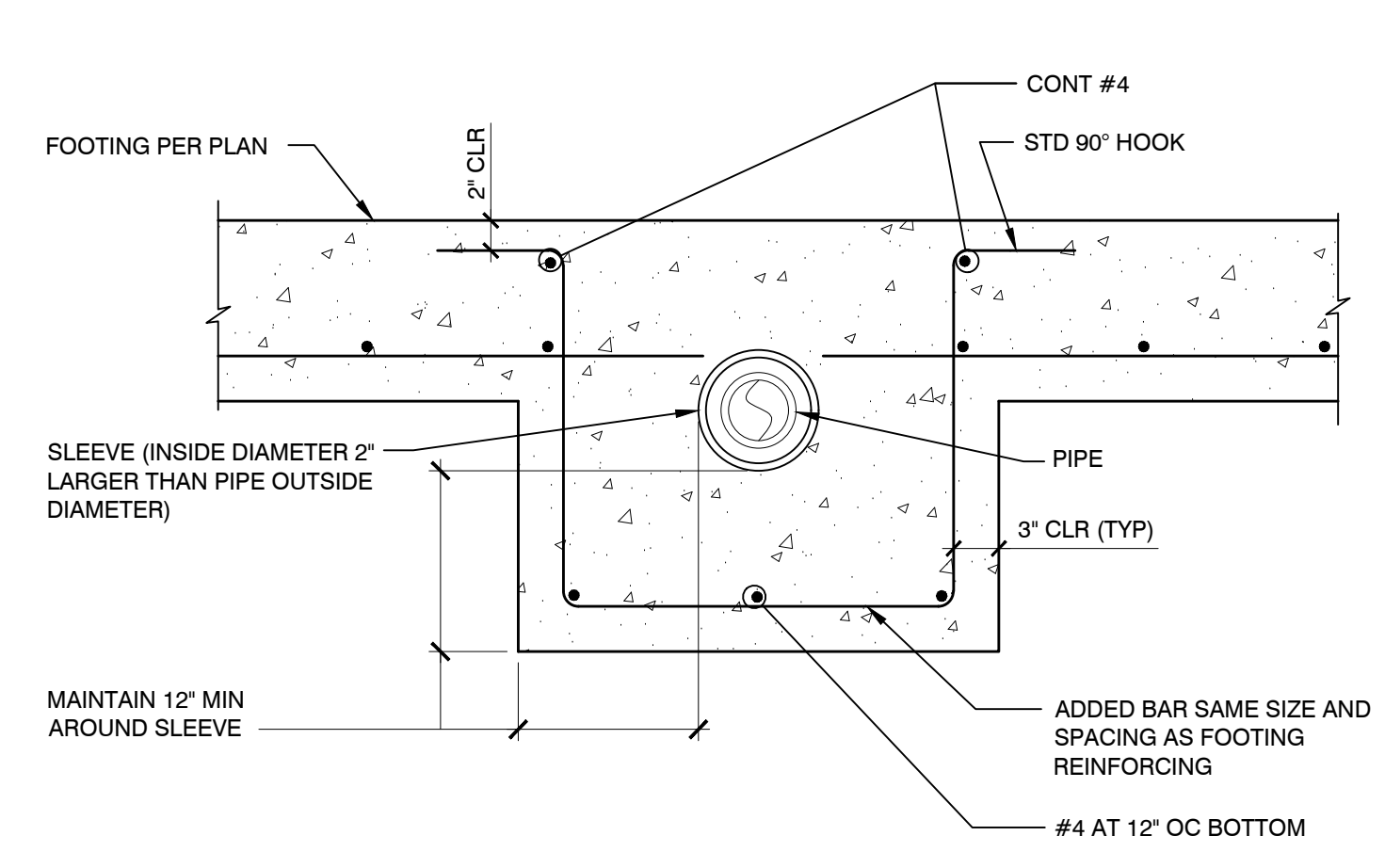
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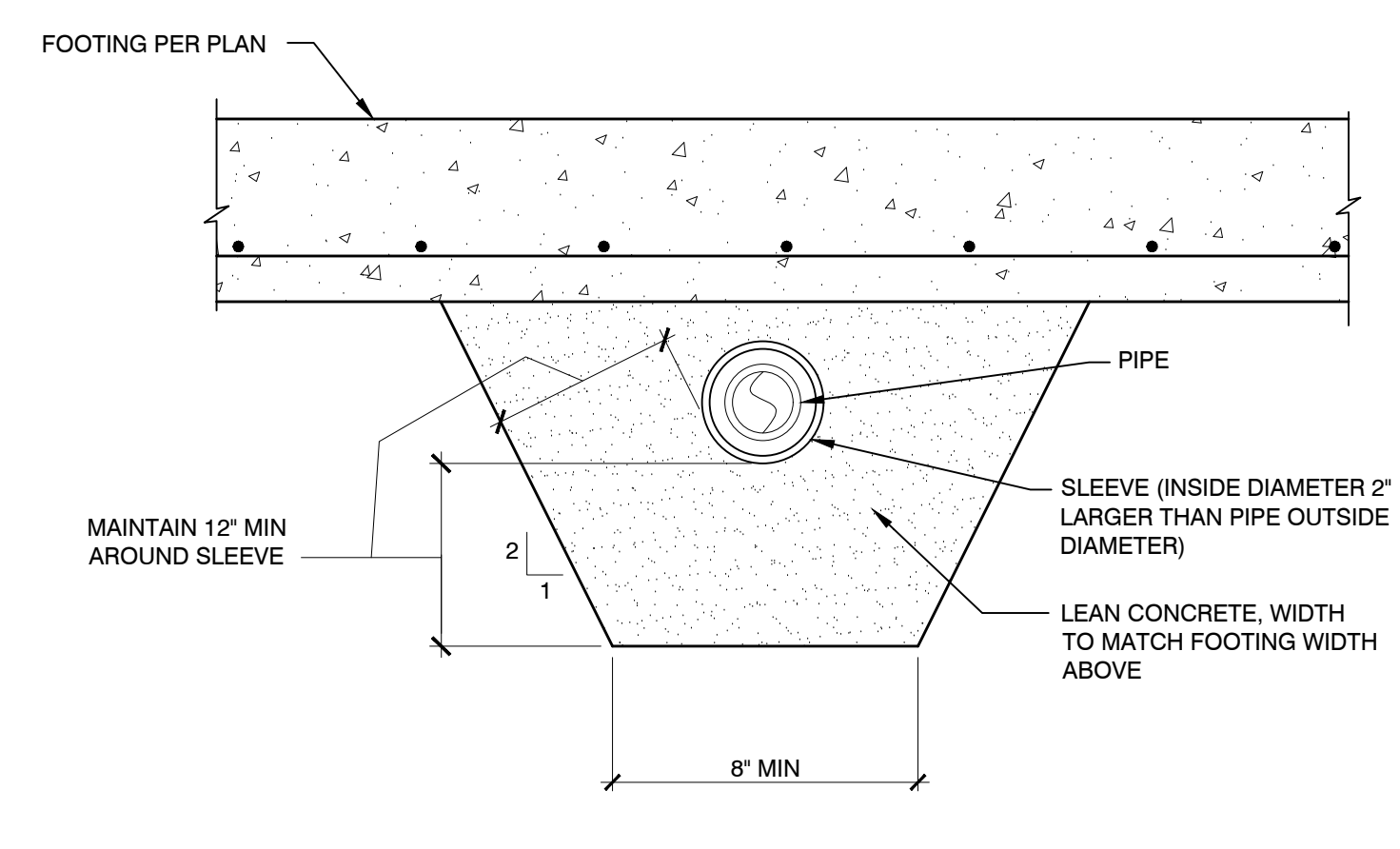
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S5.1

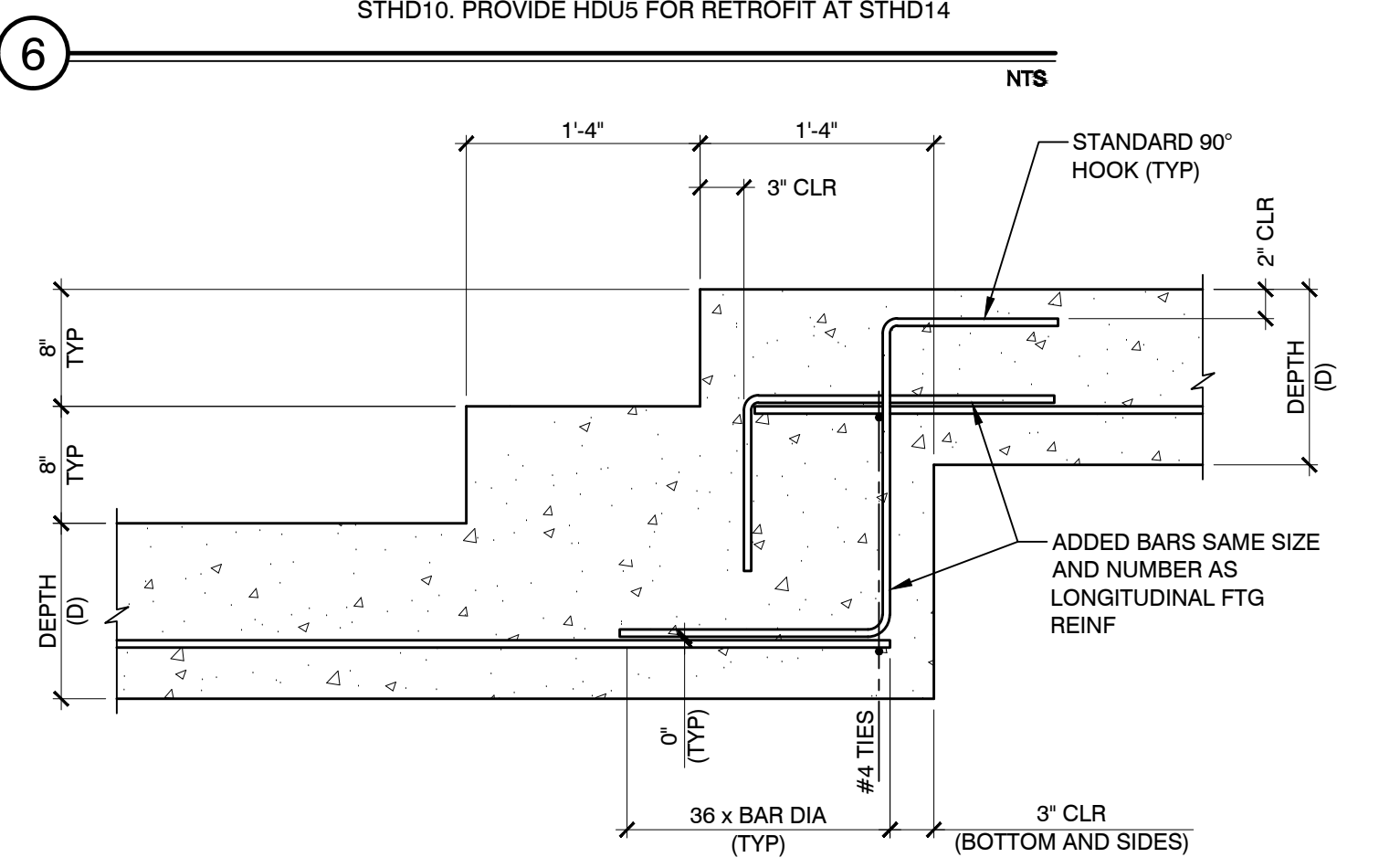
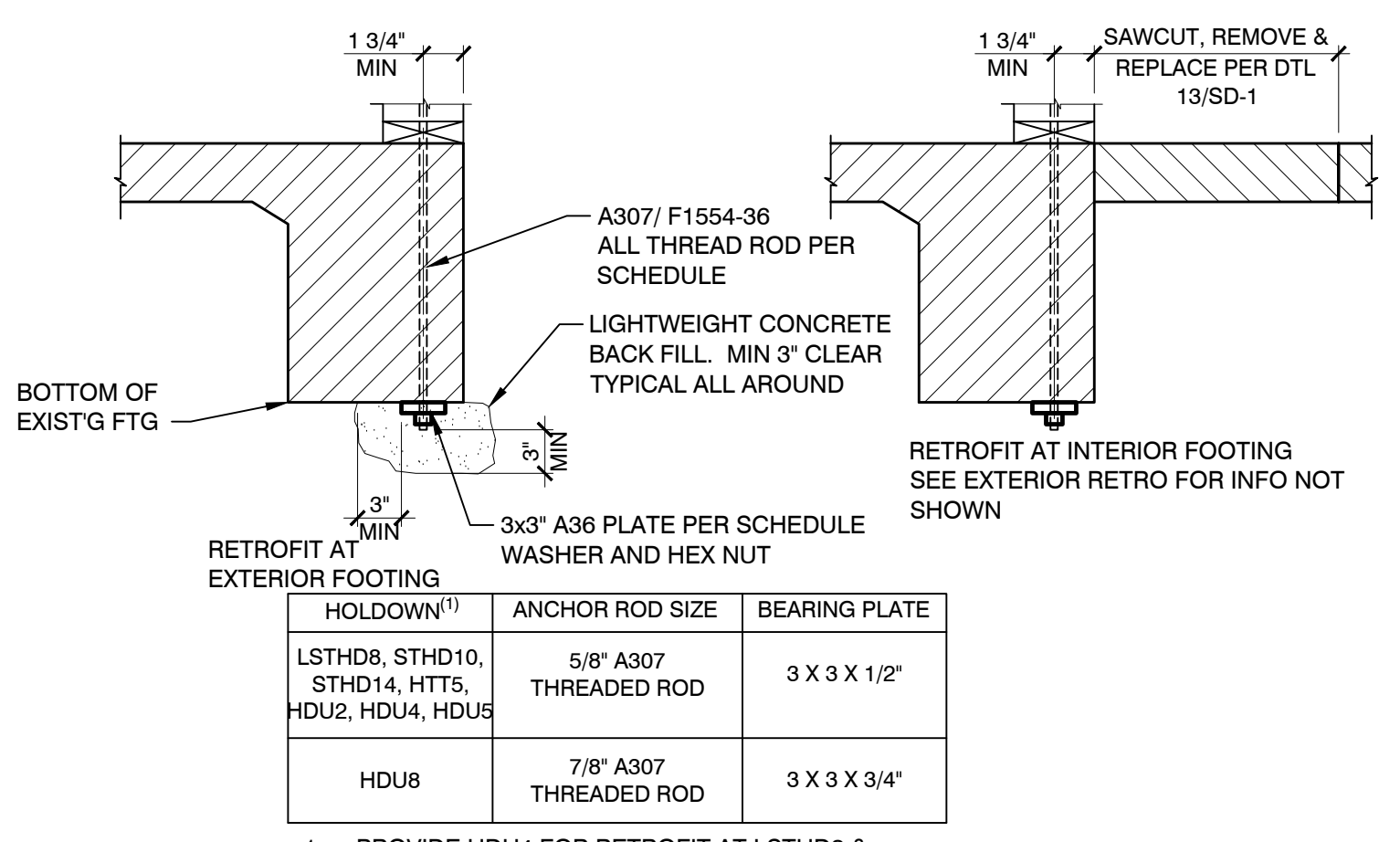


