

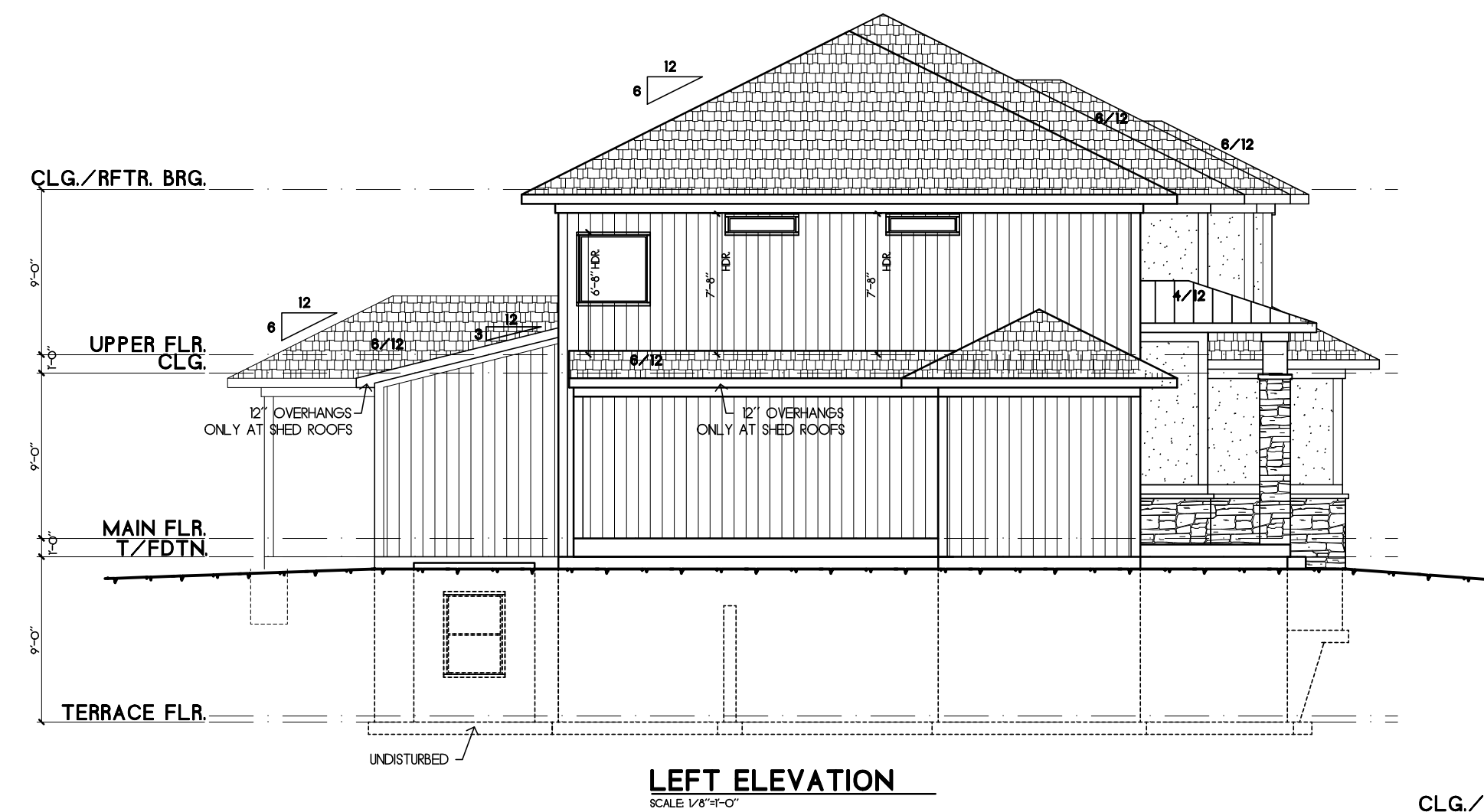
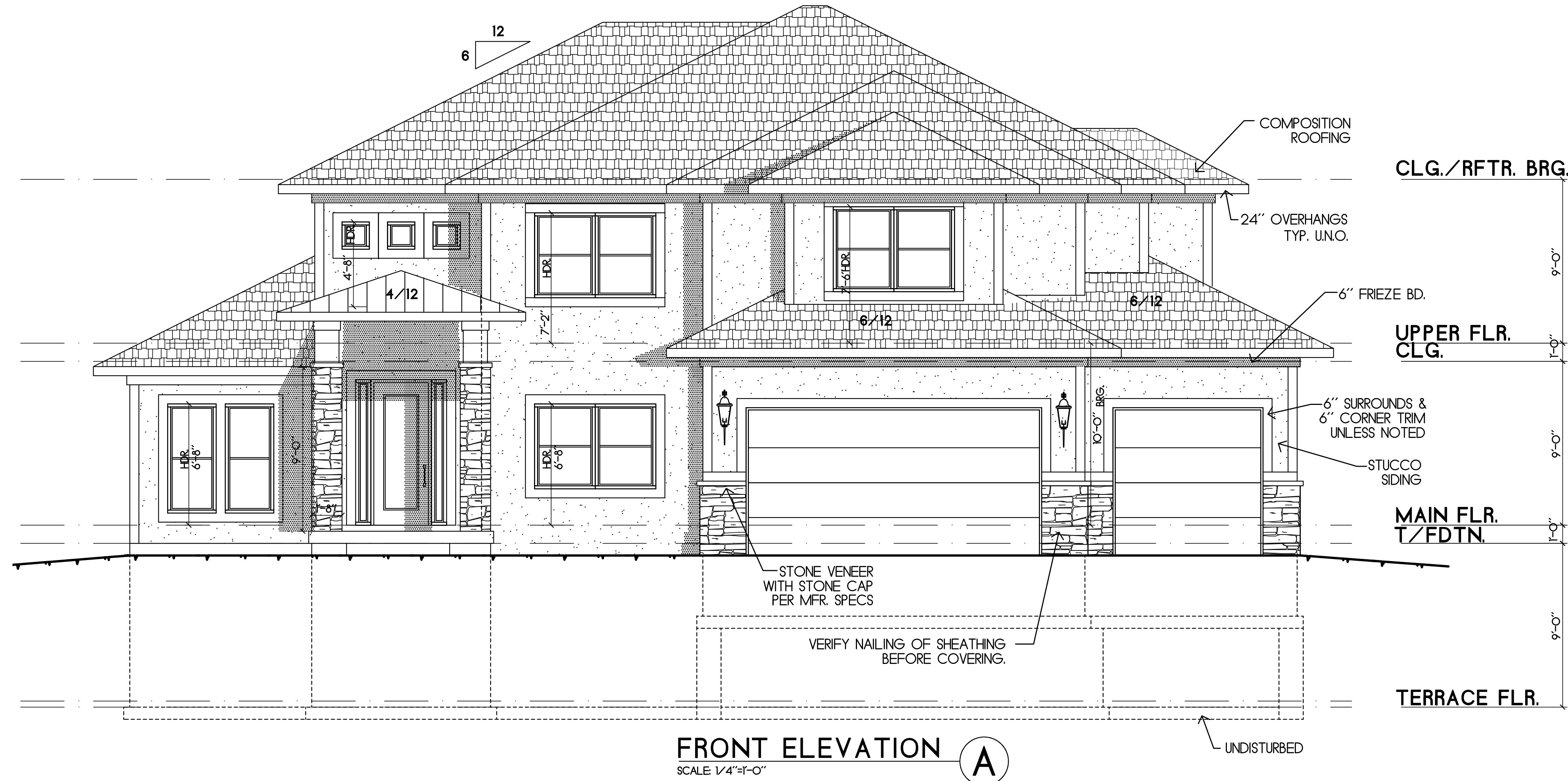
ROOF AND SOFFIT VENTS PER CODE
 VERIFY WALL BEARING HEIGHTS AND WINDOW HEADERS IN BOTH PLAN AND ELEVATION !

DRAWN BY: TPM
 CHECKED BY: TPM
 DATE: 12/14/2024
 SCALE: AS NOTED
 FILE NAME:
 HFR204-Dearbom-Missouri

SQUARE FOOTAGE SUMMARY:	
MAIN FLOOR FINISH	1412 SF
UPPER FLOOR FINISH	1640 SF
LOWER FLOOR FINISH	0 SF
LOWER FLOOR SLAB	1280 SF
GARAGE SLAB	920 SF
FRONT PORCH	242 SF
BACK PATIO	189 SF

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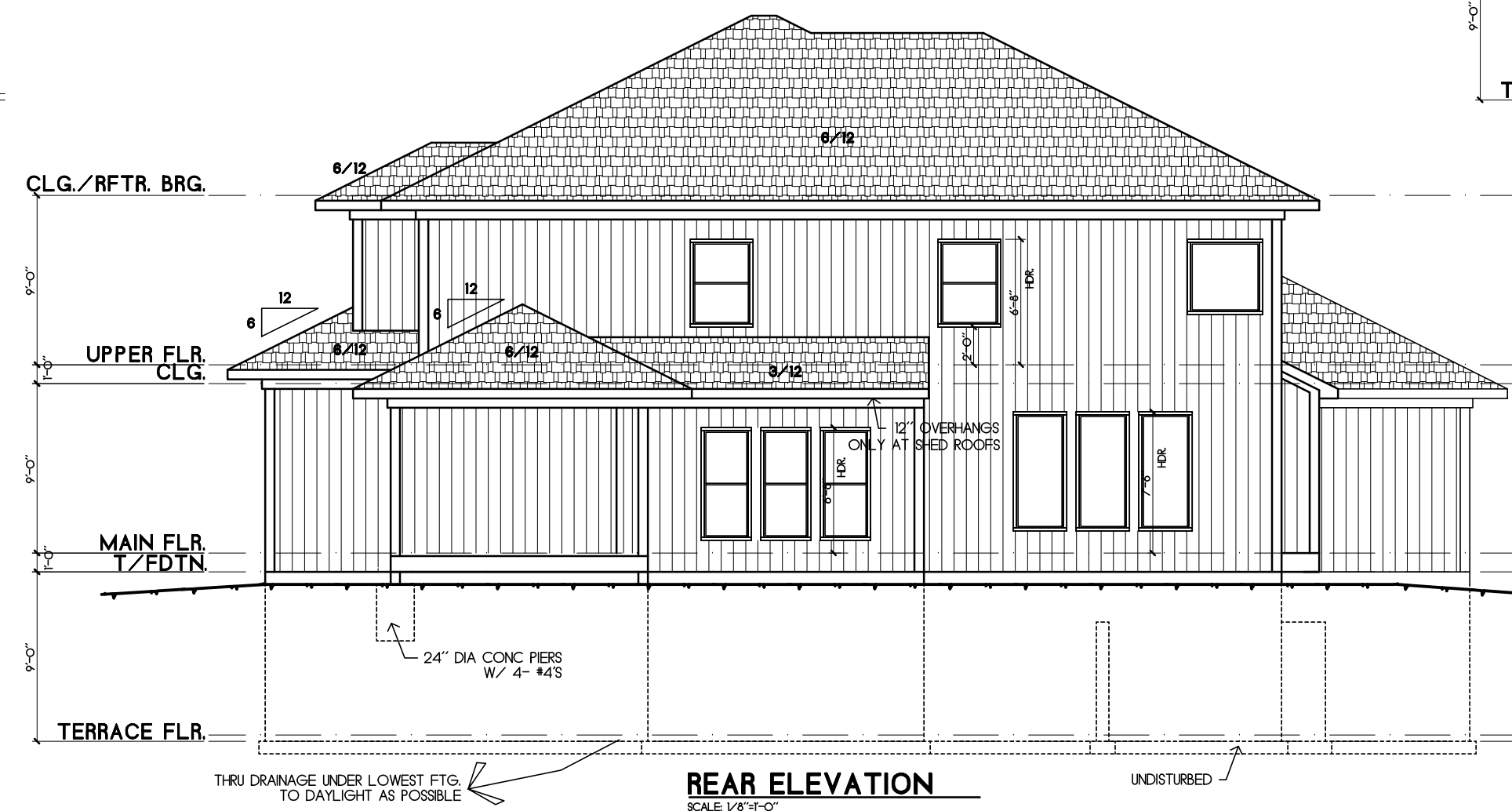
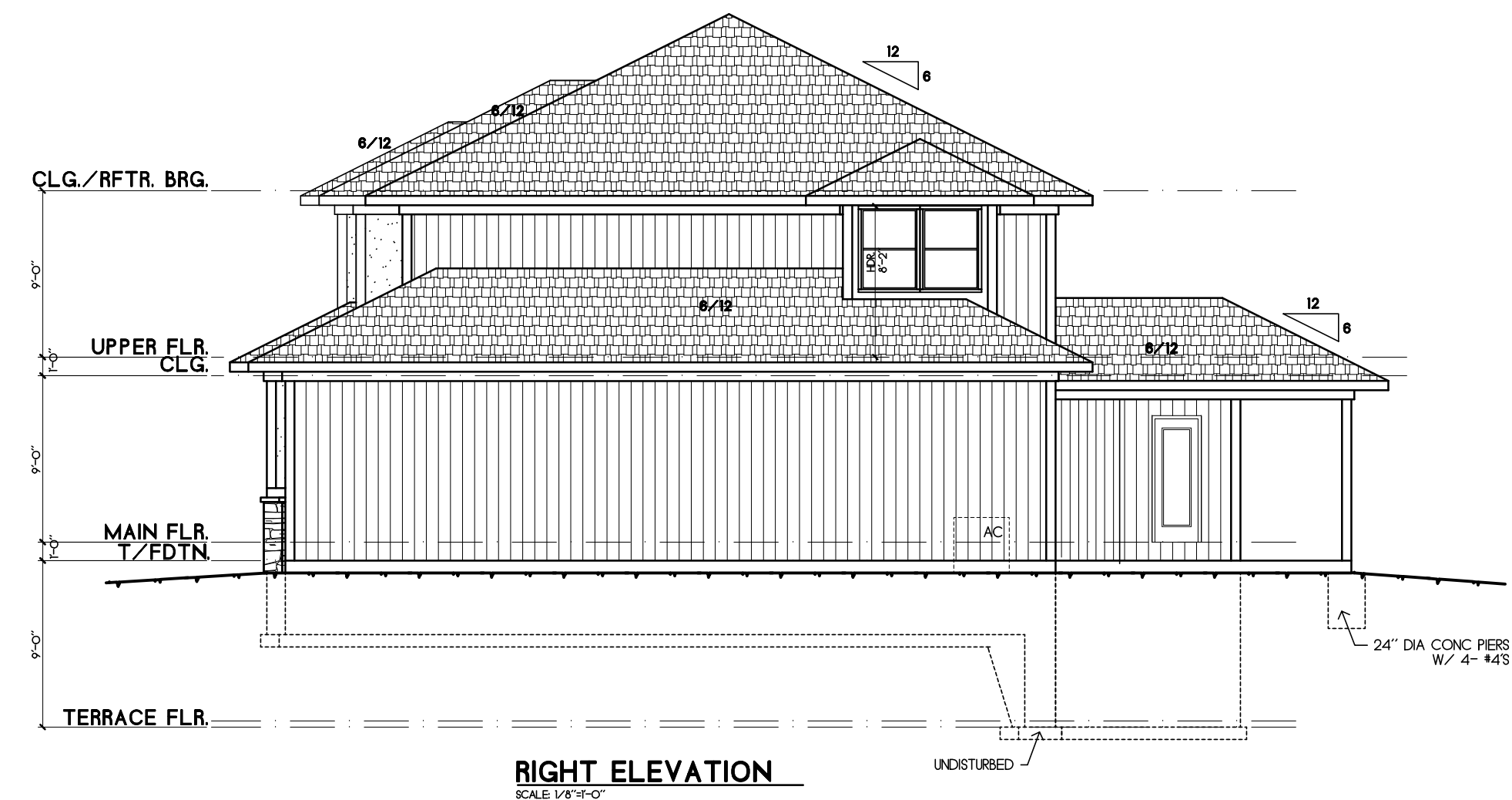
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VERIFY WALL BEARING HEIGHTS AND WINDOW HEADERS IN BOTH PLAN AND ELEVATION !