THROUGH FOOTING

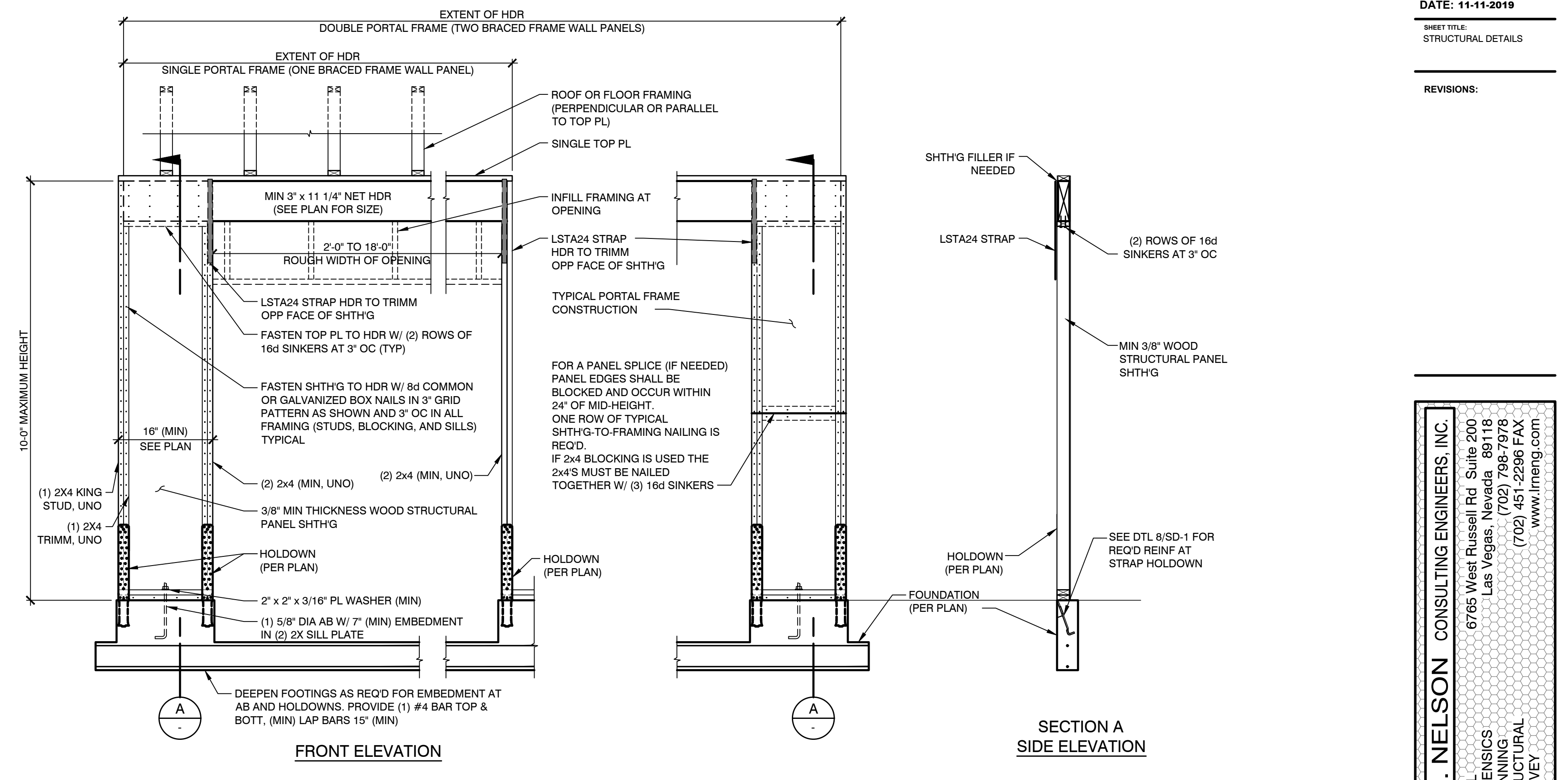


BELOW FOOTING

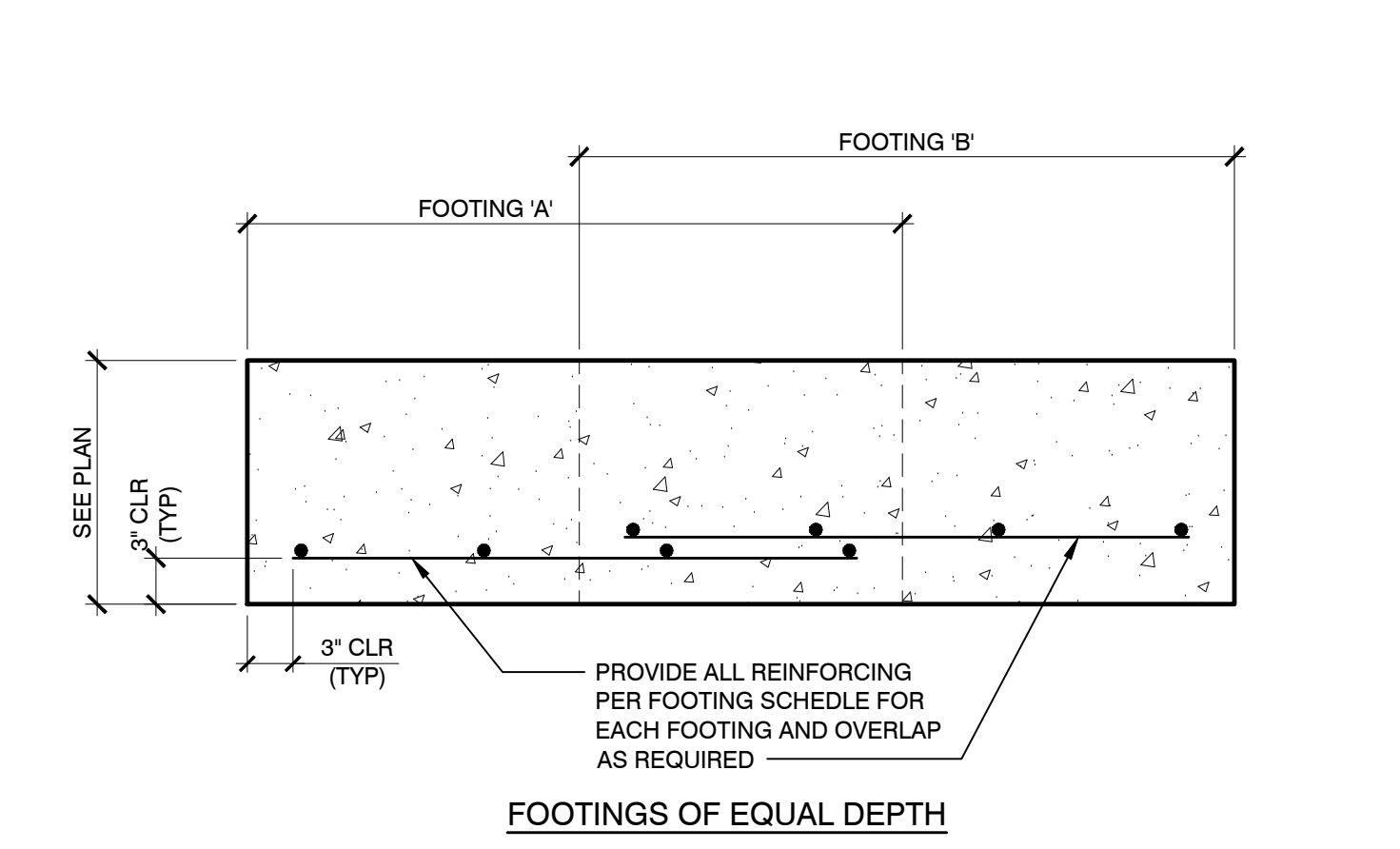
9 PIPE SLEEVE DETAIL NTS



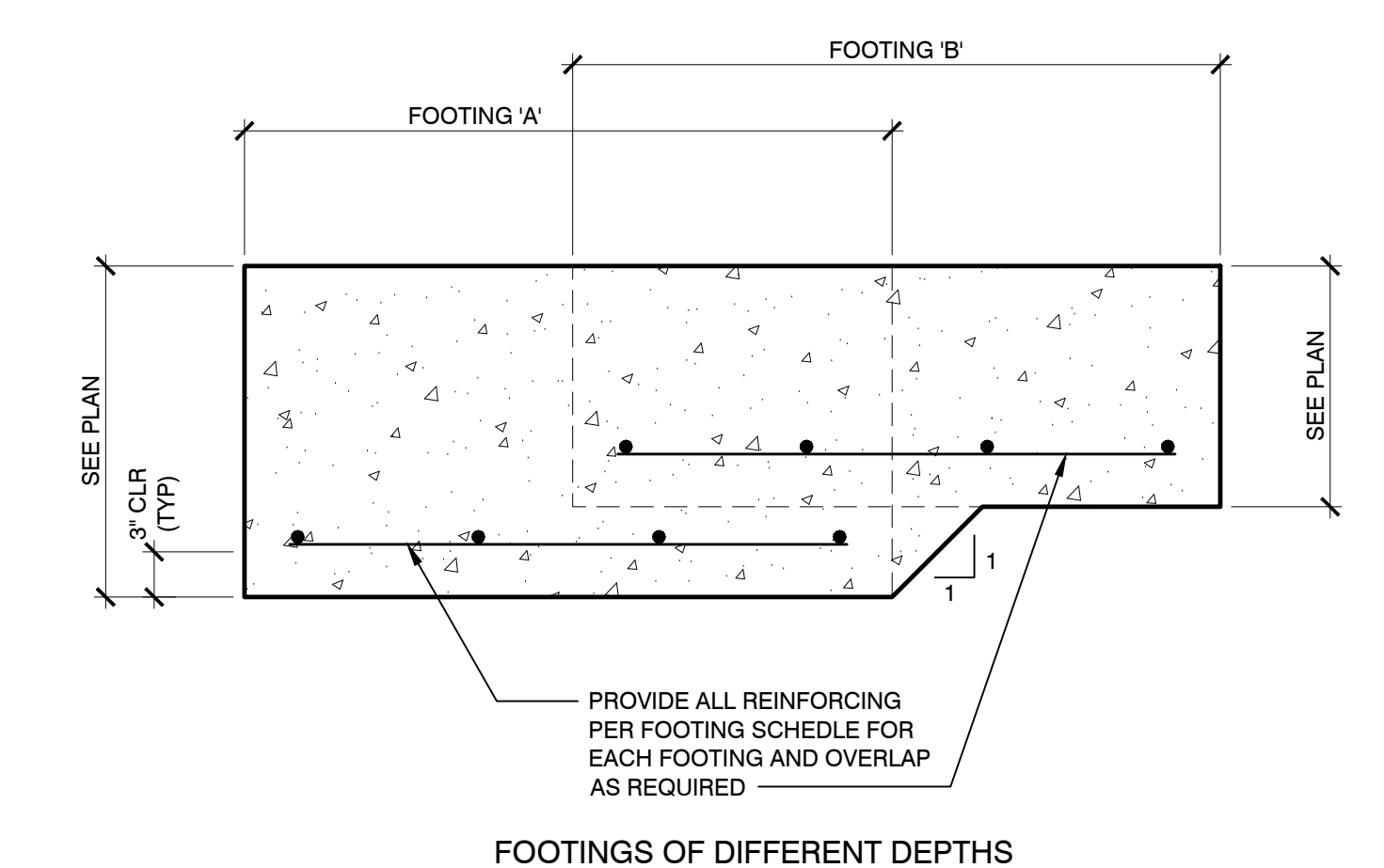
6 TYPICAL STEPPED FOOTING DETAIL NTS



1 APA PORTAL FRAME NTS

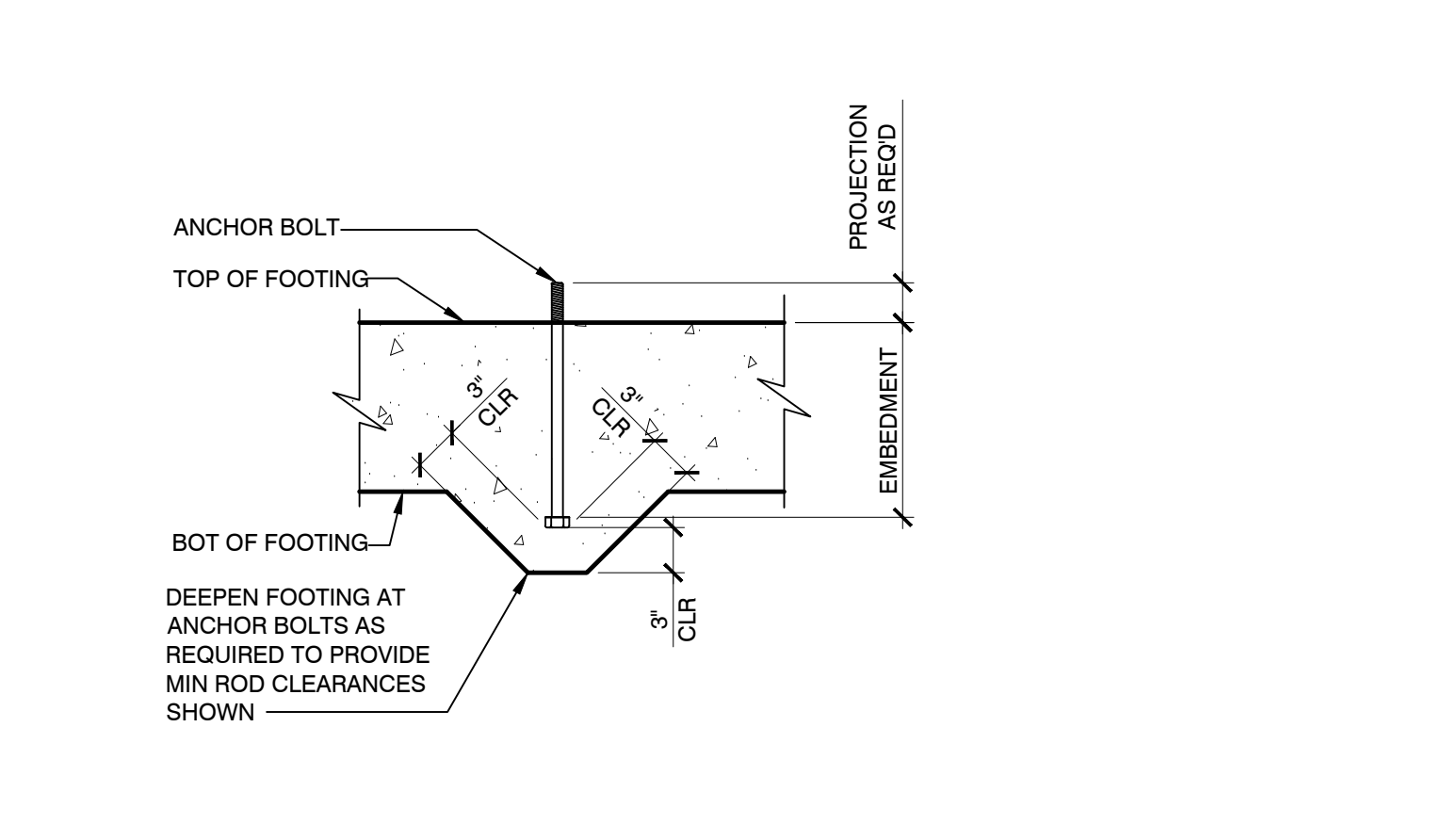


FOOTINGS OF EQUAL DEPTH

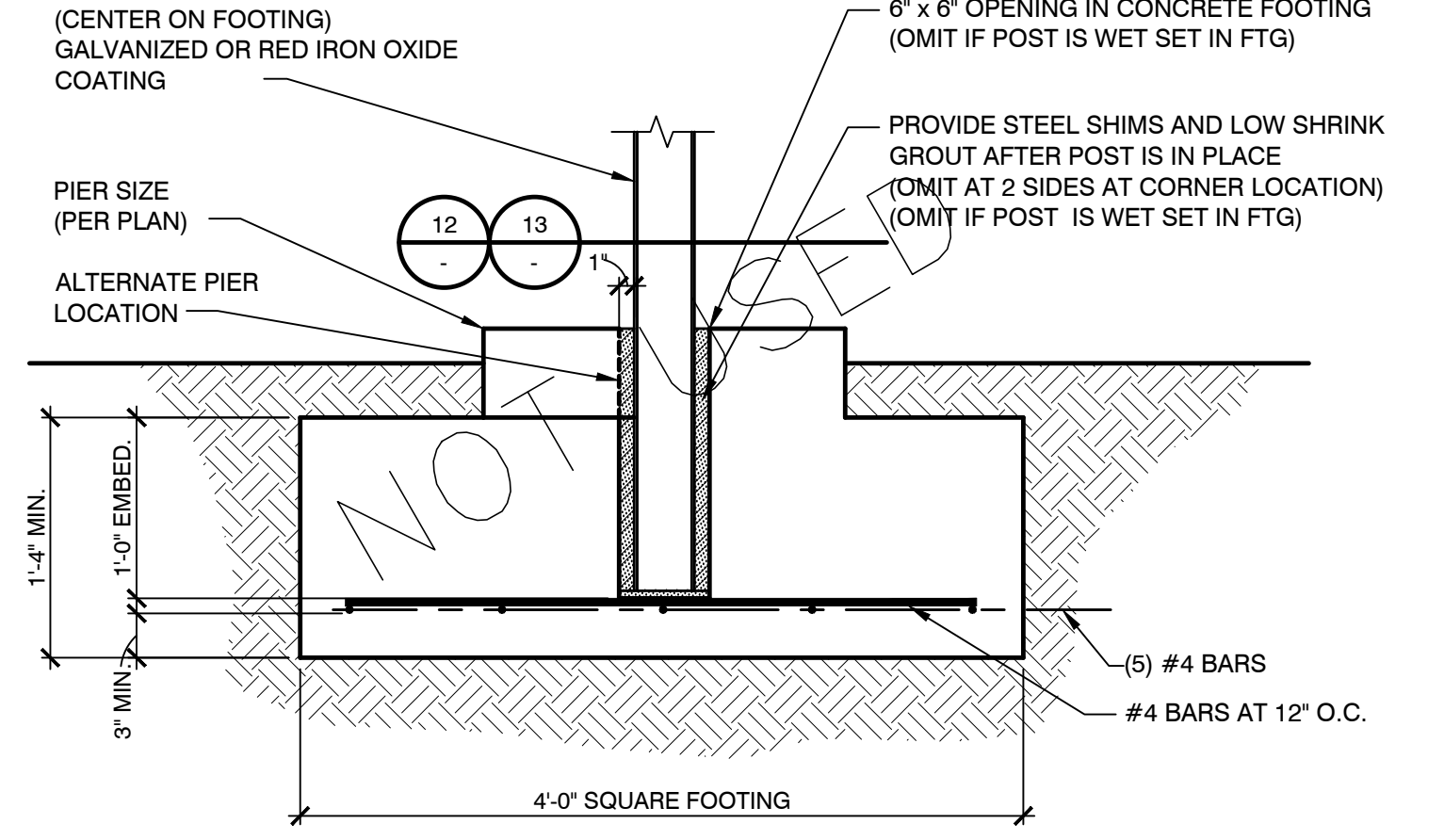


FOOTINGS OF DIFFERENT DEPTHS

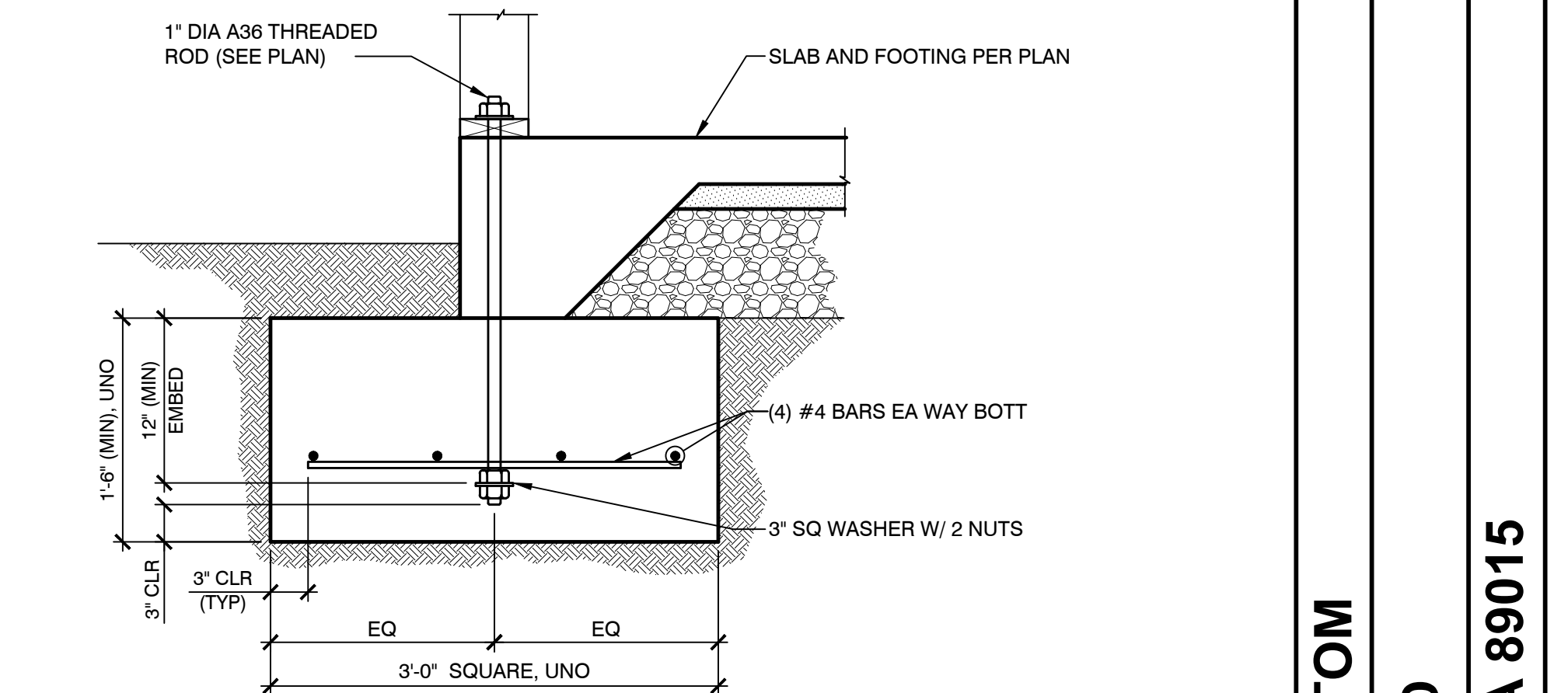
10 OVERLAPPING SPREAD FOOTING DETAIL NTS



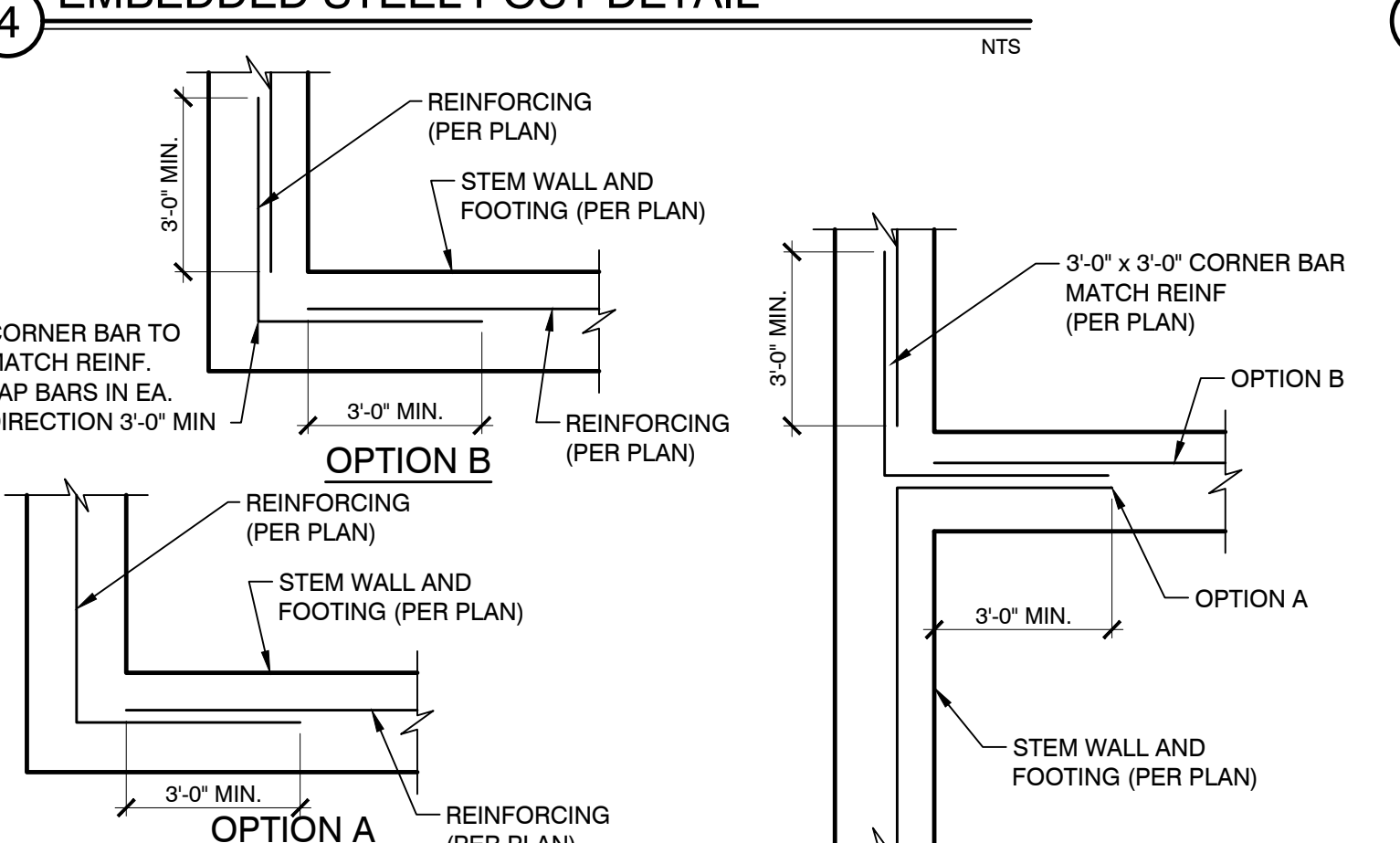
8 ANCHOR BOLT EMBEDMENT DETAIL NTS



4 EMBEDDED STEEL POST DETAIL NTS



2 HOLDOWN FOOTING SCALE

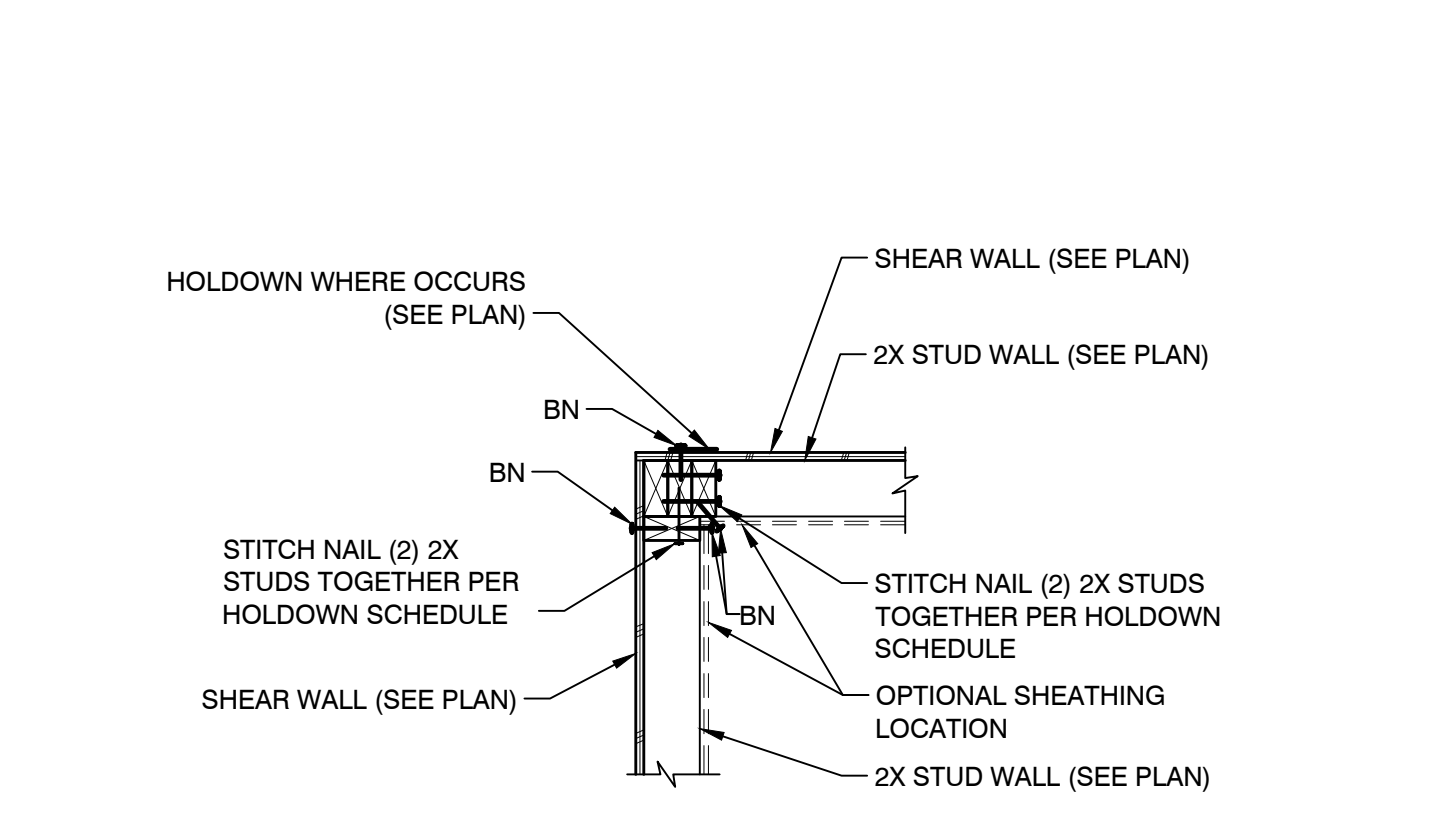


5 CONCRETE WALL/FOOTING REINFORCING NTS

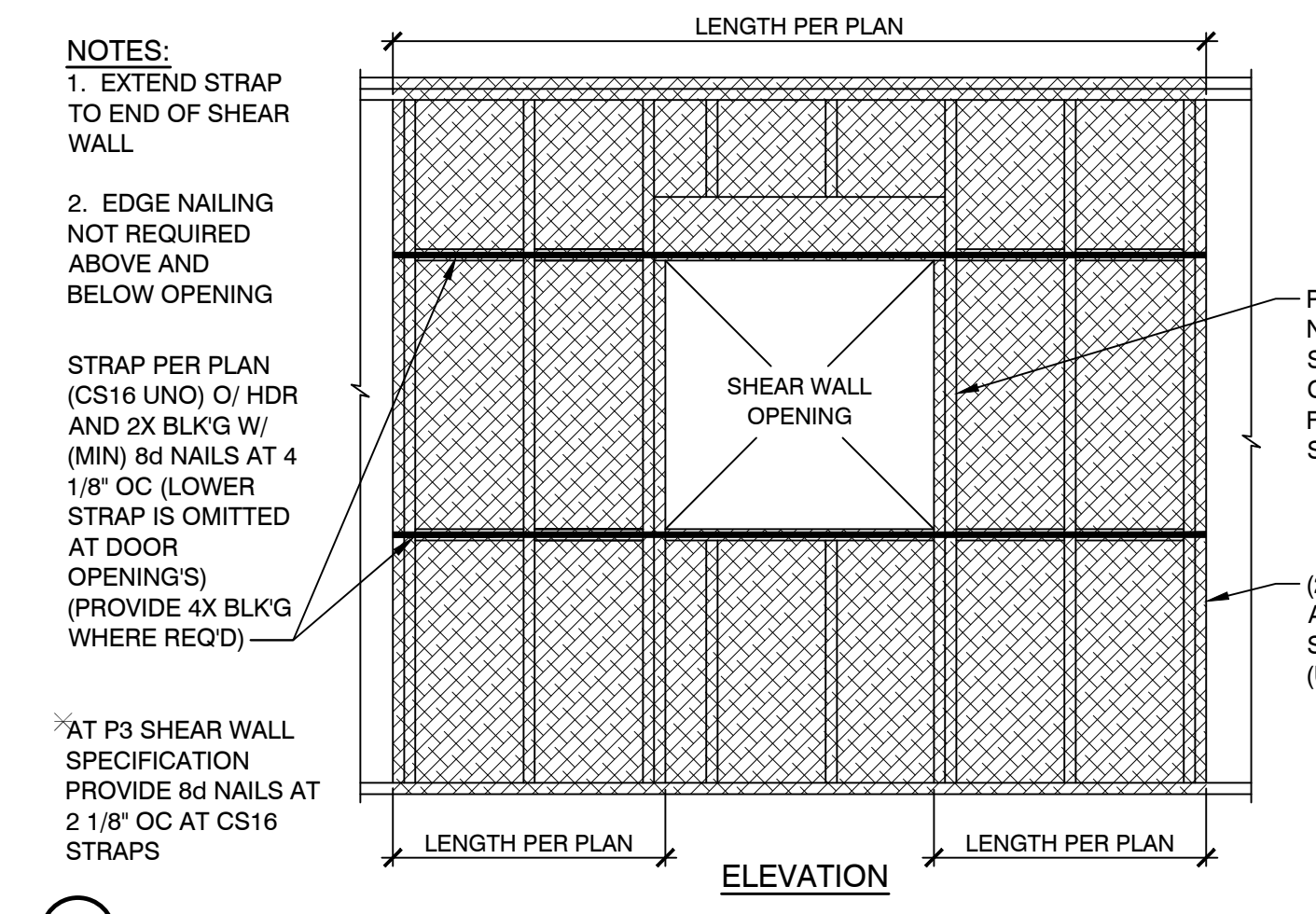
NOT USED

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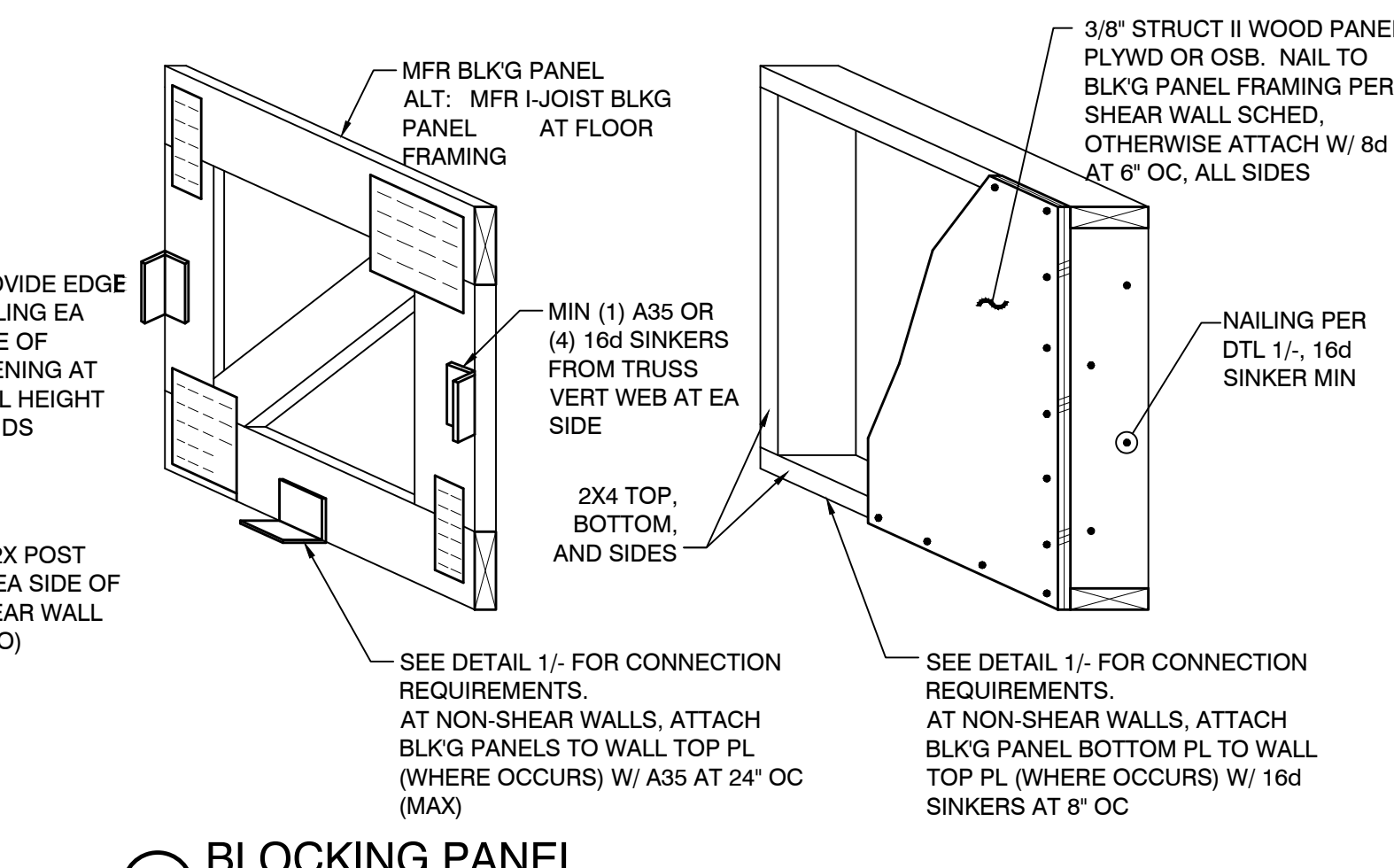
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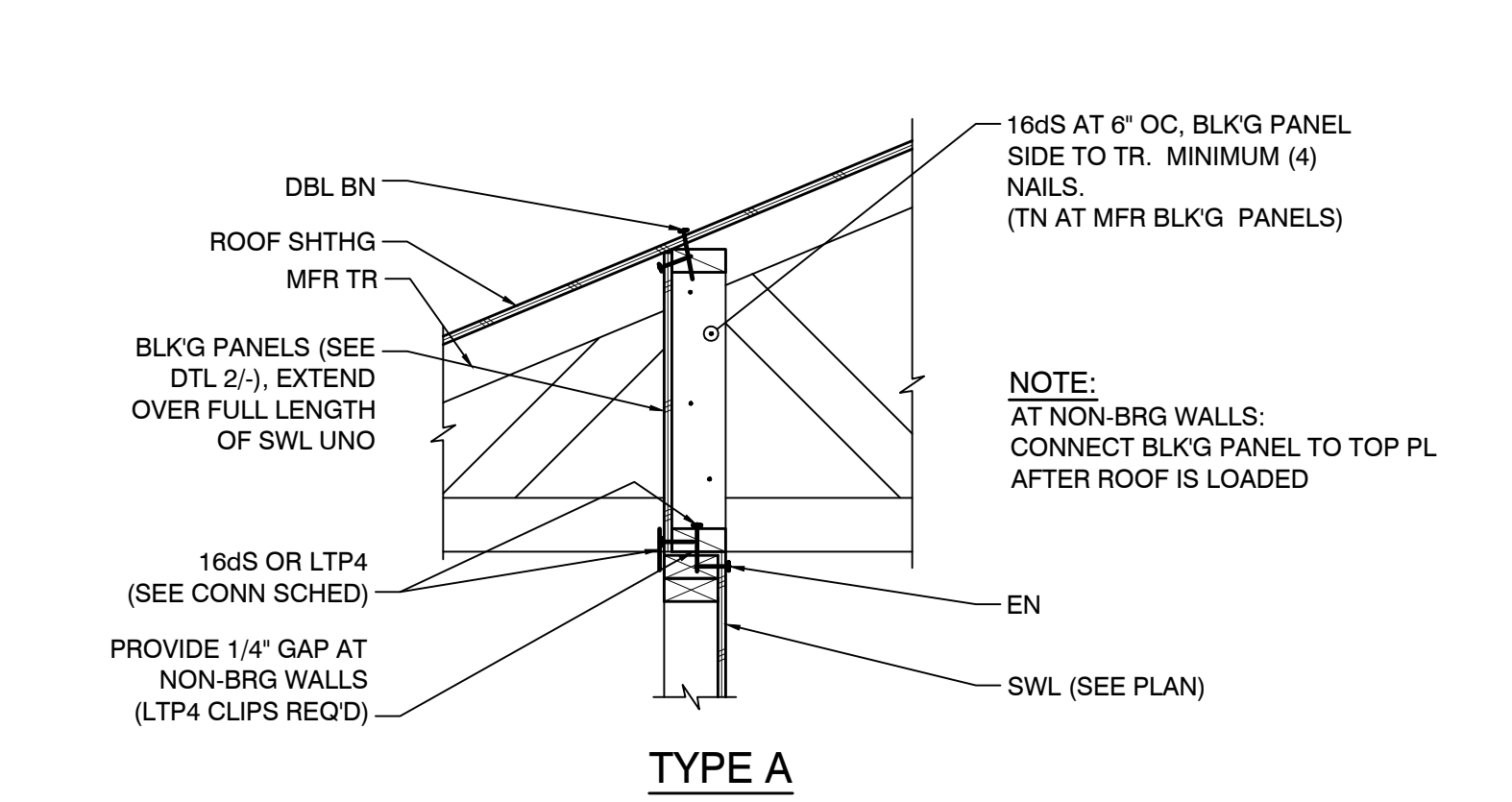
9 TWO SHEAR WALLS AT CORNER W/ SHARED HOLDOWN



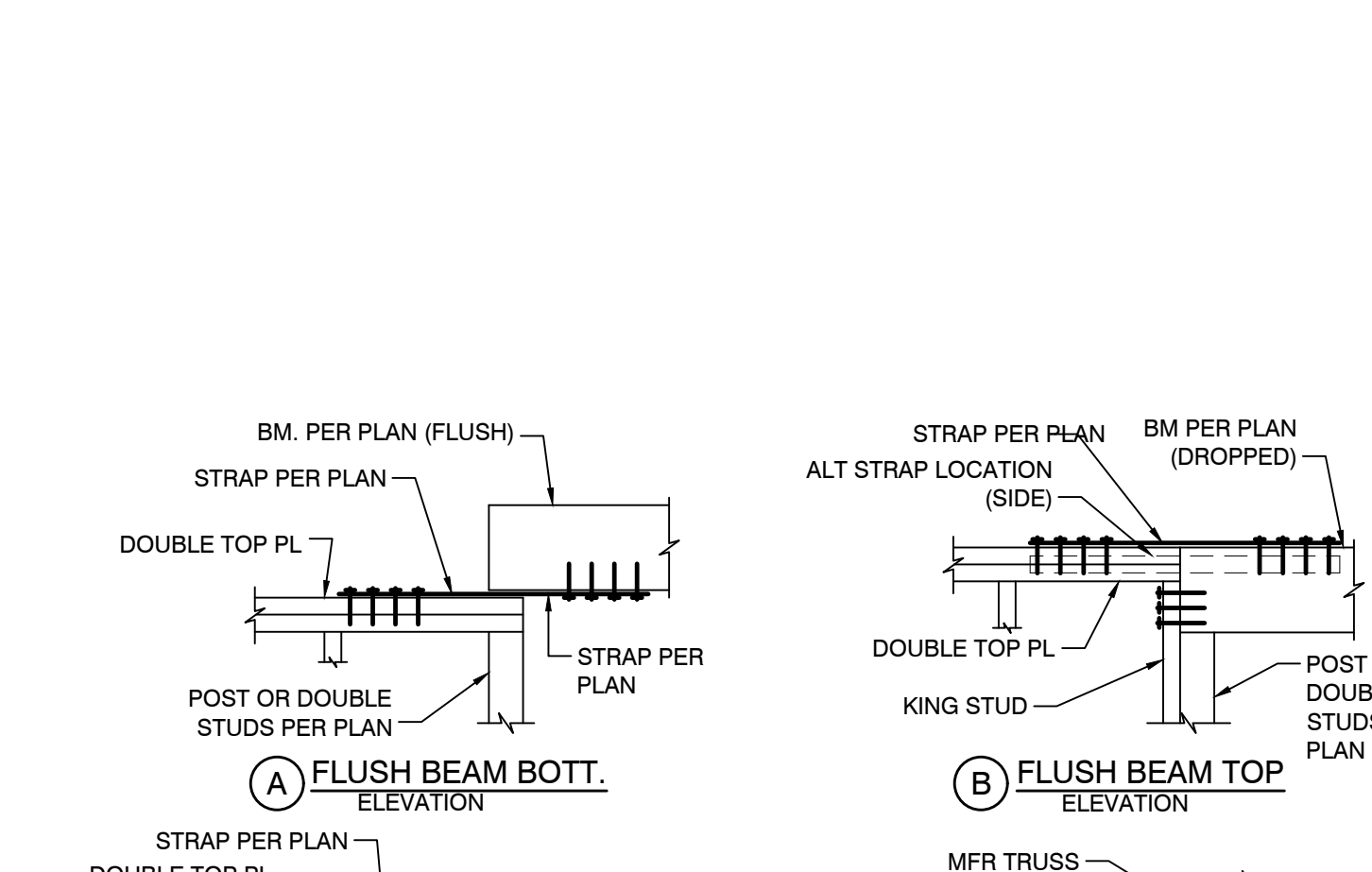
5 APPLICABLE ONLY WHERE SPECIFIED ON PLANS



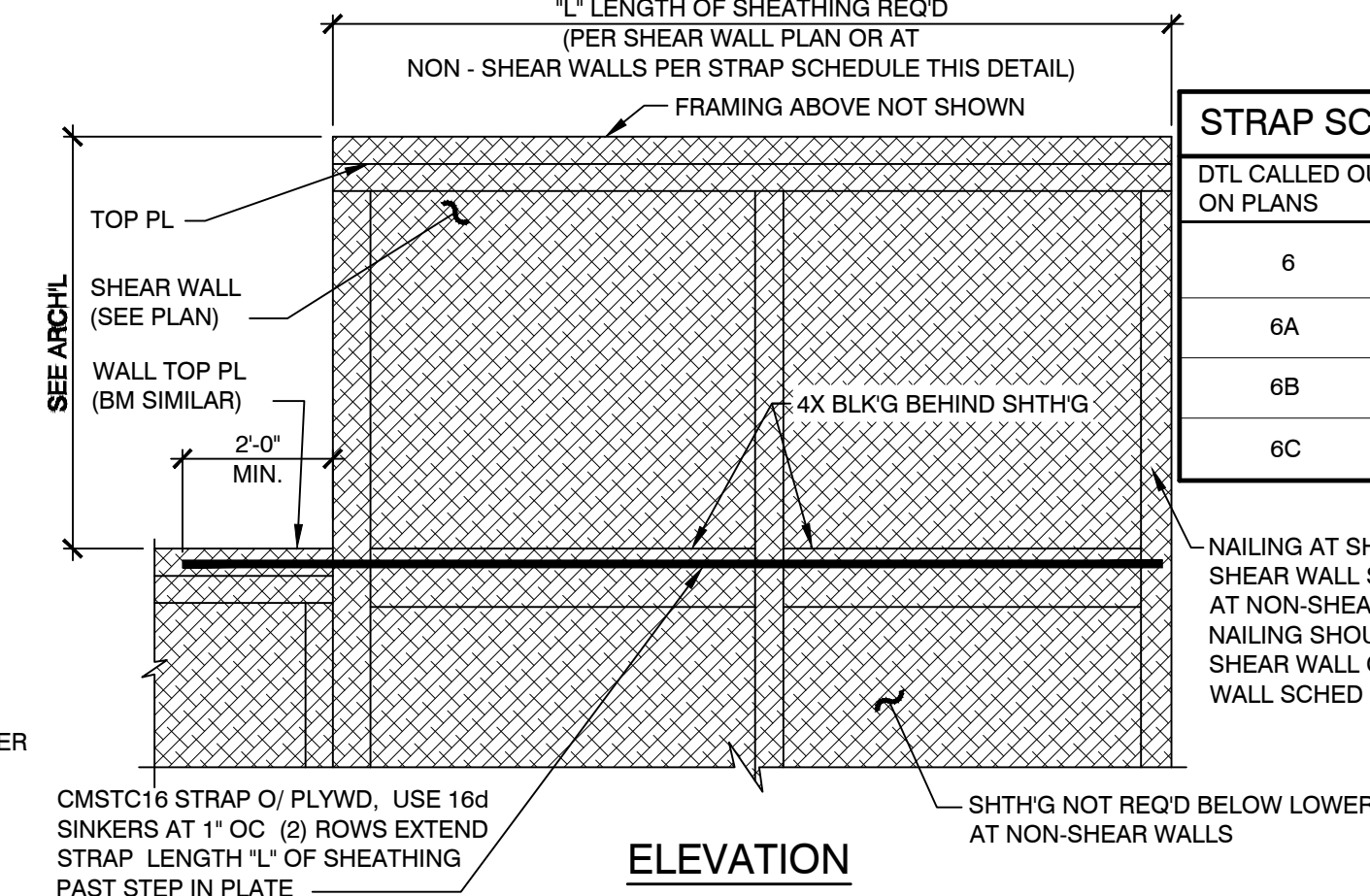
2 BLOCKING PANEL



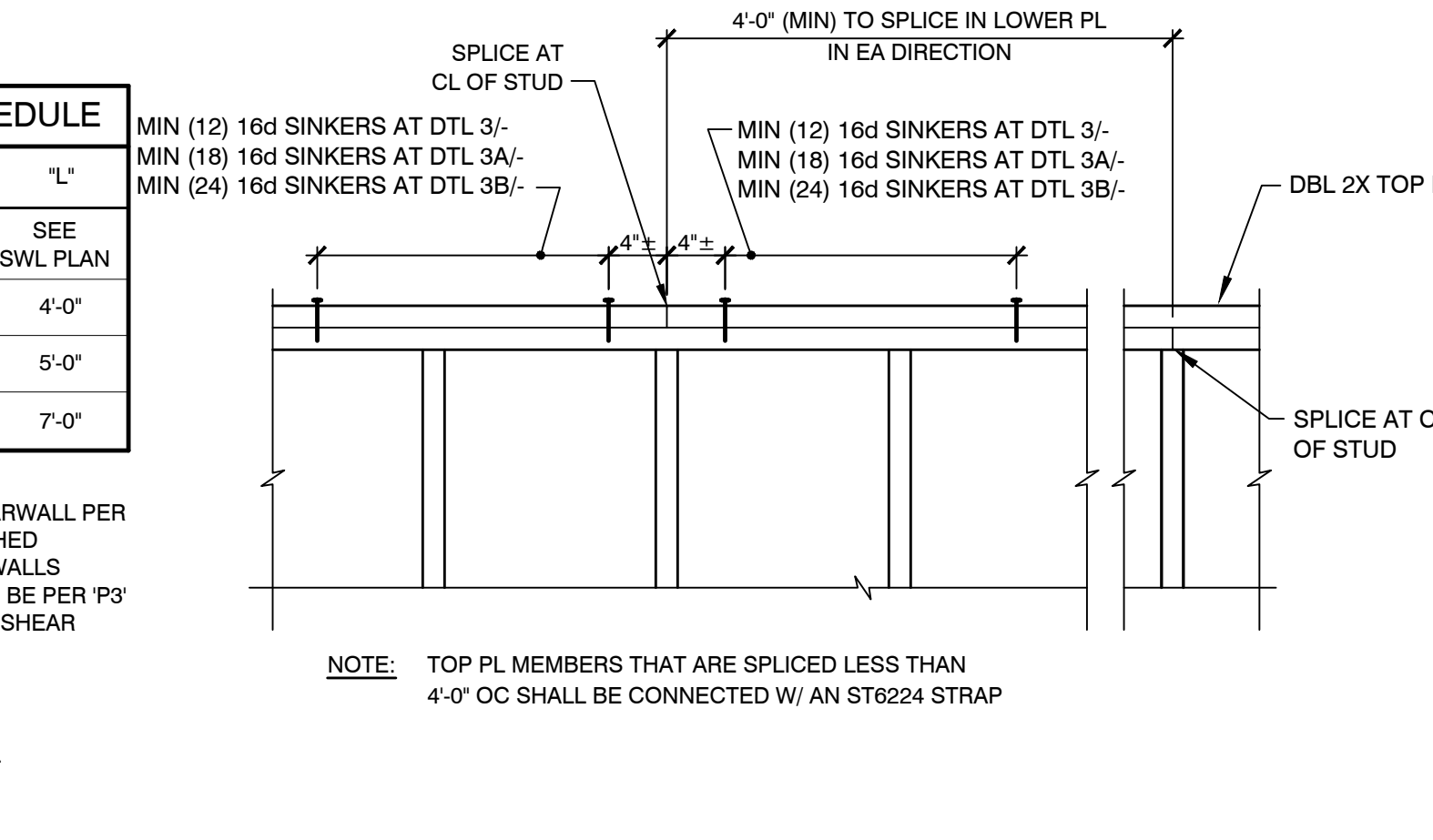
1 SHEAR TRANSFER DTLS



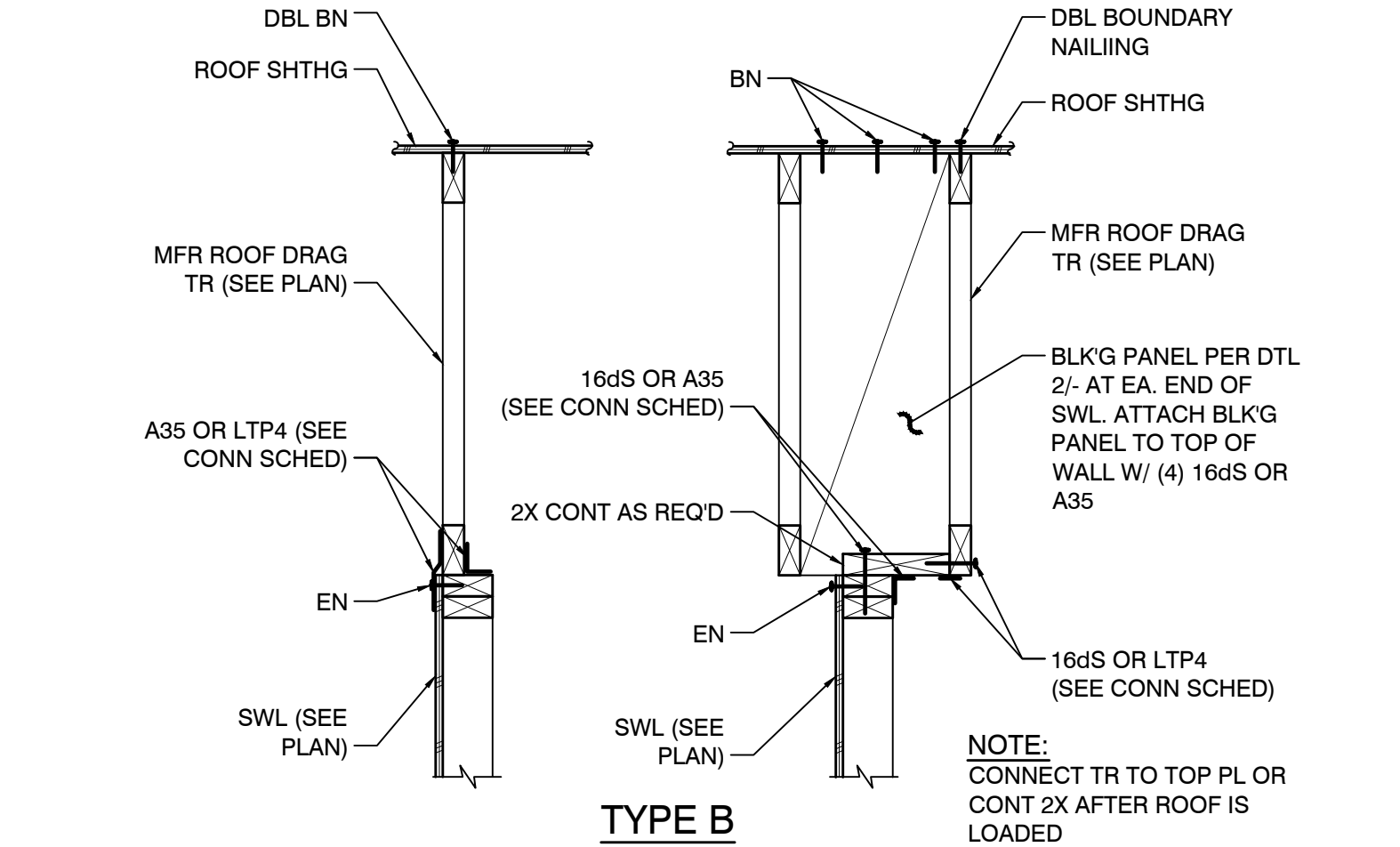
6A, 6B, 6C PLATE STEP



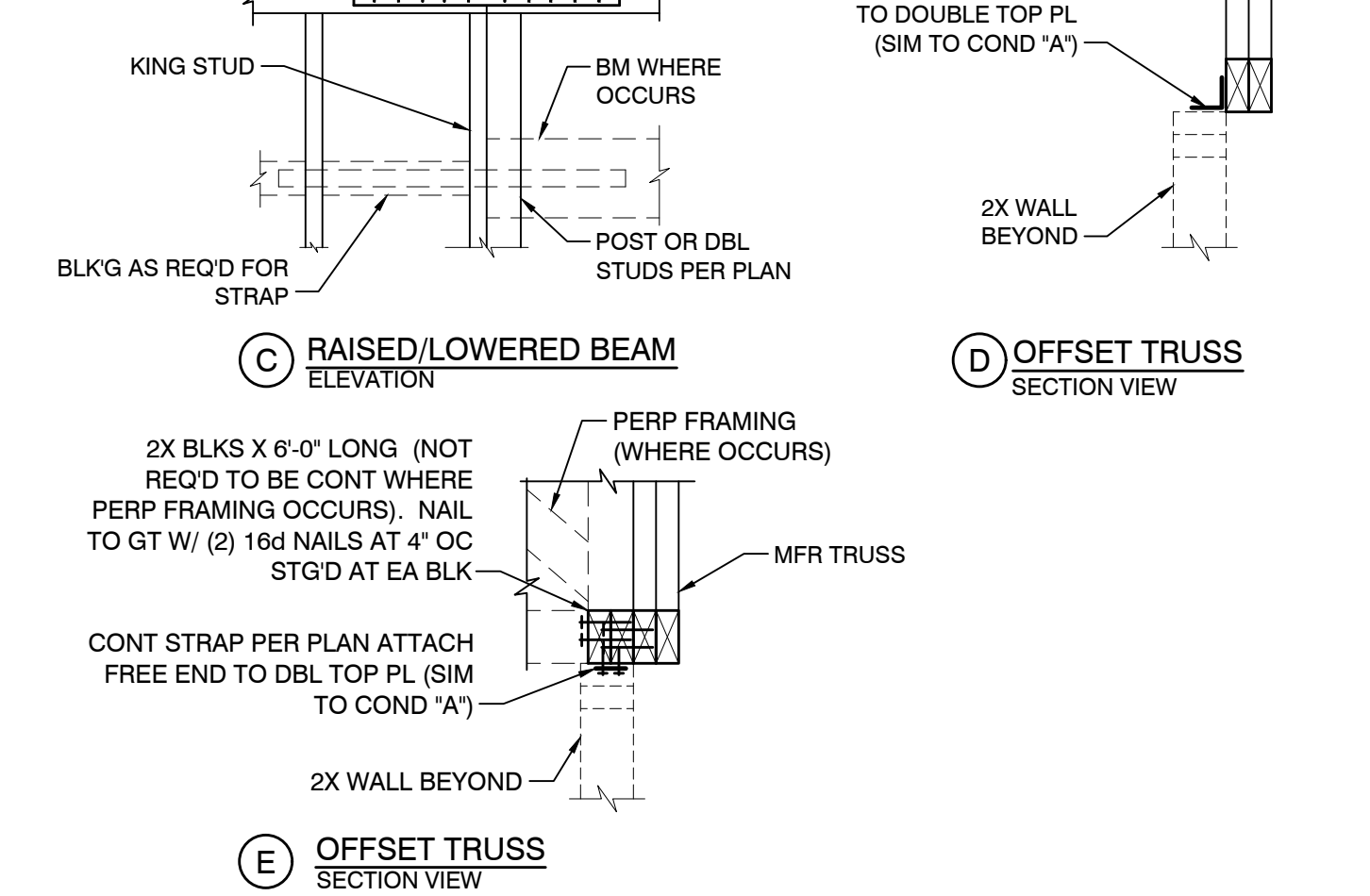
3A, 3B, 3C TOP PLATE SPLICE



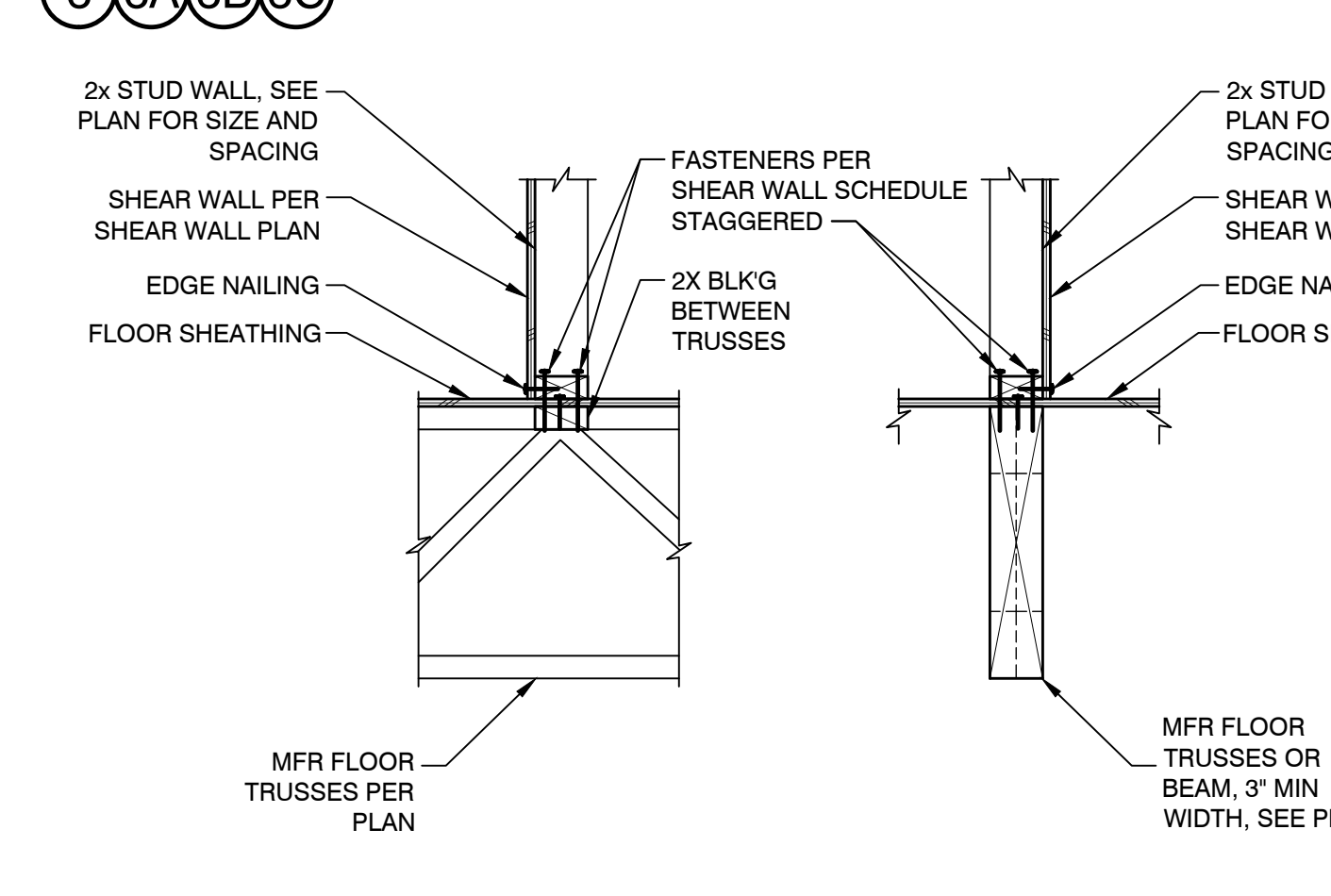
4 HOLD DOWN TRANSFER AT FLOOR



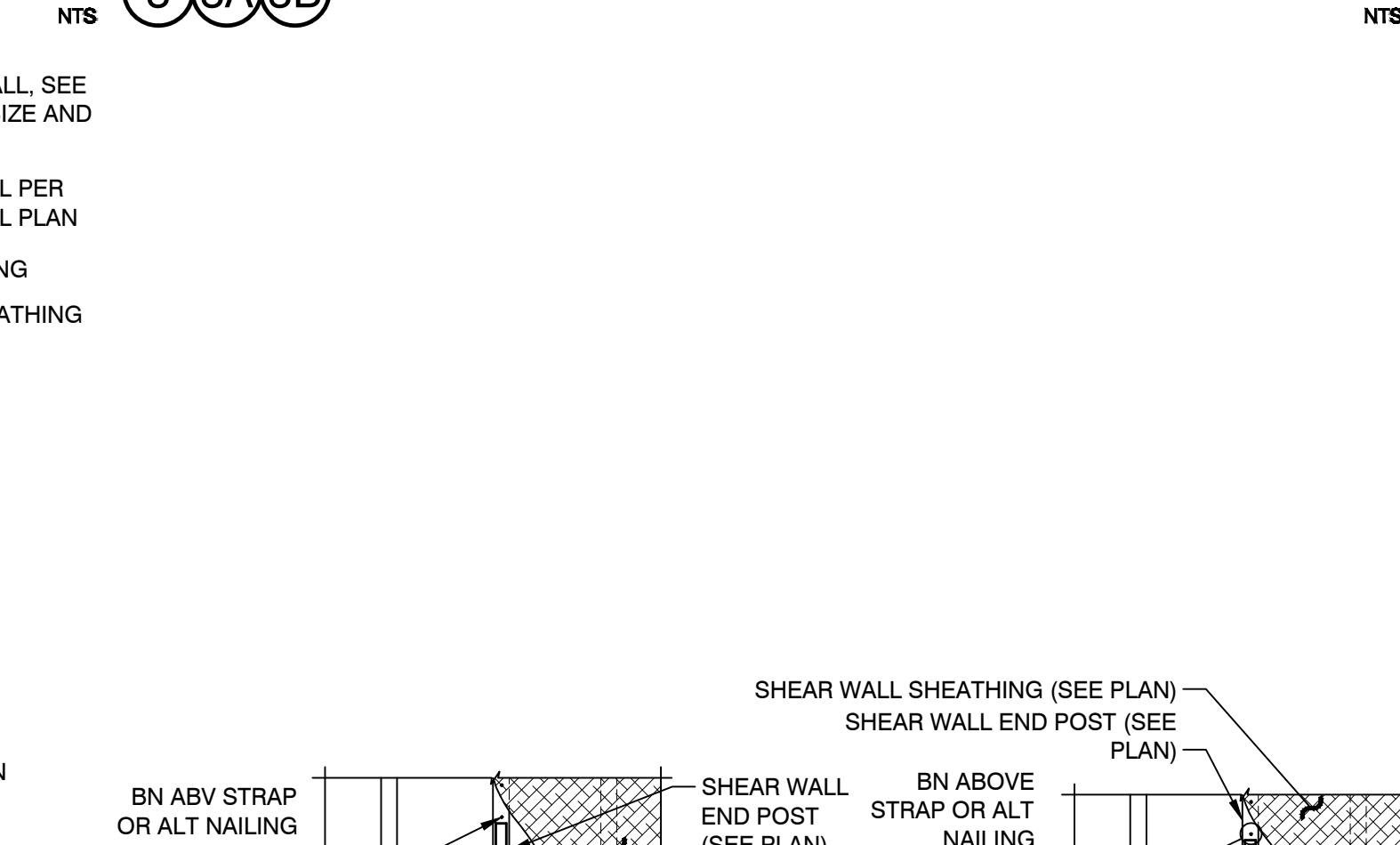
1 SHEAR TRANSFER DTLS



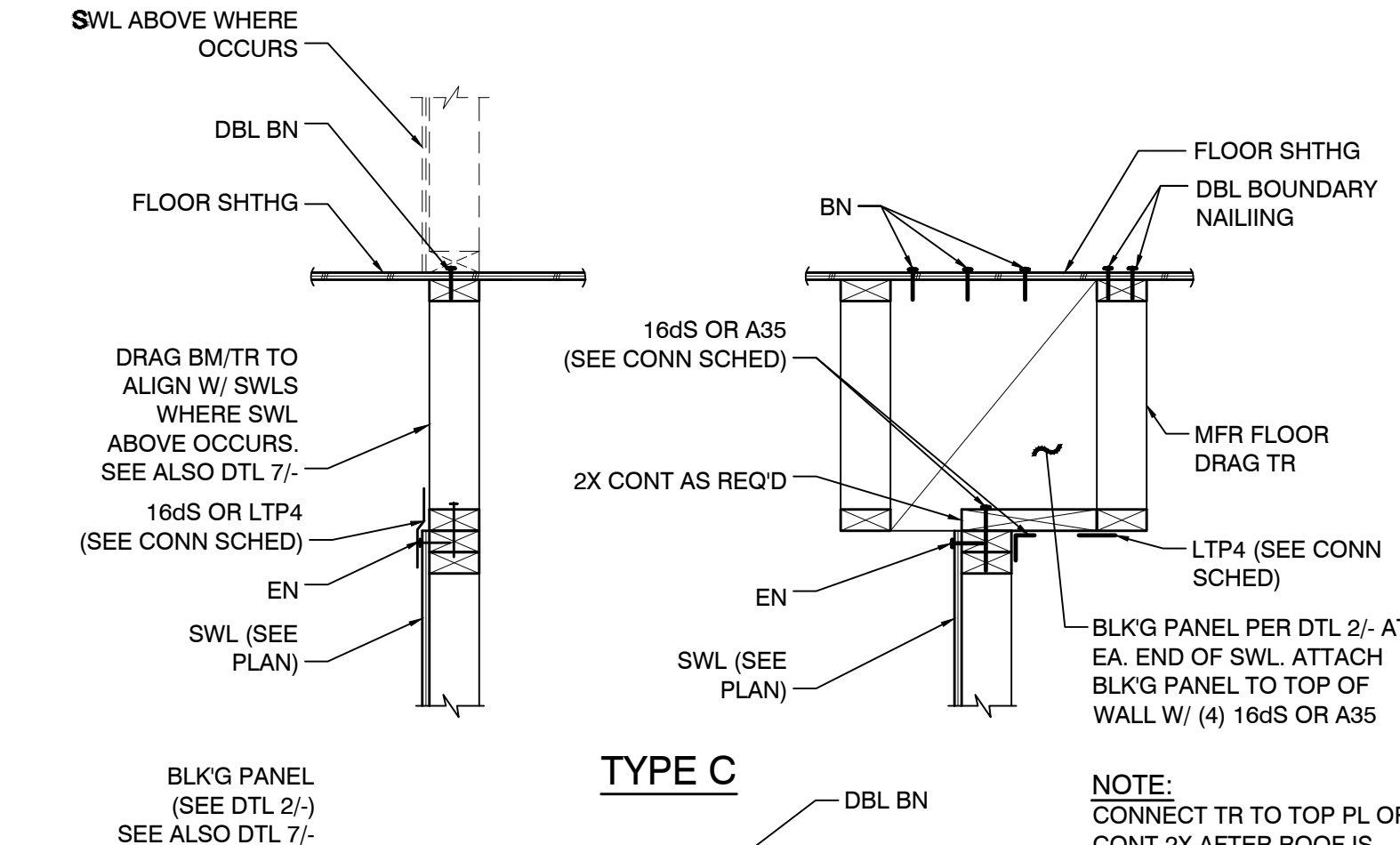
10 STRAP PLACEMENT



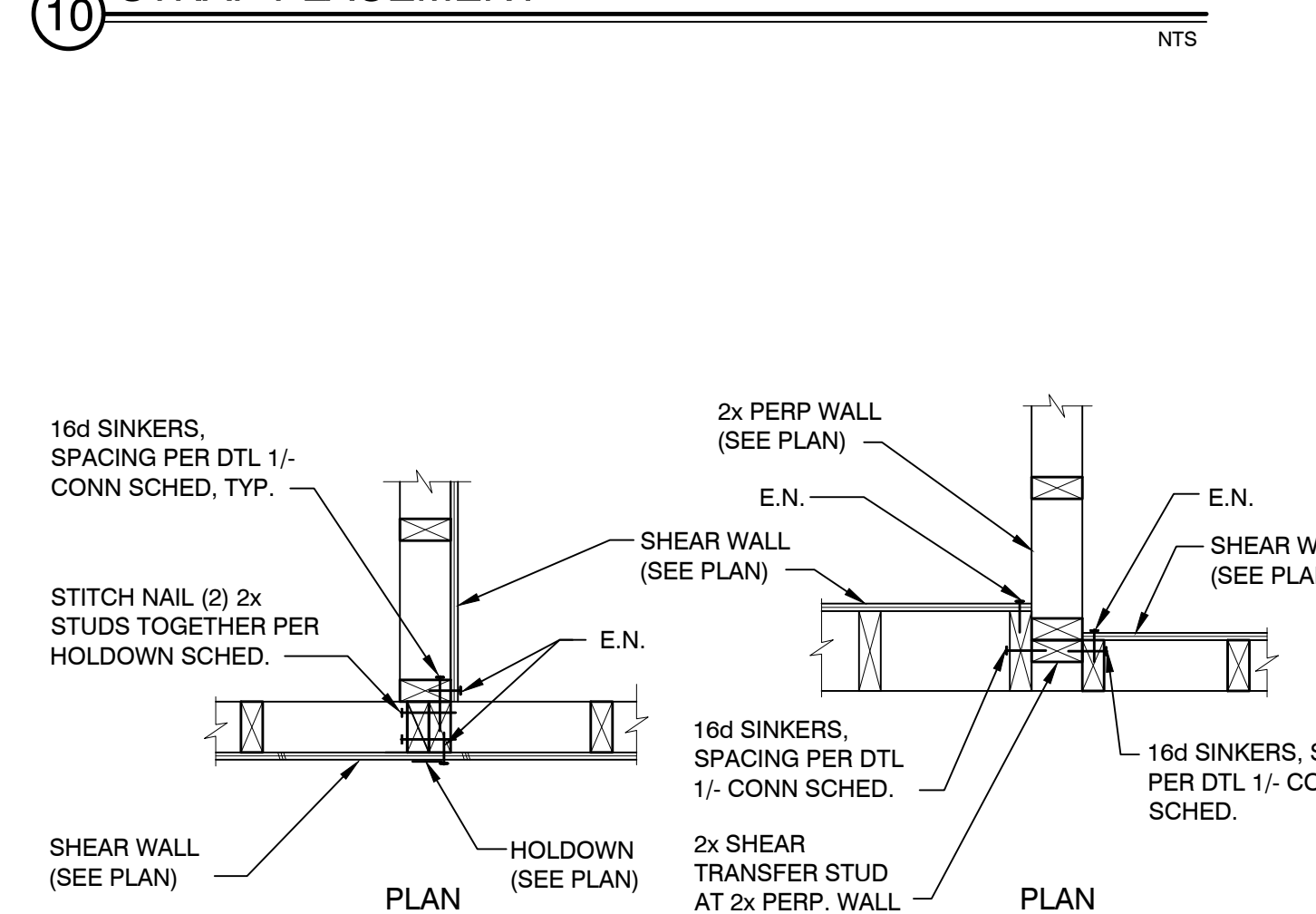
7 INT. S/W TO MFR FLOOR TRUSSES OR BEAM



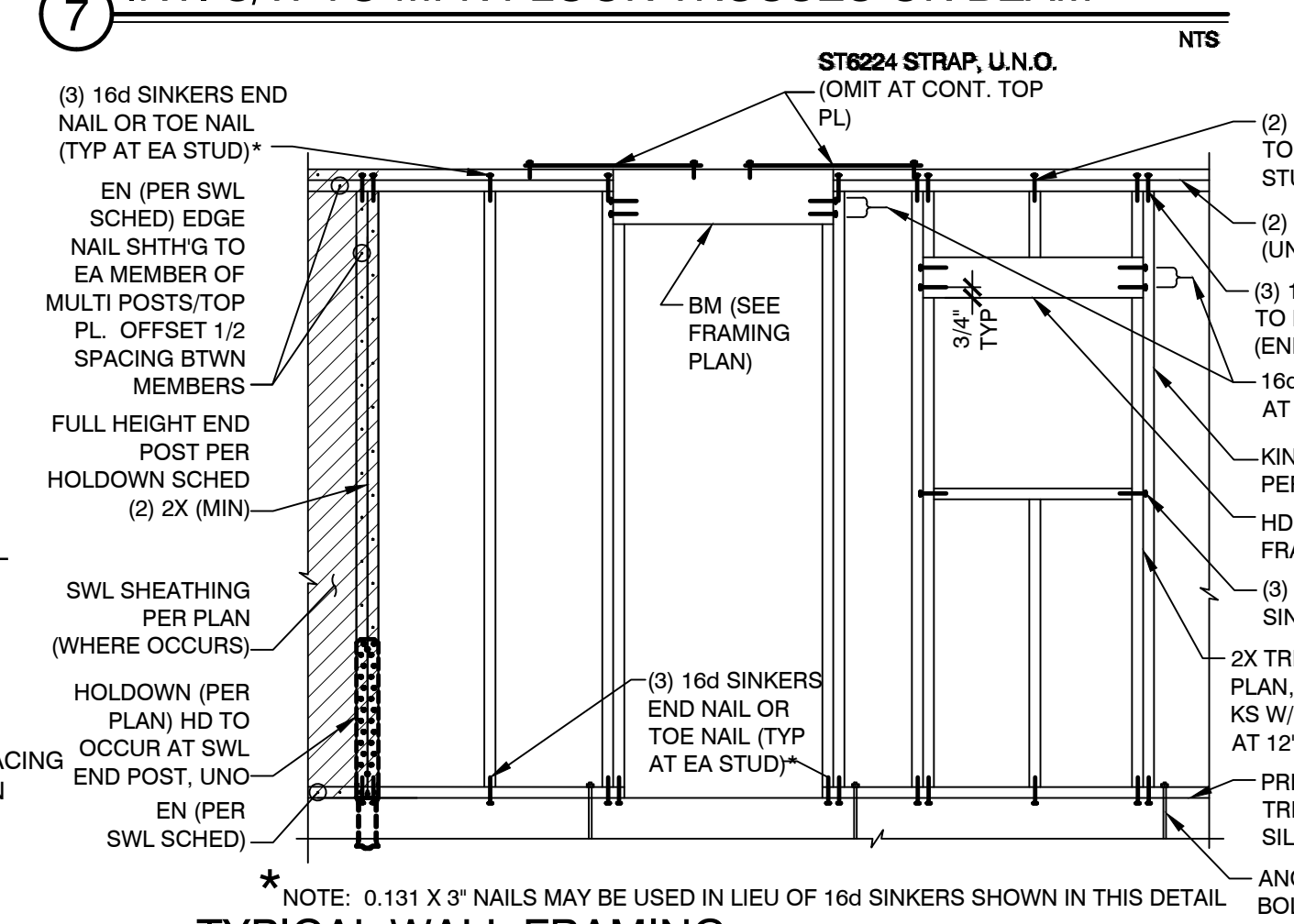
4 HOLD DOWN TRANSFER AT FLOOR



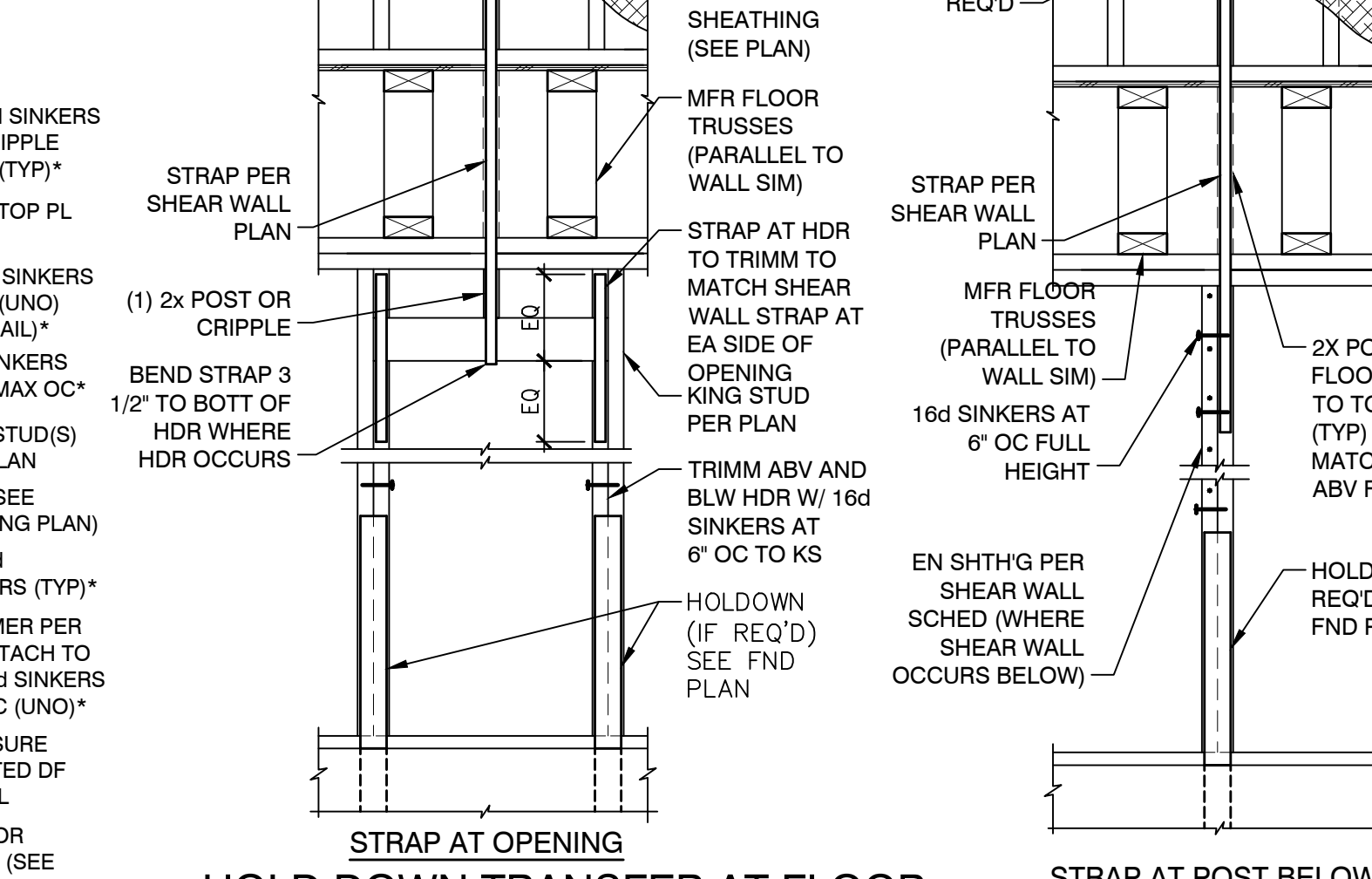
1 SHEAR TRANSFER DTLS



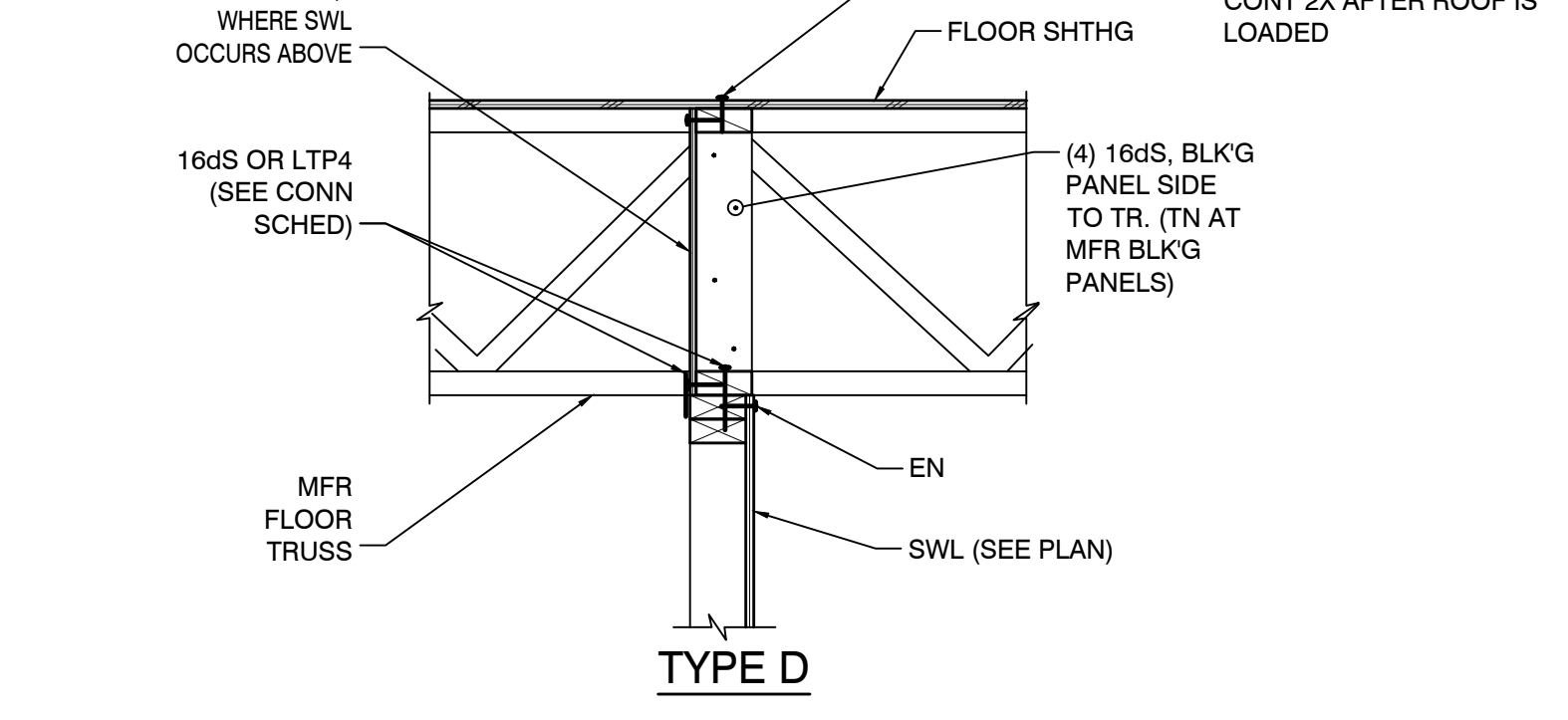
11 SHEAR WALL HOLDDOWN



8 TYPICAL WALL FRAMING



4 HOLD DOWN TRANSFER AT FLOOR



1 SHEAR TRANSFER DTLS

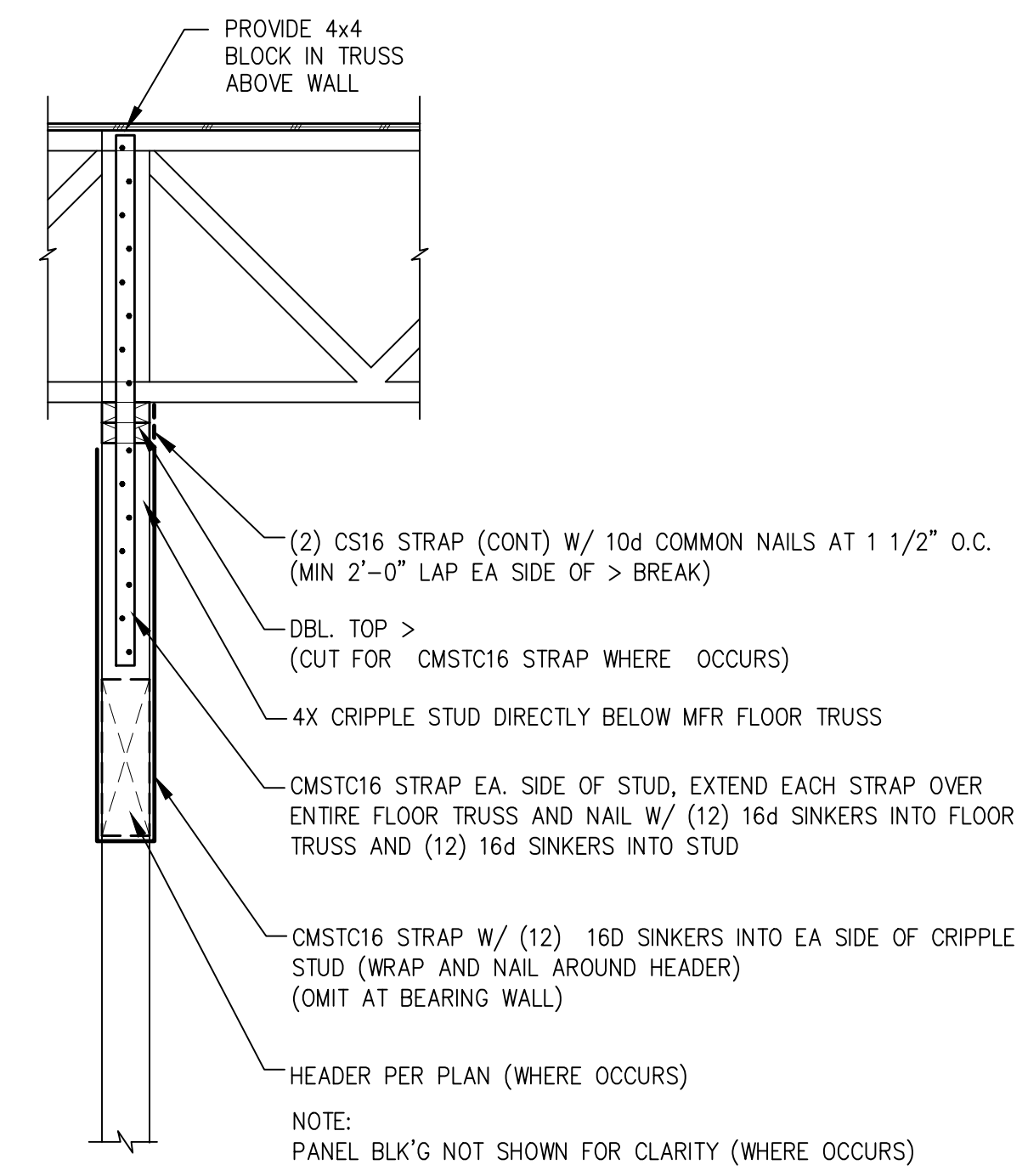
CONNECTION SCHEDULE			
	A35 OR LTP4	DFL / SPF	16dS
NON-SWL	32\"/>		

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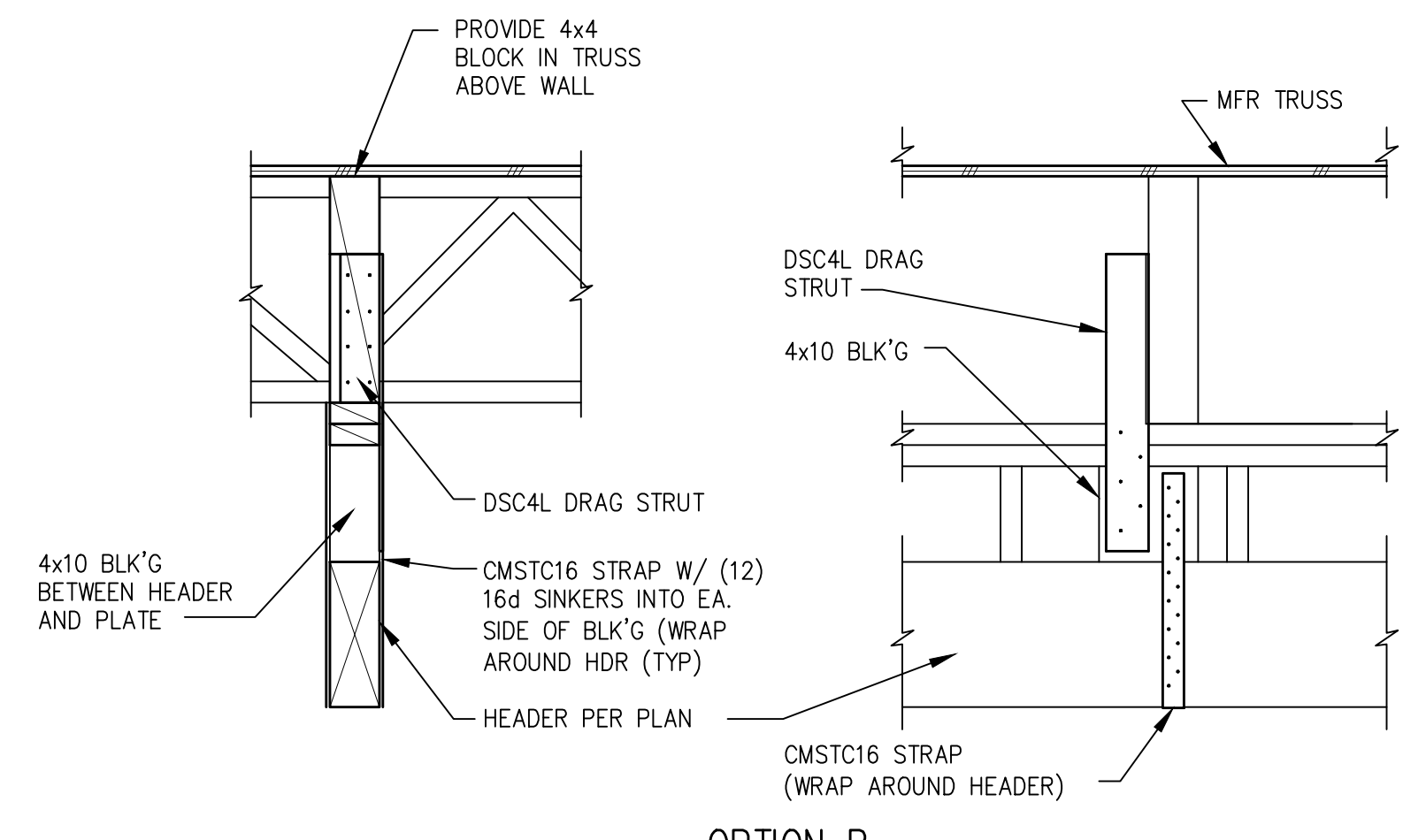
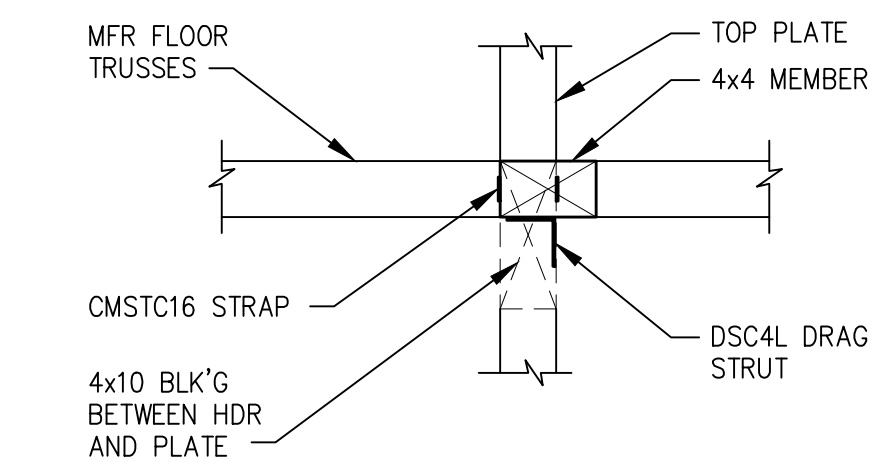
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 ENR 12-31-20
 CIVIL ENGINEER
 No. 017217
 01-07-2020