ELEVATION SET (A)

ROOF AND SOFFIT VENTS PER CODE



RELEASE FOR CONSTRUCTION
 AS NOTED FOR PLAN REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 01/09/2025



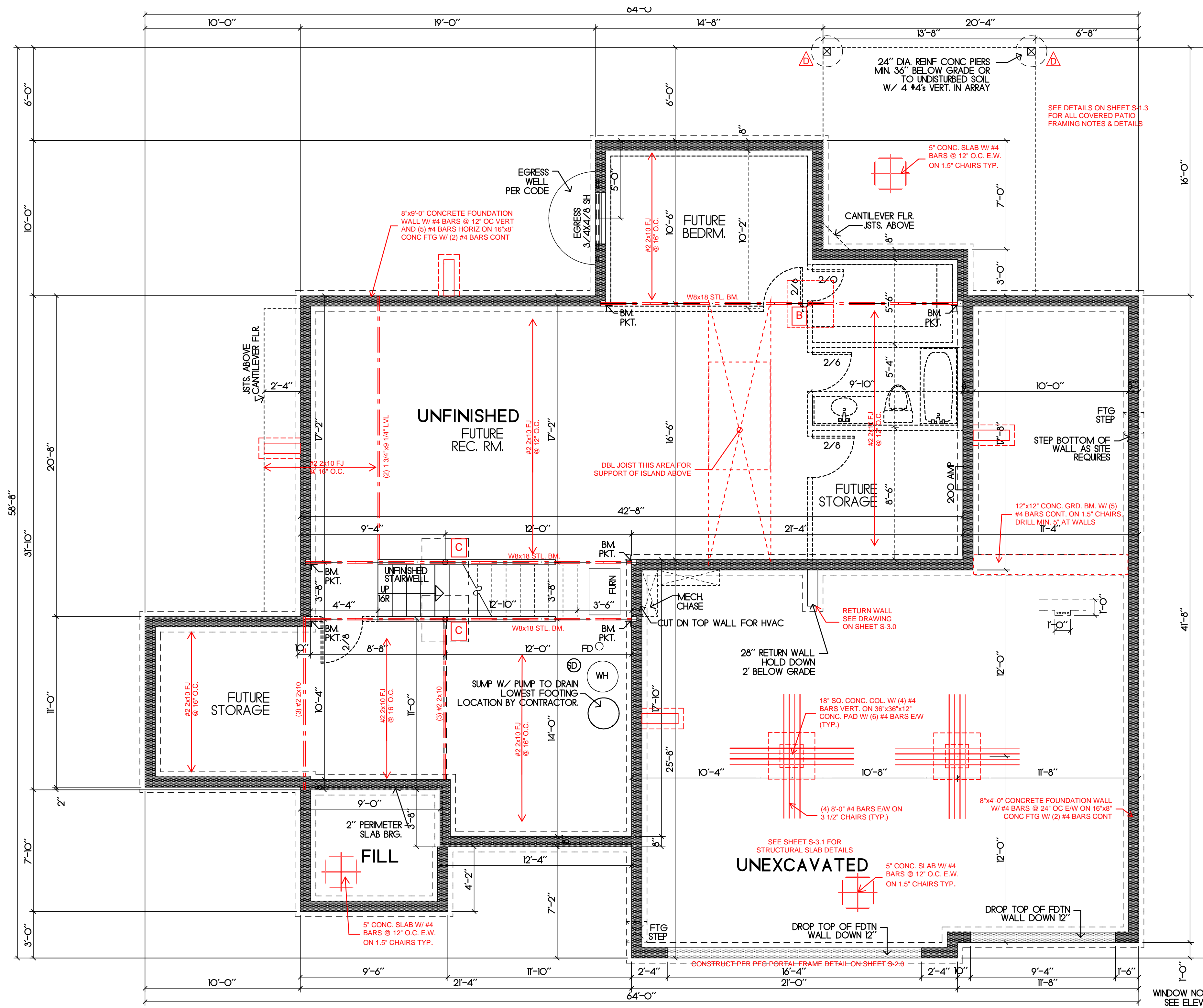
SAB CONSTRUCTION, LLC.
 DEARBORN - MIAN - HFR204
 LEE'S SUMMIT, MO
 2221 SW Crown Dr, Lee's Summit, MO 64082
 STRUCTURAL DETAILS & NOTES

HD#: 48740
 DATE: 12/18/2024
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NO.	ISSUE/REVISION	Revision Date

PLANS DRAWN BY OTHERS

S-0.1



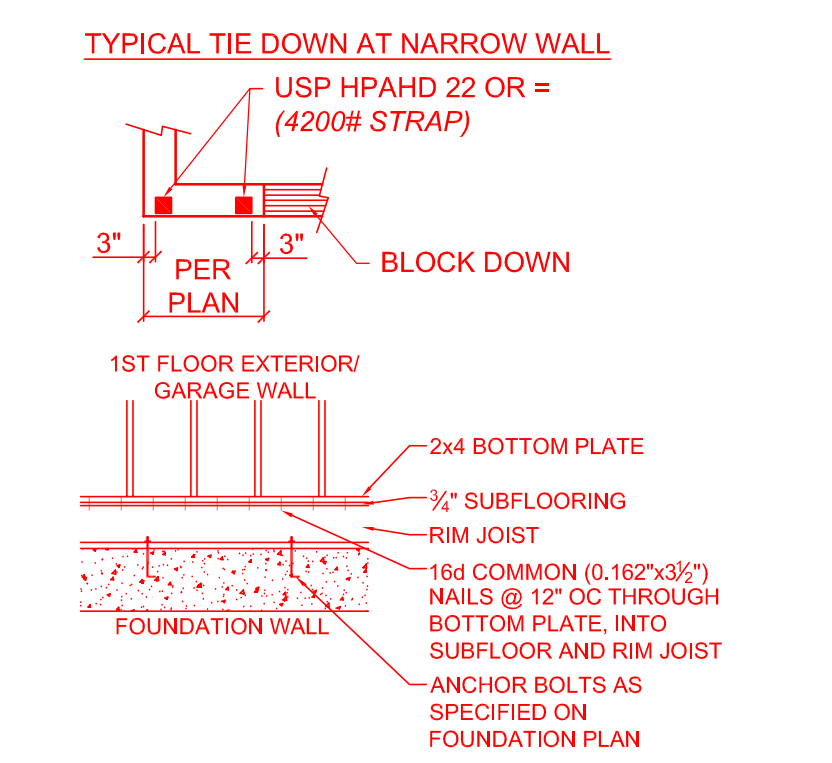
- DECK PIER SCHEDULE**
- MIN. 6x6 TRTD/CDR POST ON 12" CONC PIER WITH USP PAU 66 BASE OR = (1177# MAX)
 - MIN. 6x6 TRTD/CDR POST ON 16" CONC PIER WITH USP PAU 66 BASE OR = (2059# MAX)
 - MIN. 6x6 TRTD/CDR POST ON 18" CONC PIER WITH USP PAU 66 BASE OR = (2649# MAX)
 - MIN. 6x6 TRTD/CDR POST ON 24" CONC PIER WITH USP PAU 66 BASE OR = (4710# MAX)
- COLUMN PAD SCHEDULE**
- A 3" SCH. 40 STL. COL. ON 30"x30"x12" CONC. PAD W/ (6) #4 BARS E.W. (9.4K MAX.)
 - B 3" SCH. 40 STL. COL. ON 36"x36"x12" CONC. PAD W/ (6) #4 BARS E.W. (13.5K MAX.)
 - C 3 1/2" SCH. 40 STL. COL. ON 42"x42"x14" CONC. PAD W/ (7) #4 BARS E.W. (18.4K MAX.)
 - D 3 1/2" SCH. 40 STL. COL. ON 48"x48"x16" CONC. PAD W/ (8) #4 BARS E.W. (24K MAX.)
 - E 3 1/2" SCH. 40 STL. COL. ON 54"x54"x18" CONC. PAD W/ (9) #4 BARS E.W. (30.4K MAX.)
 - F 3 1/2" SCH. 40 STL. COL. ON 60"x60"x18" CONC. PAD W/ (10) #4 BARS E.W. (37.5K MAX.)

GENERAL NOTES:

- COLUMN AND PIER PAD SIZES SHOWN ARE FOR MAX. COLUMN HEIGHT OF 10'-0" TALL.
- COLUMN AND PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED 1500 PSF. THIS IS THE CAPACITY REQUIRED BY A.H.J. UNDERLINED GENERAL NOTES ON S-1.0 FOR MORE DETAILS.
- ALL STEEL COLUMNS SHALL BE ISOLATED FROM SLABS WITH APPROVED ISOLATION DEVICE OR JOINT.