SD-2

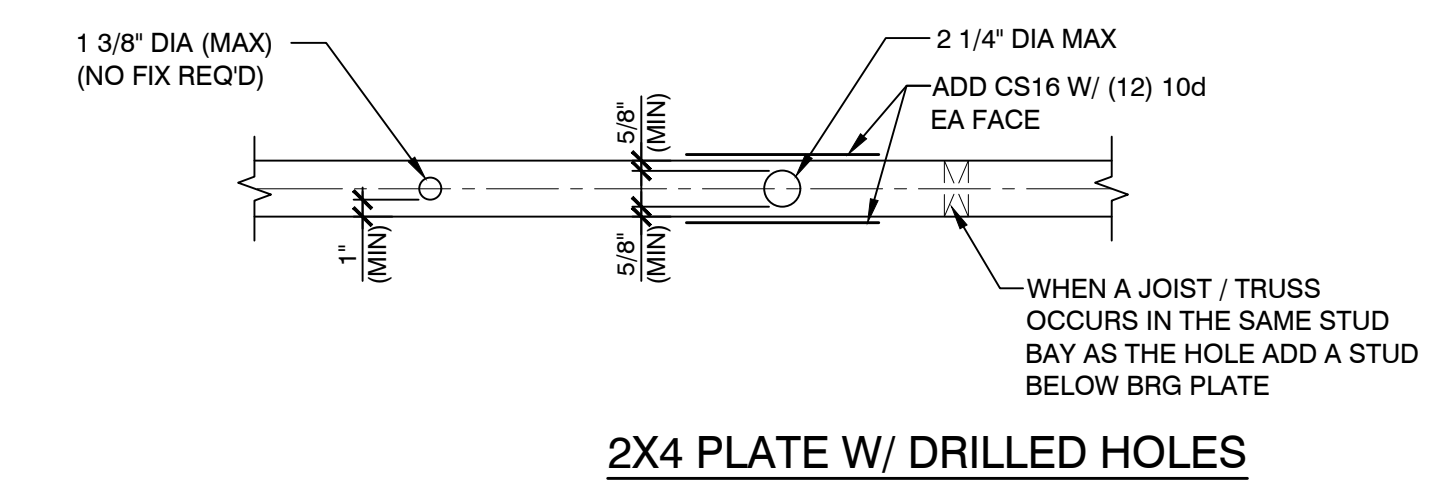


OPTION A

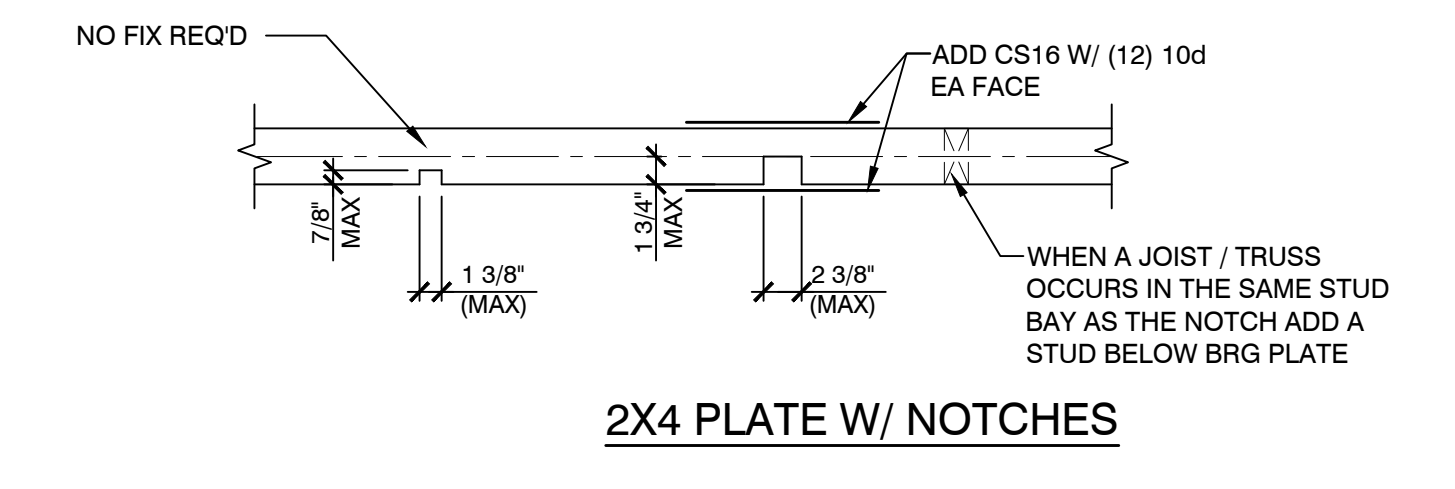


OPTION B

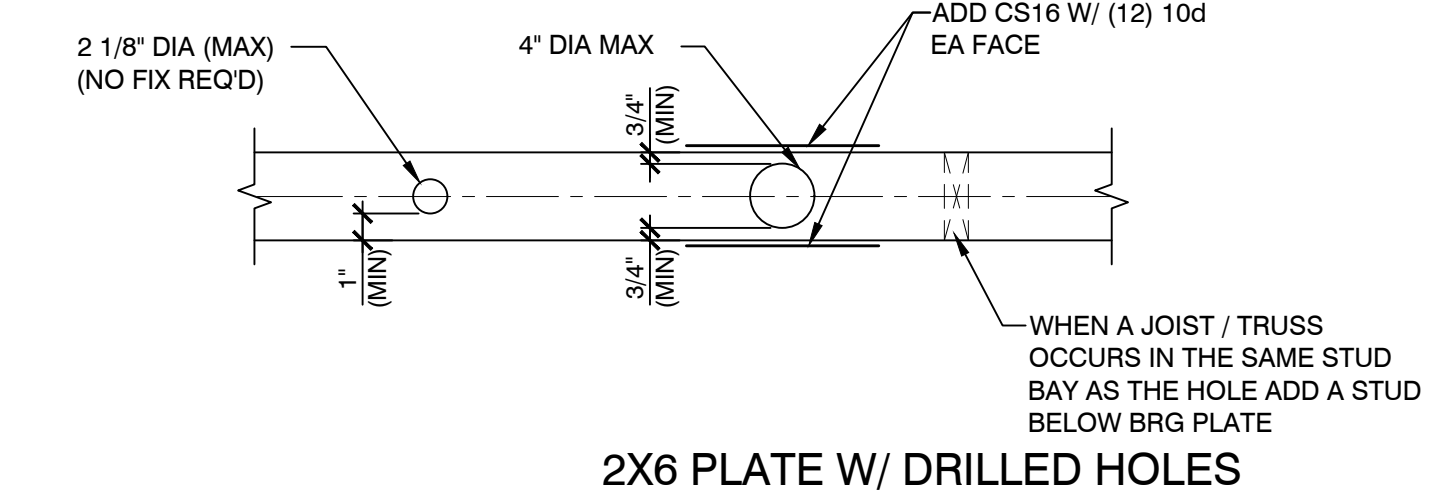
5 UPLIFT CONNECTION AT CANT'L FLOOR TRUSS NTS



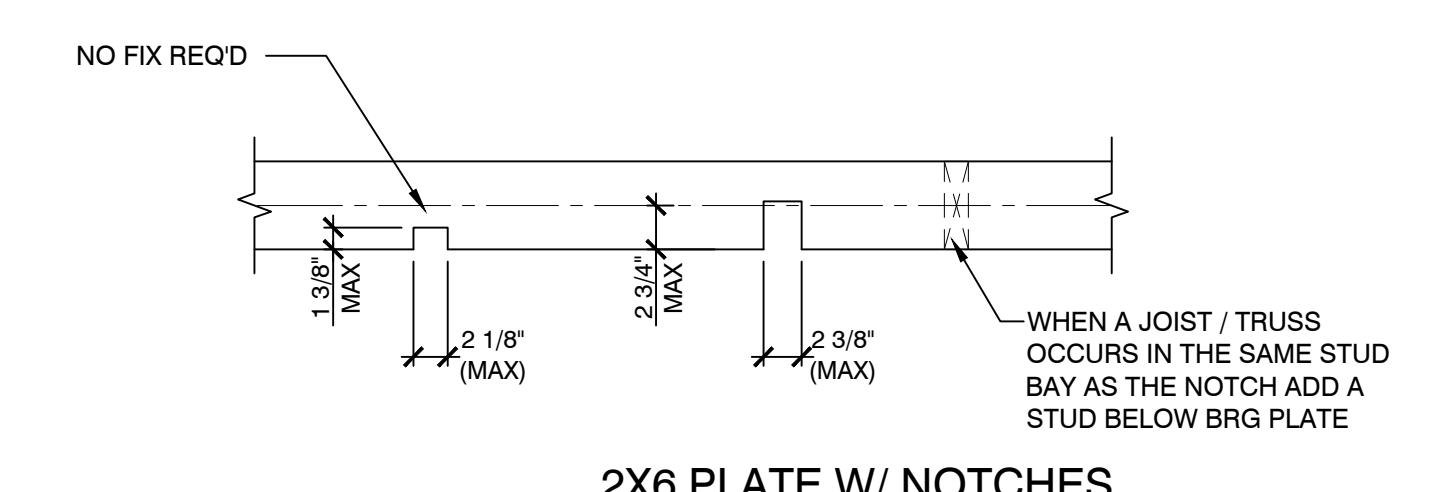
2X4 PLATE W/ DRILLED HOLES



2X4 PLATE W/ NOTCHES

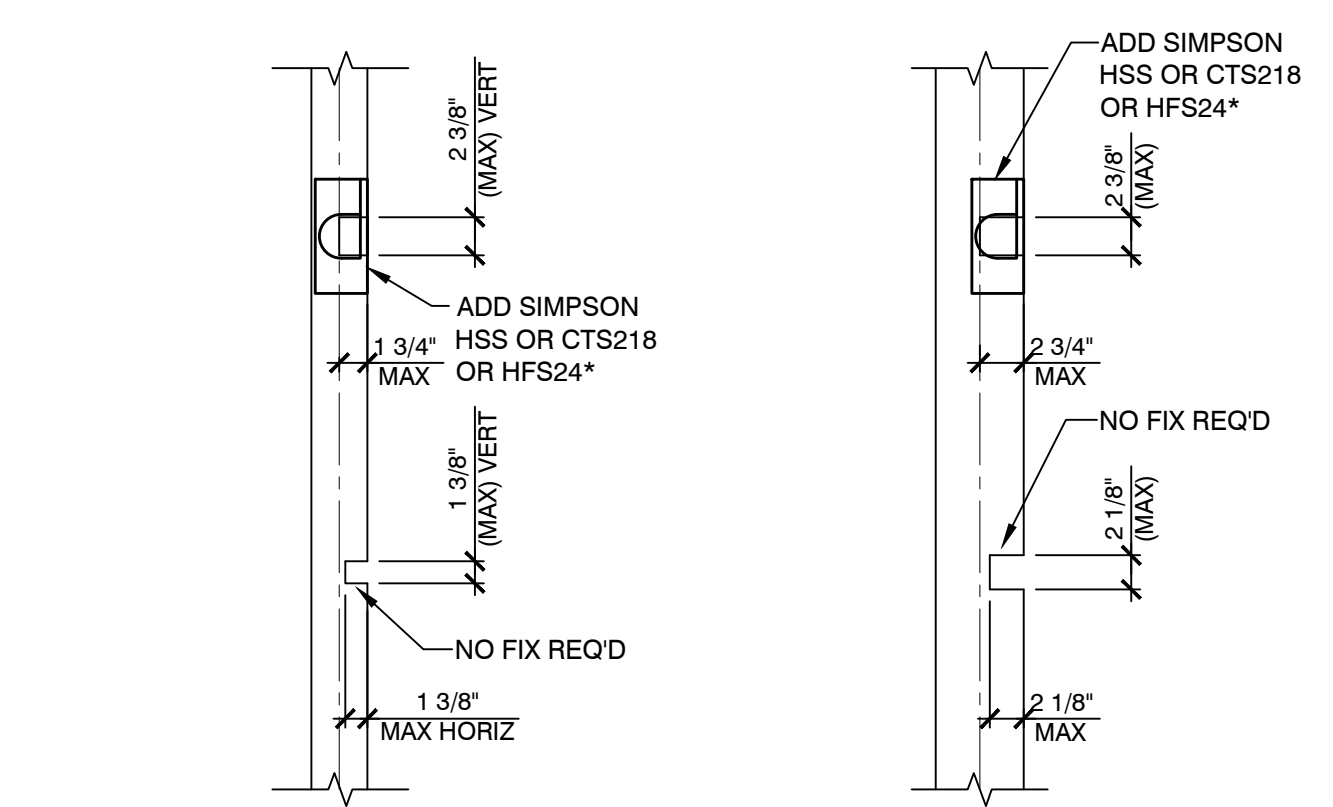


2X6 PLATE W/ DRILLED HOLES

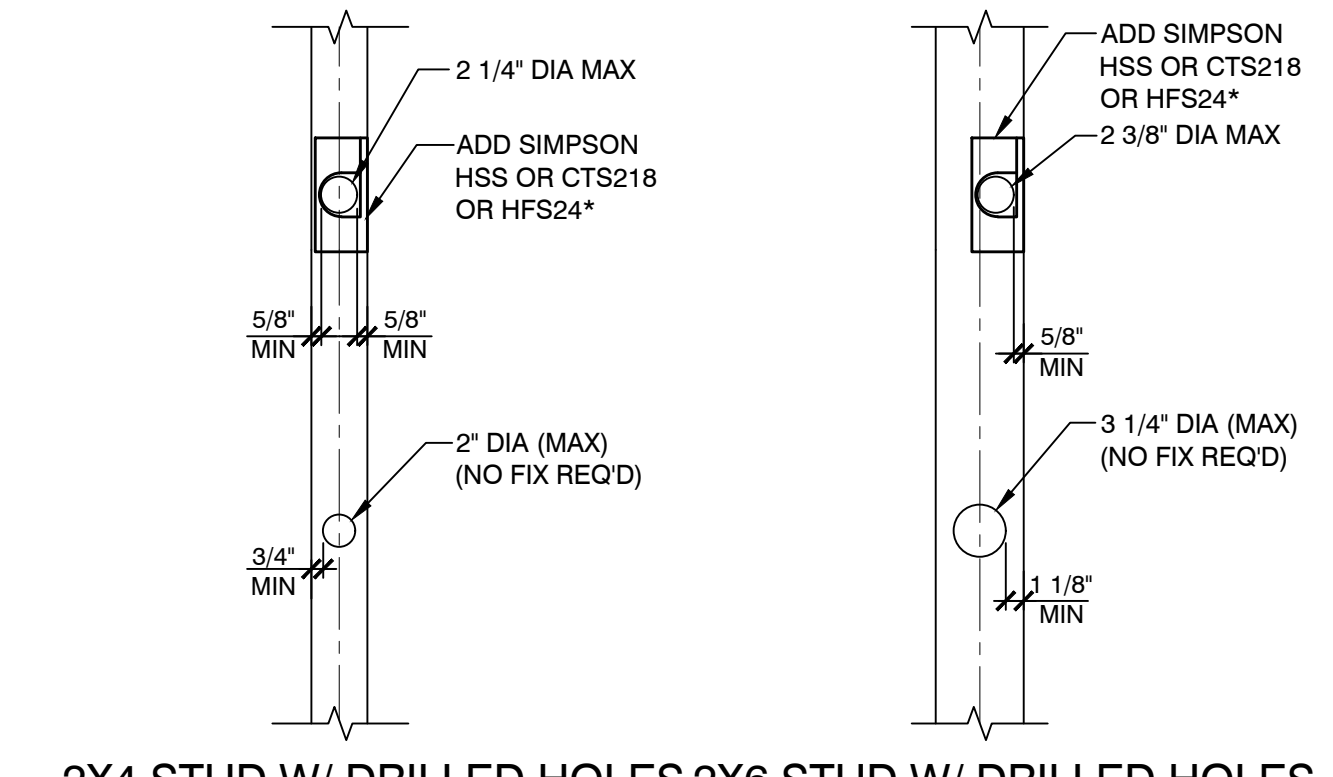


2X6 PLATE W/ NOTCHES

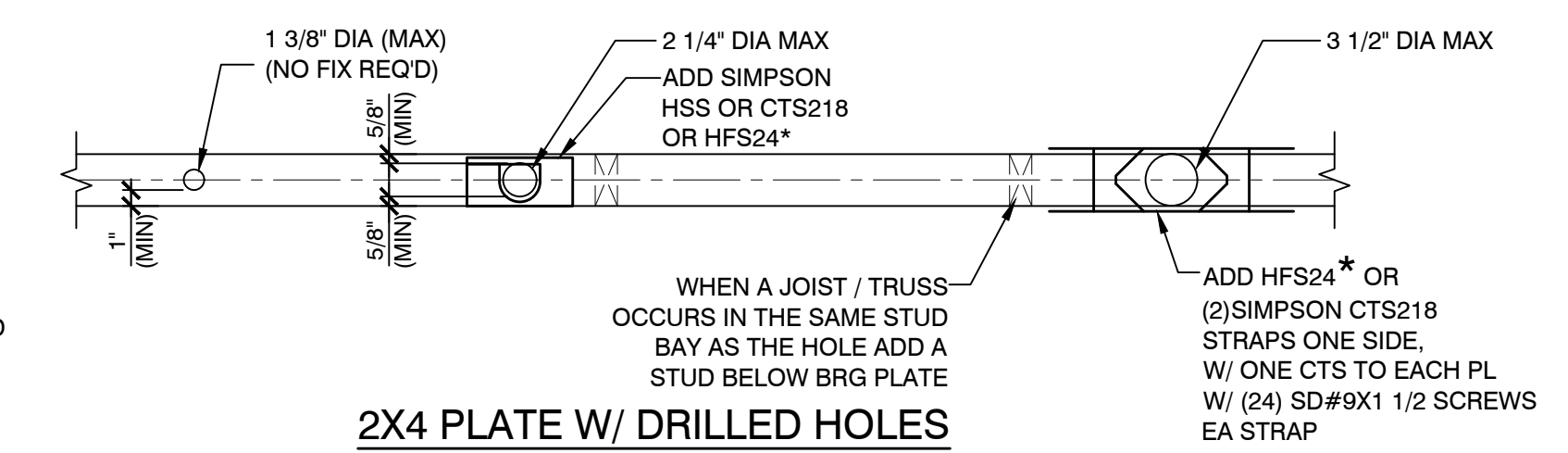
3 ALLOWABLE HOLES AND NOTCHES IN PLATES NTS



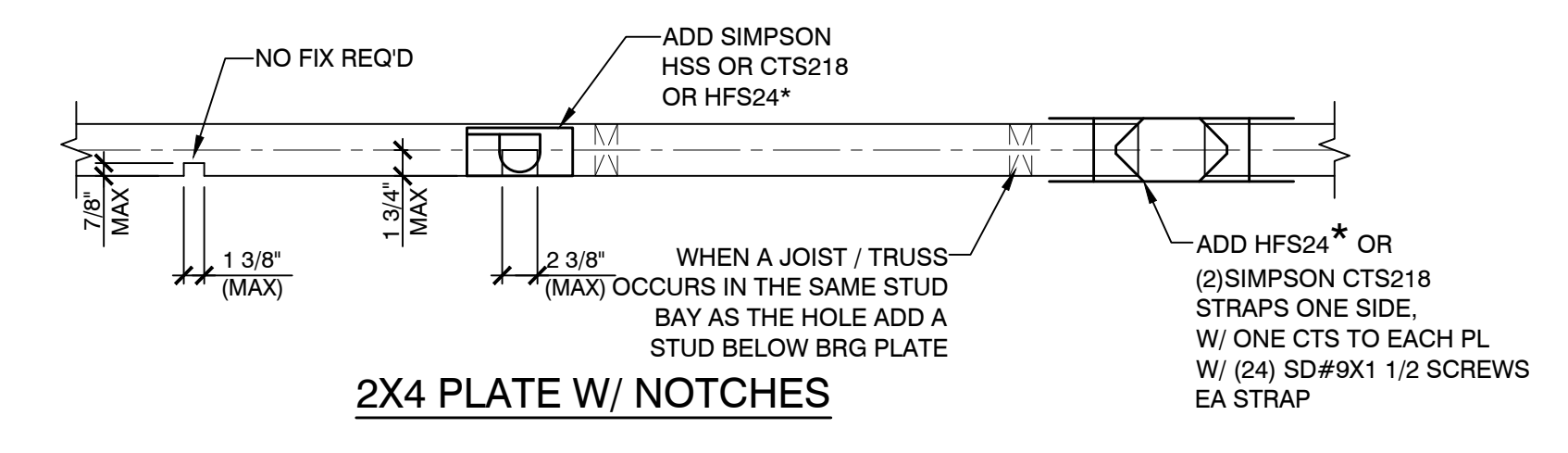
2X4 STUD W/ NOTCHES 2X6 STUD W/ NOTCHES



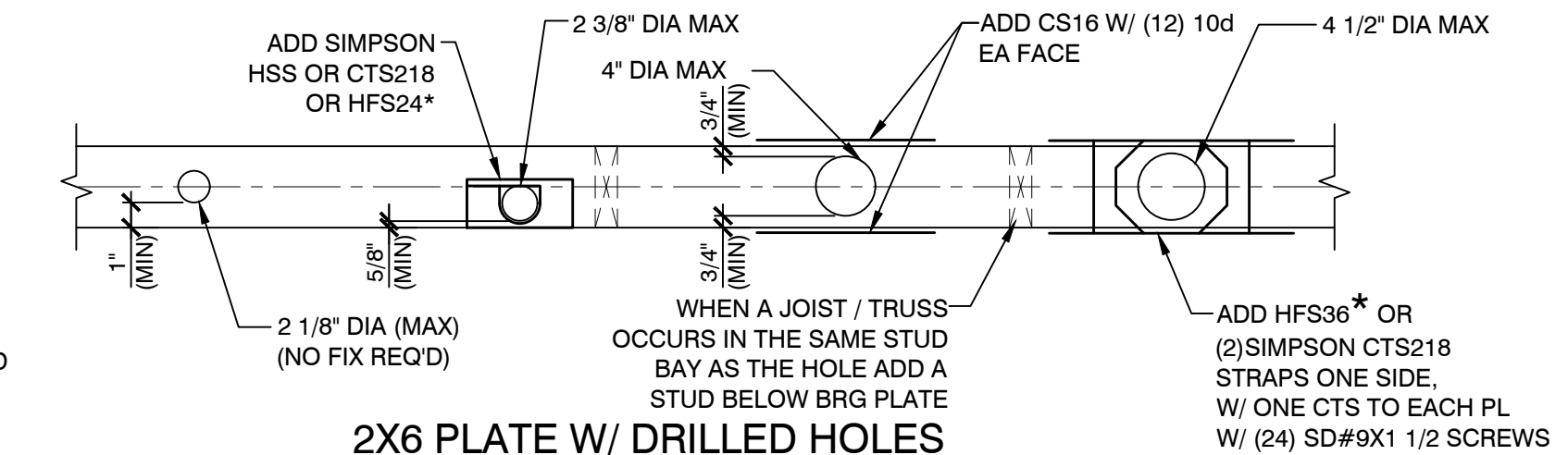
4 ALLOWABLE HOLES AND NOTCHES IN STUDS NTS



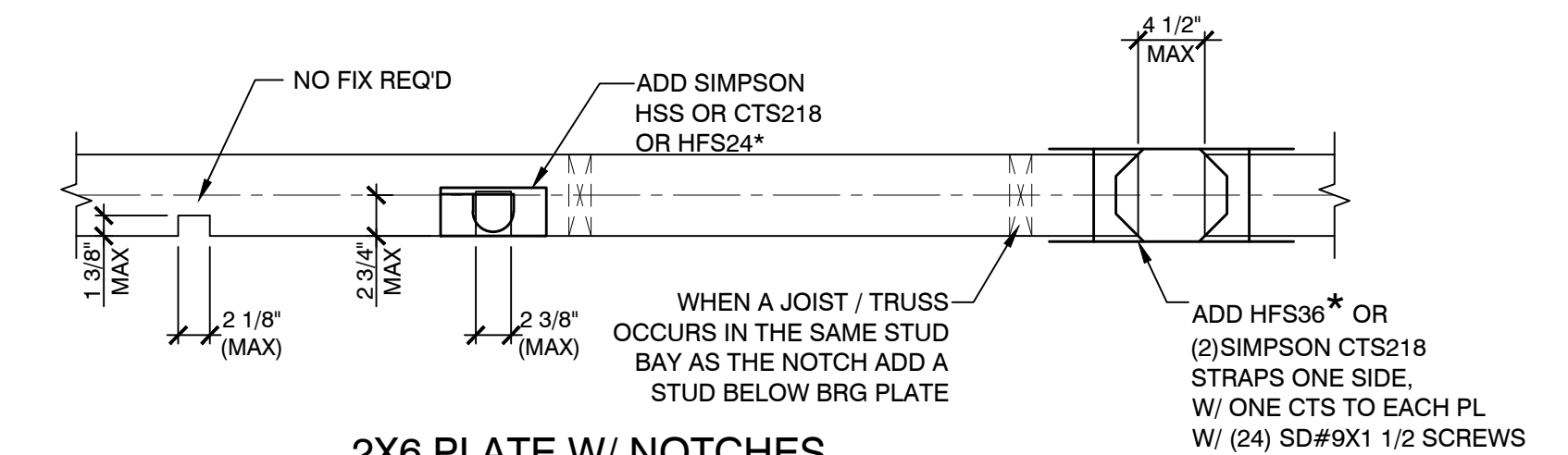
2X4 PLATE W/ DRILLED HOLES



2X4 PLATE W/ NOTCHES

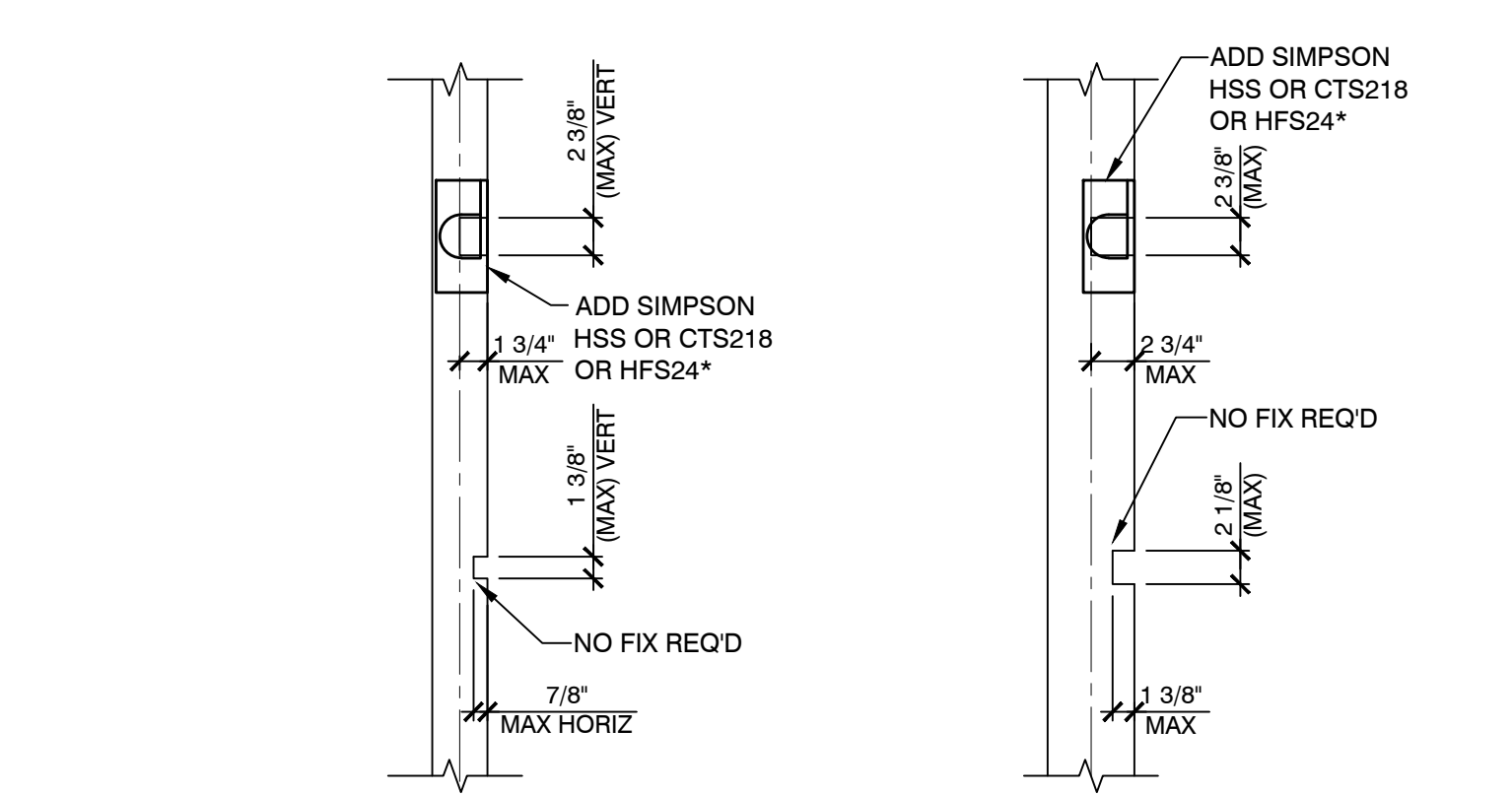


2X6 PLATE W/ DRILLED HOLES

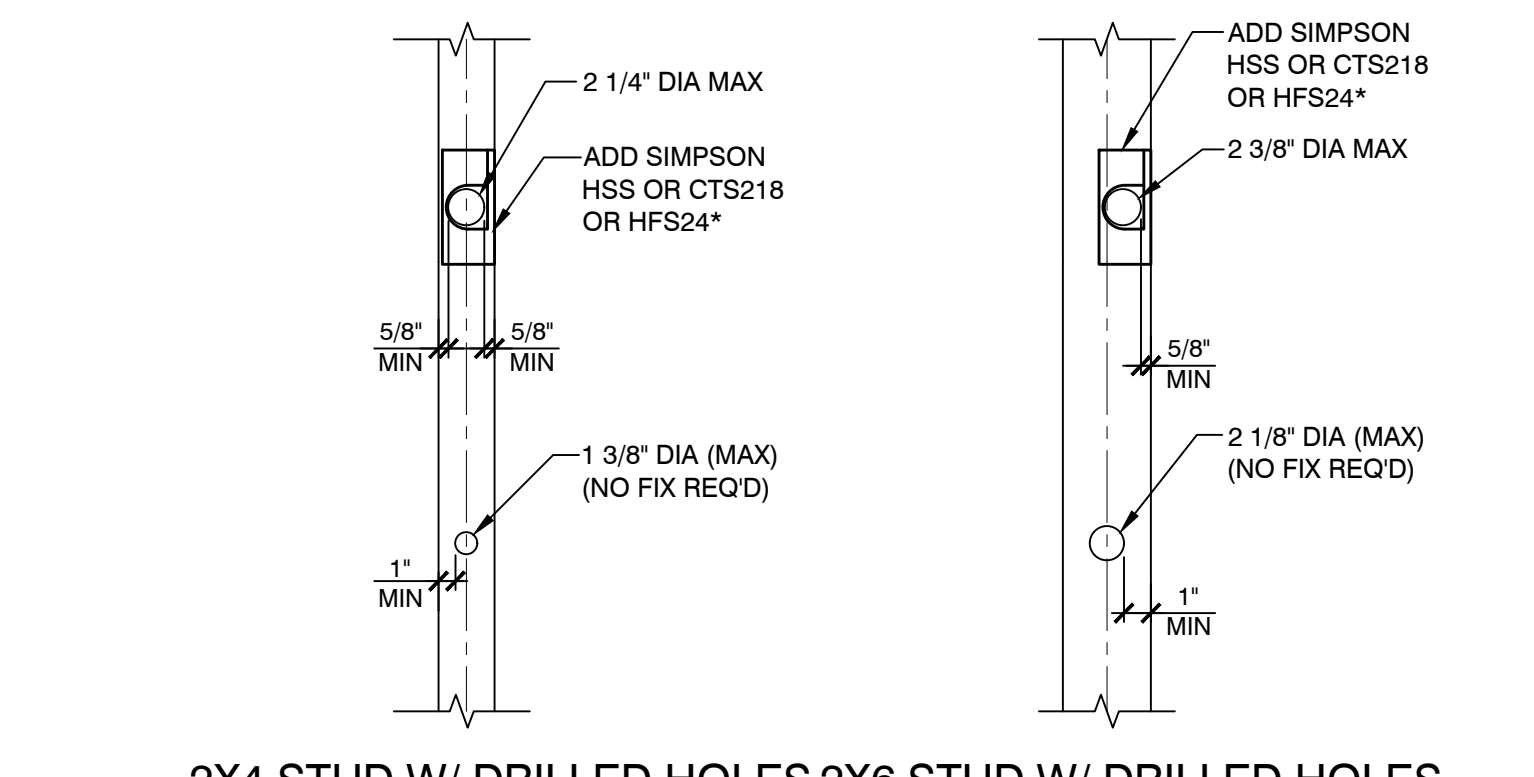


2X6 PLATE W/ NOTCHES

1 ALLOWABLE HOLES AND NOTCHES IN PLATES NTS



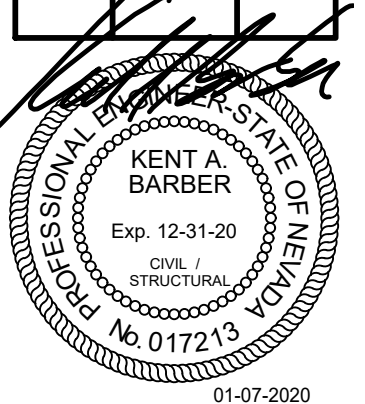
2X4 STUD W/ NOTCHES 2X6 STUD W/ NOTCHES

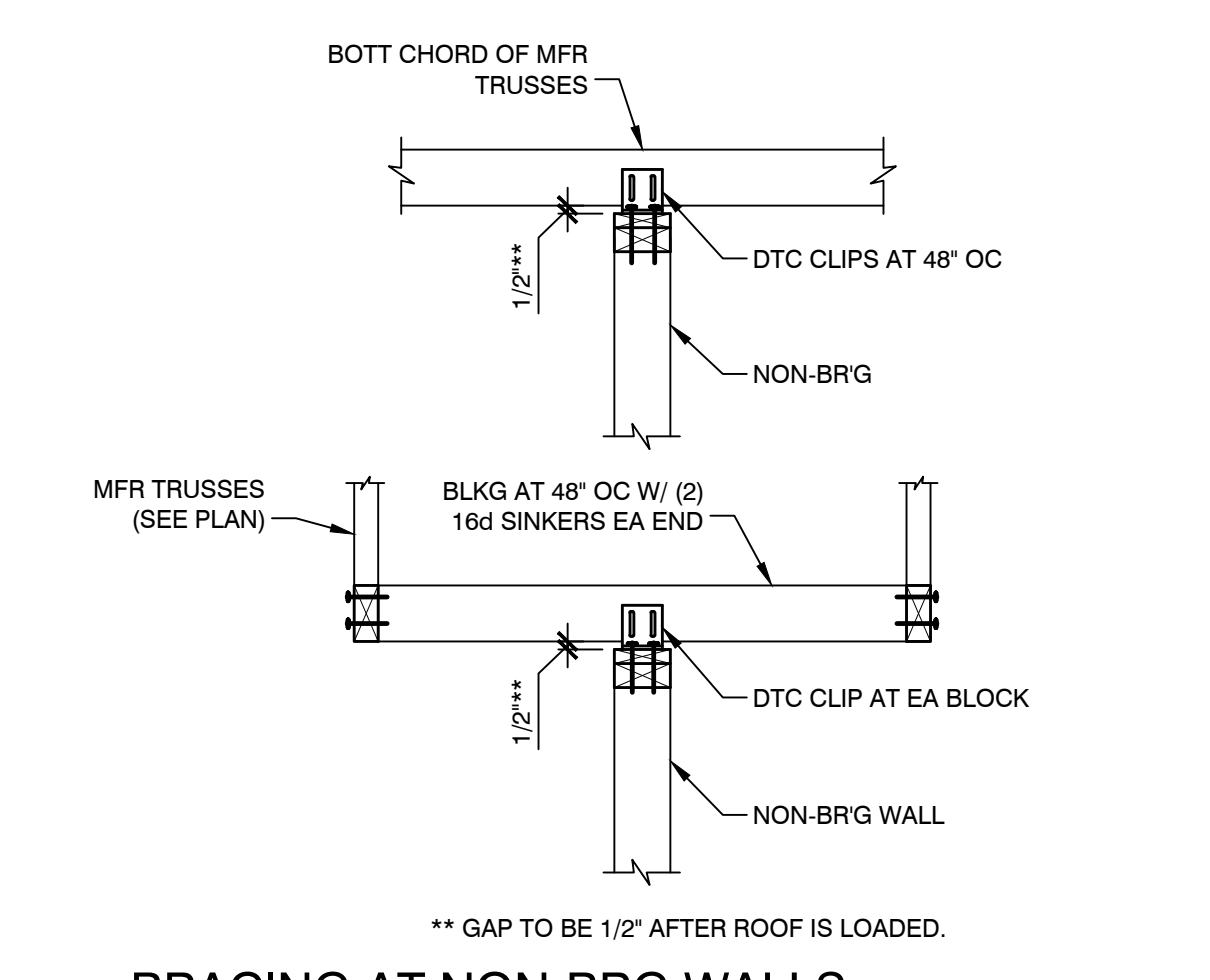


2 ALLOWABLE HOLES AND NOTCHES IN STUDS NTS

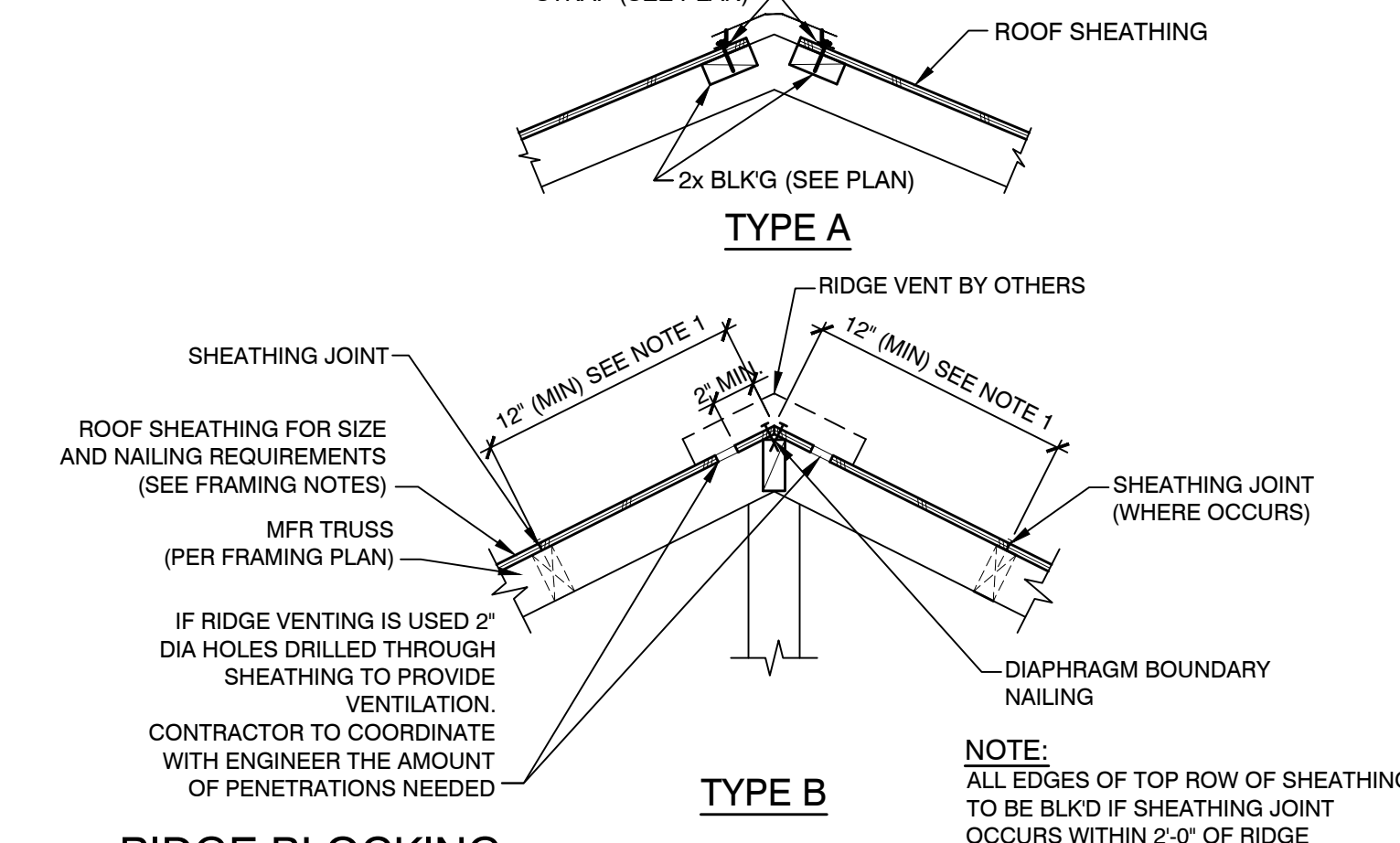
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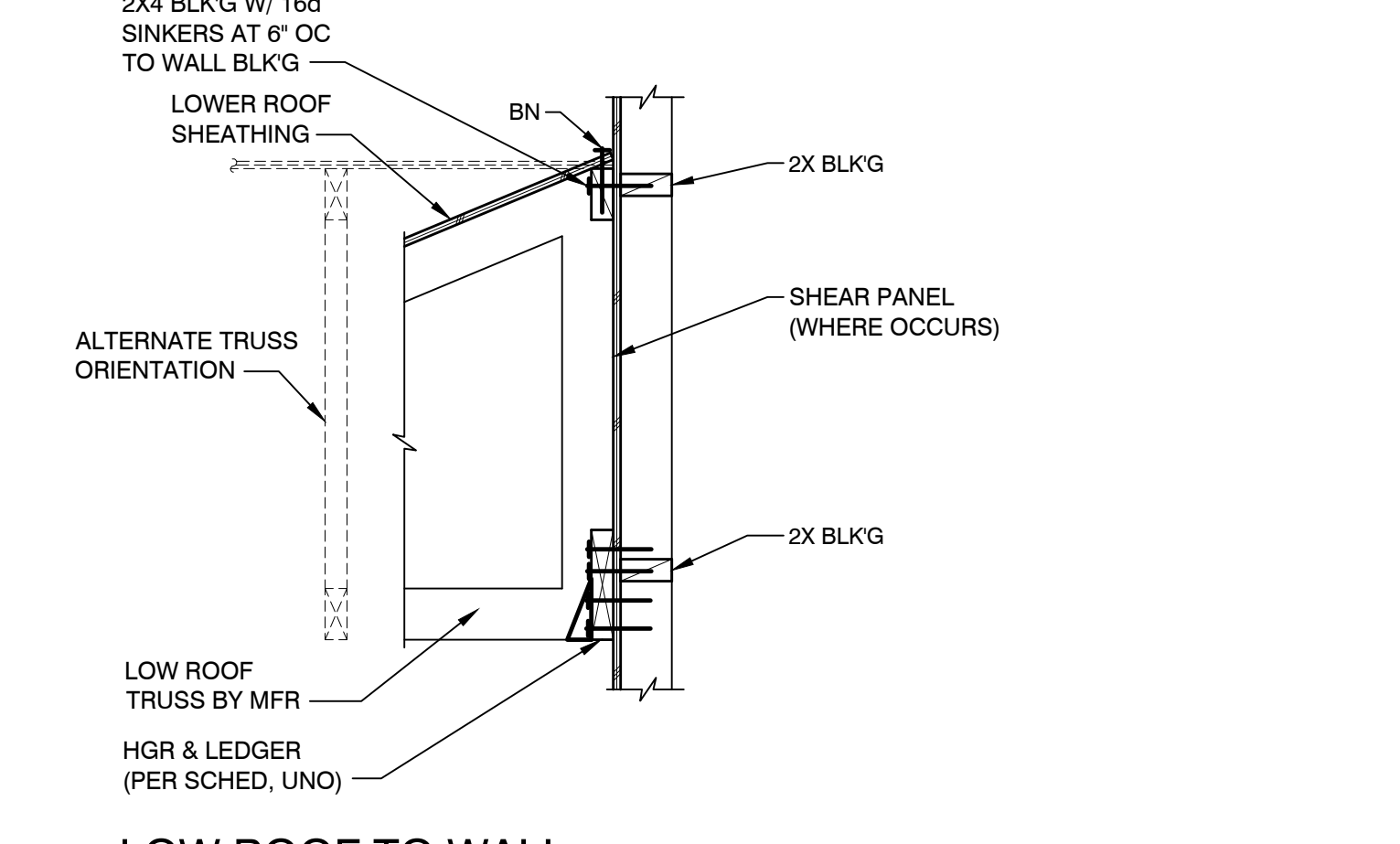




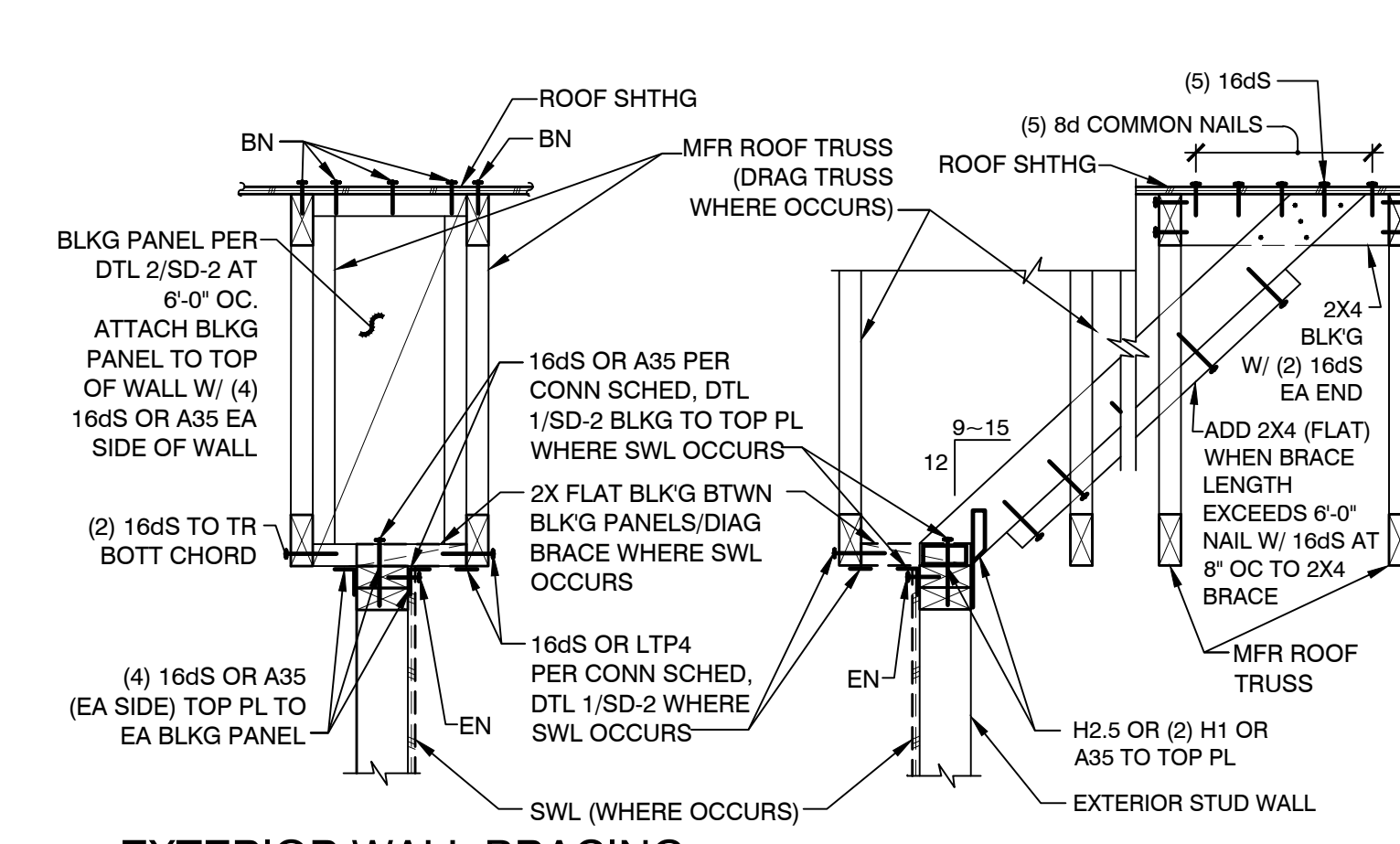
11 BRACING AT NON-BRG WALLS NTS



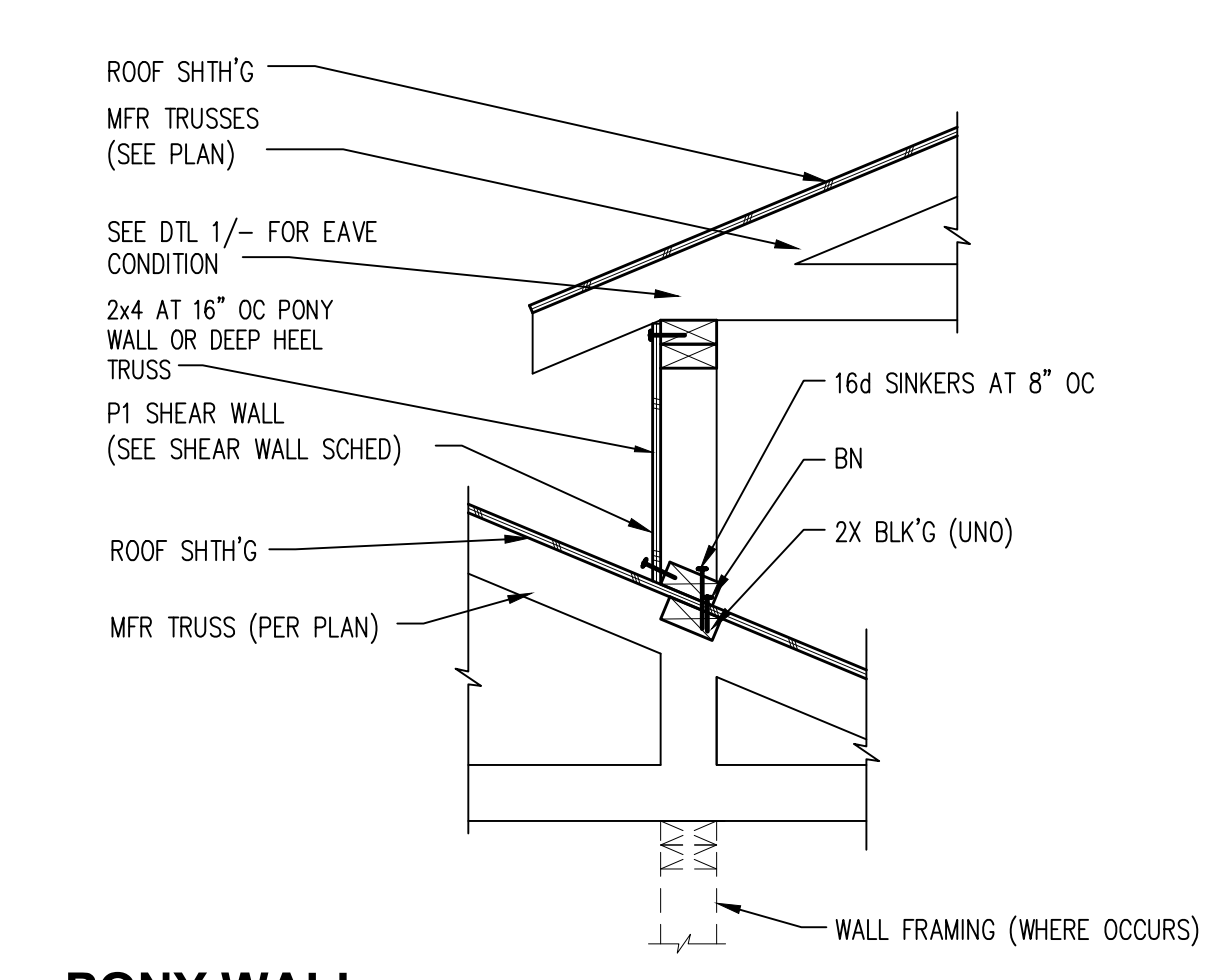
12 RIDGE BLOCKING NTS



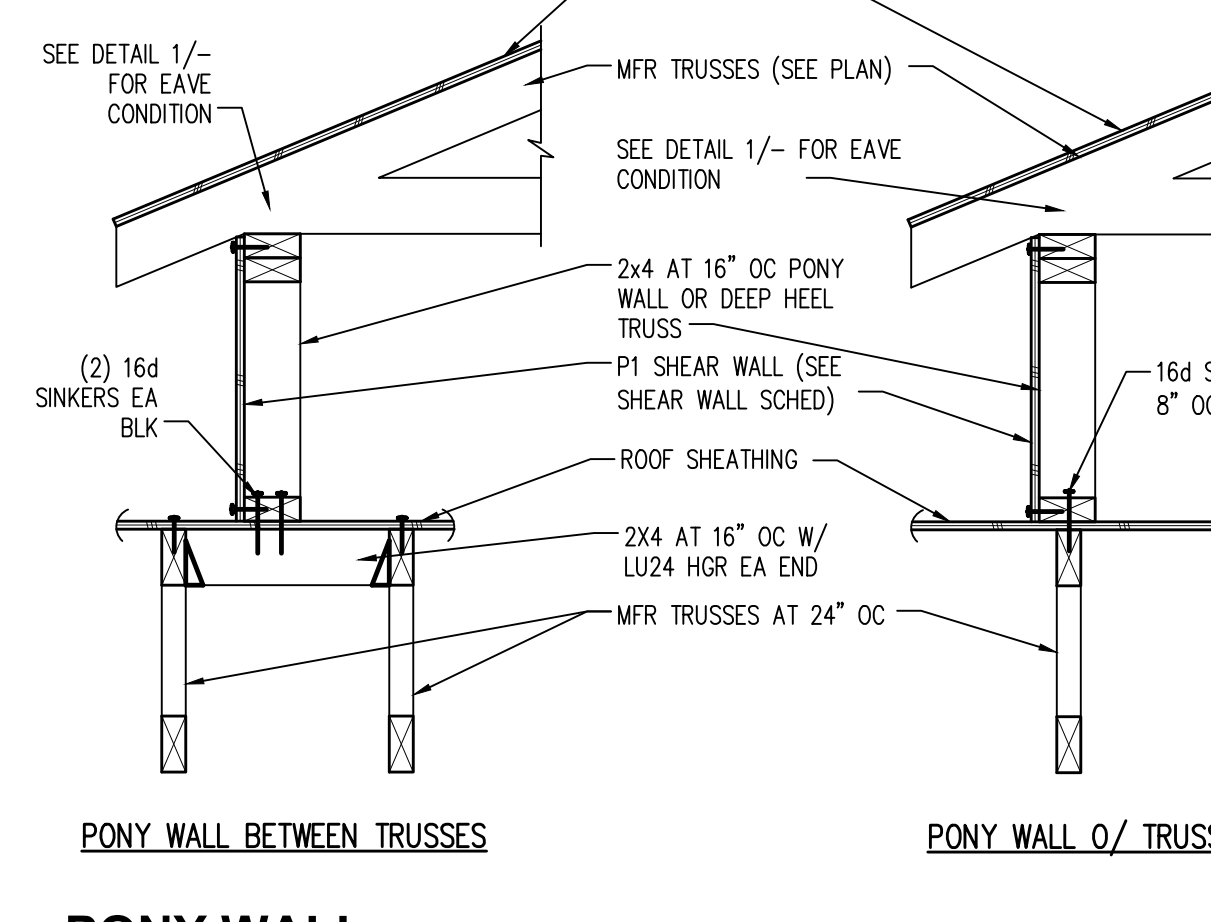
13 LOW ROOF TO WALL NTS



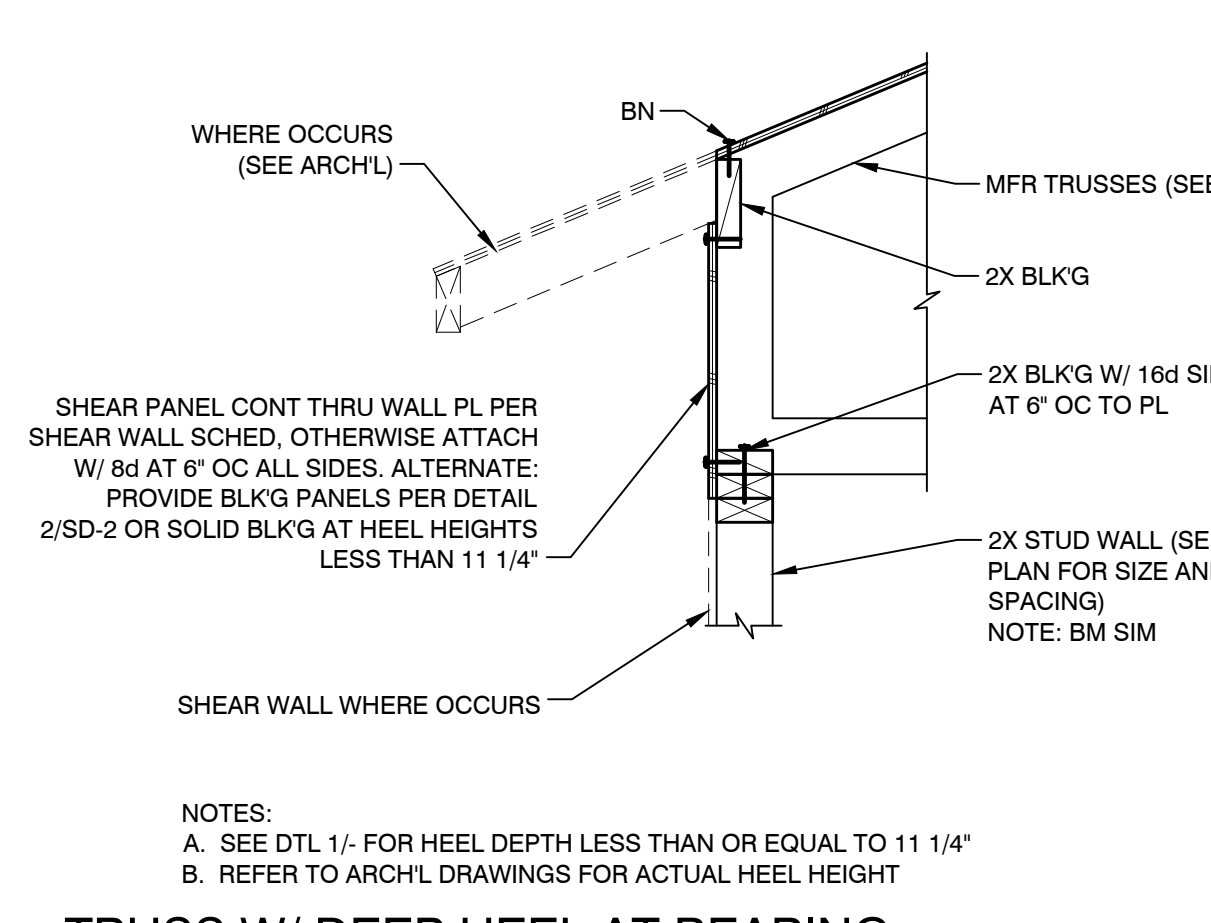
14 EXTERIOR WALL BRACING NTS



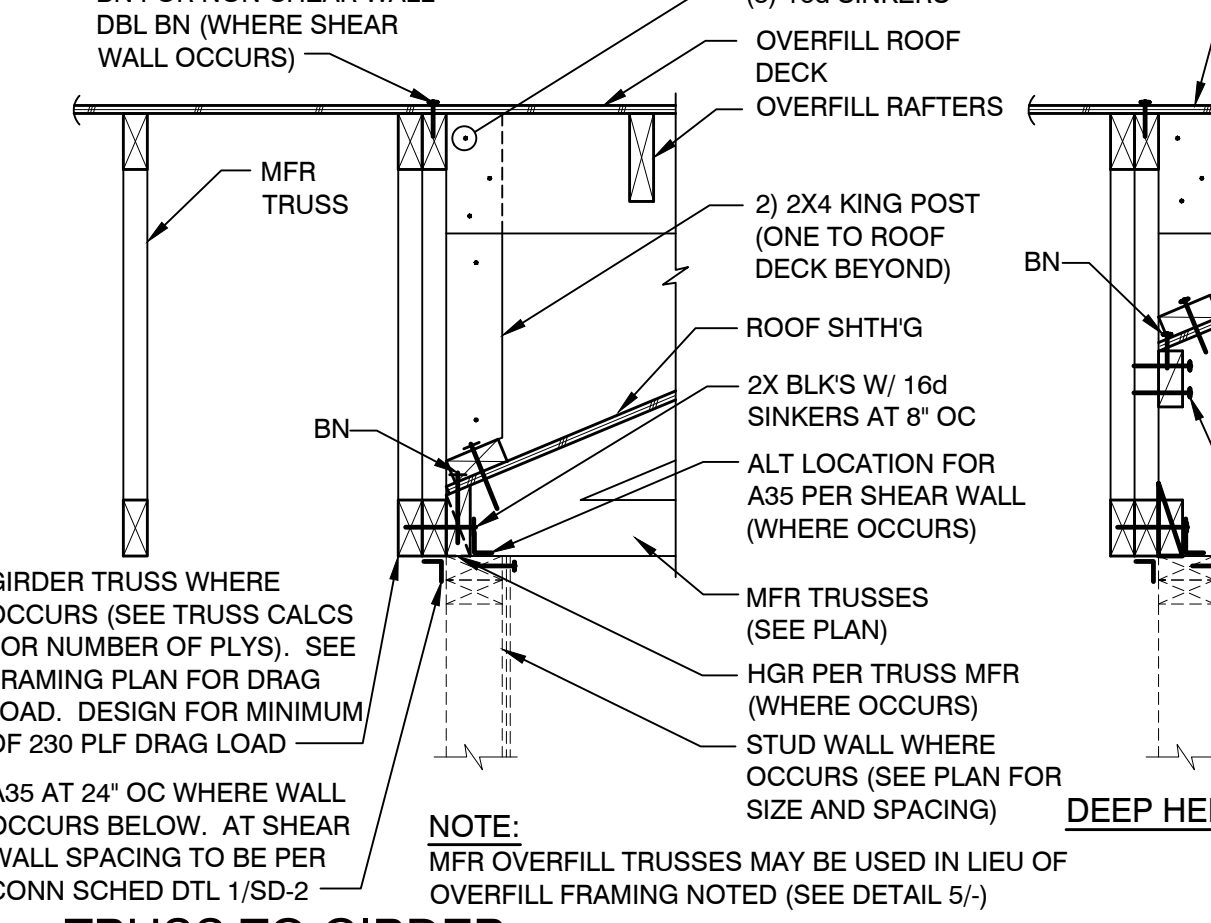
7 PONY WALL NTS



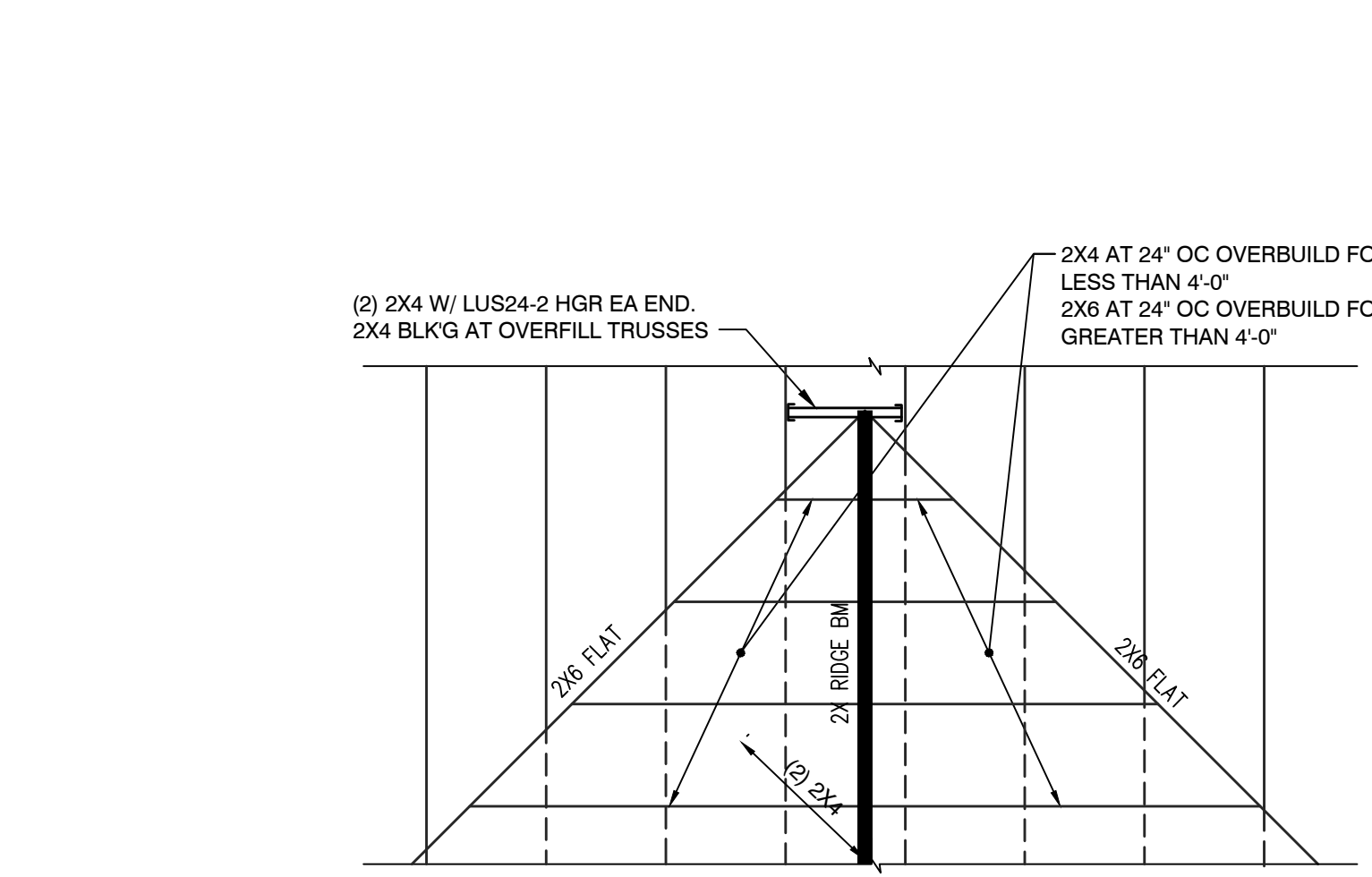
8 PONY WALL NTS



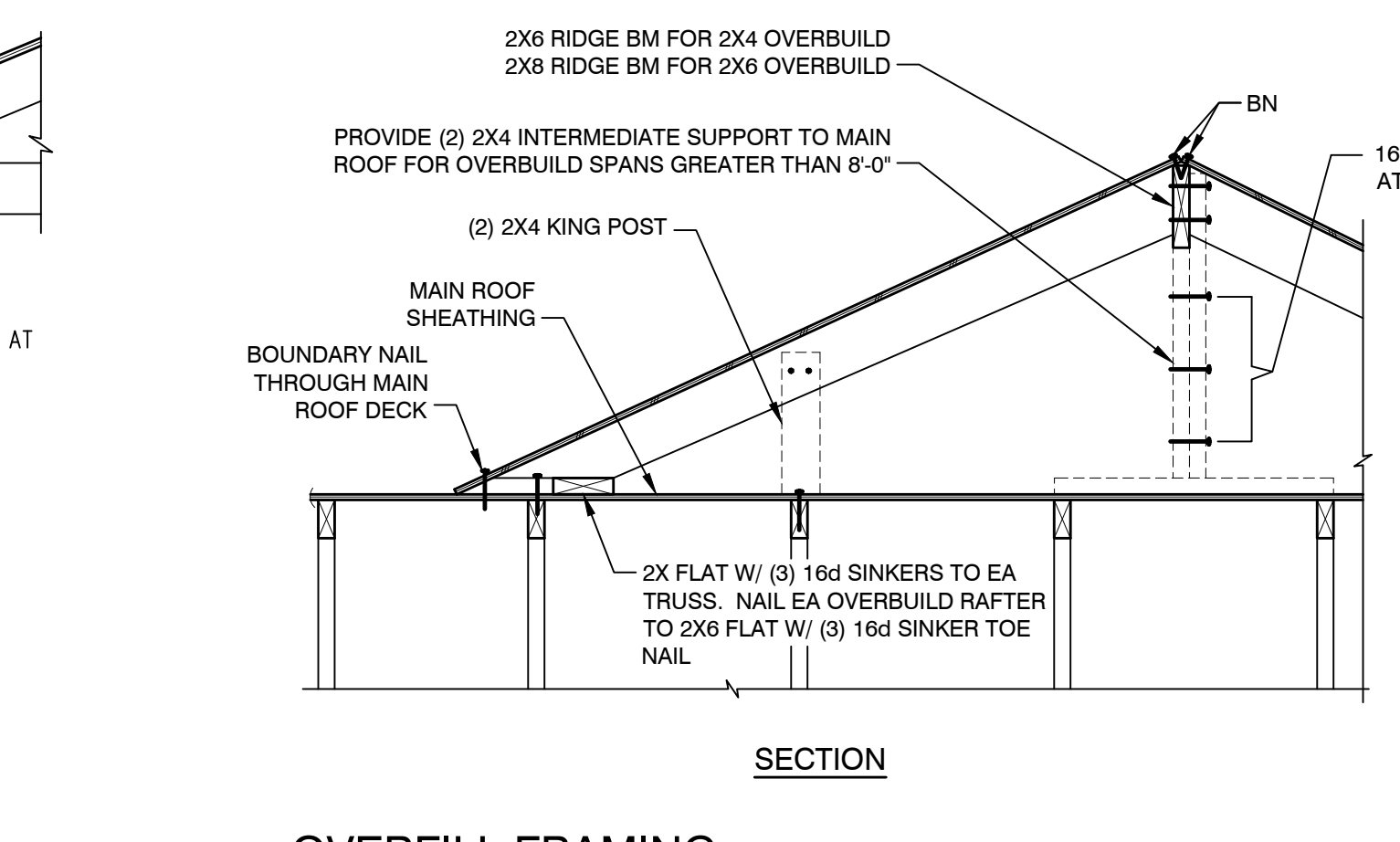
9 TRUSS W/ DEEP HEEL AT BEARING NTS



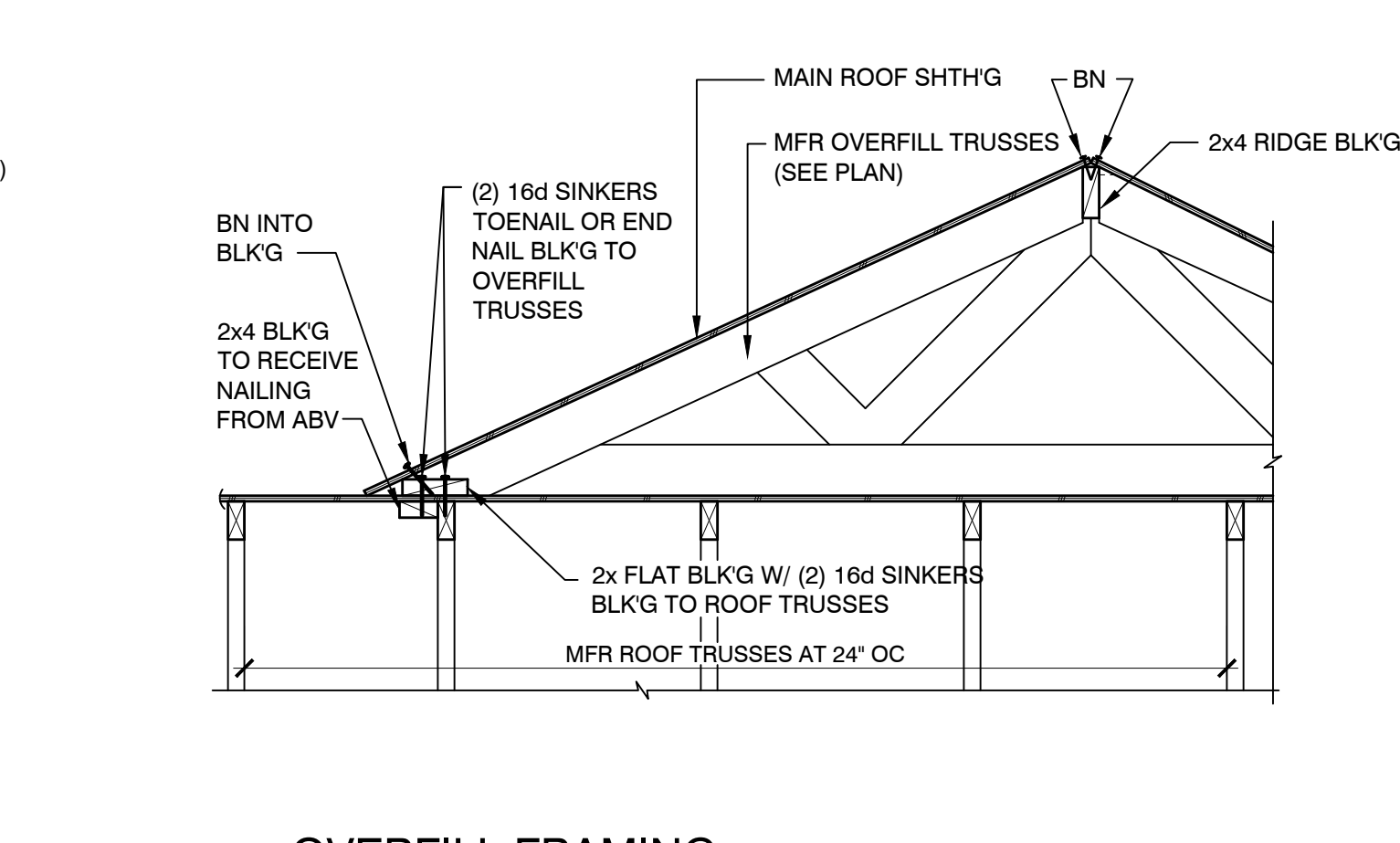
10 TRUSS TO GIRDER NTS



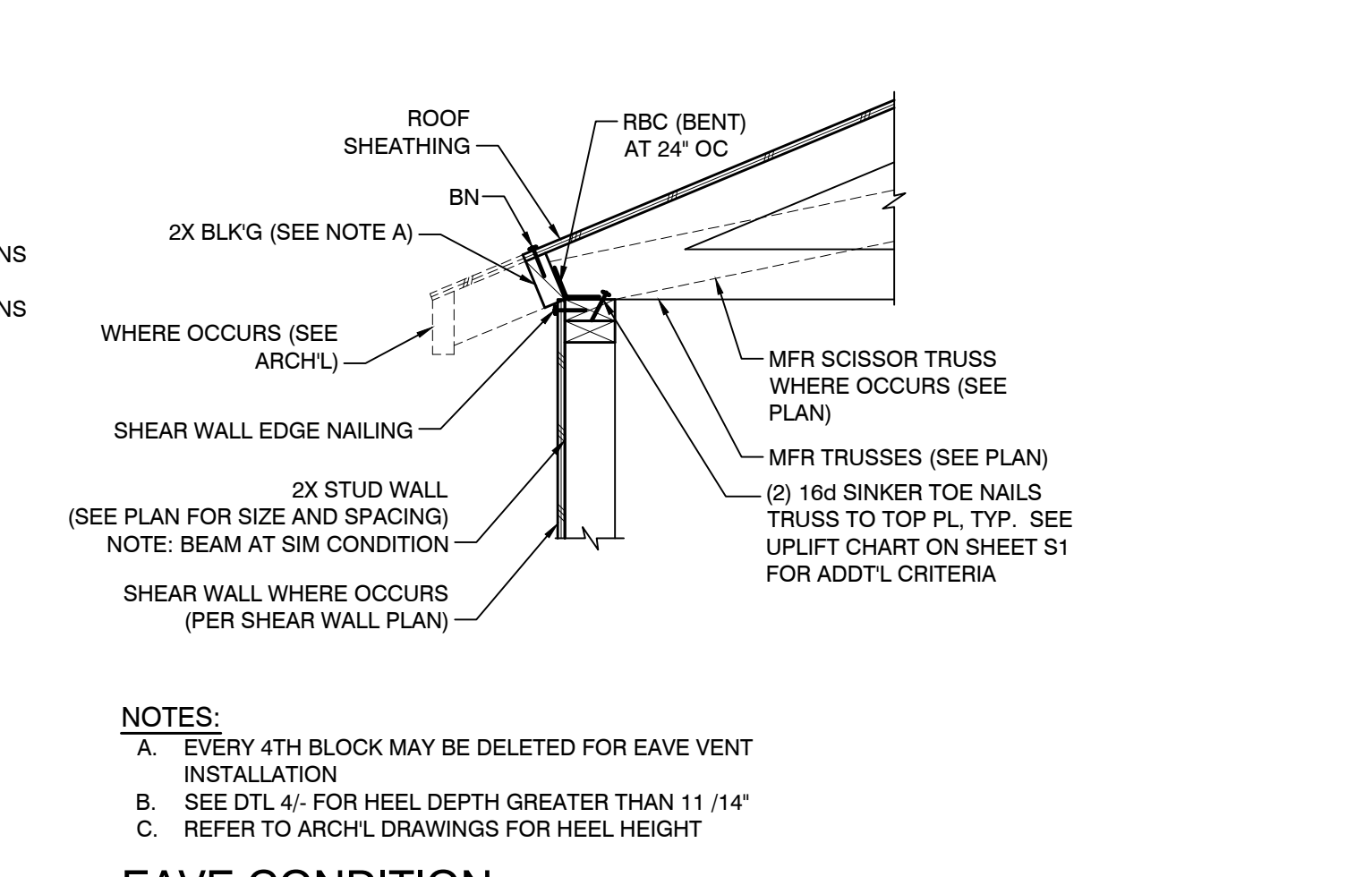
4 OVERFILL FRAMING NTS



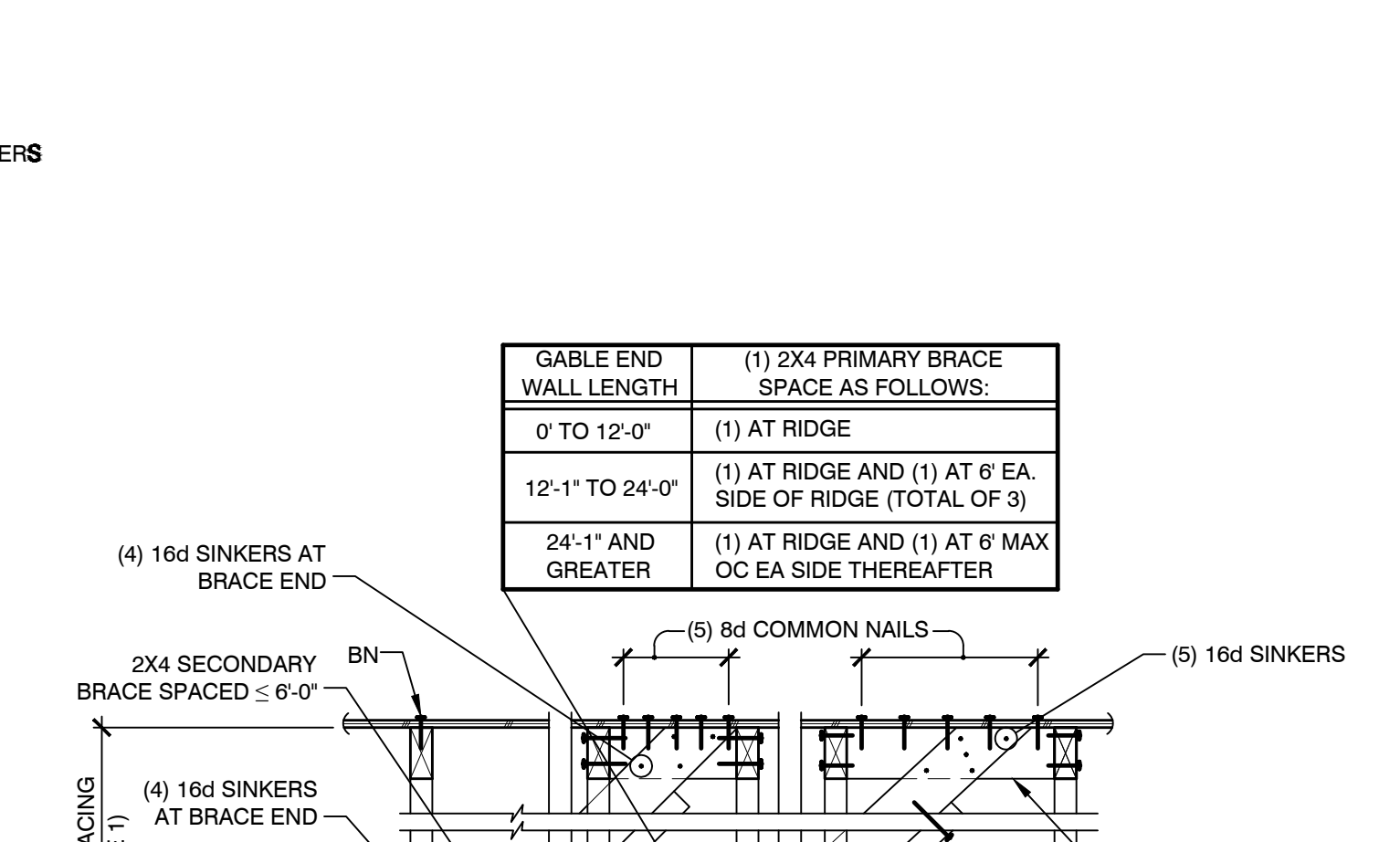
5 OVERFILL FRAMING NTS



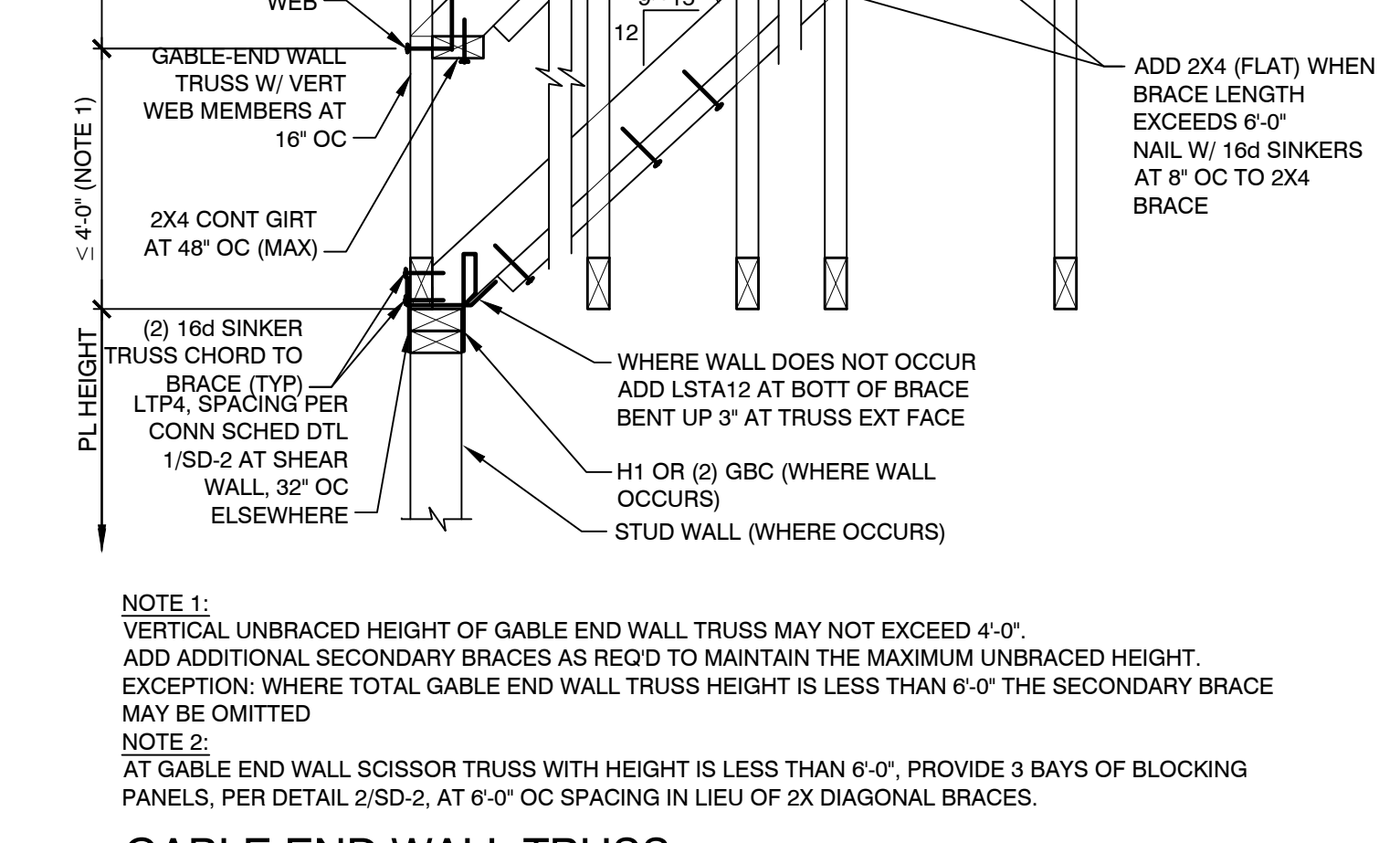
6 STEP IN ROOF NTS



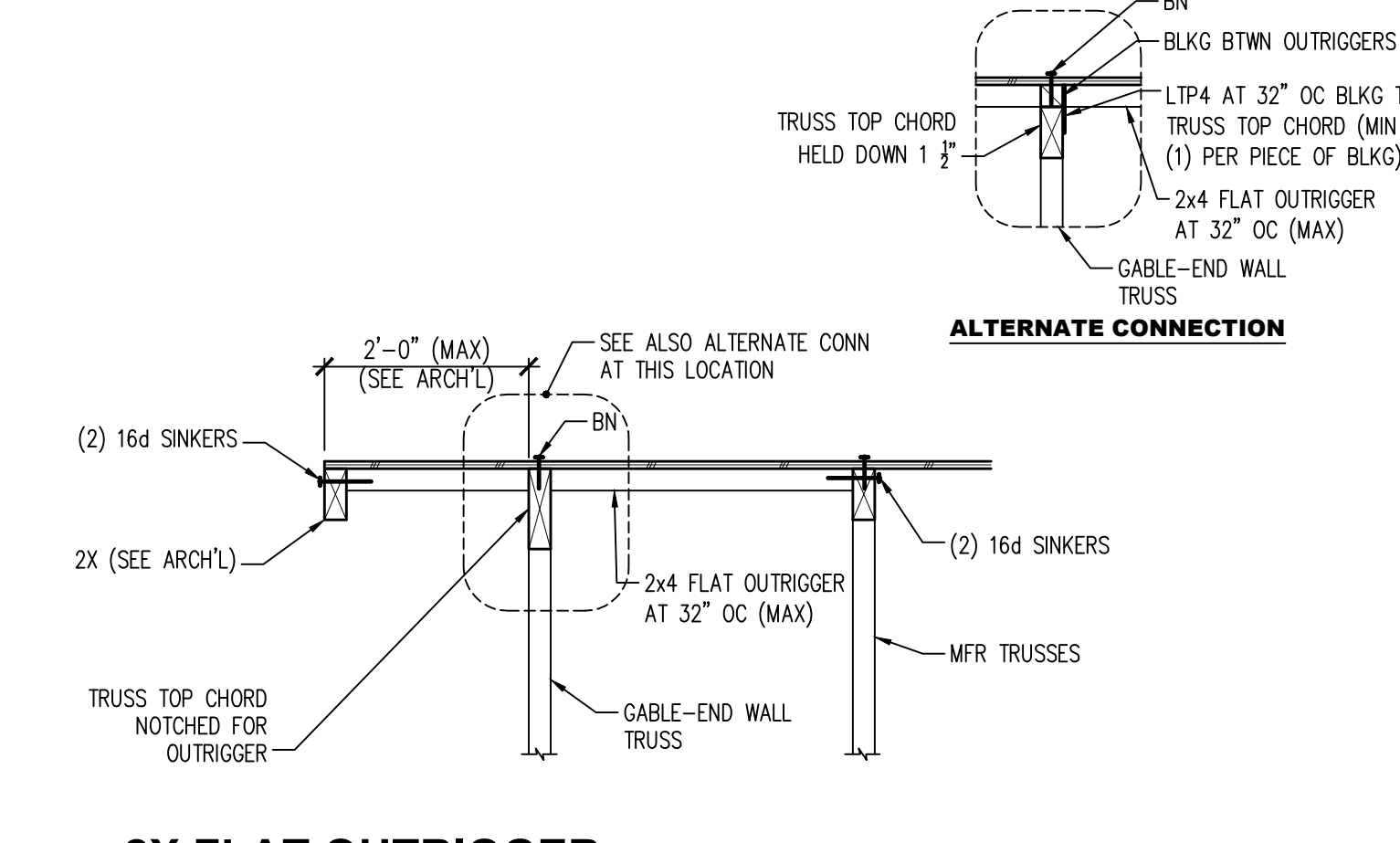
1 EAVE CONDITION NTS



2 GABLE END WALL TRUSS NTS



3 2X FLAT OUTRIGGER NTS



6 STEP IN ROOF NTS



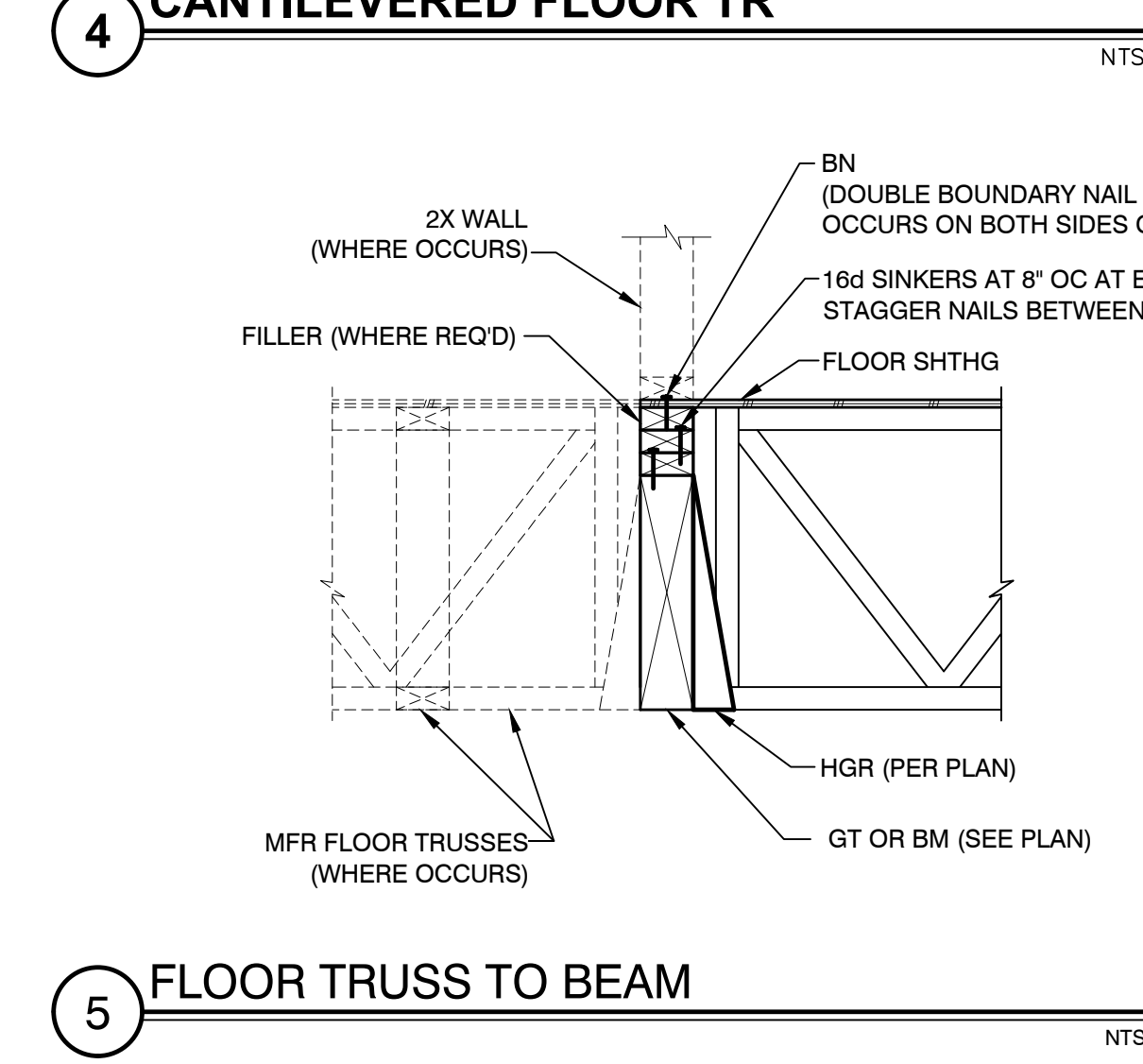
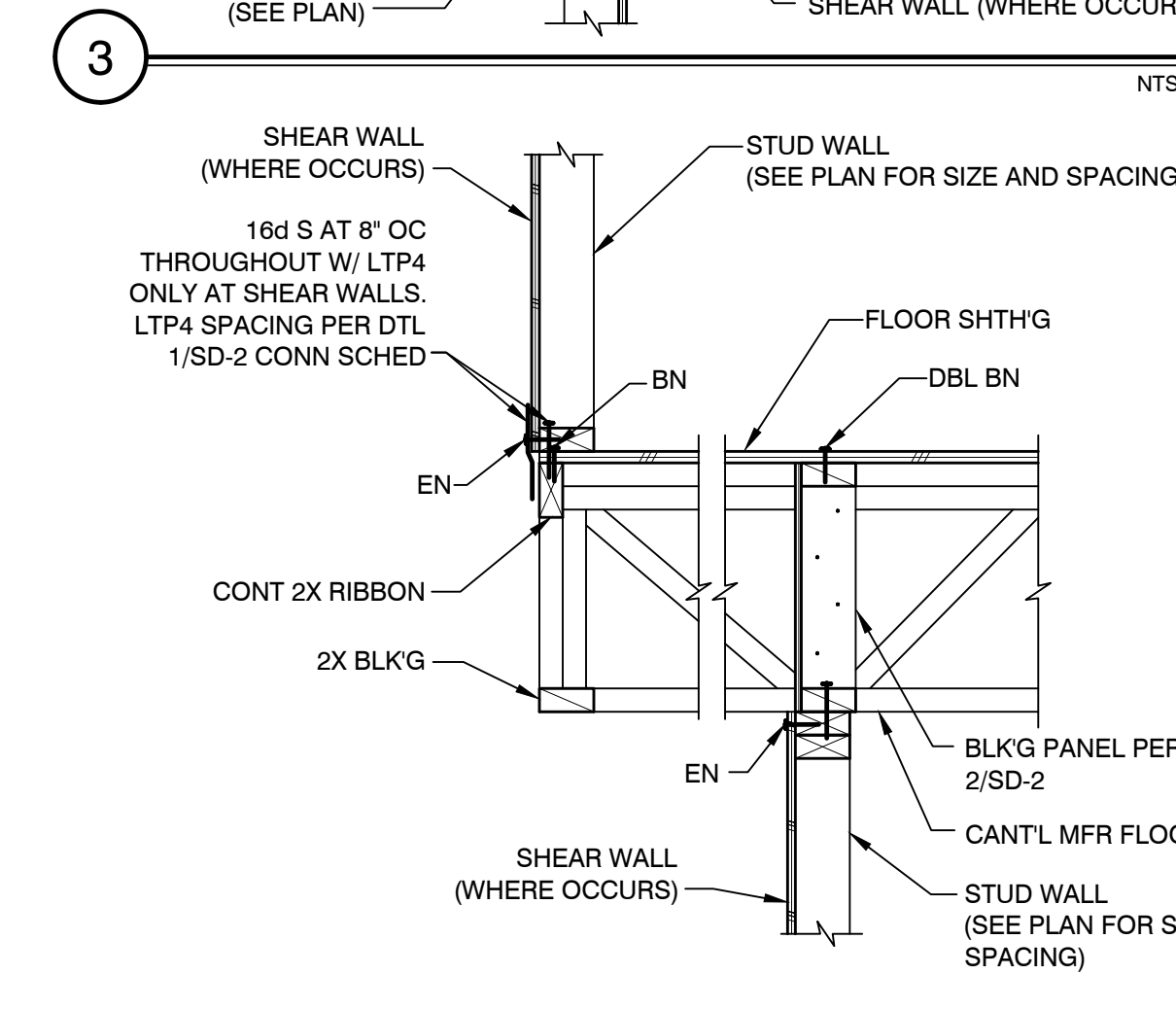
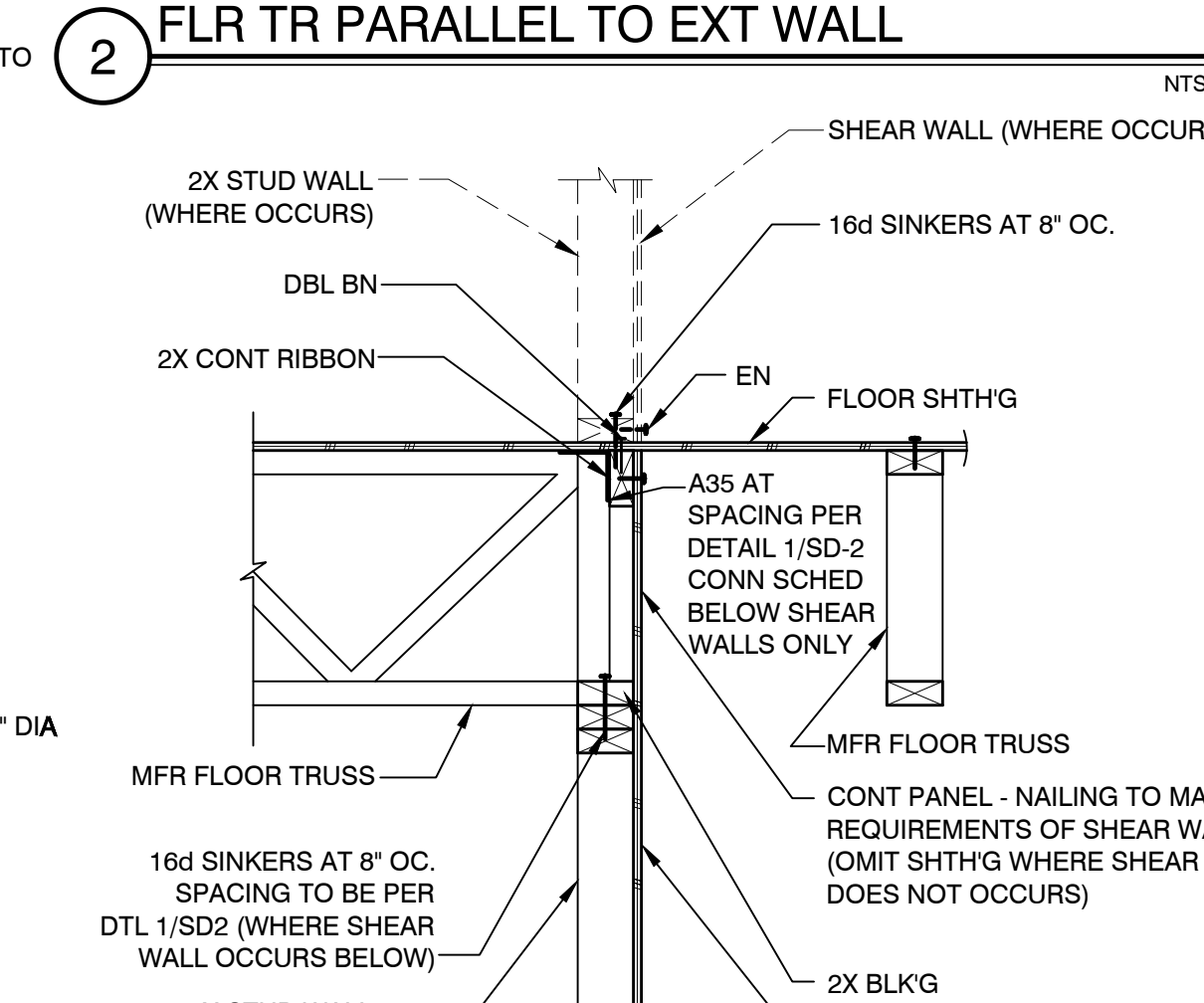
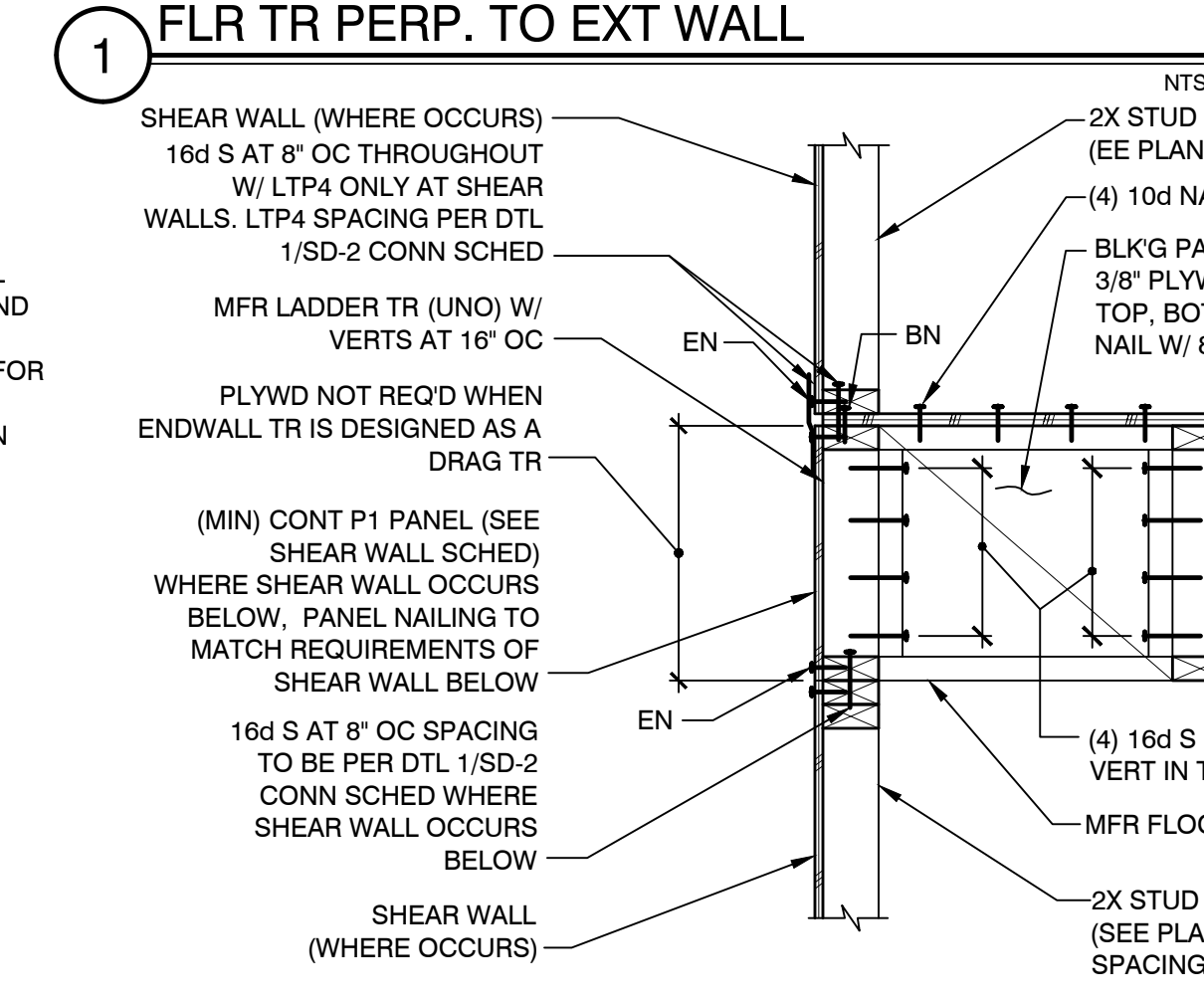
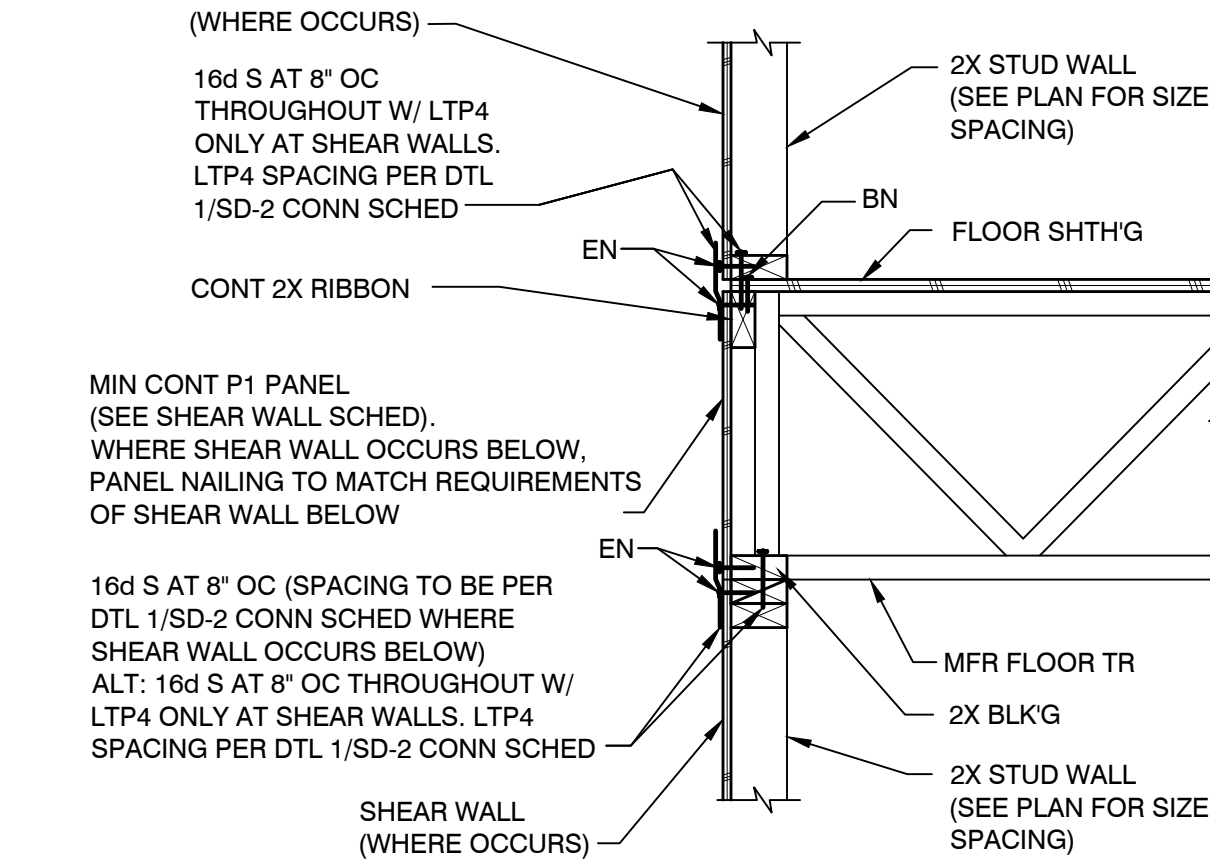
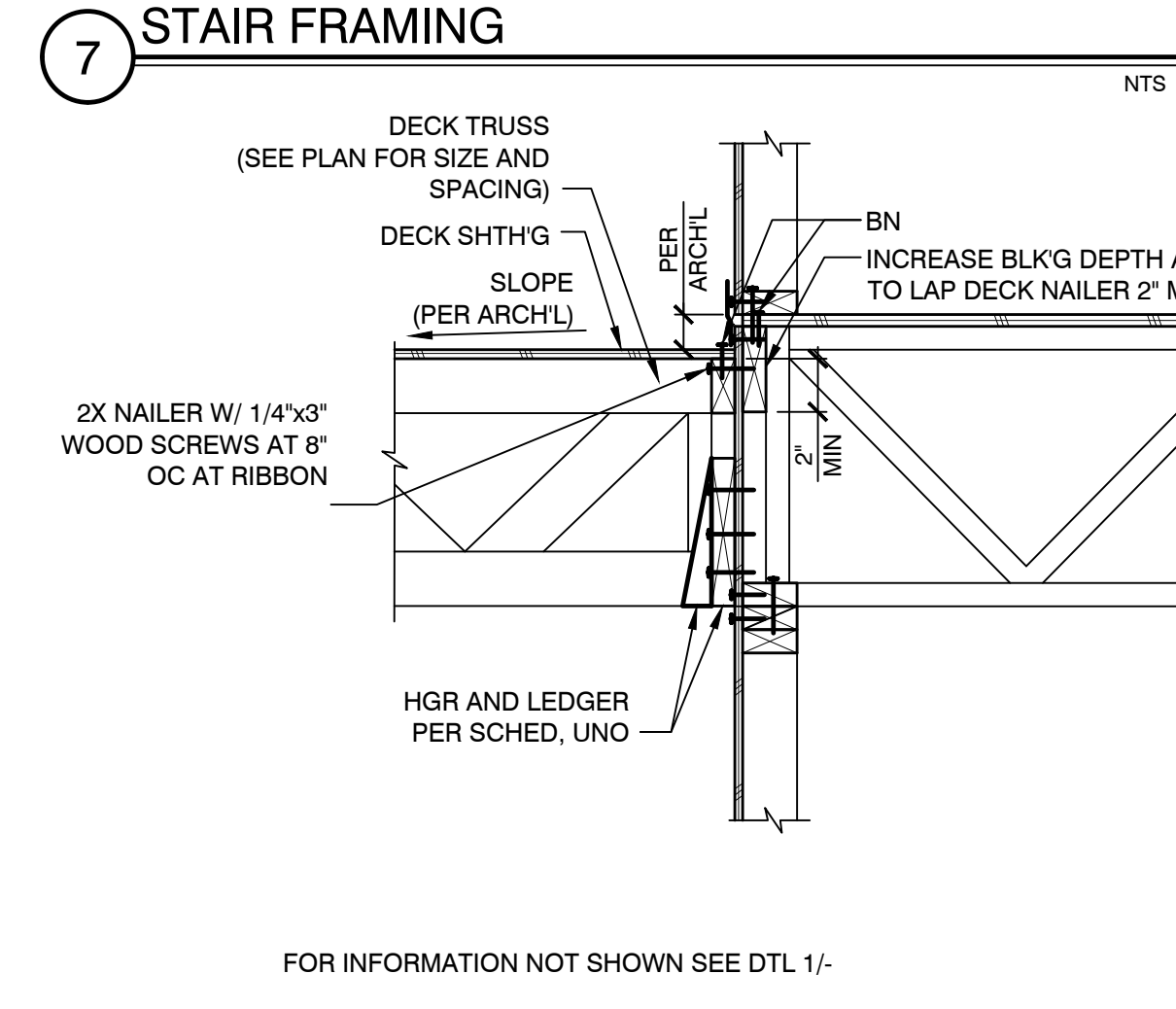
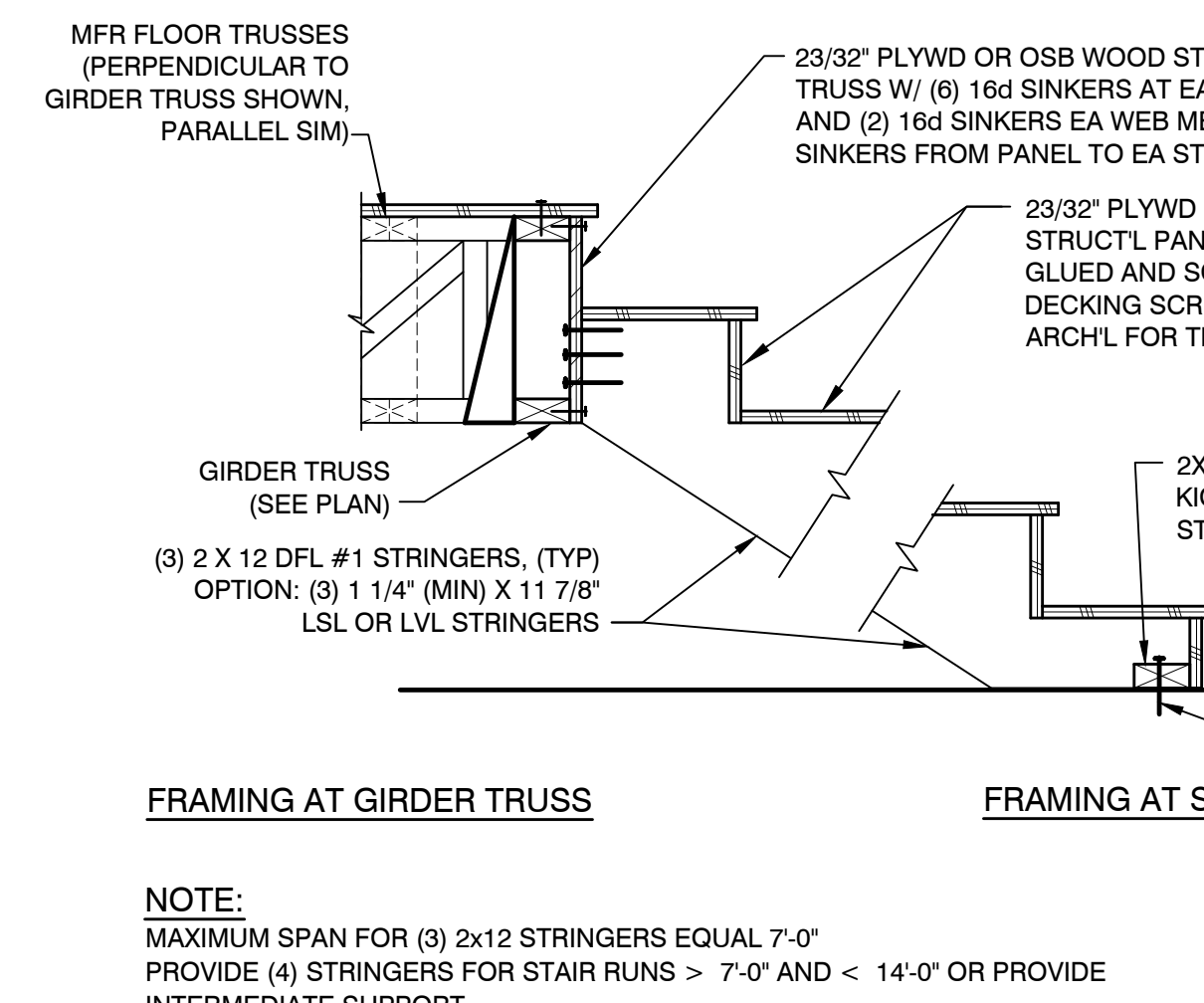
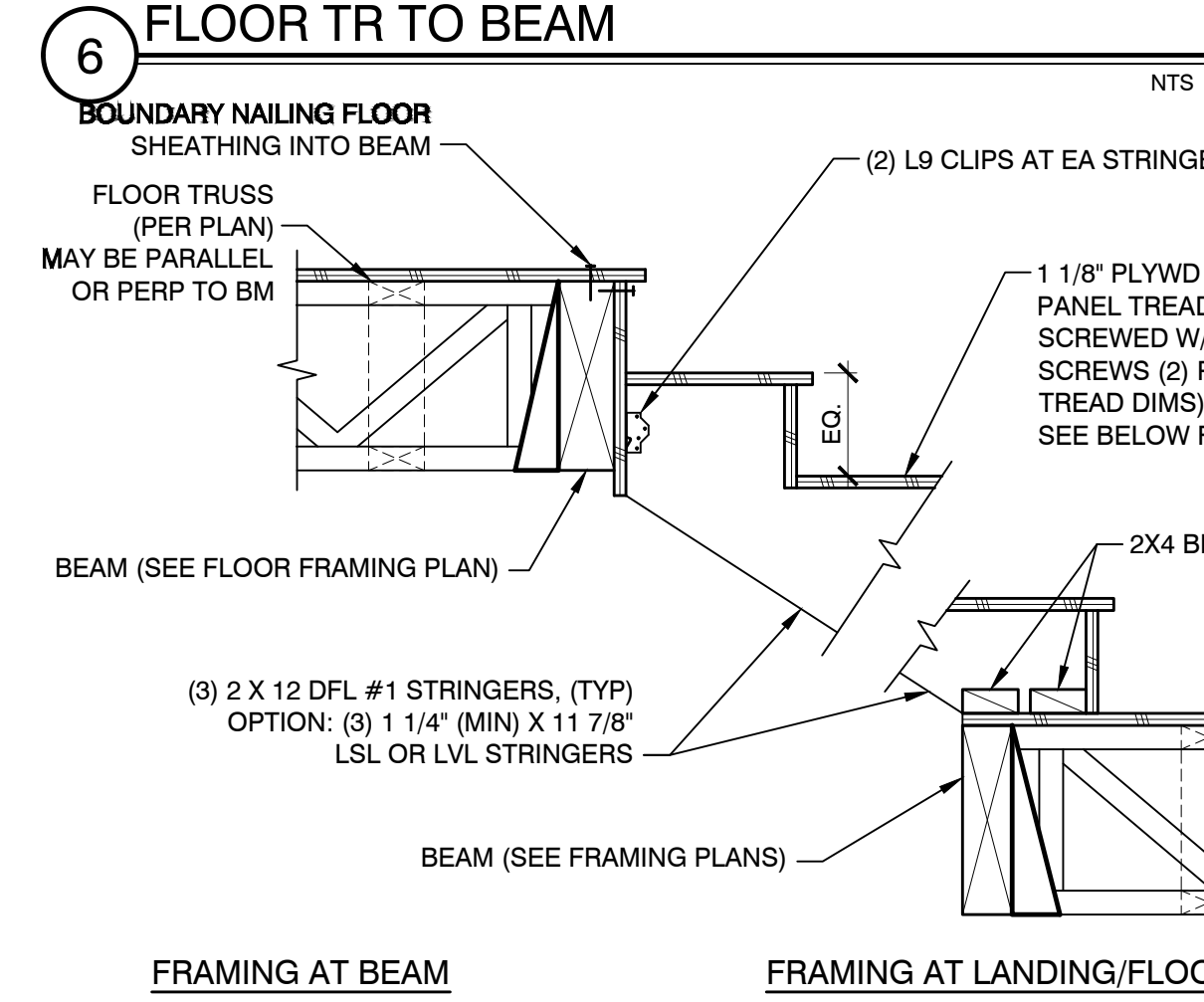
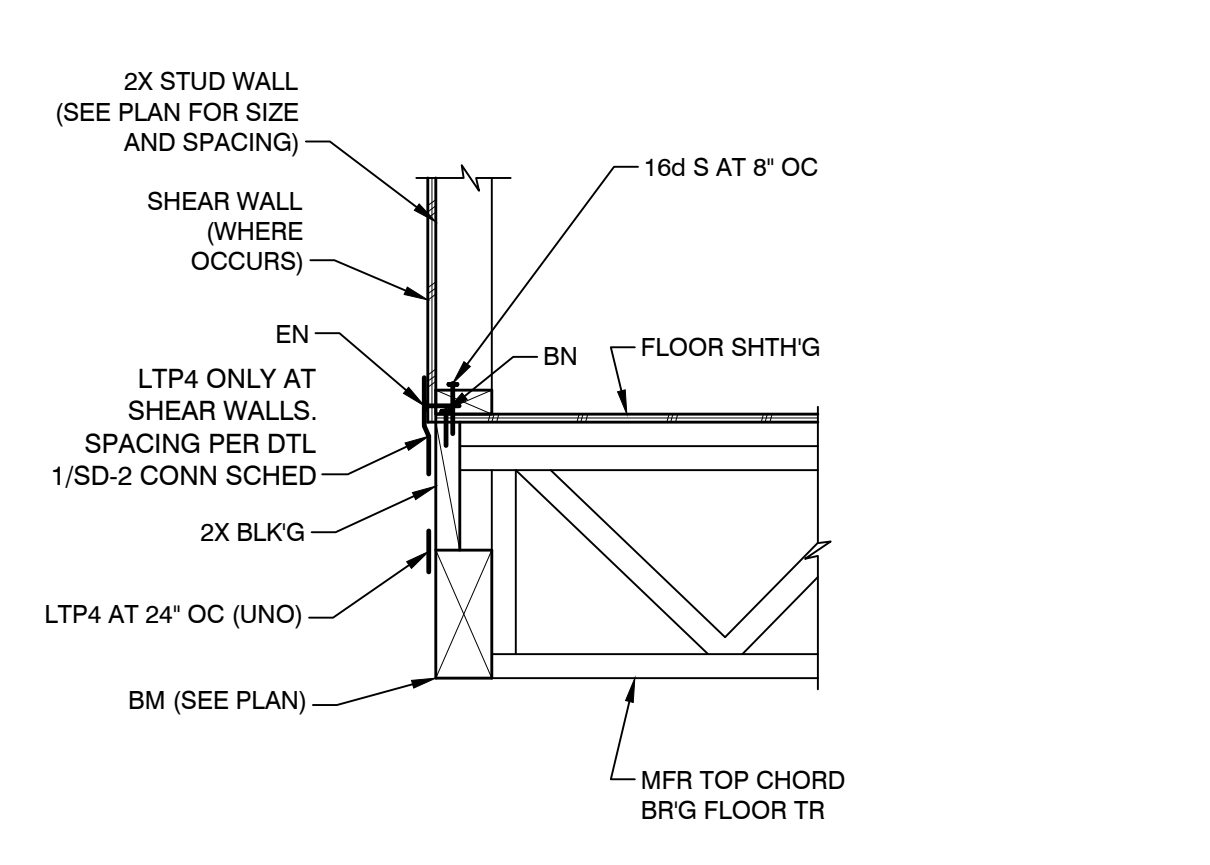
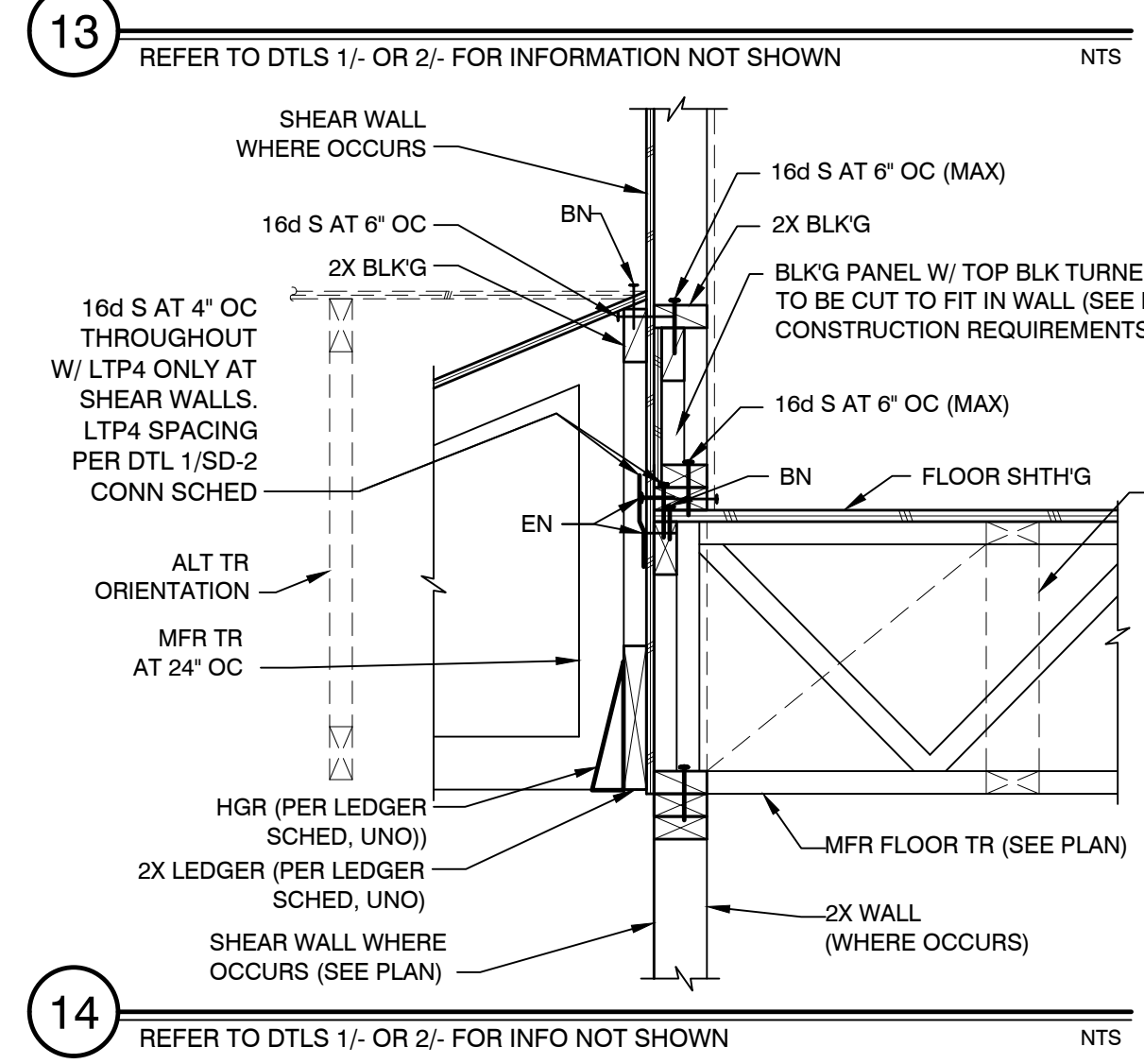
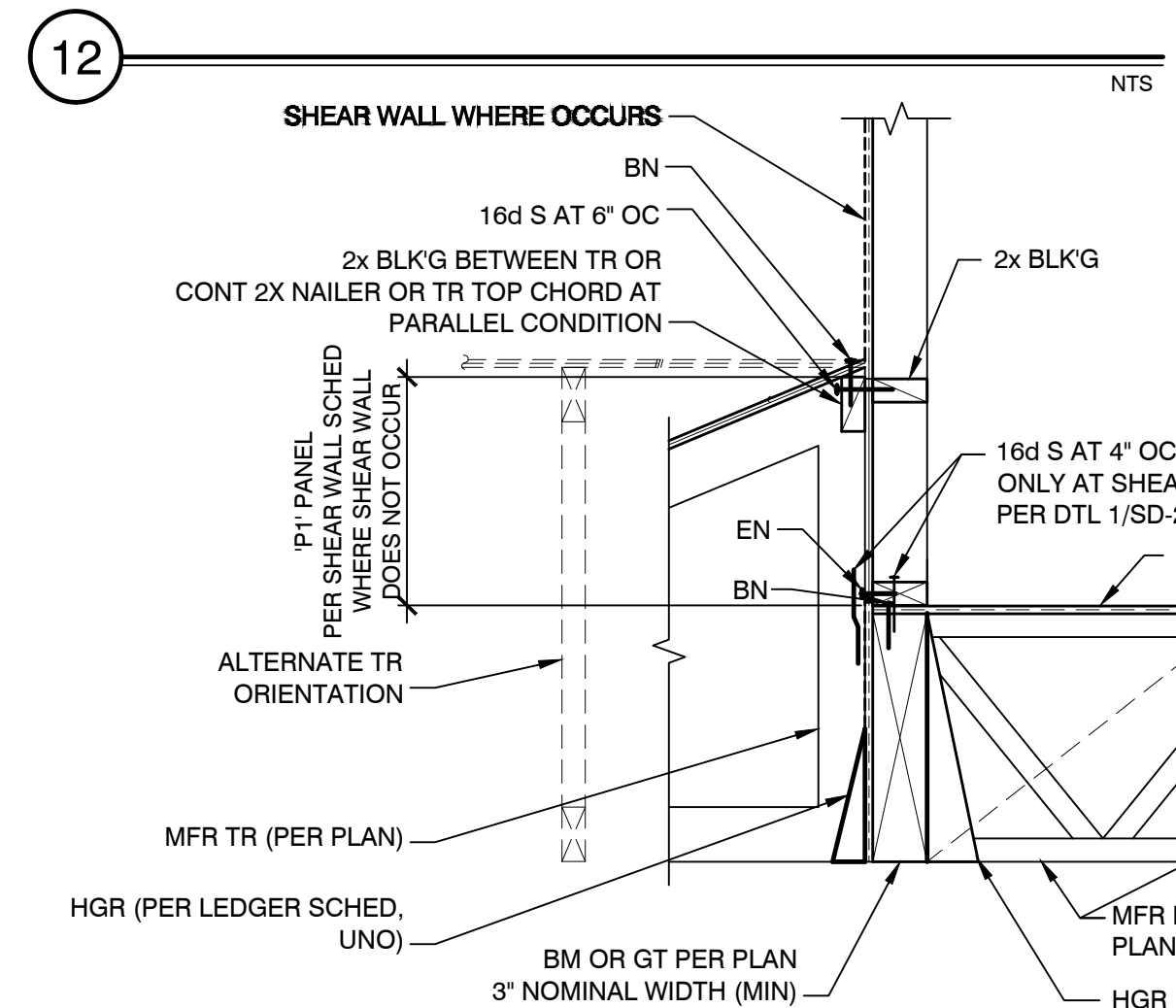
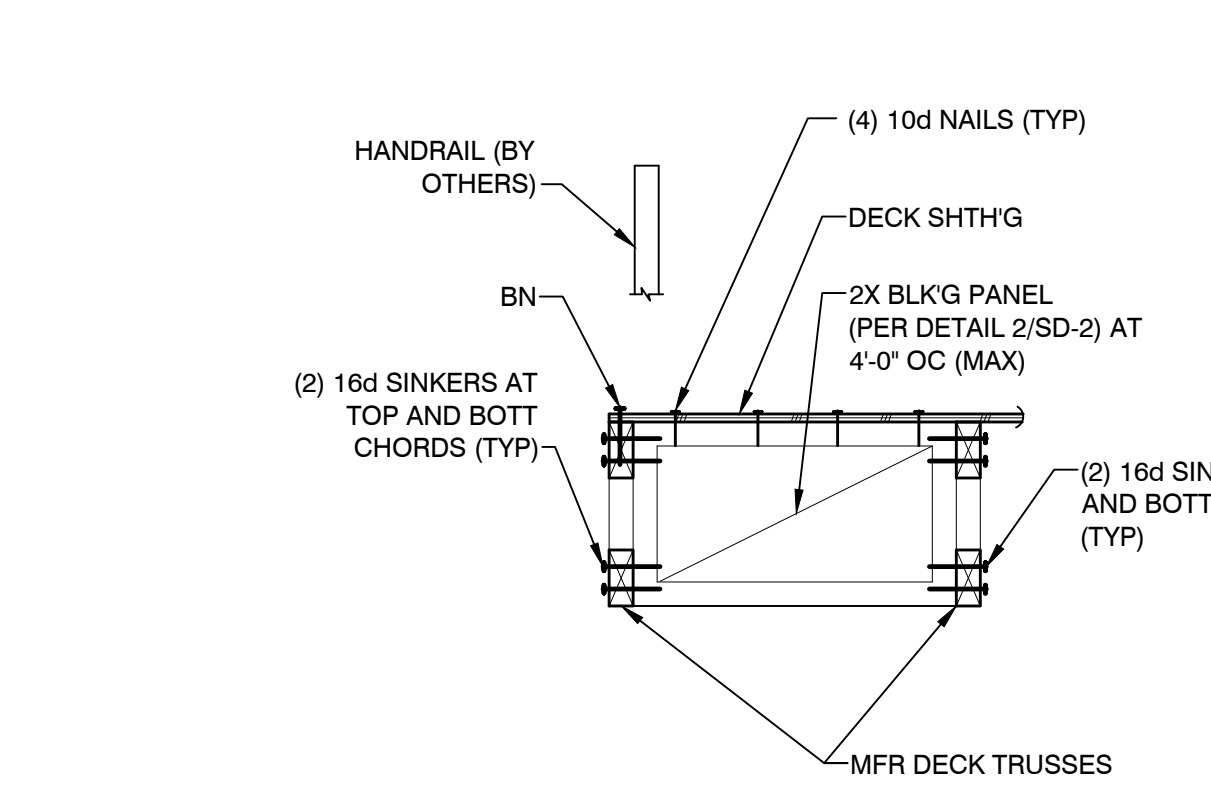
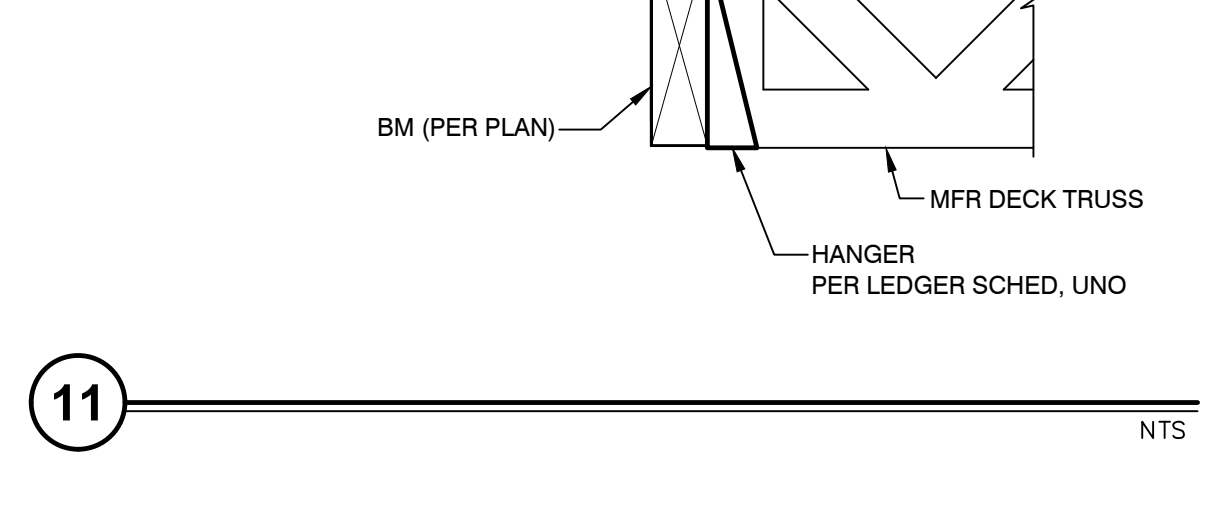
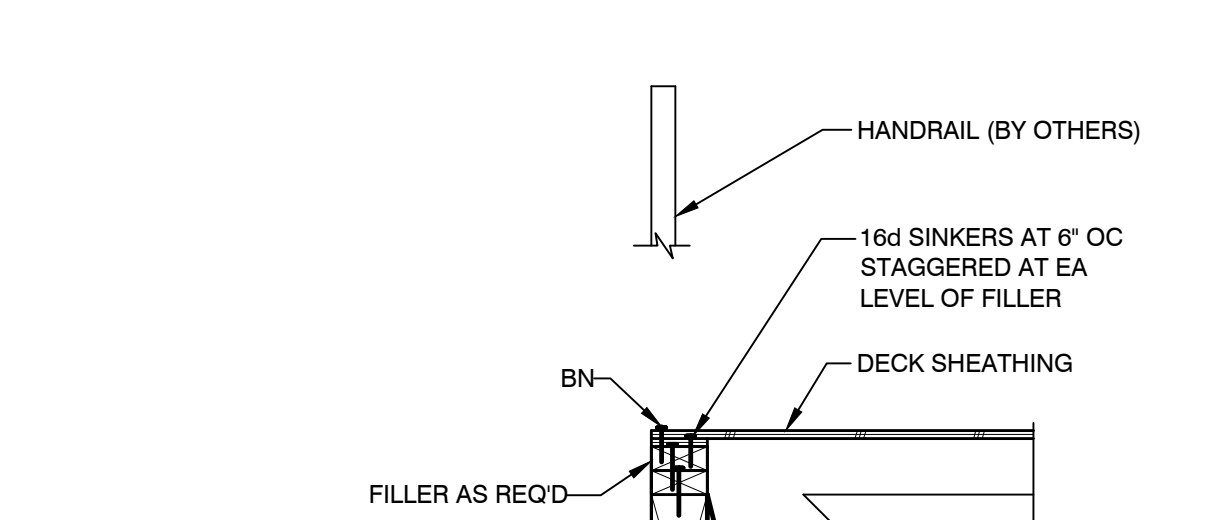
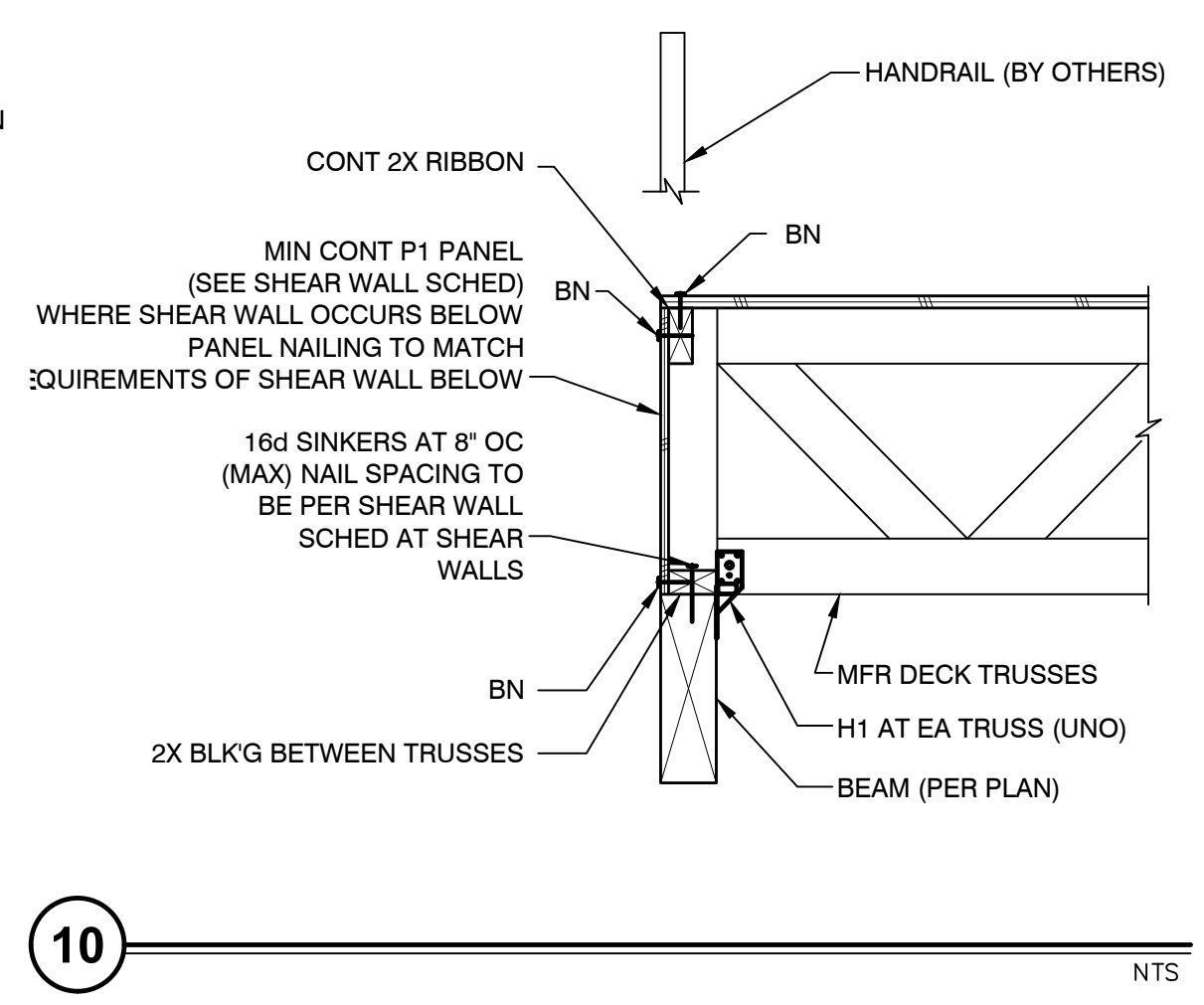
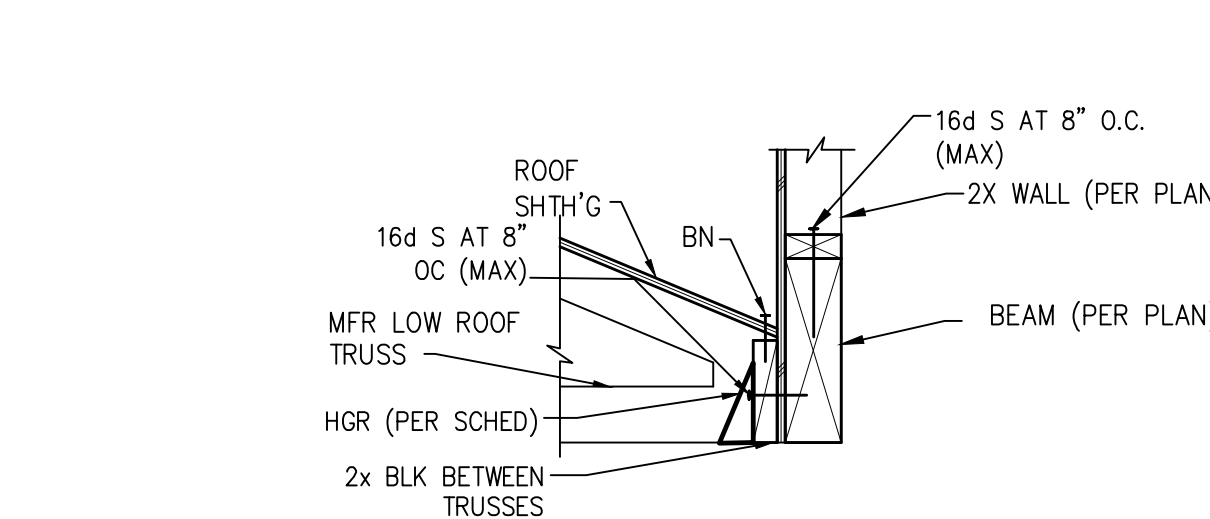
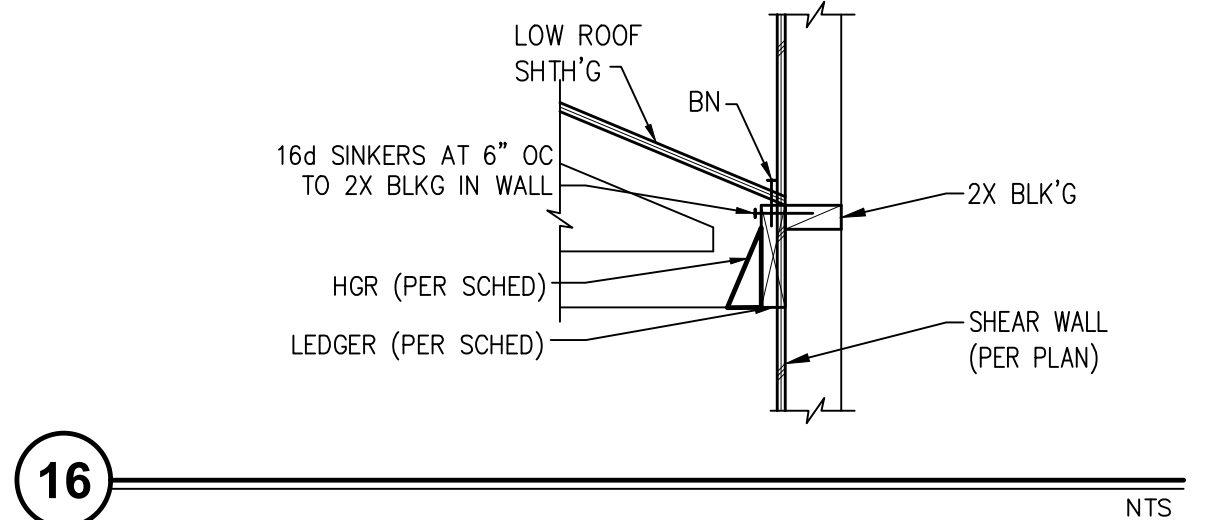
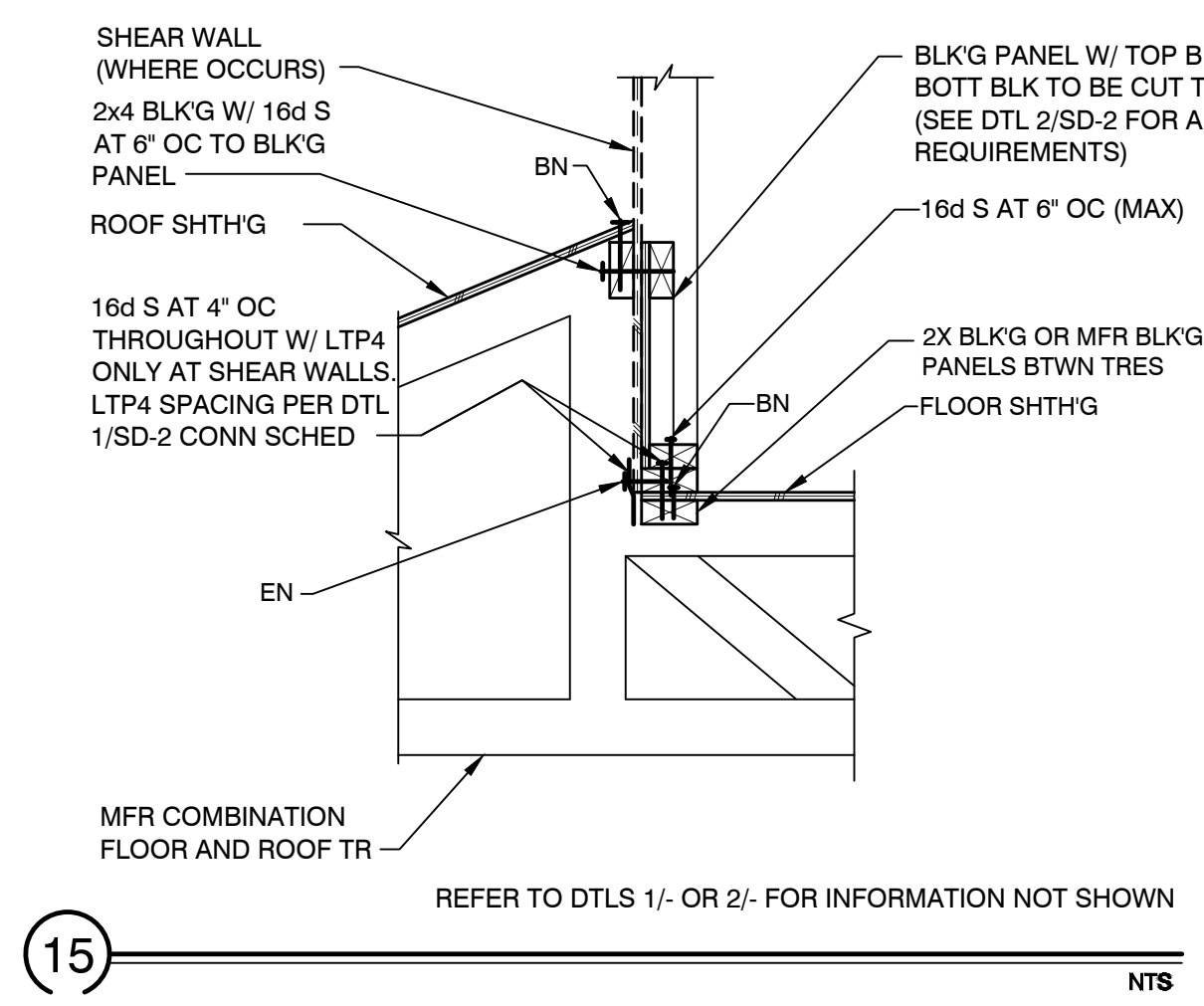
2 GABLE END WALL TRUSS NTS