WINDOW NOTES:

- WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4
- HOUSE WILL BE PROVIDED WITH A "UFER" GROUND PER IRC SECTION 3608.1.5
- OVERHEAD GARAGE DOORS MUST MEET DASHA REQUIREMENTS SEE DETAIL SHEET S-1.0
- ALL HEADERS NOT LABELED SHALL BE MIN (2) #2x10 DFL
- DBL ALL JST UNDER ISLAND
- SOILS IN THIS AREA COMMONLY HAVE A VERY HIGH SHRINK SWELL CAPACITY. OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY A GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF FOUNDATIONS
- PROVIDE CARBON MONOXIDE AND SMOKE DETECTORS PER IRC REQUIREMENTS
- ANY PORTION OF THESE PRINTS ISSUED WITHOUT A MIN. OF S-1.0 S-4.0 SHALL NOT BE CONSIDERED A COMPLETE SET OF CONSTRUCTION DOCUMENTS
- INSTALL W8x18 STEEL BEAM MIN. UNDER ALL F.P. WALLS/HEARTHES (THAT WILL RECEIVE ROCK) UNLESS NOTED AS A LARGER BEAM. ANY STONE OVER 2" DEEP, NOTIFY ENG. TO VERIFY LOADS
- FOUNDATION SHALL BE CONSTRUCTED PER JOHNSON COUNTY RESIDENTIAL FOUNDATION GUIDELINE. SEE ATTACHED ICE AND WATER SHIELD AS REQUIRED PER IRC



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

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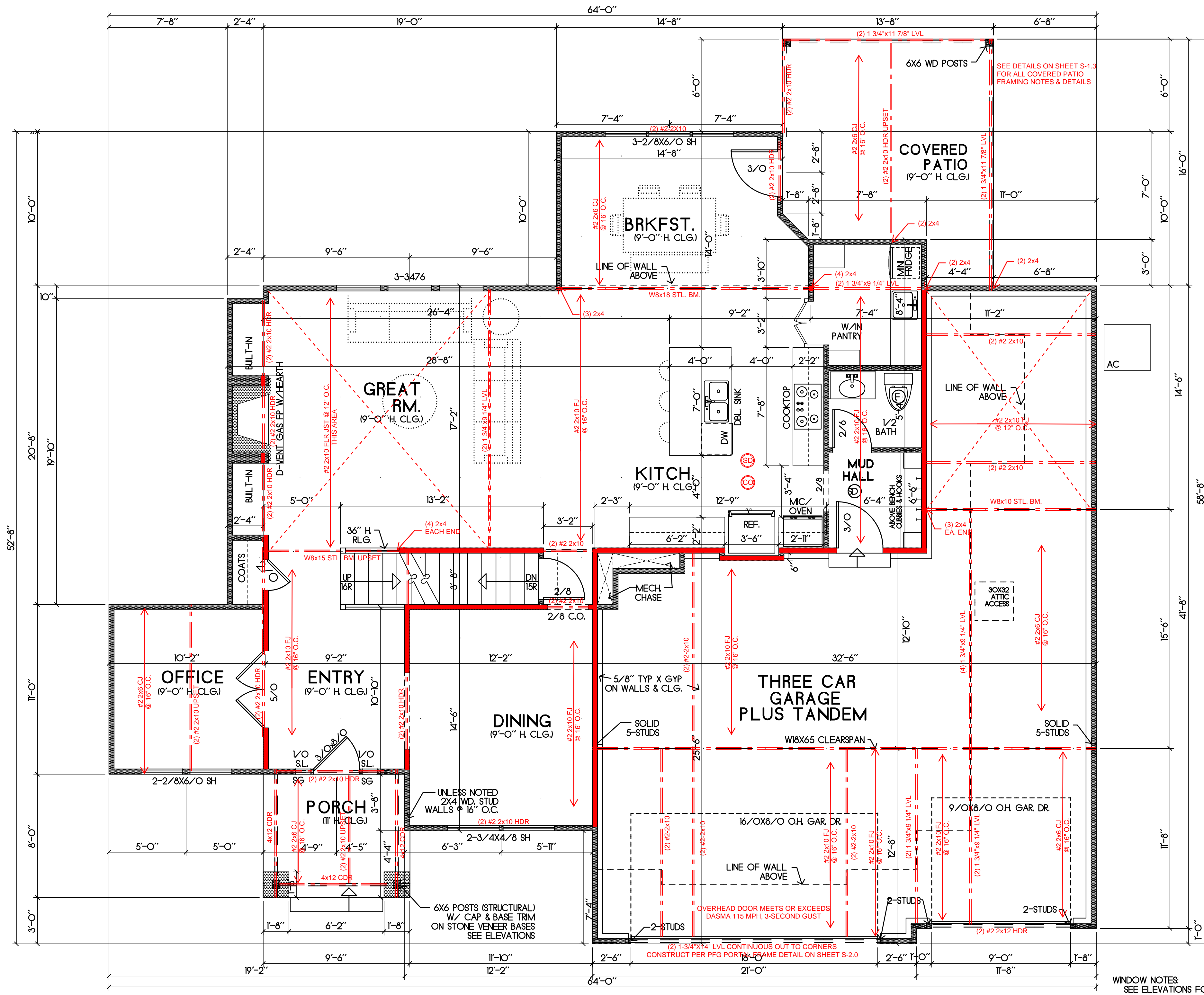
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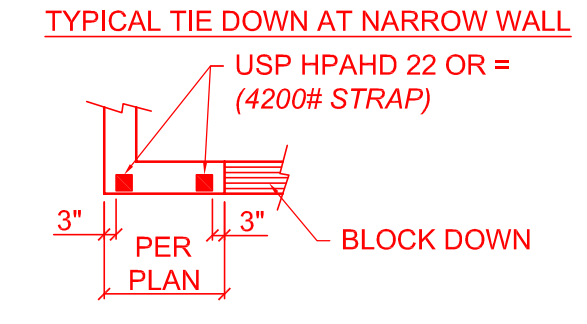
PLANS DRAWN BY OTHERS

S-0.2



- - LOAD BEARING WALL
- - - - - - LOAD BEARING BEAM
- SD - SMOKE DETECTOR
- CO - CARBON MONOXIDE SENSOR

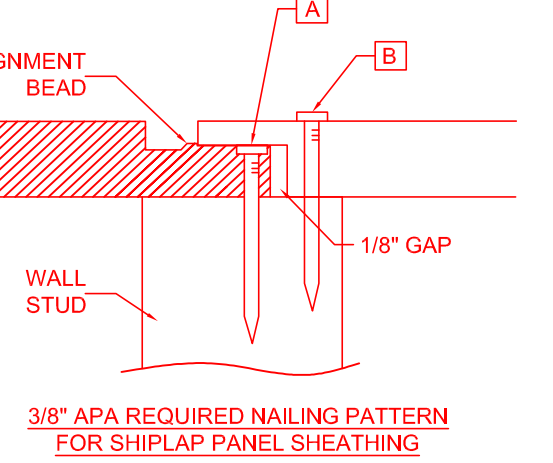
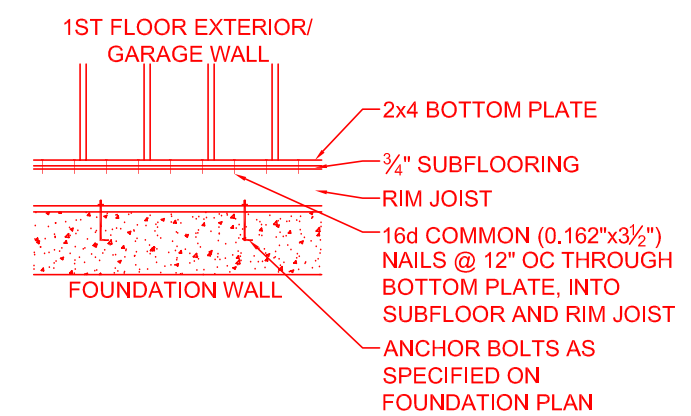
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 - HOUSE WILL BE PROVIDED WITH A "UFER" GROUND PER IRC SECTION 3608.1.5
 - OVERHEAD GARAGE DOORS MUST MEET DASMA REQUIREMENTS SEE DETAIL SHEET S-1.0
 - ALL HEADERS NOT LABELED SHALL BE MIN (2) #2-2X10 DFL
 - DBL ALL 1ST UNDER ISLAND
 - SOLS IN THIS AREA COMMONLY HAVE A VERY HIGH SHRINK SWELL CAPACITY, OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY A GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF FOUNDATIONS
 - PROVIDE CARBON MONOXIDE AND SMOKE DETECTORS PER IRC REQUIREMENTS
 - ANY PORTION OF THESE PRINTS ISSUED WITHOUT A MIN. OF S-1.0-S-4.0 SHALL NOT BE CONSIDERED A COMPLETE SET OF CONSTRUCTION DOCUMENTS
 - FOUNDATION SHALL BE CONSTRUCTED PER JOHNSON COUNTY RESIDENTIAL FOUNDATION GUIDELINE. SEE ATTACHED ICE AND WATER SHIELD AS REQUIRED PER IRC



BRACED WALLS:
 SEE CALCULATIONS ON SHEET S-2.0, PER ASC7-16 REQUIREMENTS AS ALLOWED BY IRC 2018 R301.1.3

ALL EXTERIOR WALLS SHALL BE SHEATHED PER ANY ONE OF THE FOLLOWING OPTIONS:
 - 7/16" APA-RATED PLYWOOD/OSB WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD
 - 7/16" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD
 - 3/8" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 8d NAILS @ 4" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD