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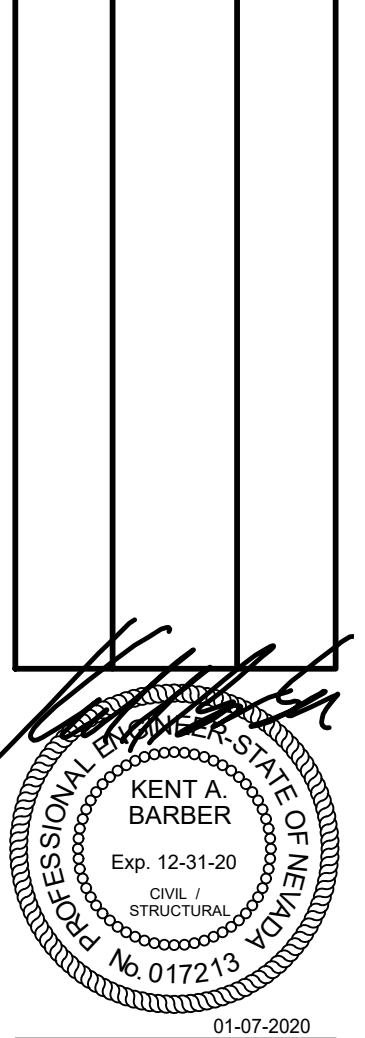
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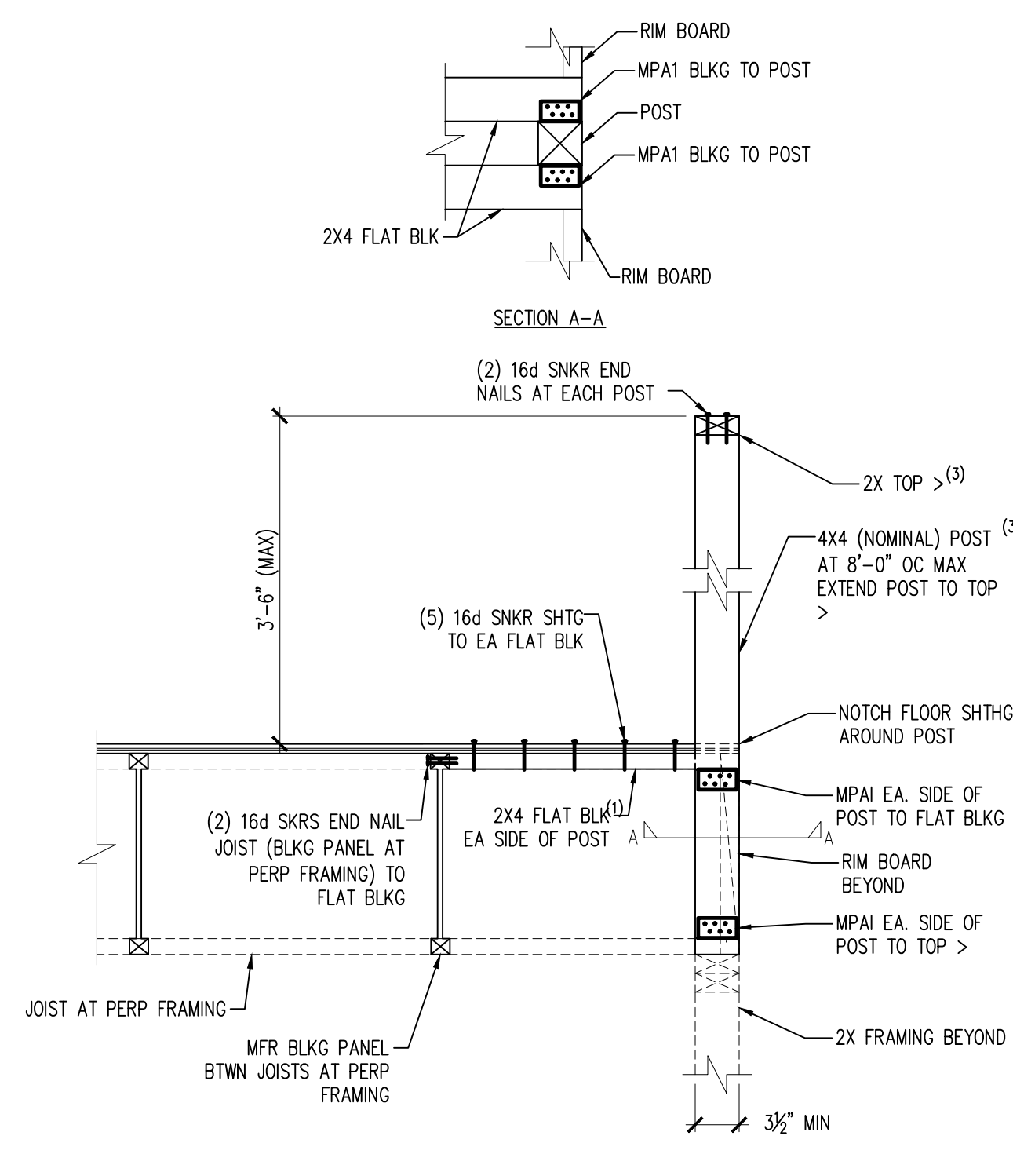
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 ENR 12-31-20
 CIVIL
 No. 017213
 STATE OF NEVADA



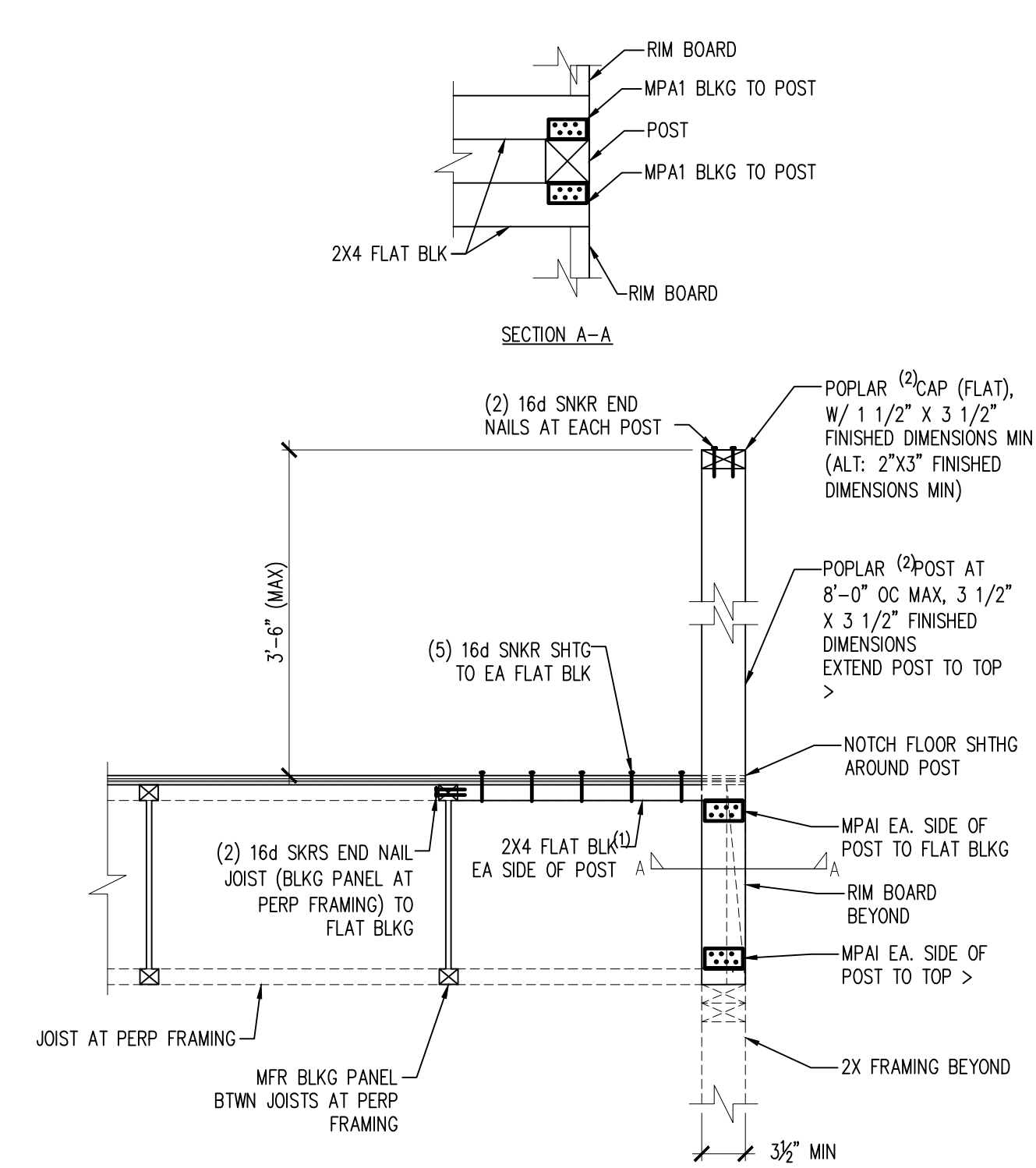
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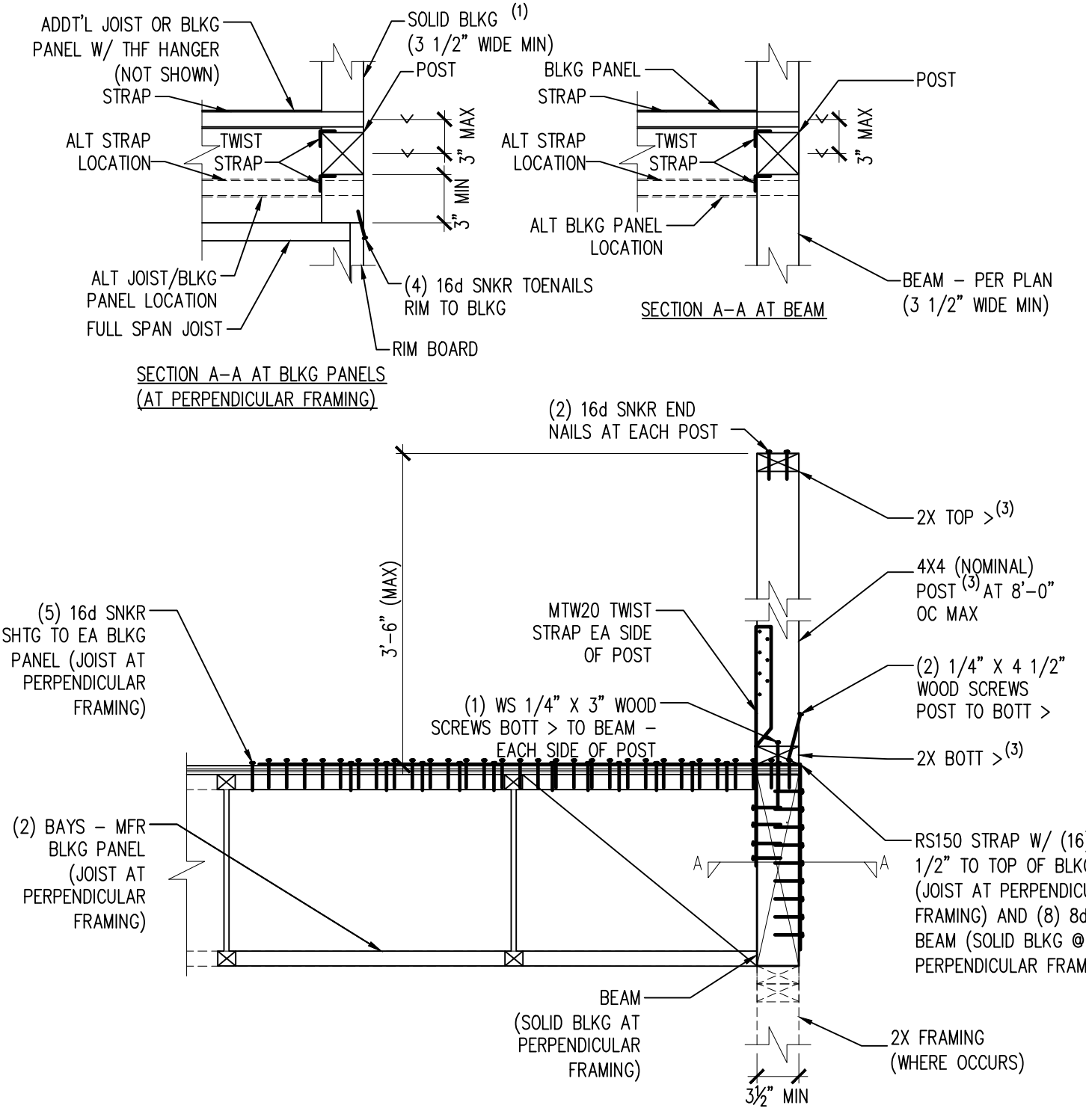




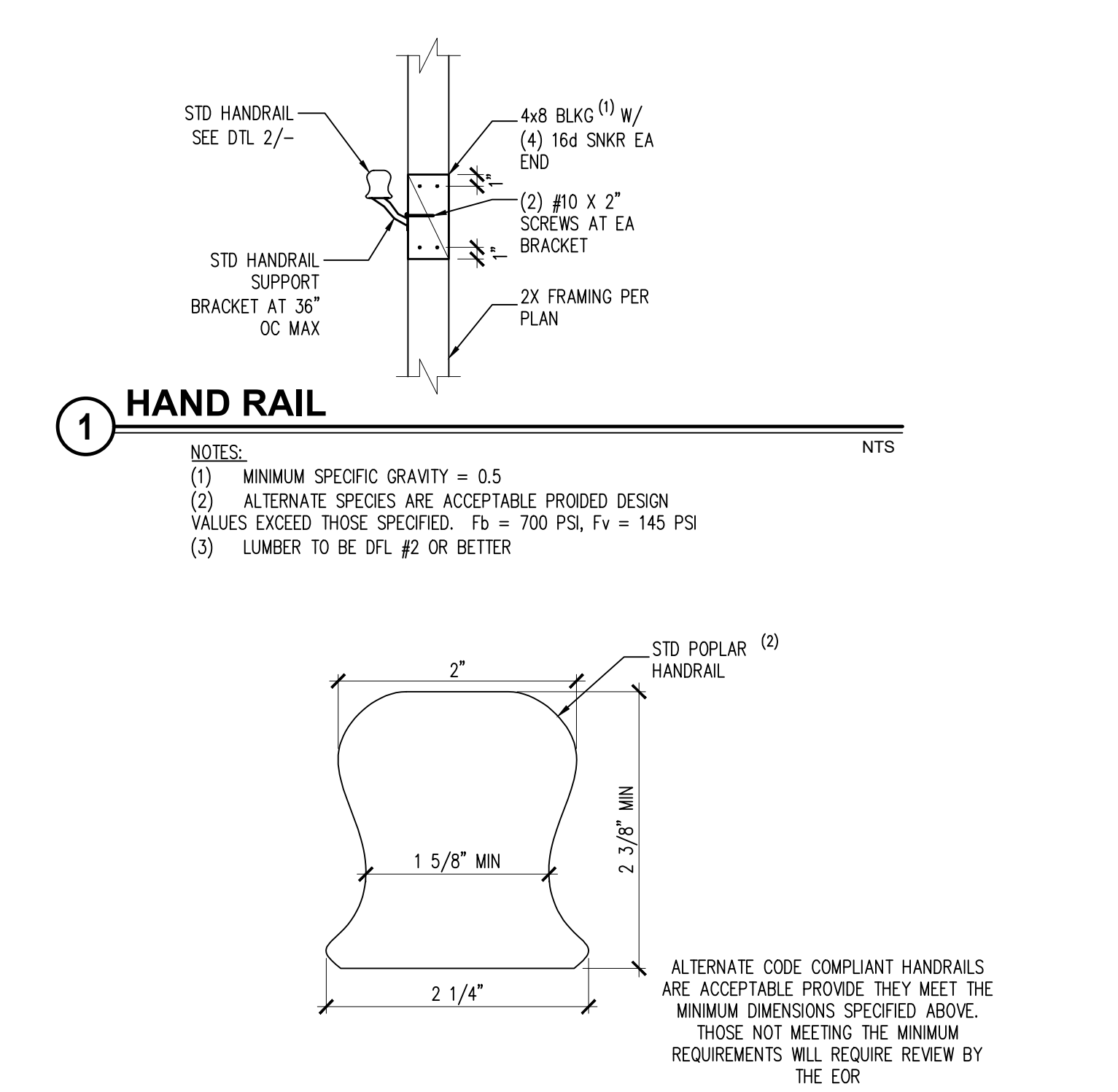
8 FRAMED GUARD RAIL @ BEARING WALL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



6 OPEN BALUSTER W/ STD HAND RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



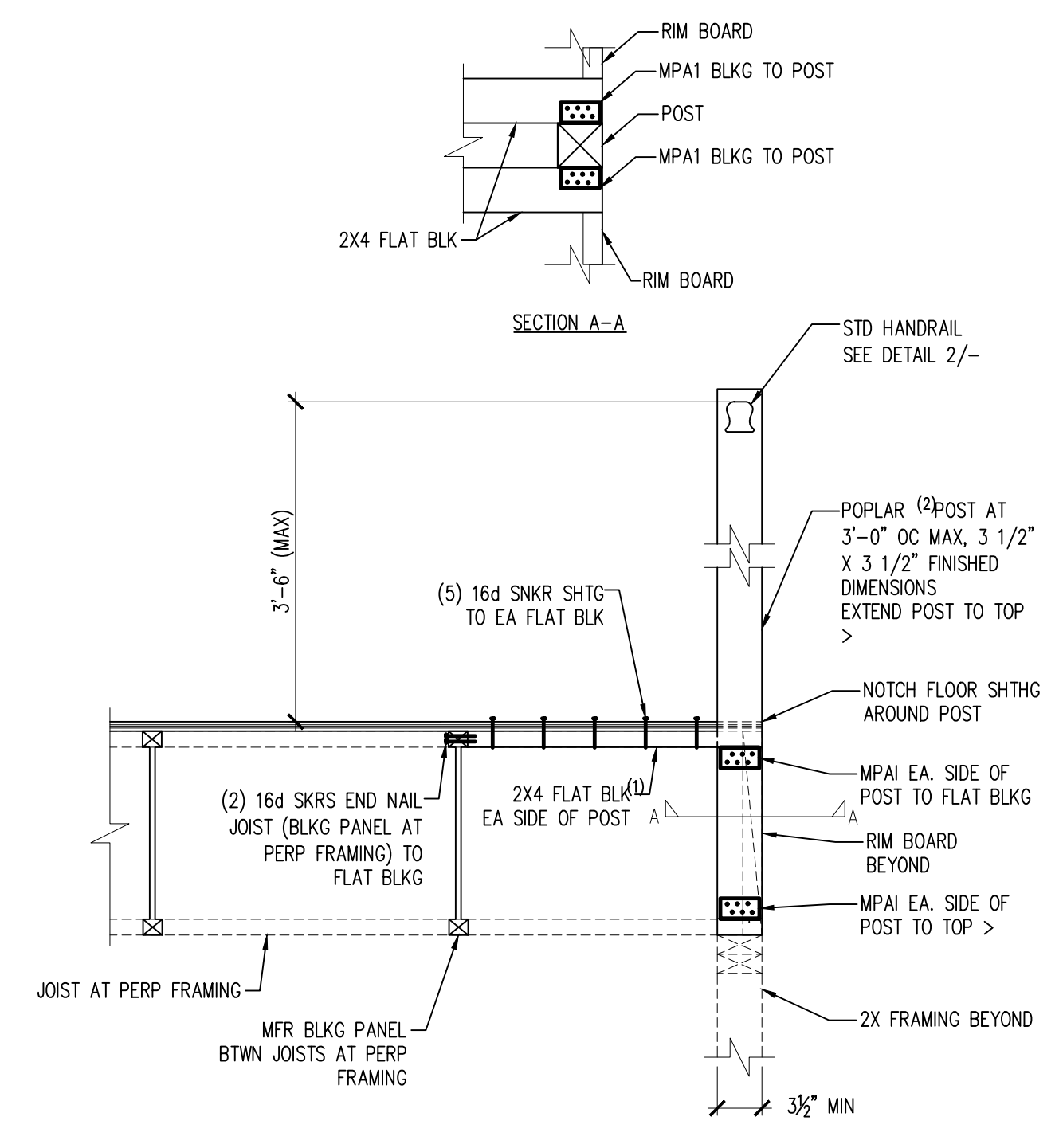
4 FRAMED GUARD RAIL AT BEAM NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



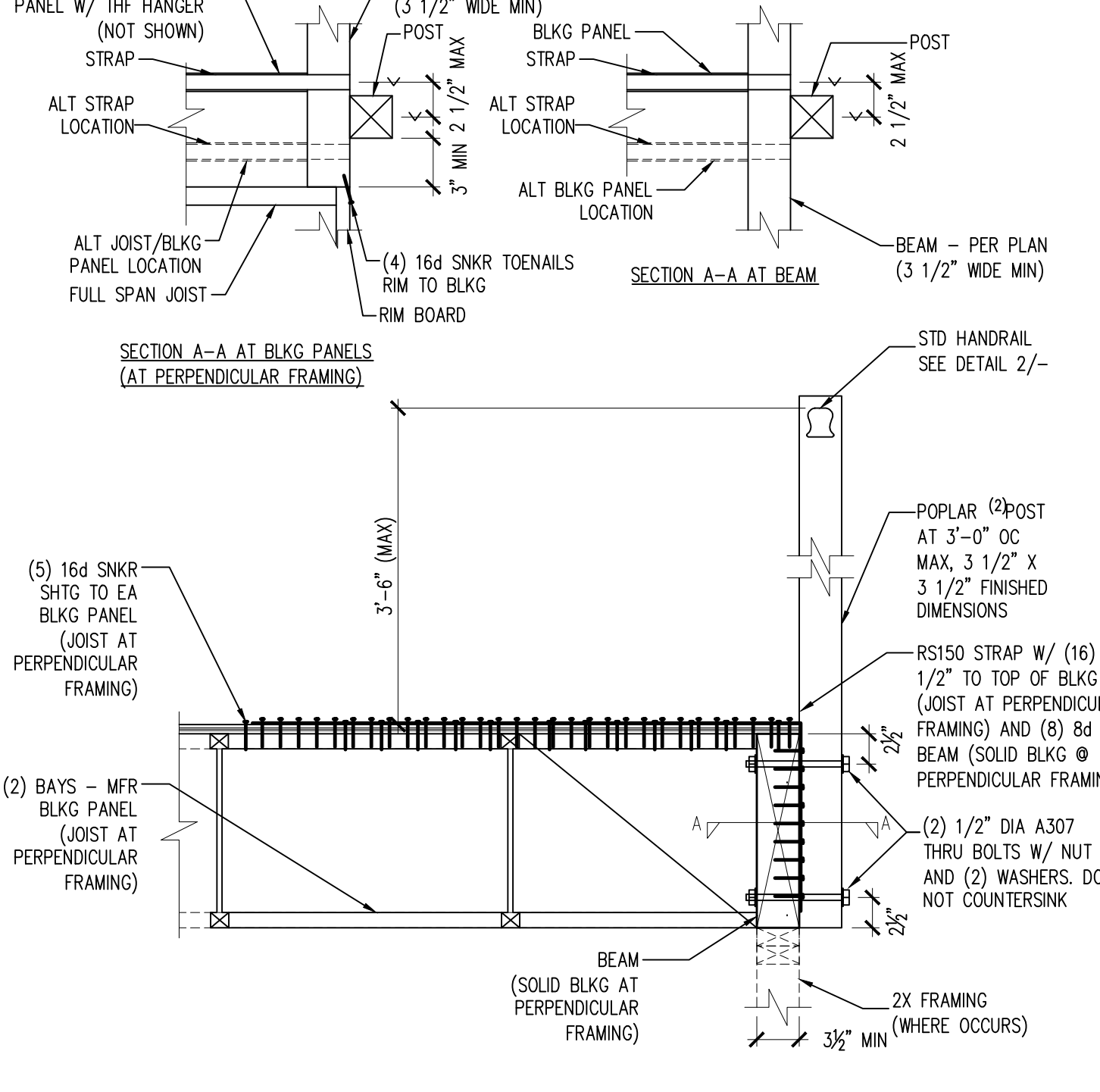
2 STD HAND RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



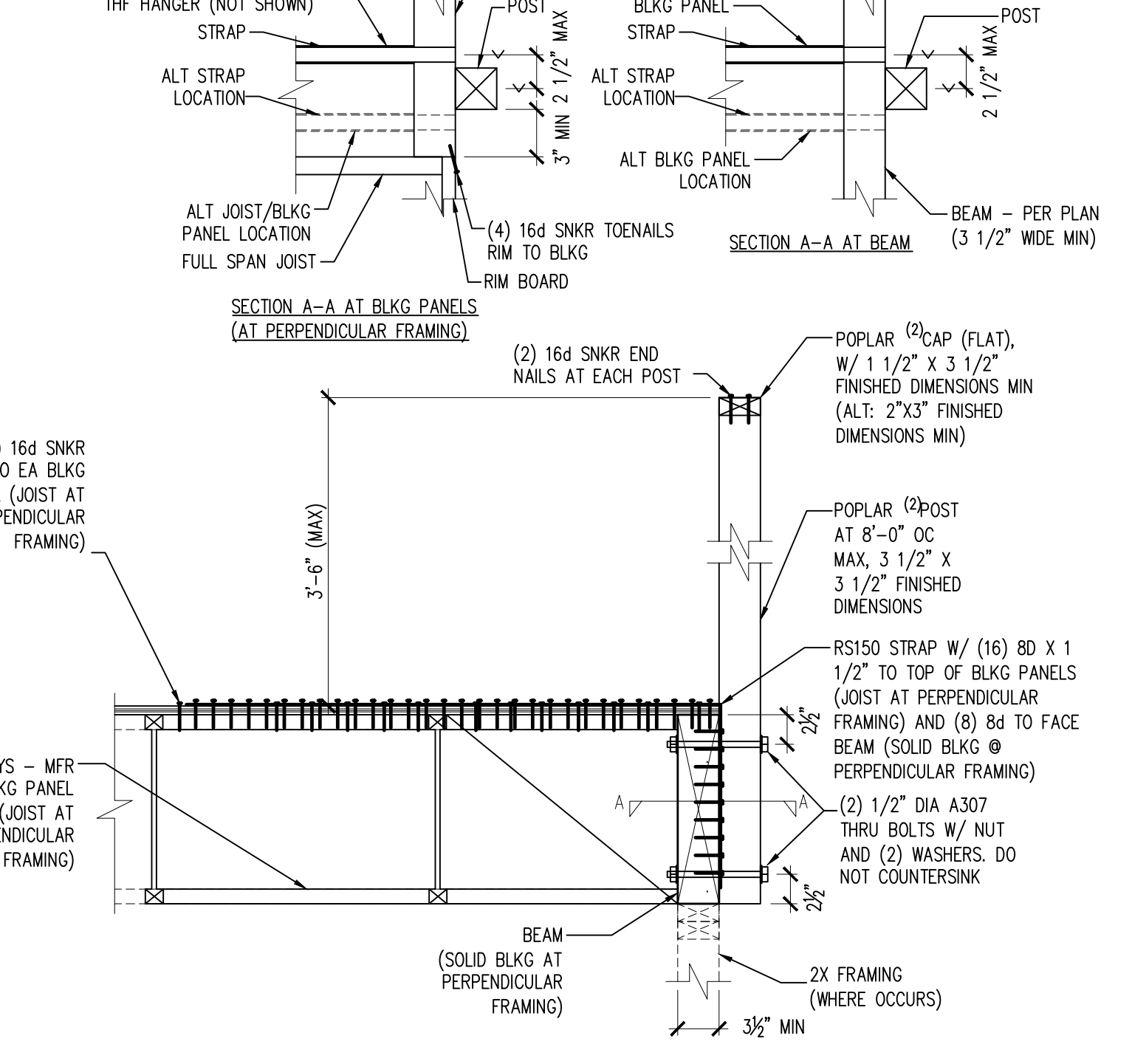
7 OPEN BALUSTER W/ FLAT TOP RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