INTERIOR BRACED WALL LOCATIONS ONLY SHOWN WHEN REQUIRED BY ADDITIONAL BRACING SECTION OF CALCULATIONS ON SHEET S-2.0



NAILING WITH SPACING AS SPECIFIED PER PLAN. FOR EXAMPLE, IF REQUIRED SPACING IS 4" O.C., BOTTOM LAP SHALL FIRST BE NAILED AT 4" O.C. (NAIL "A"), THEN FULL DEPTH SECTION OF OVERLAP PANEL SHALL BE NAILED @ 4" O.C. (NAIL "B")

WINDOW NOTES:
 SEE ELEVATIONS FOR HDR. HTS

MAIN FLOOR PLAN
 SCALE: 1/4"=1'-0" AREA= 1,412 SF

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 STRUCTURAL DETAILS & NOTES

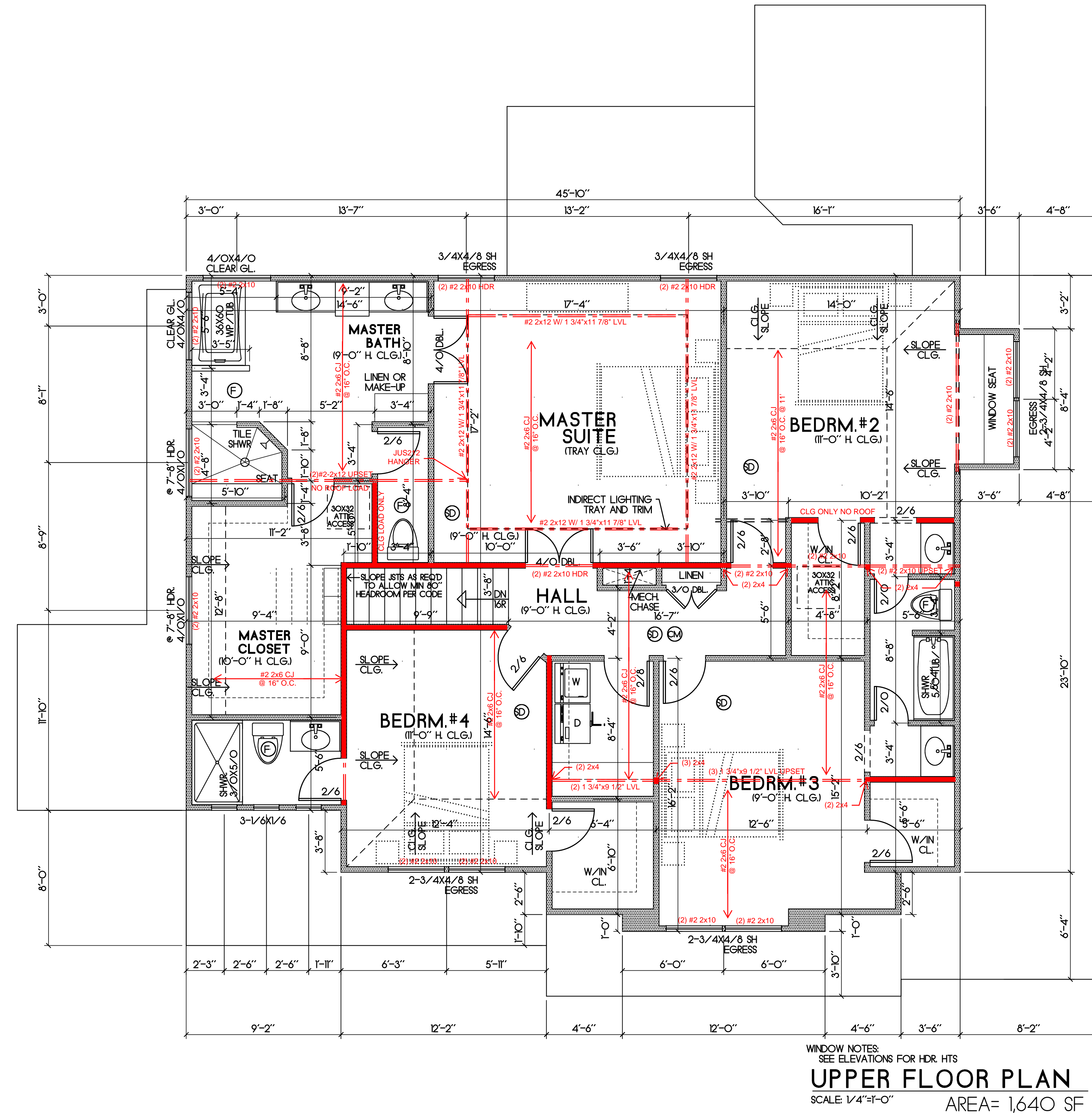
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PLANS DRAWN BY OTHERS

S-0.3

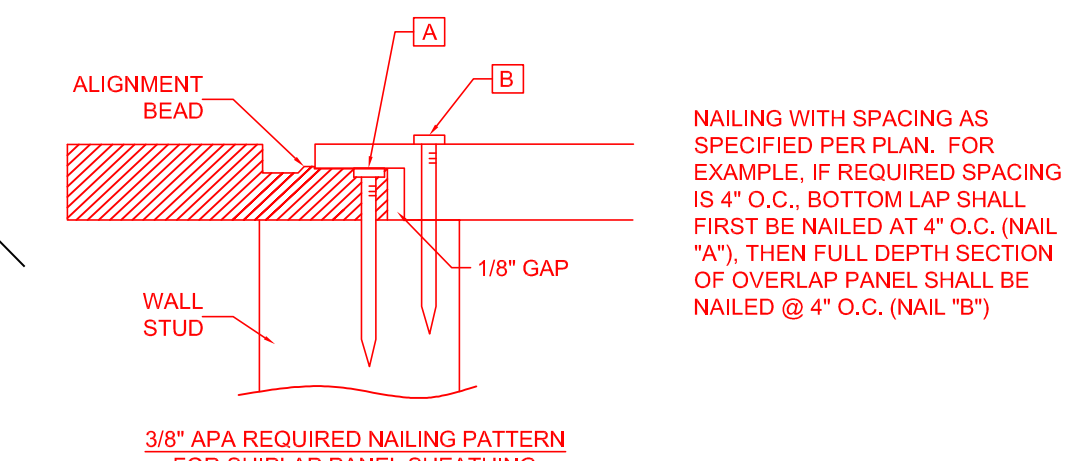
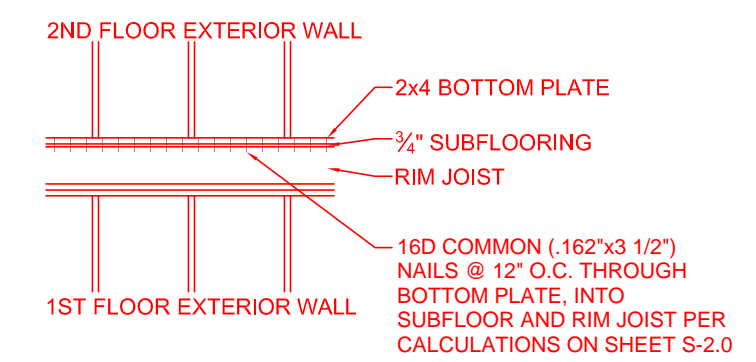
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 RELEASE FOR CONSTRUCTION
 AS NOTED FOR PLAN REVIEW
 DEVELOPMENT SERVICES
 LEE'S SUMMIT, MISSOURI
 01/09/2025



- - LOAD BEARING WALL
- - - - LOAD BEARING BEAM
- Ⓢ - SMOKE DETECTOR
- Ⓢ - CARBON MONOXIDE SENSOR

GENERAL NOTES:
 - WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4
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 SEE CALCULATIONS ON SHEET S-2.0, PER ASC7-16 REQUIREMENTS AS ALLOWED BY IRC 2018 R301.1.3
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 - 7/16" APA-RATED PLYWOOD OSB WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD
 - 7/16" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD
 - 3/8" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 6d NAILS @ 4" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD
 INTERIOR BRACED WALL LOCATIONS ONLY SHOWN WHEN REQUIRED BY ADDITIONAL BRACING SECTION OF CALCULATIONS ON SHEET S-2.0



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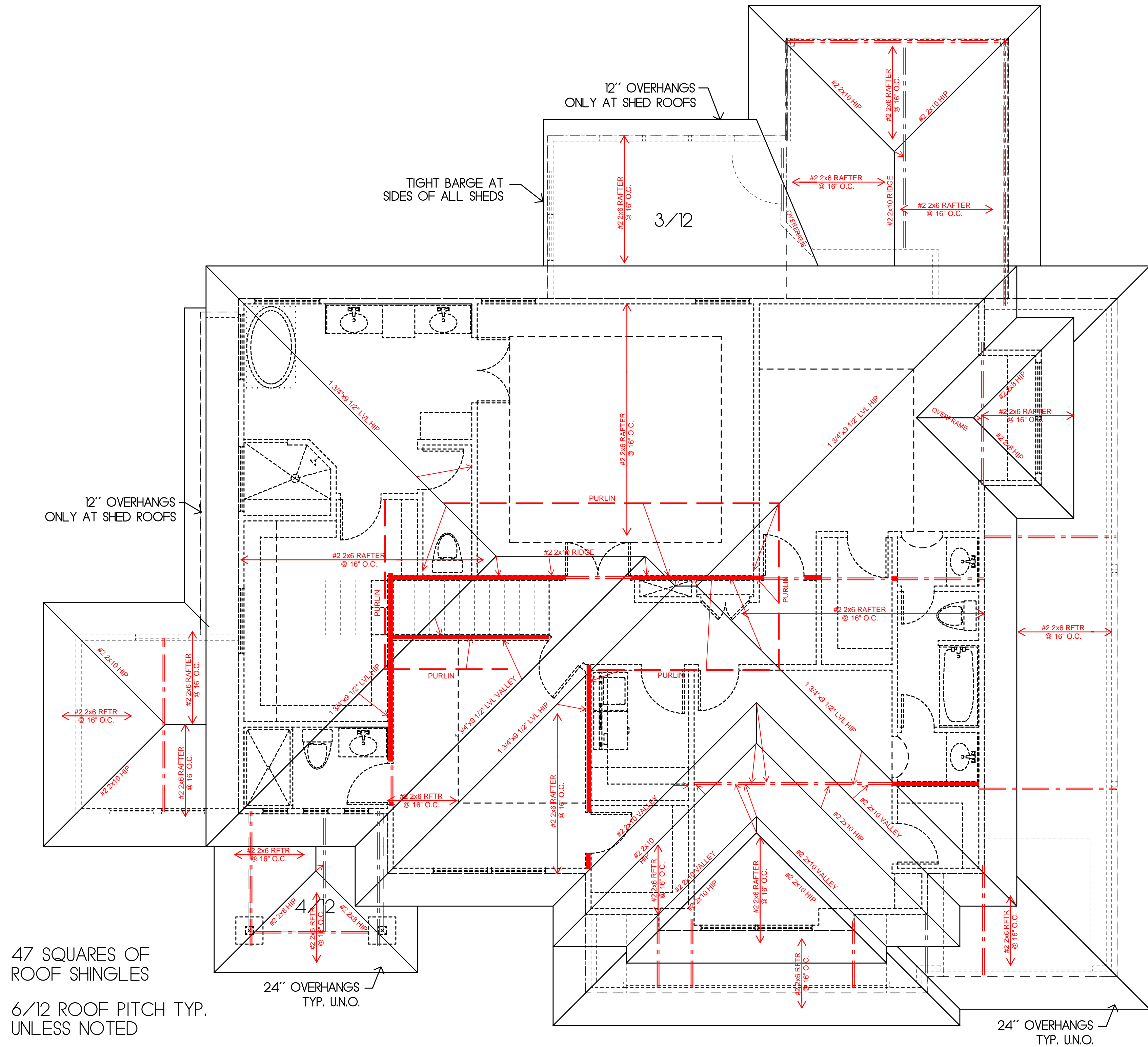
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PLANS DRAWN BY OTHERS

S-0.4



47 SQUARES OF ROOF SHINGLES
6/12 ROOF PITCH TYP. UNLESS NOTED

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

NOTES
ROOF DESIGNED FOR LIGHT ROOF COVERING 30PSF
TOTAL LOAD (10PSF DL, 20PSF LL (SL))

RAFTERS (DOUG-FIR, OR EQUAL):
SEE SPAN CHARTS BELOW

CODE MINIMUM	RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
	#2-2x6	@24" O.C.	11'-11"
	#2-2x6	@16" O.C.	14'-1"
	#2-2x8	@24" O.C.	15'-1"
	#2-2x8	@16" O.C.	18'-5"
	#2-2x10	@24" O.C.	18'-5"
	#2-2x10	@16" O.C.	22'-6"

NOTE: CODE MINIMUM L/240 DEFLECTION

GREATER THAN CODE	RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
	#2-2x6	@24" O.C.	8'-4"
	#2-2x6	@16" O.C.	9'-9"
	#2-2x8	@24" O.C.	11'-3"
	#2-2x8	@16" O.C.	12'-9"
	#2-2x10	@24" O.C.	14'-3"
	#2-2x10	@16" O.C.	16'-3"

DEFLECTION = L/360 LIVE LOAD, L/240 TOTAL LOAD
VAULTS TO BE 2x10 DEPTH

ALL RIDGES, HIP, AND VALLEYS NOT MARKED SHALL BE (1) NOMINAL SIZE LARGER THAN THE INTERSECTING RAFTERS

PURLINS ARE 2x6 MIN.
PURLIN STRUTS ARE AT 4'-0" O.C.
PURLIN STRUTS SHALL BE INSTALLED AT NOT LESS THAN A 45 DEGREE ANGLE WITH THE HORIZONTAL
ALL PURLIN STRUTS SHALL HAVE A MAXIMUM UNBRACED LENGTH OF 8'-0"
PURLIN STRUTS SHALL BE CONSTRUCTED IN A "T" CONFIGURATION AND PER THE FOLLOWING CHART

PURLIN STRUT	MAX PURLIN STRUT LENGTH
(2) 2x4	8'-4"
(1) 2x4 & (1) 2x6	12'-0"
(1) 2x6 & (1) 2x8	20'-0"
(2) 2x6 & (1) 2x8	30'-0"
CONSULT ARCH/ENGR.	>30'-0"

EACH END OF STRUT SHALL BE FASTENED WITH MIN. (3) 8d OR (2) 16d NAILS
RIDGE BRACES ARE SAME AS PURLIN BRACES: SPACING, SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTE ABOVE)
HIP AND VALLEY BRACES ARE THE SAME AS PURLINS SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

SEE DETAILS 1, 5, 6, 7, 11, 12, 13, & 14 ON S-1.2 FOR ROOF FRAMING AND INSULATION OPTIONS

- PURLIN
- LOAD BEARING WALL
- LOAD BEARING BEAM/ GIRDER PER PLAN

SEE DETAIL 12/S-1.2 FOR RAFTER TIE CONNECTION FOR CLG JOISTS PERPENDICULAR TO HIP RAFTERS

ALL RIDGES, HIP, & VALLEYS SHALL BE FASTENED TO EXTERIOR WALLS, BEAMS, OR LOAD BEARING WALL TOP PLATE PER FRAME FASTENING SCHEDULE ON S-1.0, AND PER R802.11, ALL UPLIFT OVER 200# SHALL BE FASTENED AS SHOWN ON THIS PLAN SHEET

ALL RAFTERS SHALL BE FASTENED TO TOP PLATE WITH (3) 10d COMMON NAILS

IF ADDITIONAL HOLD DOWN STRAP REQUIRED: X=UPLIFT FORCE (POUNDS), REQUIRED SIMPSON HOLD-DOWN

SIMPSON STRAP FASTENED TO STRUCTURAL HIP, VALLEY, OR RIDGE AND STRUT SUPPORT. MUST ALSO STRAP BOTTOM END OF STRUT TO BEAM/WALL BELOW WITH SAME SIZE STRAP

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PLANS DRAWN BY OTHERS

S-0.5

TABLE R602.3(1) FASTENING SCHEDULE

Table with columns: ITEM, DESCRIPTION OF BUILDING ELEMENTS, NUMBER AND TYPE OF FASTENER, SPACING AND LOCATION. Rows are categorized by ROOF and WALL.

CONTINUED TABLE R602.3(1) FASTENING SCHEDULE

Continuation of the fastening schedule table, covering items 30 through 39, detailing descriptions and fastener specifications for wood structural panels and sheathing.

TABLE R602.3(2) ALTERNATE ATTACHMENTS TO TABLE R602.3(1)

Table with columns: NOMINAL MATERIAL THICKNESS, DESCRIPTION OF FASTENER AND LENGTH, SPACING OF FASTENERS. Provides alternative fastener and spacing options for various building elements.