5 OPEN BALUSTER W/ STD HAND RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



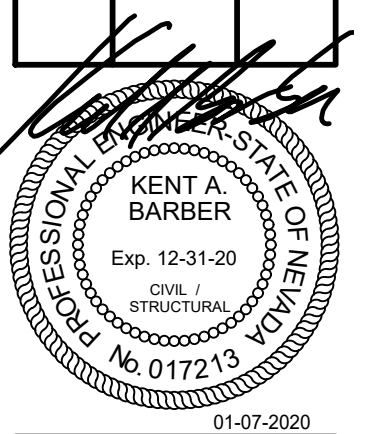
3 OPEN BALUSTER W/ FLAT TOP RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER



1 HAND RAIL NTS
 NOTES:
 (1) MINIMUM SPECIFIC GRAVITY = 0.5
 (2) ALTERNATE SPECIES ARE ACCEPTABLE PROVIDED DESIGN VALUES EXCEED THOSE SPECIFIED. Fb = 700 PSI, Fv = 145 PSI
 (3) LUMBER TO BE DFL #2 OR BETTER

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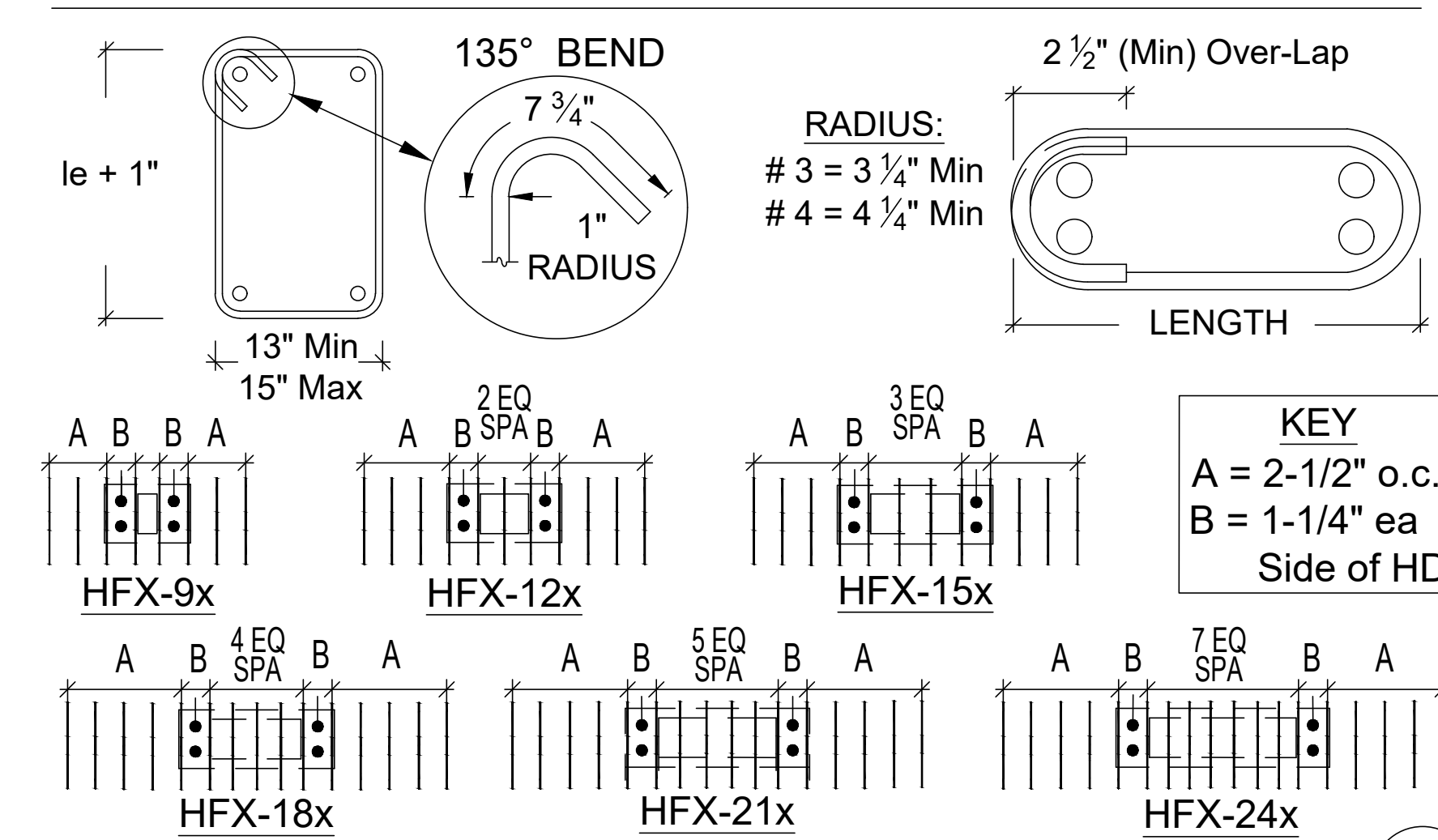
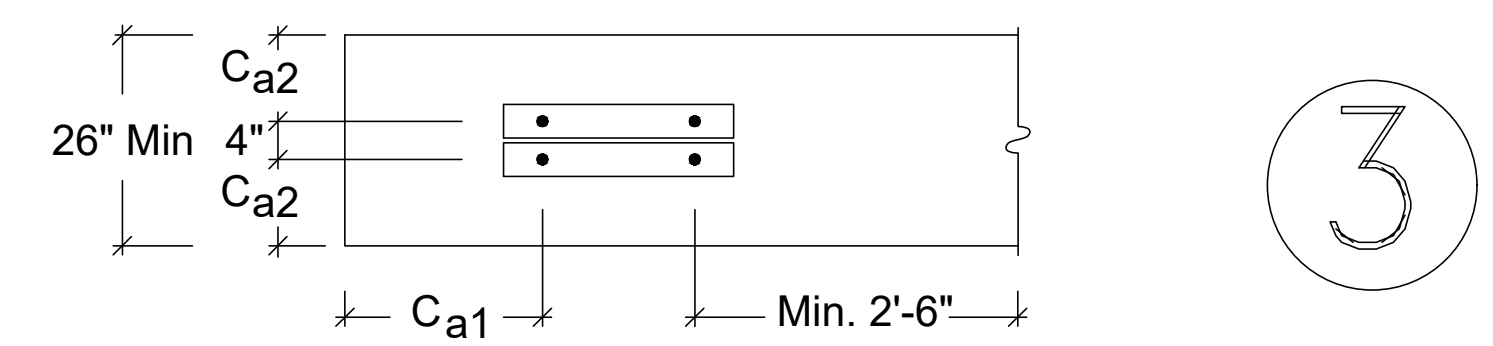
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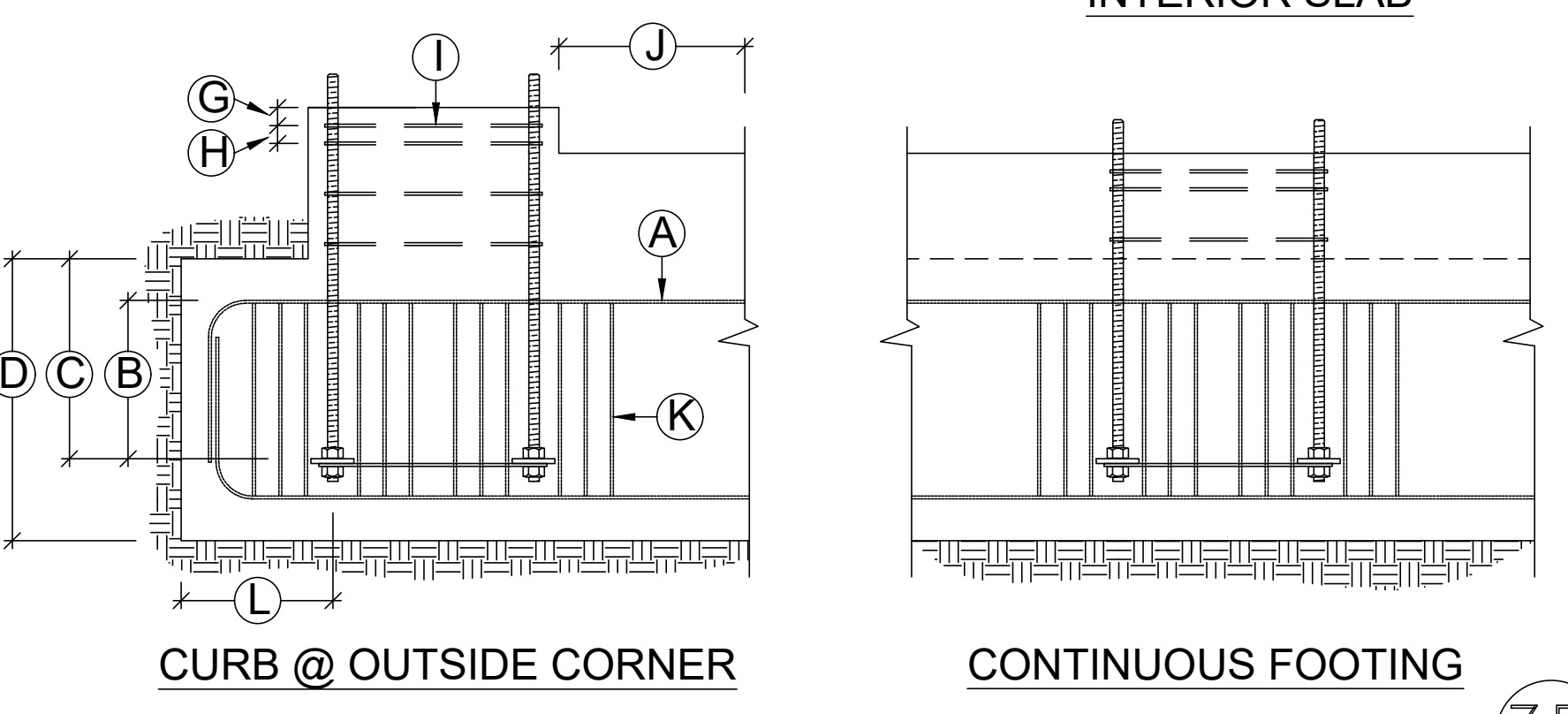
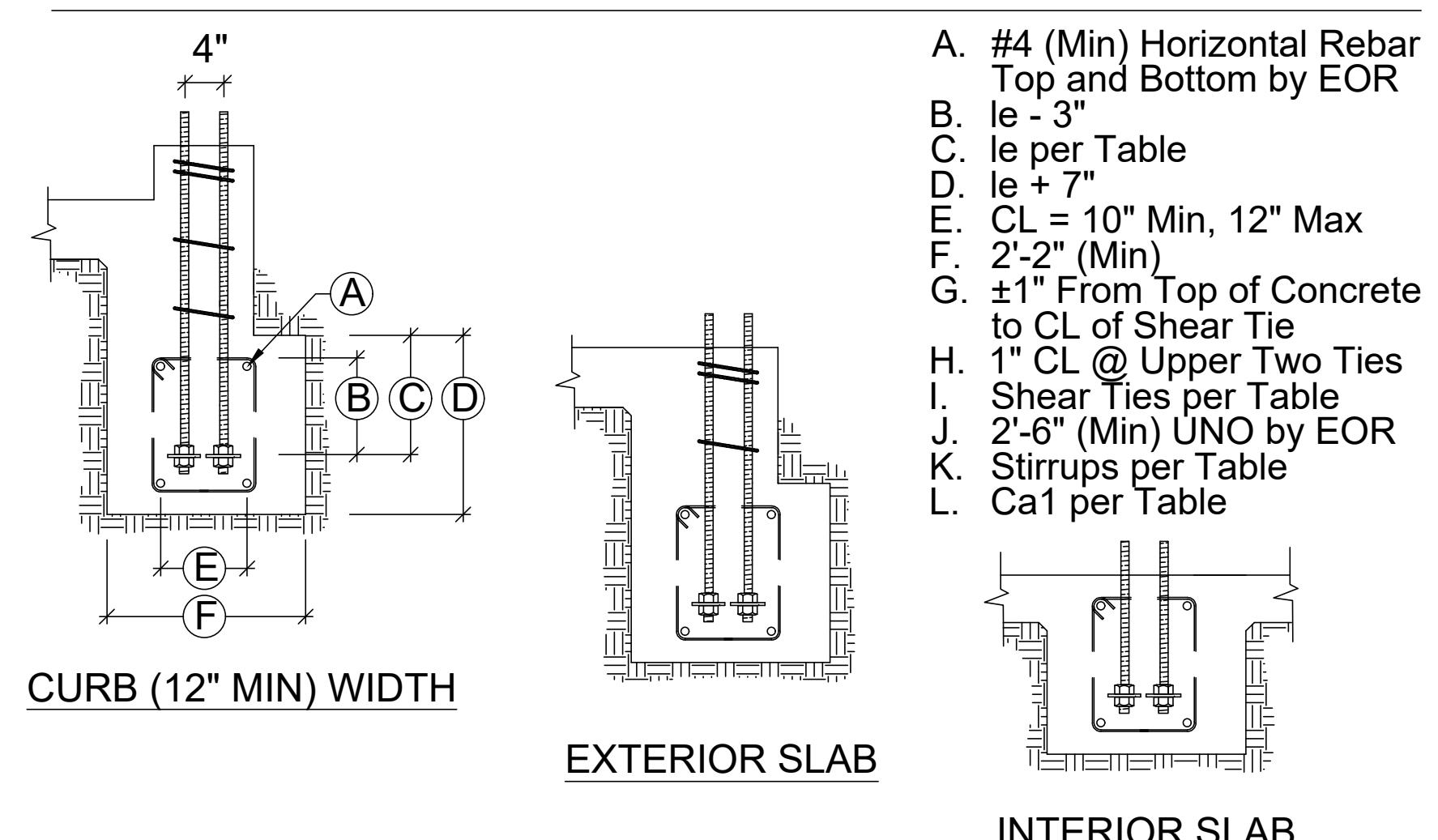
BACK TO BACK REINFORCED ANCHORAGE (BB-RA)

Model	Panel Width (in)	Anchorage ¹	Rod Dia (in)	Rod Grade ^{2,3}	BB-RA			Stirrups ⁹ (in)	Shear Ties ⁷
					le ⁴ (in)	Ca1 ⁵ (in)	Ca2 ⁶ (in)		
HFX-9x	9	1-1/8-STD-BB-RA	1-1/8	STD	13	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-BB-RA 1-1/8-HS-BB-RA	1-1/8	STD HS	18	19-3/4	11	11 - # 4	# 3 (min) @ 4" OC
HFX-15x	15	1-1/8-STD-BB-RA 1-1/8-HS-BB-RA	1-1/8	STD HS	20	20-5/8	11	12 - # 4	# 4 (min) @ 4" OC
HFX-18x	18	1-1/8-STD-BB-RA 1-1/8-HS-BB-RA	1-1/8	STD HS	23	20-5/8	11	15 - # 4	# 4 (min) @ 4" OC
HFX-21x	21	1-1/8-STD-BB-RA 1-1/8-HS-BB-RA	1-1/8	STD HS	26	20-5/8	11	16 - # 4	# 4 (min) @ 4" OC
HFX-24x	24	1-1/8-STD-BB-RA 1-1/8-HS-BB-RA	1-1/8	STD HS	26	20-5/8	11	18 - # 4	# 4 (min) @ 4" OC

BACK TO BACK REINFORCED ANCHORAGE NOMENCLATURE
 1-1/8 - STD - BB - RA
 REINFORCED ANCHORAGE
 "BACK TO BACK" INSTALLATION
 ROD GRADE
 ROD DIAMETER



BB-RA SHEAR TIES & STIRRUPS (3A)

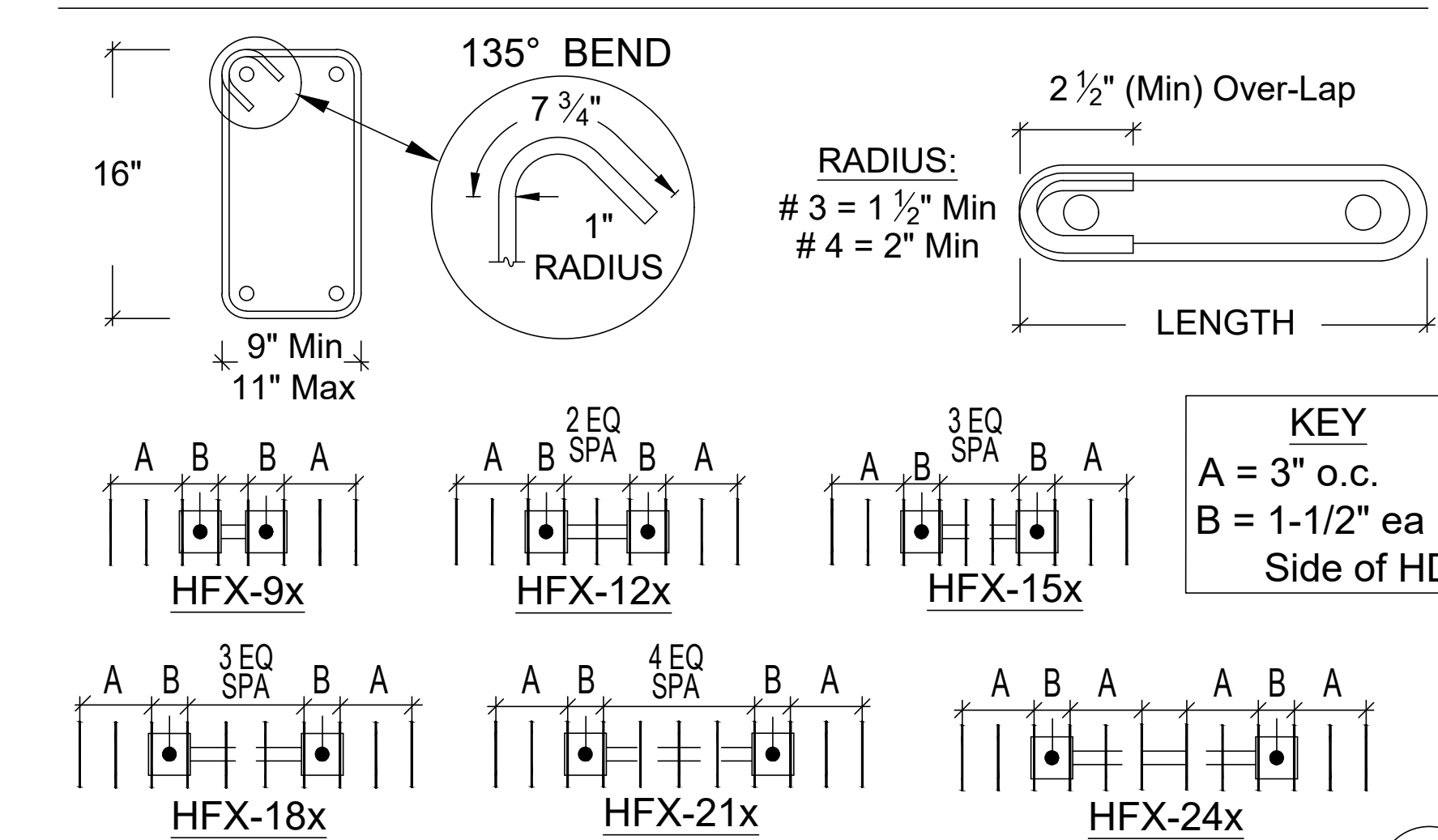
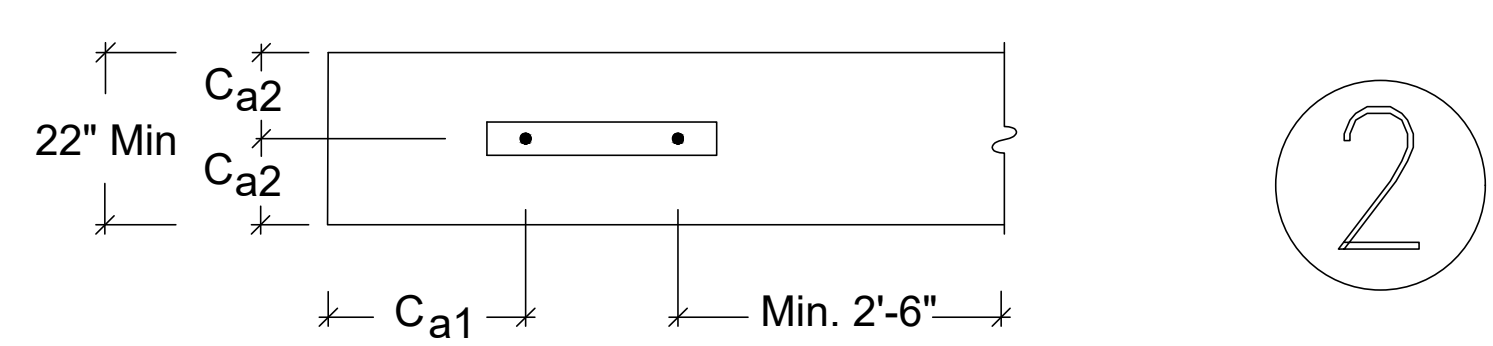


BB-RA SECTIONS & ELEVATIONS (3B)

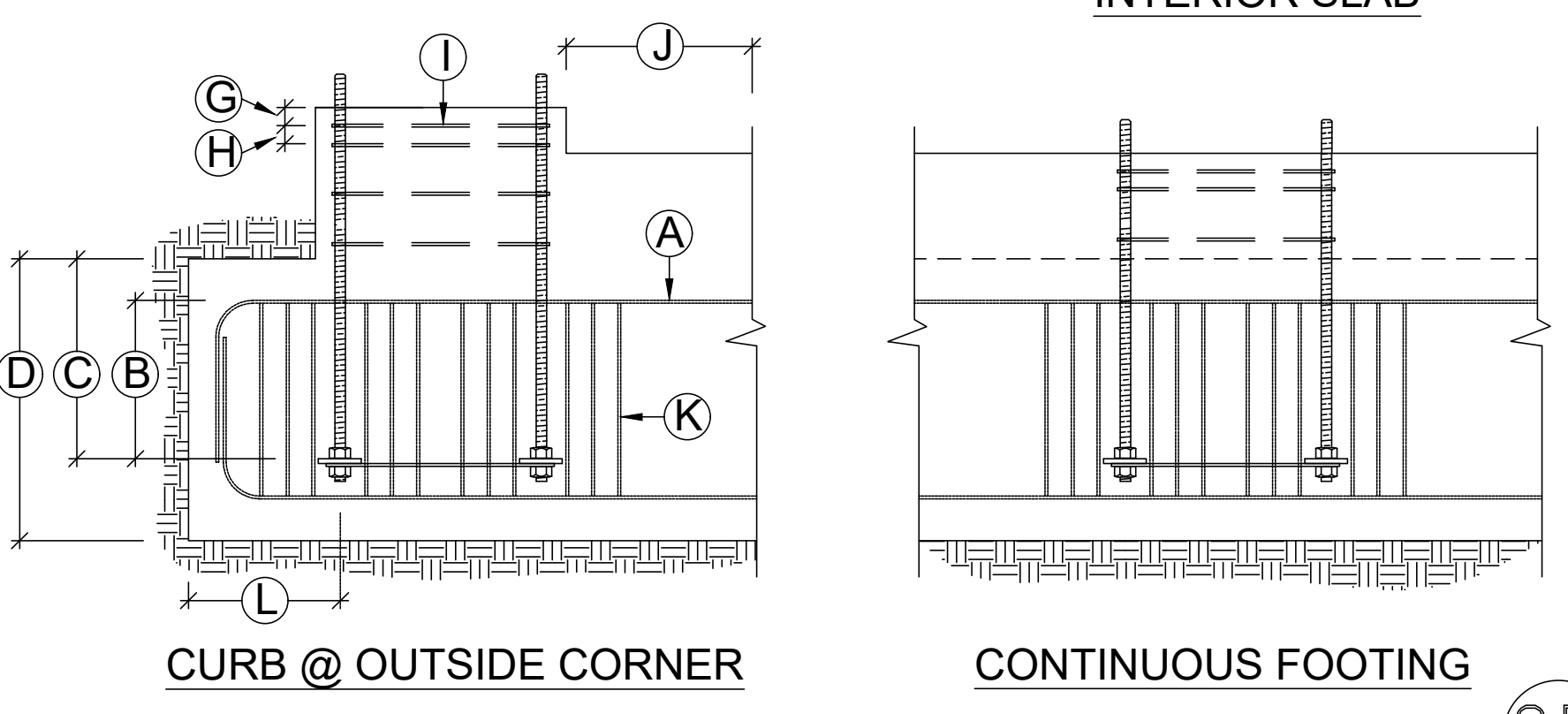
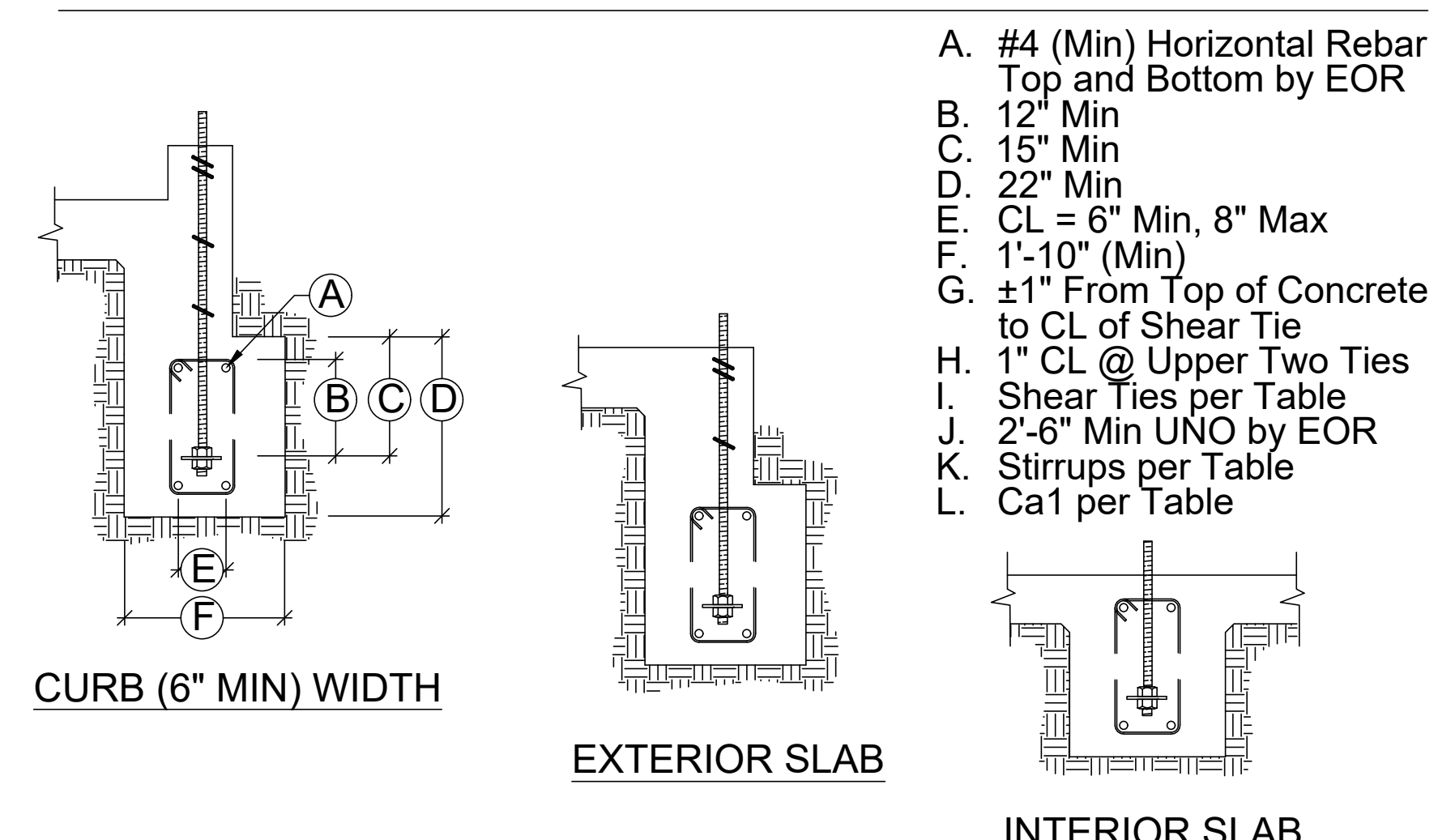
REINFORCED ANCHORAGE (RA)

Model	Panel Width (in)	Anchorage ¹	Rod Dia (in)	Rod Grade ^{2,3}	RA			Stirrups ⁹ (in)	Shear Ties ⁷
					le ⁴ (in)	Ca1 ⁵ (in)	Ca2 ⁶ (in)		
HFX-9x	9	1-1/8-STD-RA	1-1/8	STD	13	19-3/4	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	12	1-1/8-STD-RA 1-1/8-HS-RA	1-1/8	STD HS	18	19-3/4	11	11 - # 4	# 3 (min) @ 4" OC
HFX-15x	15	1-1/8-STD-RA 1-1/8-HS-RA	1-1/8	STD HS	20	20-5/8	11	12 - # 4	# 4 (min) @ 4" OC
HFX-18x	18	1-1/8-STD-RA 1-1/8-HS-RA	1-1/8	STD HS	23	20-5/8	11	15 - # 4	# 4 (min) @ 4" OC
HFX-21x	21	1-1/8-STD-RA 1-1/8-HS-RA	1-1/8	STD HS	26	20-5/8	11	16 - # 4	# 4 (min) @ 4" OC
HFX-24x	24	1-1/8-STD-RA 1-1/8-HS-RA	1-1/8	STD HS	26	20-5/8	11	18 - # 4	# 4 (min) @ 4" OC

REINFORCED ANCHORAGE NOMENCLATURE
 1-1/8 - STD - RA
 REINFORCED ANCHORAGE
 ROD GRADE
 ROD DIAMETER



RA SHEAR TIES & STIRRUPS (2A)

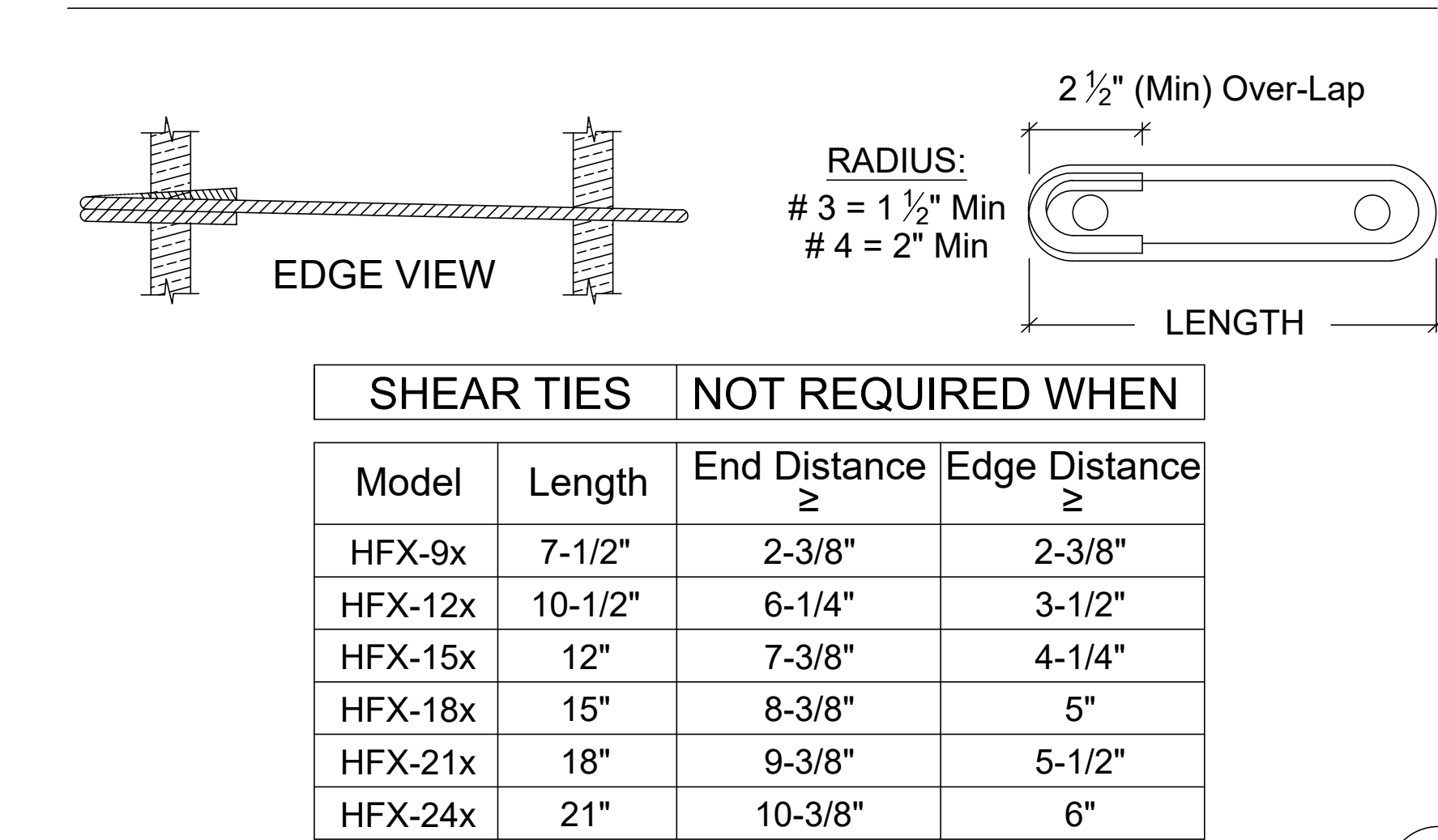
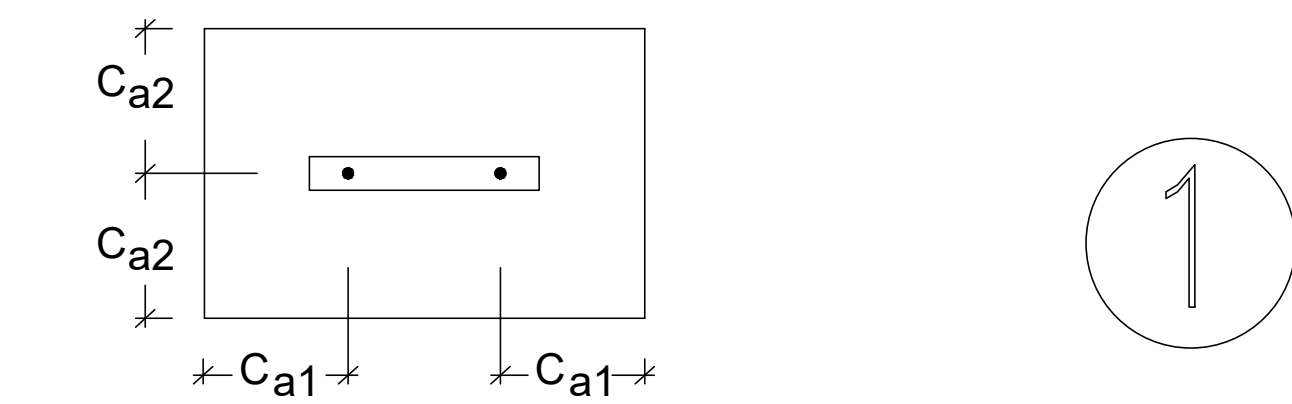


RA SECTIONS & ELEVATIONS (2B)

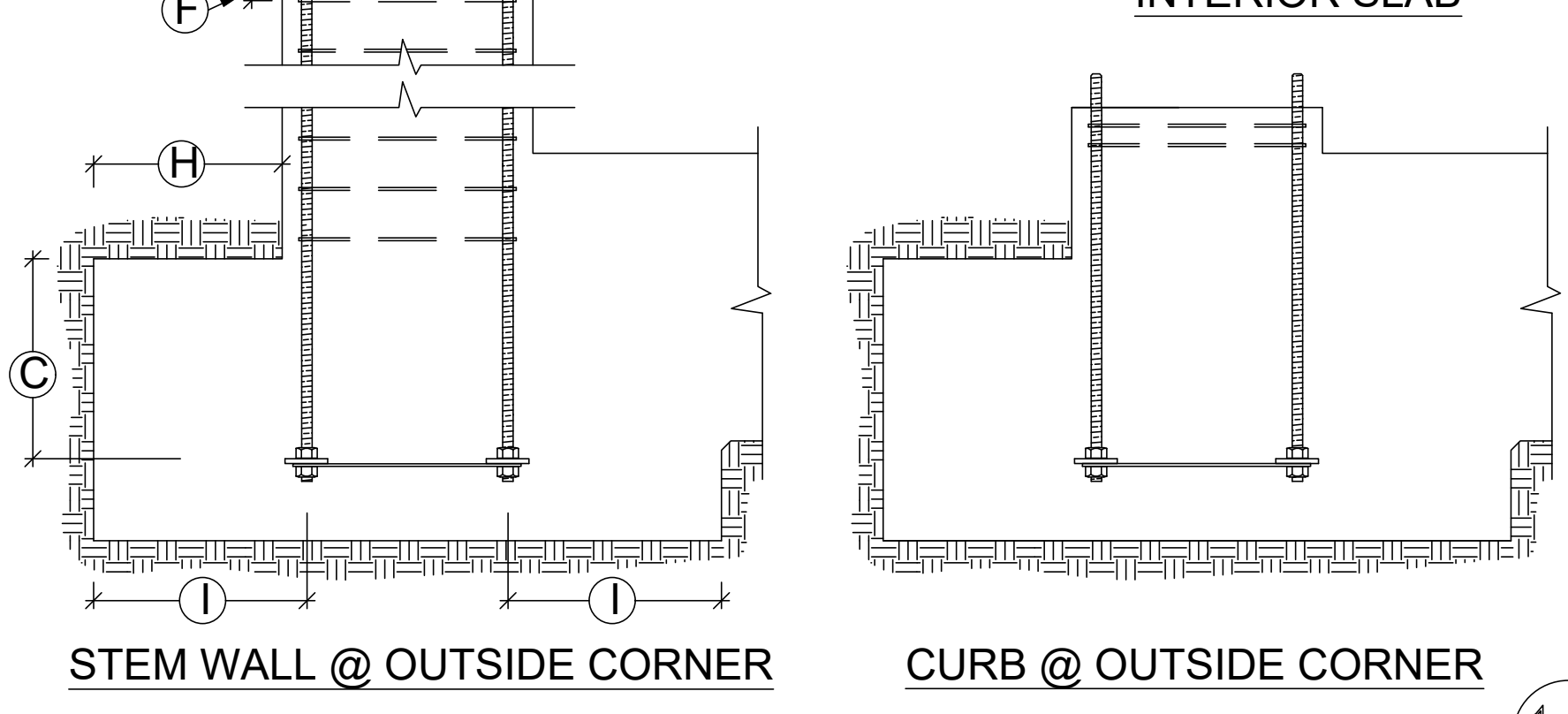
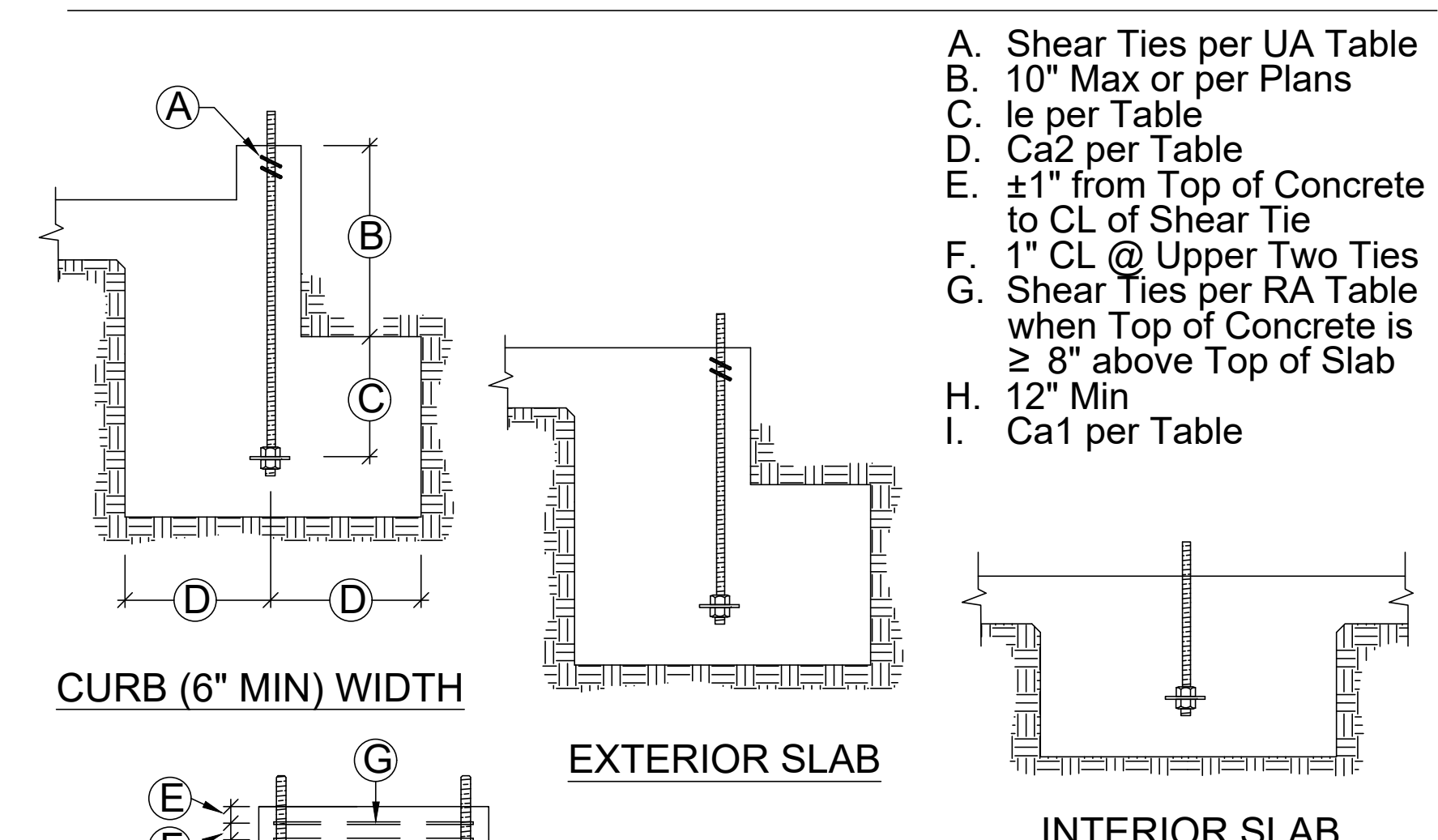
UNREINFORCED ANCHORAGE (UA)

Model	Panel Height	Anchorage ¹	Rod Dia (in)	Rod Grade ^{2,3}	UA			Stirrups ⁹ (in)	Shear Ties ^{7,8}
					le ⁴ (in)	Ca1 ⁵ (in)	Ca2 ⁶ (in)		
HFX-9x	79.5" - 8'	1-1/8-STD-13-19	1-1/8	STD	13	19	11	8 - # 4	# 3 (min) @ 3-3/4" OC
HFX-12x	78" - 10'	1-1/8-STD-14-20	1-1/8	STD	14	20	11	9 - # 4	# 3 (min) @ 4" OC
HFX-15x, 18x	78" - 13'	1-1/8-STD-14-20	1-1/8	STD	14	20	11	10 - # 4	# 3 (min) @ 4" OC
HFX-15x, 18x Balloon	14' - 20'	1-1/8-HS-20-30	1-1/8	HS	20	30	11	11 - # 4	# 4 (min) @ 4" OC
HFX-21x, 24x	78" - 13'	1-1/8-STD-14-20 1-1/8-HS-23-34	1-1/8	STD HS	14 23	20 34	11	12 - # 4	# 4 (min) @ 4" OC
HFX-15x, 18x Balloon	14' - 20'	1-1/8-HS-20-30	1-1/8	HS	20	30	11	12 - # 4	# 4 (min) @ 4" OC

UNREINFORCED ANCHORAGE NOMENCLATURE
 1-1/8 - STD - 14 - 20
 END & EDGE DISTANCE (Ca1 & Ca2)
 EMBEDMENT DEPTH (le)
 ROD GRADE
 ROD DIAMETER



UA SHEAR TIES (1A)



UA SECTIONS & ELEVATIONS (1B)

TABLE NOTES

- Designs are to resist loading per ACI 318-11 D.3.3.4.3.
- STD indicates Anchors complying with ASTM F1554 Grade 36 with a Hardy Frame Bolt Brace (HFXBB) installed with double nuts on the embed end.
- HS indicates Anchors complying with ASTM A193 Grade B7 with a 1/2"x3"x3"(Min) Plate Washer installed with double nuts on the embed end (HFXBB not required).
- le = length of embedment from the top of footing or grade beam to the top of the HFXBB Bolt Brace (top of the embedded Plate Washer @ HS anchors)
- Ca1 = distance from HD Centerline to the end of the footing or grade beam.
- Ca2 = distance from HD Centerline to both the front and the back face of the footing or grade beam.
- Shear Ties are Grade 60 (Min) rebar and required for near edge distance conditions per ACI-318-11, f_c = 2,500 psi. Curbs and stem walls must be 6 inch (min) width for UA and RA, 12 inch (min) width for BB-RA.
- For UA applications, additional ties may be required at stem walls. Shear Ties are not required for installation away from edge (see detail 1A), installation on wood framing, or for IRC Braced Wall Panel applications.
- Stirrups are Grade 60 (Min) rebar. See table for size and spacing. See "Stirrup Layout" diagrams and "Key" for layout patterns.
- Concrete Edge Distances must comply with ACI 318-11 D8.2.

TOP OF CONCRETE

Model	Width	(A)	(B)
HFX-9x	9"	1-3/4"	5-1/2"
HFX-12x	12"	2-1/4"	8-1/2"
HFX-15x	15"	2-5/8"	9-3/4"
HFX-18x	18"	2-5/8"	12-3/4"
HFX-21x	21"	2-5/8"	15-3/4"
HFX-24x	24"	2-5/8"	18-3/4"

2-3/4" FOR PANEL ON CONCRETE

HFX ANCHOR CENTERLINES (A)

IMPORTANT!

- ANCHORAGE IS DESIGNED FOR TENSION AND SHEAR TRANSFER ONLY, FOUNDATION DESIGN PER EOR.
- REINFORCEMENT SHOWN IS THE MINIMUM REQUIREMENT AND IS NOT INTENDED TO REPLACE REINFORCEMENT DESIGNED BY THE EOR.
- FOR RA AND BB-RA INSTALLATIONS, THE HFXBB BOLT BRACE MAY BE PLACED ON TOP OF THE STIRRUPS WITH DOUBLE-NUTS INSTALLED AT EMBED END OF STANDARD GRADE ANCHOR RODS. (NOTE: 1/2" x 3" x 3" PLATE WASHERS ARE REQUIRED TO BE DOUBLE-NUTTED AT EMBED END OF HIGH STRENGTH ANCHOR RODS.)
- HIGH STRENGTH ALL-THREAD RODS PROVIDED BY HARDY FRAMES ARE STAMPED ON BOTH ENDS.