DESIGN LOADS (PSF)

THE DWELLING SHALL COMPLY WITH THE FOLLOWING LOAD CONDITIONS

Table with columns: AREA, MIN. DEAD LOAD, MIN. LIVE LOAD. Lists design loads for various areas like balconies, stairs, ceilings, rooms, and roof.

HEAVY ROOF COVERING MATERIAL (TILE, CONCRETE, SLATE, ETC.) SHALL NOT BE USED UNLESS 20 PSF DEAD LOAD AND HEAVY ROOF IS NOTED ON THE ROOF PLAN...

COLUMN SCHEDULE

BASED ON FOOTING SIZE (ASSUME 1500 PSF SOIL)

Table with columns: PAD SIZE, REINFORCEMENT, COL. MIN., COL. TYPE, MAX. LOAD. Lists reinforcement details for columns of different pad sizes.

COLUMN CONNECTION TO STEEL BEAMS SHALL BE WITH A CLIP POST CAP WITH ALL FOUR TAB EARS BENT AROUND THE BOTTOM FLANGE OF THE BEAM...

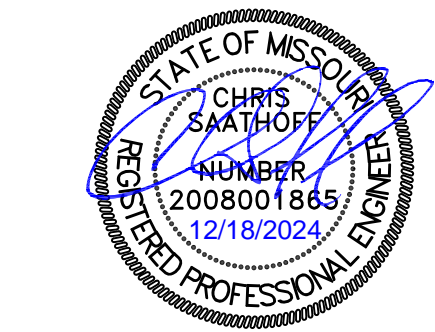
ENGINEERED LUMBER

MIN. DESIGN REQUIREMENTS

Table with columns: FLOOR UNDERLAYMENT, PLYWOOD-HARDBOARD-PARTICLEBOARD-FIBER-CEMENT. Lists material specifications and minimum design requirements.

BUILDER'S PLANS: THE TERM "BUILDER'S PLANS" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS. AS THE NAME IMPLIES, THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION...

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SAB CONSTRUCTION, LLC. logo and contact information including address and phone number.

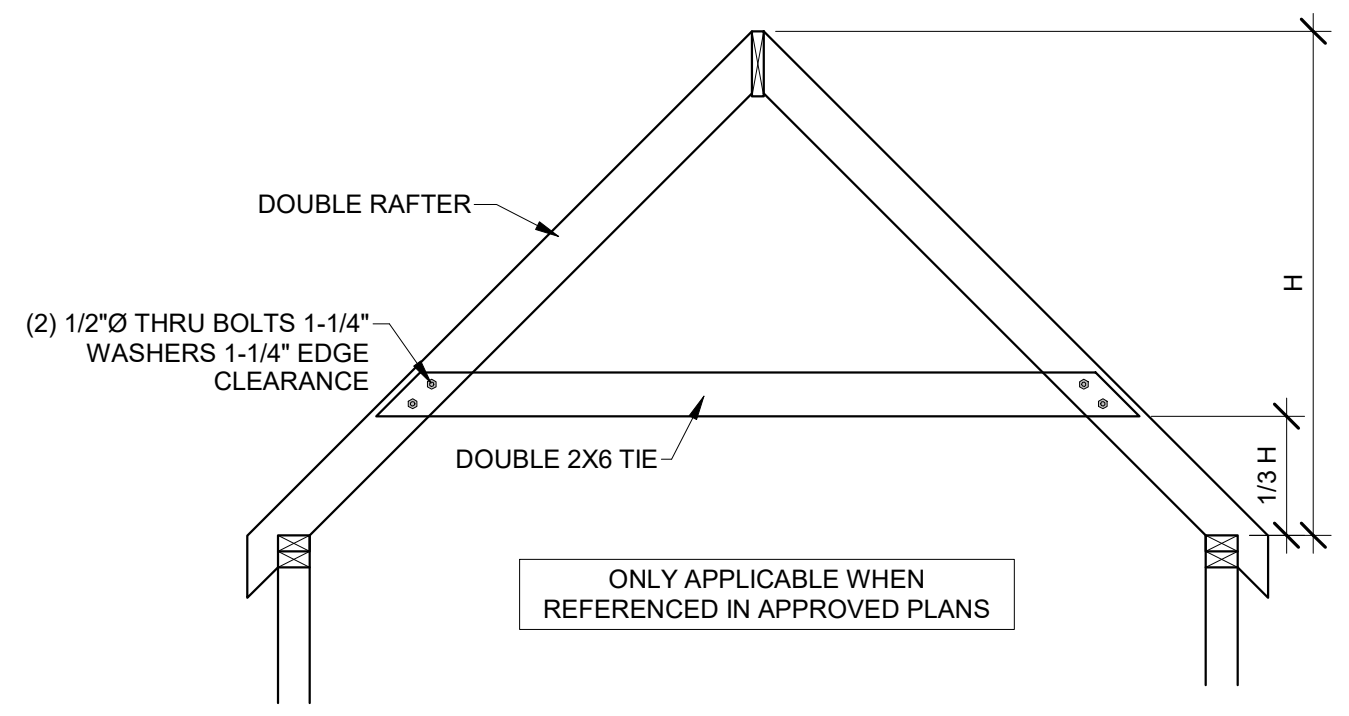
HD#: 48740 DATE: 12/18/2024 CHECKED BY: CLS

Table with columns: NO., ISSUE/REVISION, Revision Date. A grid for tracking revisions to the document.

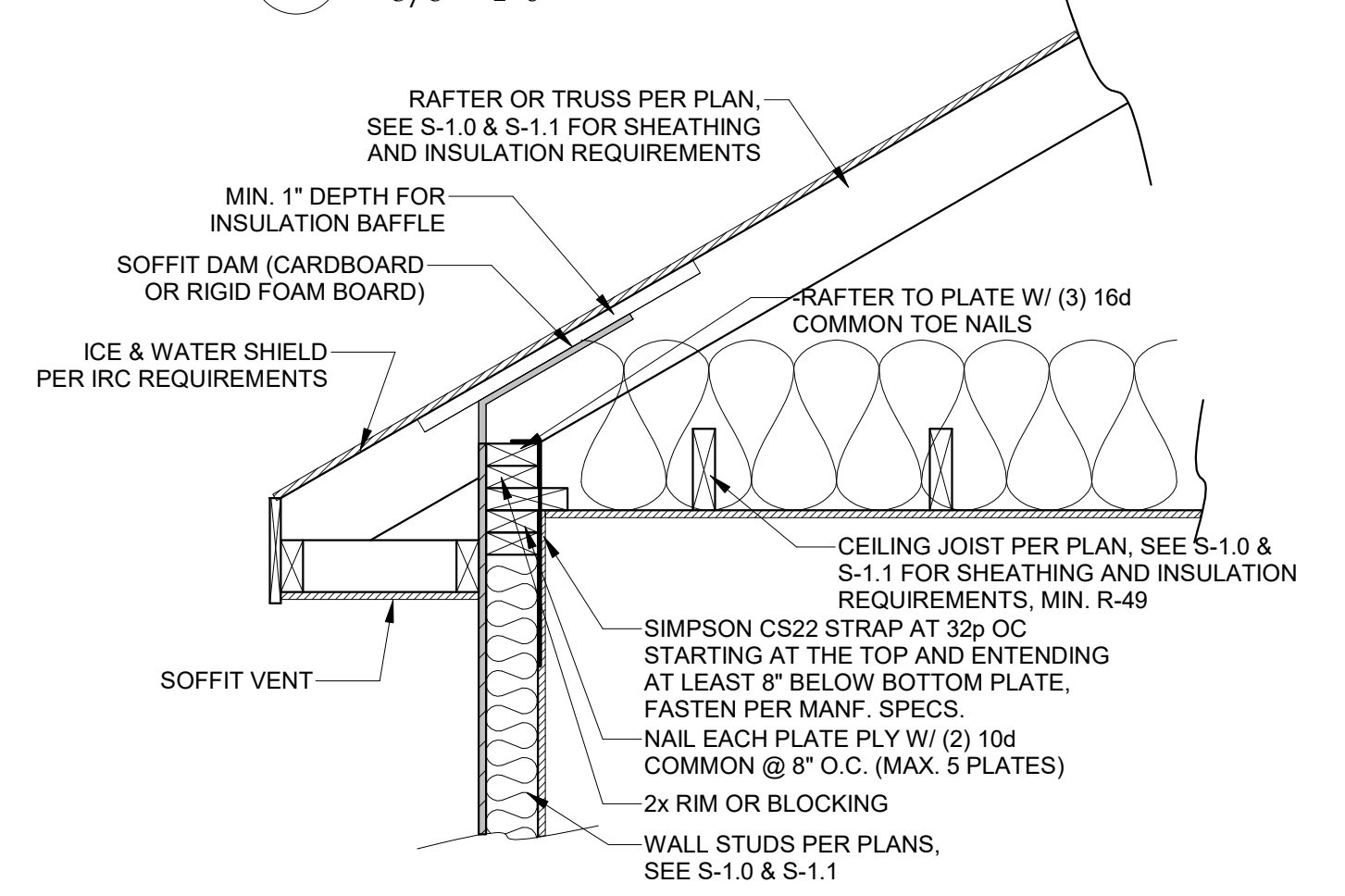
GENERAL NOTES and S-1.1 title block with date 01/09/2025.