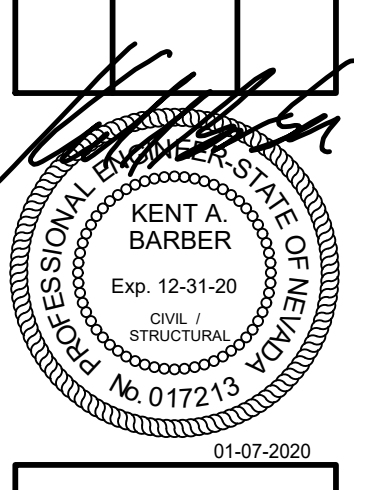
HF B7

IMPORTANT NOTES (B)

REVISIONS:

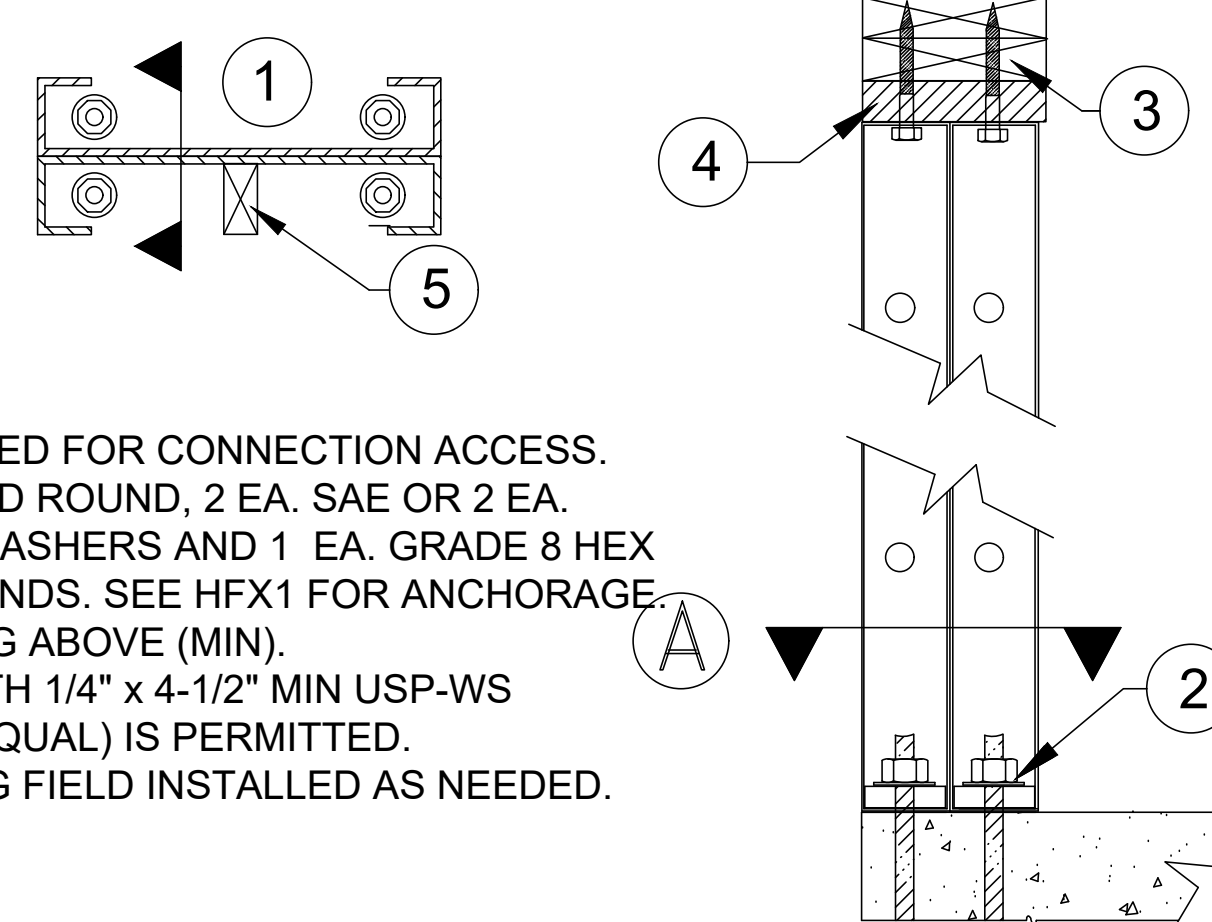
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HFX1

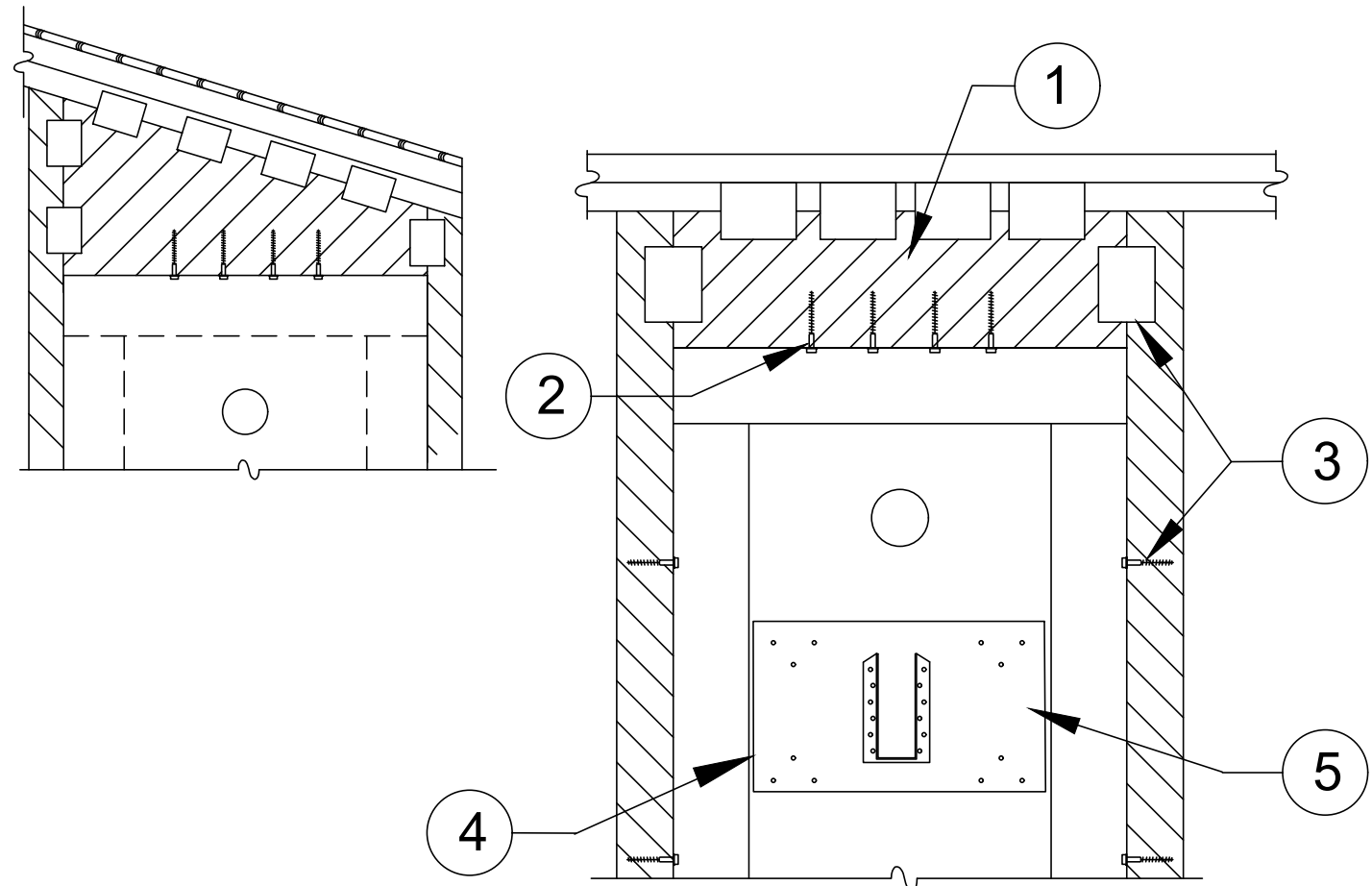
SECTION A



1. CAVITY ORIENTED FOR CONNECTION ACCESS.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT AT BOTH ENDS. SEE HFX1 FOR ANCHORAGE.
- 8 INCH FRAMING ABOVE (MIN)
- A 2x FILLER WITH 1/4" x 4-1/2" MIN USP-WS SCREWS (OR EQUAL) IS PERMITTED.
- WOOD BACKING FIELD INSTALLED AS NEEDED.

BACK TO BACK INSTALLATION

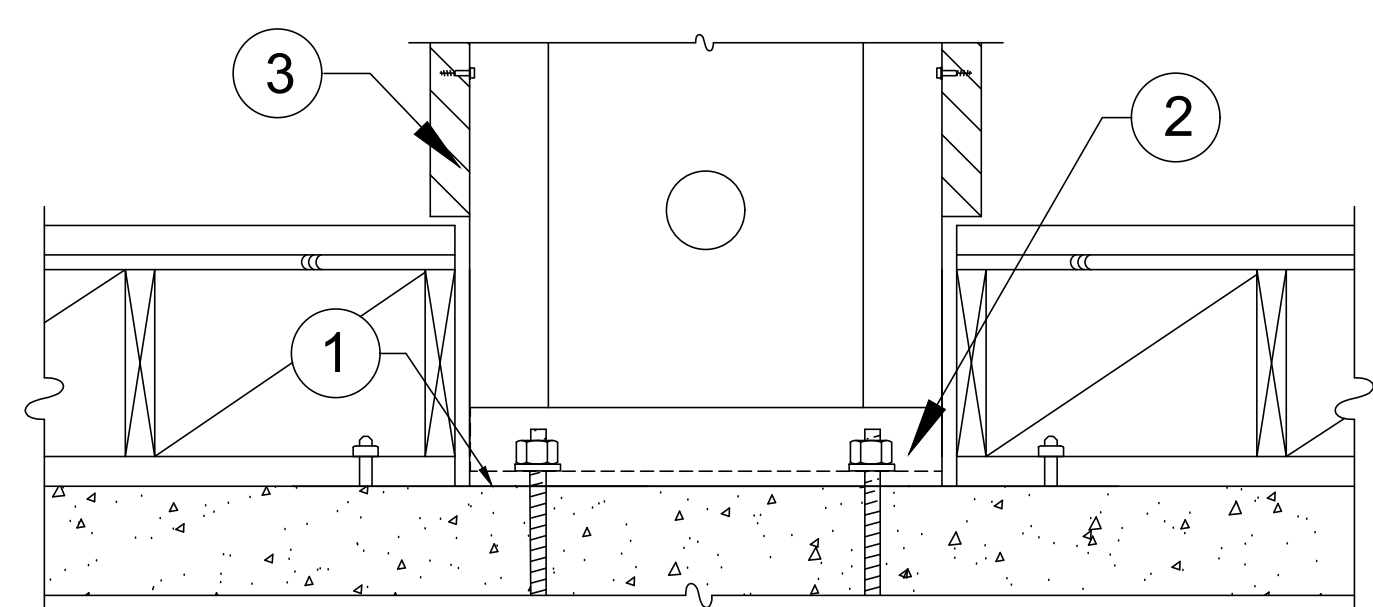
11



- 4x WOOD FILLER WITH USP MP4-F CONNECTORS (OR EQUAL) BY BUILDING DESIGN PROFESSIONAL.
- 1/4" x 3" (MIN) USP "WS-SERIES" SCREWS (OR EQUAL). QUANTITY PER TABLES
- ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS IS INSTALLED AT THE EDGES WHEN INSTALLING A 4x FILLER ABOVE OR WHEN SPECIFIED BY DESIGN PROFESSIONAL.
- OPTIONAL LEDGER PRE-DRILL 3/16" DIA. HOLES, EVENLY SPACED IN FACE OF PANEL AND INSTALL 1/4" DIA. WOOD SCREWS INTO 2x (MIN.) WOOD LEDGER LOCATED IN PANEL CAVITY.
- CONNECTOR AND ATTACHMENT BY BUILDING DESIGN PROFESSIONAL.

TOP CONNECTION W/ 4x FILLER

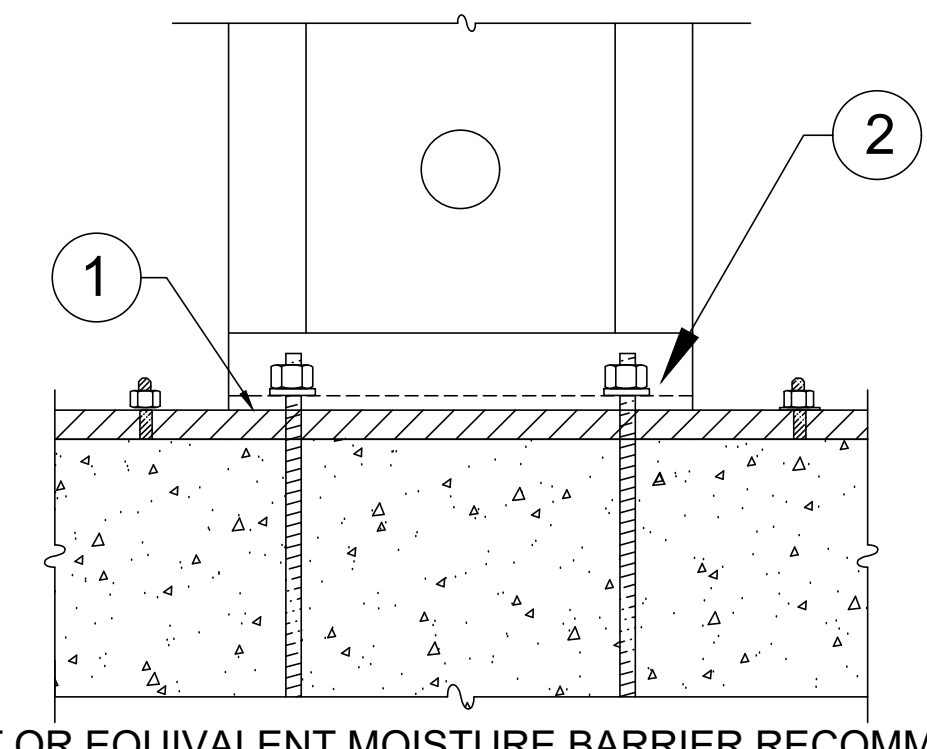
10



- 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT AT BOTH ENDS. SEE HFX1 FOR ANCHORAGE.
- ADJACENT FRAMING WITH 1/4" DIAMETER SCREWS IS INSTALLED AT THE EDGES WHEN INSTALLING A 4x FILLER ABOVE OR WHEN SPECIFIED BY DESIGN PROFESSIONAL.

RAISED FLOOR HEAD-OUT

9



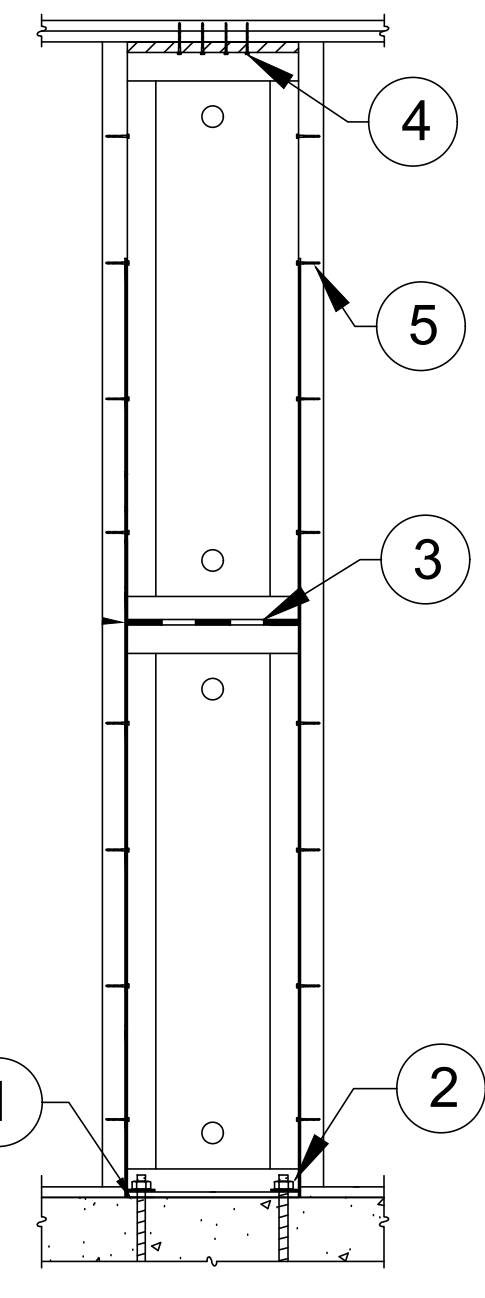
- 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT. SEE HFX1 FOR ANCHORAGE.

INSTALLATION ON 2x PLATE

8

NOTES:

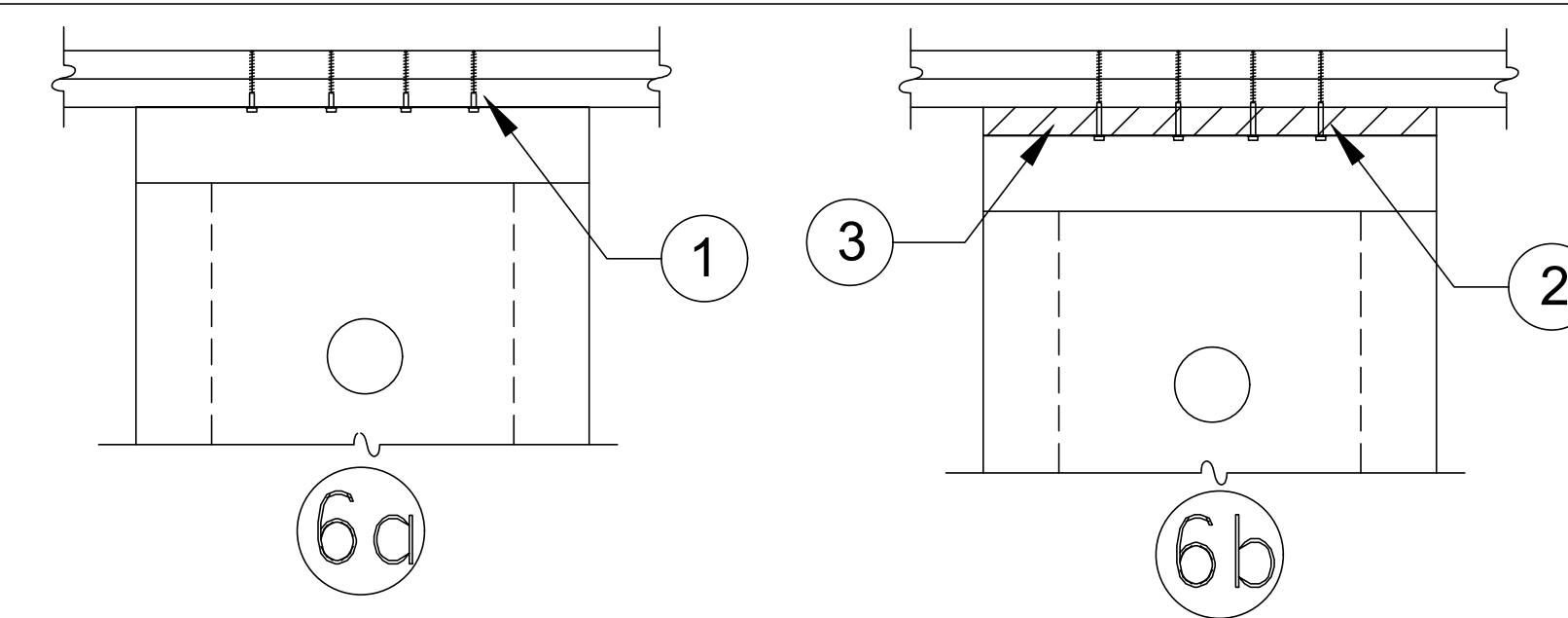
- A) OUT OF PLANE FORCES TO BE RESISTED BY OTHER FRAMING MEMBERS PER THE BUILDING DESIGN PROFESSIONAL.
- B) BALLOON WALL APPLICATIONS REQUIRE HIGH STRENGTH ANCHORAGE. SEE FOUNDATION PLAN AND ANCHORAGE TABLES ON SHEET HFX-1



- 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT. SEE HFX1 FOR ANCHORAGE.
- WELDED CONNECTION BY HARDY FRAMES, INC. (NO FIELD CONNECTION REQUIRED).
- A 2x FILLER WITH 1/4" x 4-1/2" MIN USP-WS SCREWS (OR EQUAL) IS PERMITTED.
- WHEN REQUIRED BY THE BUILDING DESIGN PROFESSIONAL ATTACH ADJACENT WOOD MEMBERS TO PANEL WITH 1/4" USP-WS SCREWS (OR EQUAL) THROUGH THE PANEL EDGE INTO THE WOOD MEMBER.

BALLOON WALL INSTALLATION

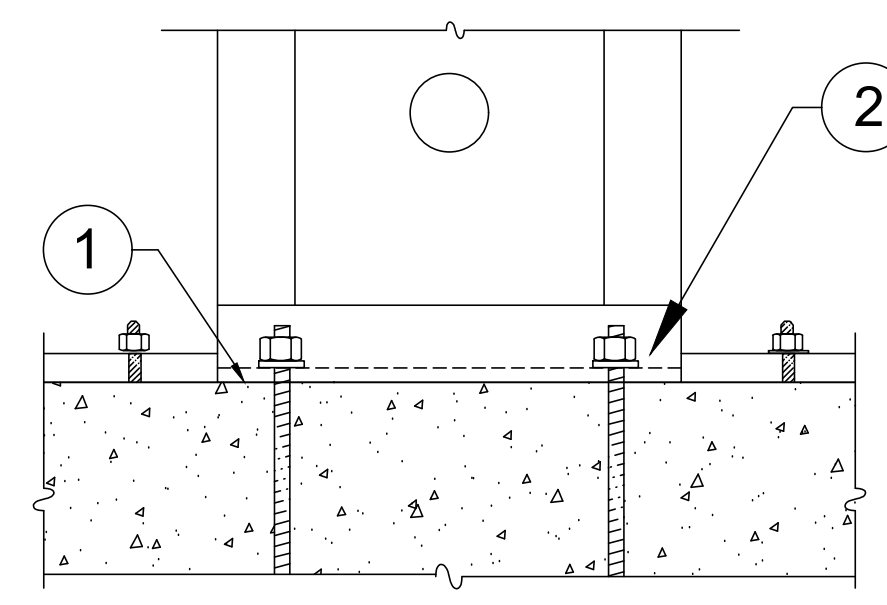
7



- 1/4" x 3" (MIN) USP "WS-SERIES" SCREWS (OR EQUAL). QUANTITY PER TABLES
- 1/4" x 4-1/2" (MIN) USP "WS-SERIES" SCREWS (OR EQUAL). QUANTITY PER TABLES
- 2x WOOD FILLER.

TOP PLATE CONNECTIONS

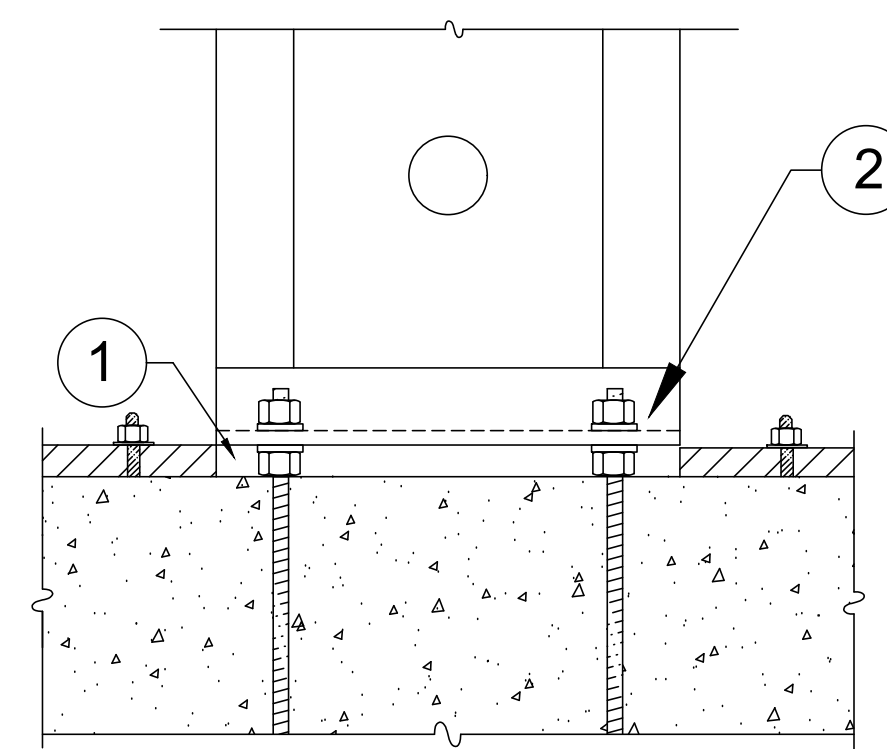
6



- 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT AT BOTH ENDS. SEE HFX1 FOR ANCHORAGE.

INSTALLATION ON FOUNDATION

5



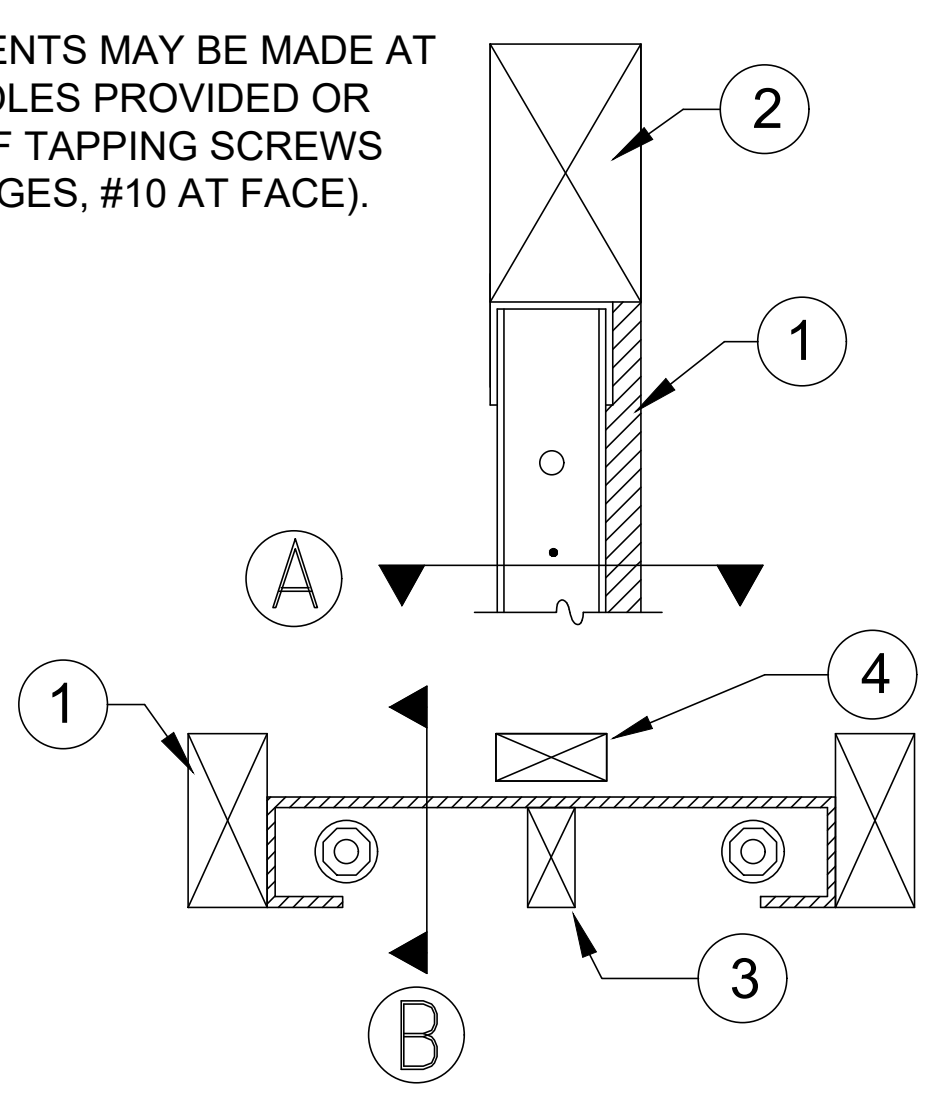
- PLUS OR MINUS 1-1/2" GAP TO BE FILLED WITH MIN 5,000 PSI STRENGTH NON-SHRINK GROUT.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT. SEE HFX1 FOR ANCHORAGE.

INSTALLATION ON NUTS&WASHERS

4

NOTES:

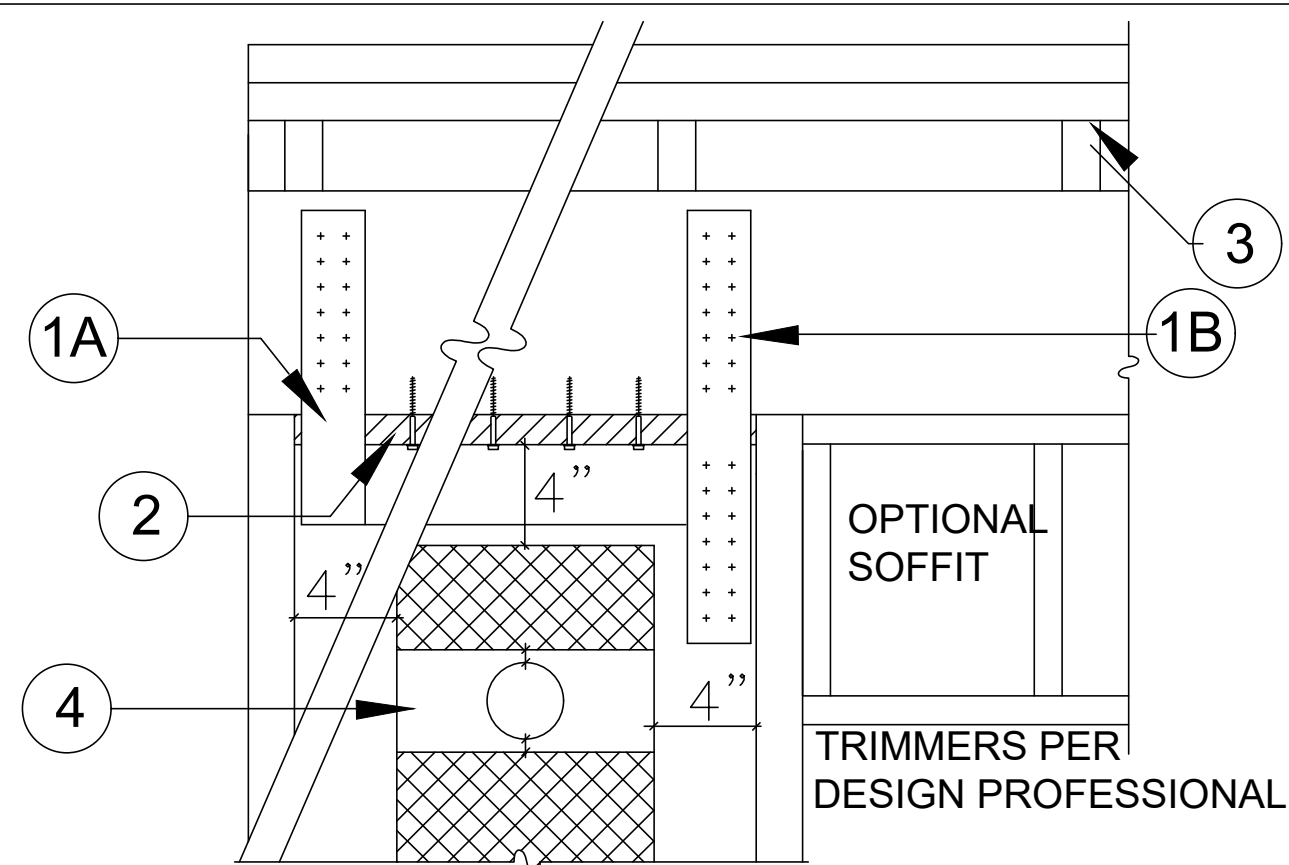
- ATTACHMENTS MAY BE MADE AT SCREW HOLES PROVIDED OR WITH SELF TAPPING SCREWS (#12 AT EDGES, #10 AT FACE).



- TRIMMERS PROVIDE FULL BEARING FOR HEADER ABOVE, DESIGN AND CONNECTIONS BY OTHERS.
- 6x HEADER.
- WOOD MEMBERS MAY BE INSERTED VERTICALLY OR HORIZONTALLY IN CAVITY FOR BACKING AS NEEDED.

6x HEADER ABOVE-SECTION

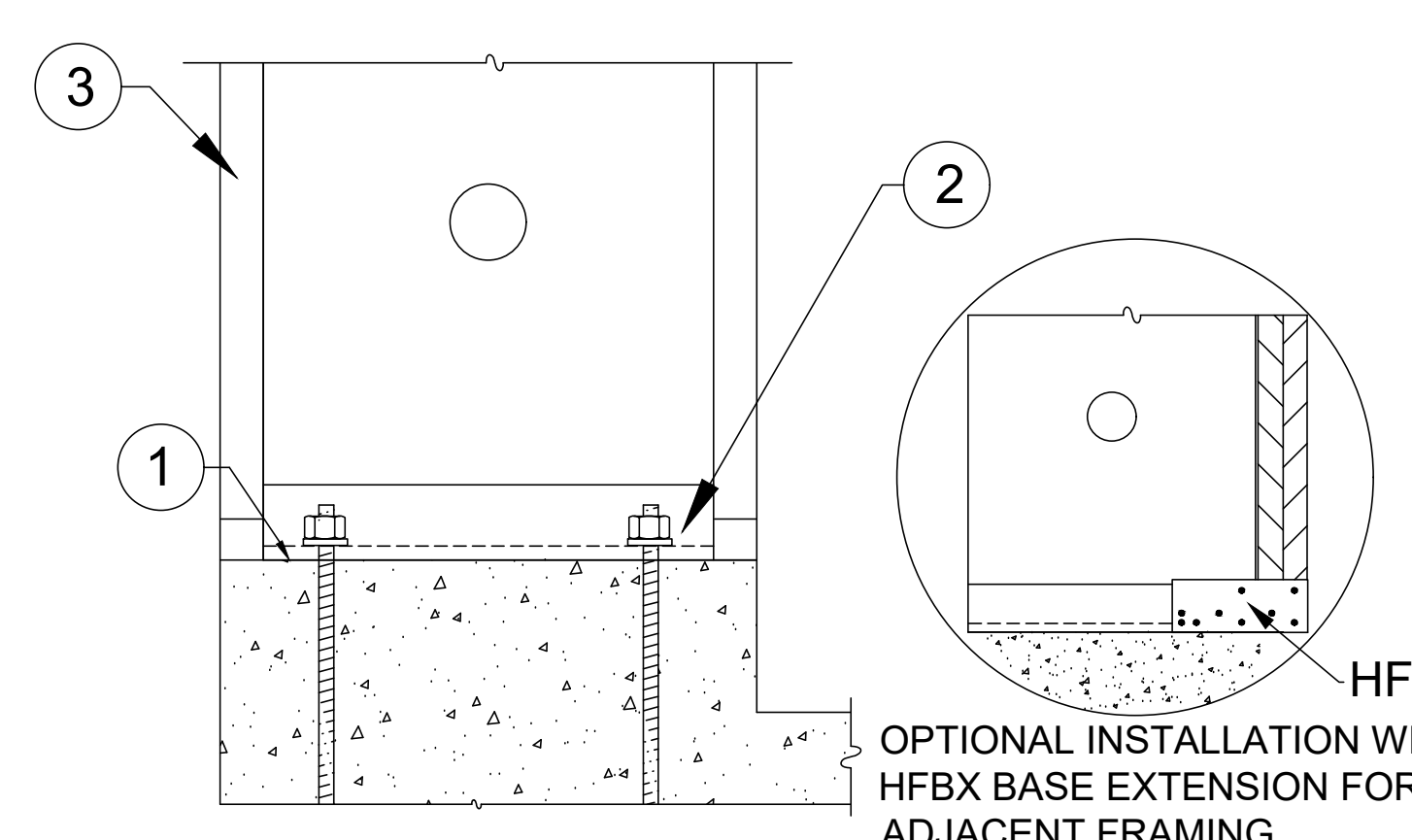
3



- WELDED STRAPS ARE AVAILABLE FROM MANUFACTURER WHEN REQUIRED BY THE DESIGN PROFESSIONAL.
- WHEN STRAPS ARE FIELD INSTALLED THE DESIGN AND CONNECTION IS BY THE DESIGN PROFESSIONAL. CONNECTION TO PANEL WITH SELF TAPPING SCREWS IS PERMITTED.
- A 2x WOOD FILLER WITH 1/4"x4-1/2" (MIN.) USP "WS" SERIES SCREWS OR EQUAL IS PERMITTED.
- WHEN CRIPPLE STUDS OCCUR, SHEAR TRANSFER DESIGN TO BE PER THE DESIGN PROFESSIONAL.
- THERE IS NO "INSIDE" OR "OUTSIDE" FACE OF PANEL. TO PREVENT THE NEED FOR ADDITIONAL HOLES ORIENT THE PANEL CAVITY TOWARD THE FIXTURE BEING INSTALLED.
- A 1" DIA. HOLE MAY BE ADDED IN THE PANEL FACE WHEN IT IS LOCATED IN THE UPPER HALF OF THE PANEL HEIGHT AND IS 4" MIN. FROM ANY EDGE. FOR PANELS MORE THAN 12" WIDE, ADDITIONAL HOLES MUST ALSO BE 1" MINIMUM ABOVE AND BELOW THE 3" DIA. HOLE PROVIDED.
- FOR HOLES LARGER THAN 1" DIA. OR TO ADD MORE THAN ONE HOLE CONTACT HARDY FRAMES, INC.

TOP CONNECTION TO HEADER

2



- 15# FELT OR EQUIVALENT MOISTURE BARRIER RECOMMENDED BETWEEN PANEL BASE AND CONCRETE.
- 1 EA. HARDENED ROUND, 2 EA. SAE OR 2 EA. ROUND-FLAT WASHERS AND 1 EA. GRADE 8 HEX NUT. SEE HFX1 FOR ANCHORAGE.
- ADJACENT FRAMING OPTIONAL U.N.O. BY BUILDING DESIGN PROFESSIONAL.

INSTALLATION ON CURB

1

HFX-SERIES 78 IN. THRU 13 FOOT

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter ¹ (in)	Top Screw Qty ² (ea)	Screw Qty Available at Edges (ea) ³
HFX-12,15,18,21 & 24x78	78	3-1/2	1-1/8	9" Width = 5	4
HFX-9x79.5	79-1/2			12" Width = 6	
HFX-12,15,18,21 & 24x8	92-1/4			15" Width = 8	
HFX-9x8	93-3/4	3-1/2	1-1/8	18" Width = 10	5
HFX-12,15,18,21 & 24x9	104-1/4			21" Width = 12	
HFX-12,15,18,21 & 24x10	116-1/4			24" Width = 14	
HFX-15,18,21 & 24x11	128-1/4	3-1/2	1-1/8	15" Width = 8	6
HFX-15,18,21 & 24x12	140-1/4			18" Width = 10	
HFX-15,18,21 & 24x13	152-1/4			21" Width = 12	
HFX-15,18,21 & 24x14	164-1/4	3-1/2	1-1/8	18" Width = 10	7
HFX-15,18,21 & 24x15	176-1/4			21" Width = 12	
HFX-15,18,21 & 24x16	188-1/4			24" Width = 14	
HFX-15,18,21 & 24x17	200-1/4	3-1/2	1-1/8	15" Width = 8	8
HFX-15,18,21 & 24x18	212-1/4			18" Width = 10	
HFX-15,18,21 & 24x19	224-1/4			21" Width = 12	
HFX-15,18,21 & 24x20	236-1/4	3-1/2	1-1/8	18" Width = 10	7
HFX-15,18,21 & 24x21	248-1/4			21" Width = 12	
HFX-15,18,21 & 24x22	260-1/4			24" Width = 14	

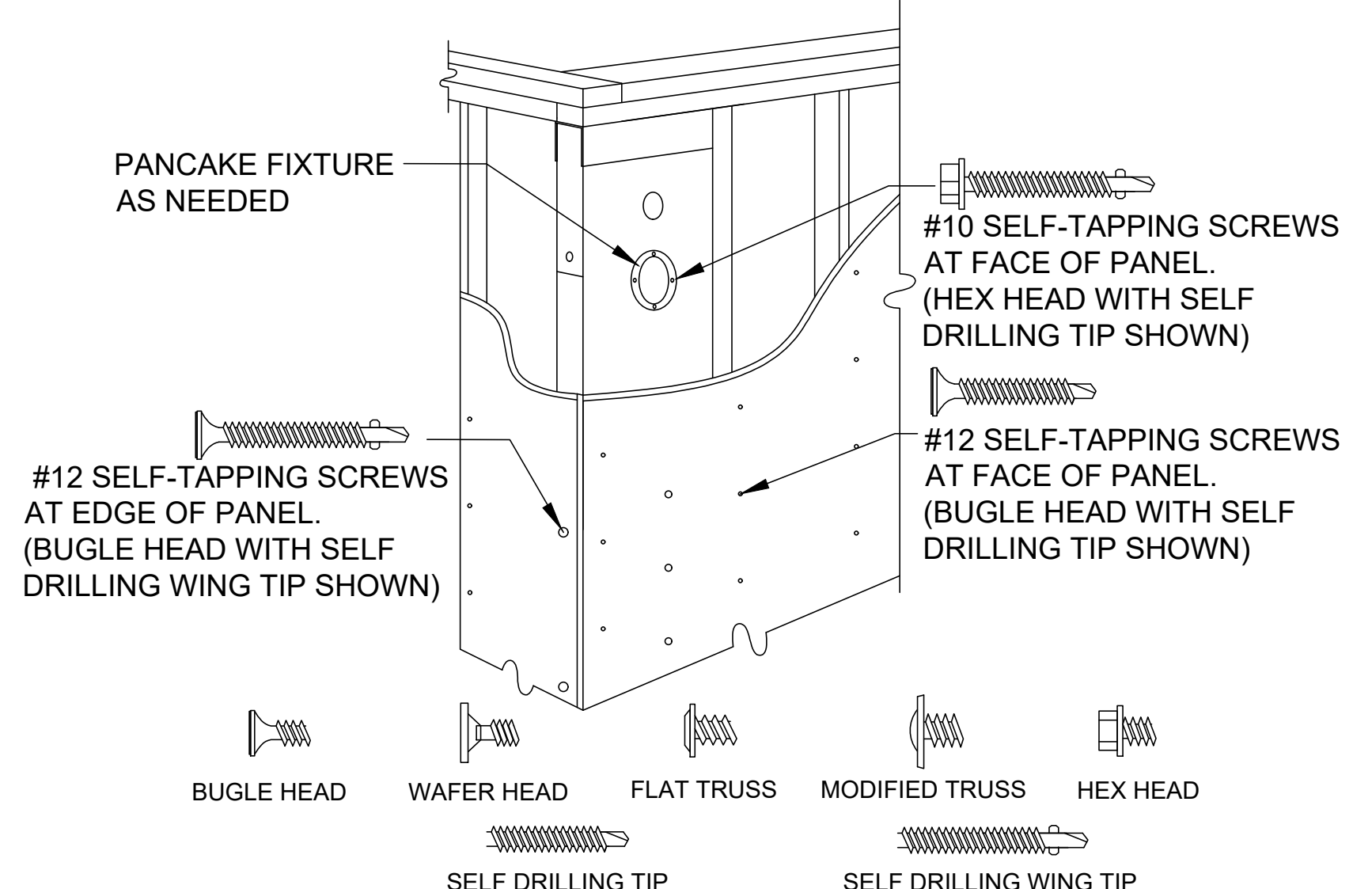
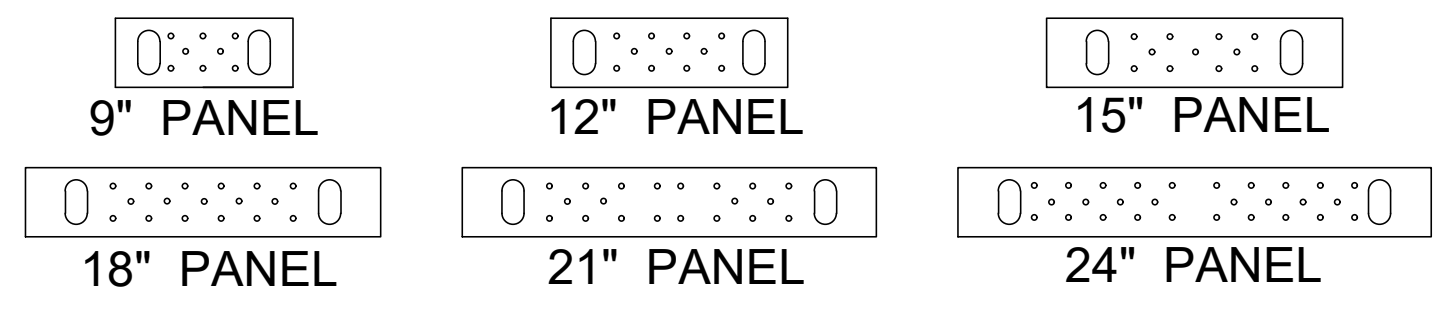
BALLOON PANELS 14 FEET THRU 20 FEET

Model Number	Net Height (in)	Depth (in)	Hold Down Diameter ¹ (in)	Top Screw Qty ² (ea)	Screw Qty Available at Edges (ea) ³
HFX-15,18,21 & 24x14	164-1/4	3-1/2	1-1/8	15" Width = 8	6
HFX-15,18,21 & 24x15	176-1/4			18" Width = 10	
HFX-15,18,21 & 24x16	188-1/4			21" Width = 12	
HFX-15,18,21 & 24x17	200-1/4	3-1/2	1-1/8	15" Width = 8	7
HFX-15,18,21 & 24x18	212-1/4			18" Width = 10	
HFX-15,18,21 & 24x19	224-1/4			21" Width = 12	
HFX-15,18,21 & 24x20	236-1/4	3-1/2	1-1/8	18" Width = 10	8
HFX-15,18,21 & 24x21	248-1/4			21" Width = 12	
HFX-15,18,21 & 24x22	260-1/4			24" Width = 14	

- Hold down bolts connect to the Panel base with (1 ea) Hardened Round, (2 ea) Round-Flat or (2 ea) SAE Washers below (1 ea) Grade 8 Hex Nut on each rod or as specified by the Building Design Professional.
- 1/4" diameter USP-WS Series screws (or equal). Length is 3" (minimum) when attached directly to the collector and 4-1/2" (minimum) when installing a 2x filler above the Panel.
- Adjacent framing with 1/4" diameter screws is required at the edges when installing a 4X filler above or when specified by the Design Professional.

INSTALLATION INSTRUCTIONS

- When installing directly on concrete, place Panel over bolts and connect with (1 ea) Hardened Round, (2 ea) Round-Flat or (2 ea) SAE Washers below (1 ea) Grade 8 or 2H Heavy Hex Nut. Secure with a deep socket (recommended) until "Snug Tight".
- If bottom connection is not detailed on plans, confirm with Design Professional before installing on Nuts & Washers or on a Mud sill.
- Use 1/4"x4-1/2" USP-WS Series screws (or equal) at top connections with a 2x filler. If the top of Panel is in direct contact with the collector above (top plates, header, beam, etc.) use 1/4 x 3" (minimum)
- For installations with a 4x filler above 1/4" diameter screws are required at the Panel edges to brace for the out-of-plane hinge or when they are specified by the Design Professional.



- NOTES:
- SURFACE FINISHES, CONNECTORS AND FIXTURES ARE ATTACHED TO THE PANEL FACE WITH # 10 SELF-TAPPING SCREWS SPACED NO LESS THAN 2-1/4" OC.
 - ATTACHMENTS TO THE PANEL EDGES ARE MADE WITH # 12 SELF-TAPPING SCREWS.
 - STRUCTURAL CONNECTIONS ARE TO BE DESIGNED BY THE DESIGN PROFESSIONAL.
 - STRUCTURAL HARDWARE USED TO TRANSFER LOADS SHOULD NOT EXCEED 12 GAGE.

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