Footing: For S1: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s, 1 ksi = 6.895 MPa. Includes notes a-j regarding fastener and sheathing specifications.

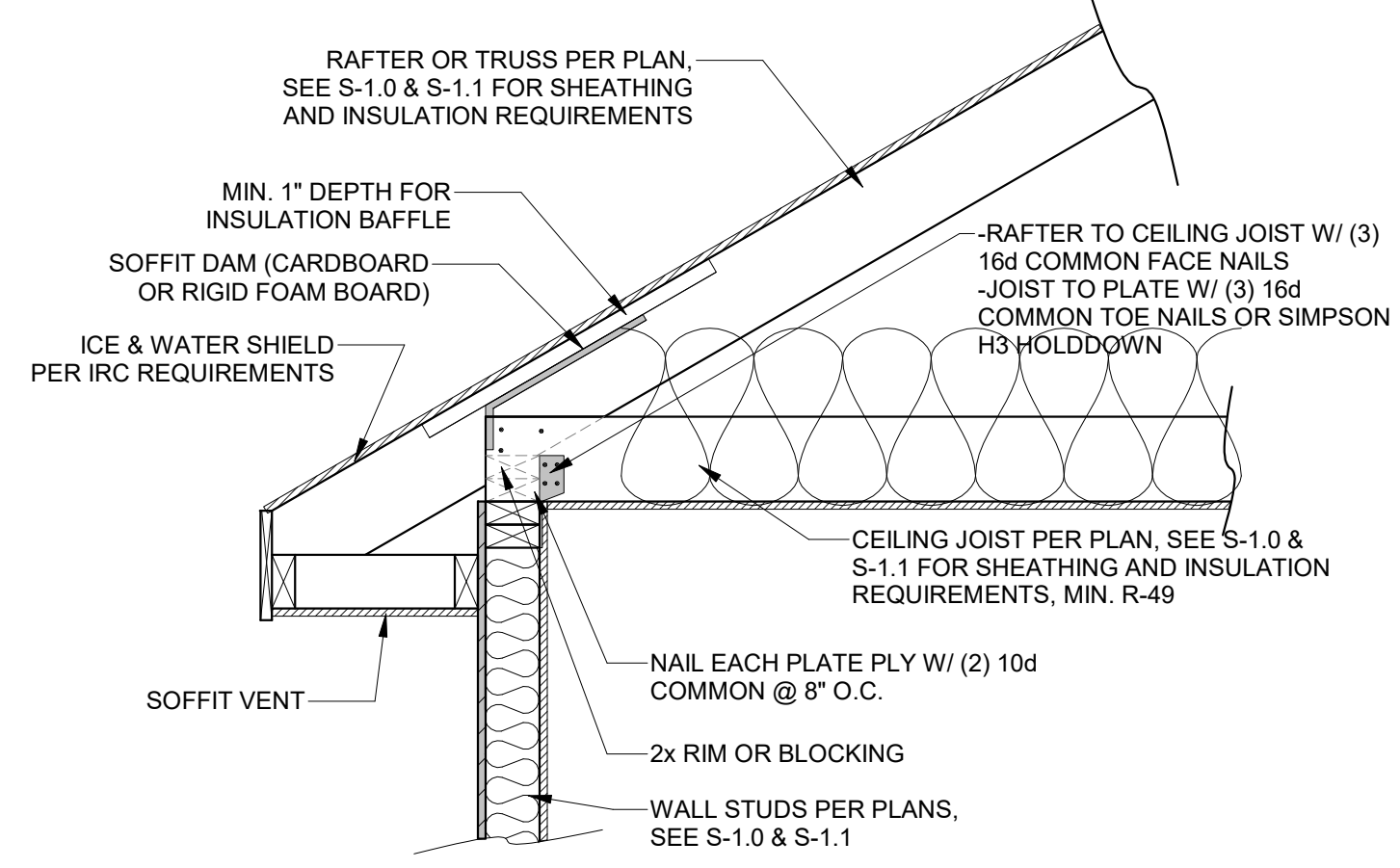
Footing: For S1: 1 inch = 25.4 mm. Includes notes a-j regarding fastener and sheathing specifications, similar to the first page.



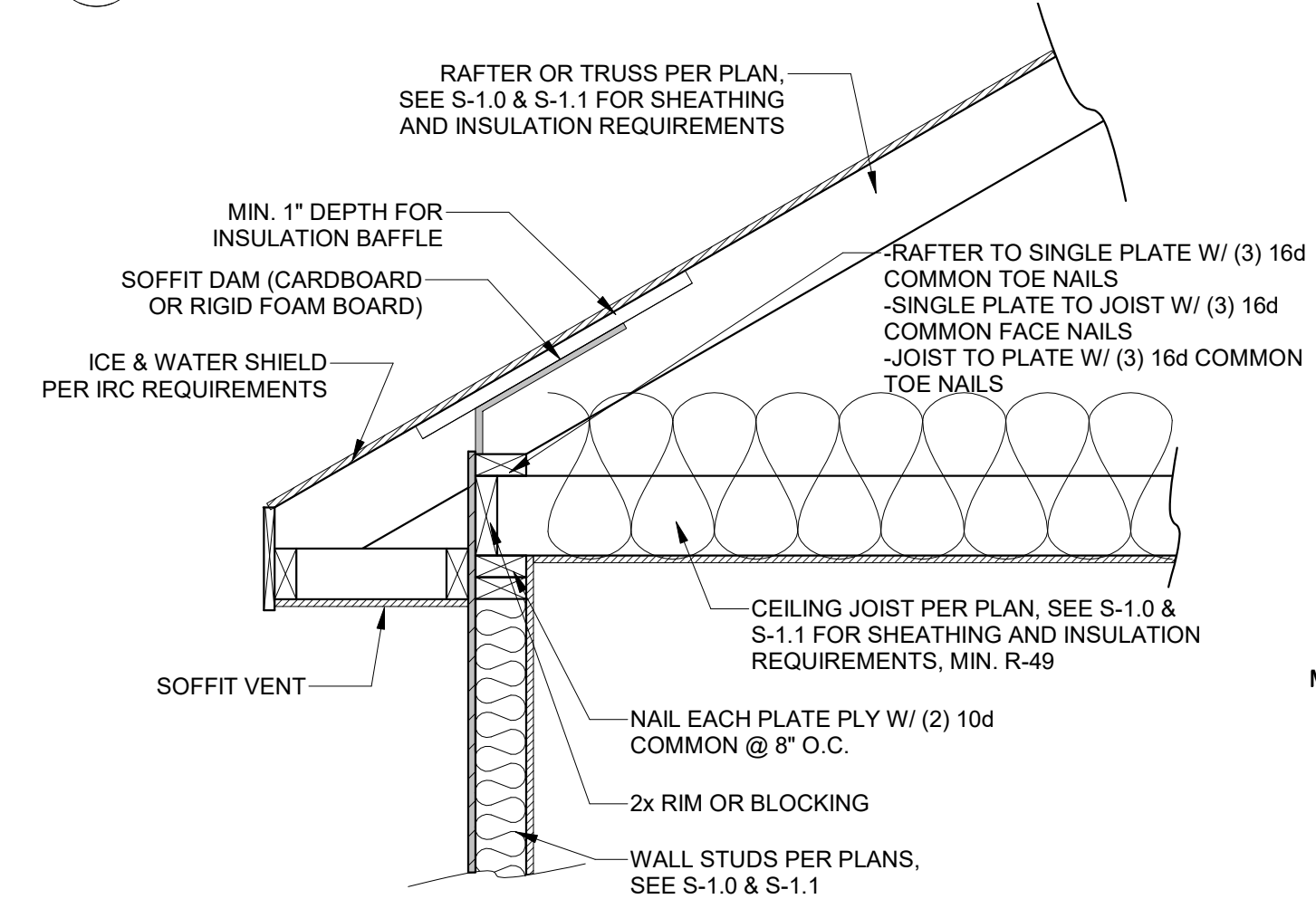
11 HIP SUPPORT FRAME
3/8" = 1'-0"



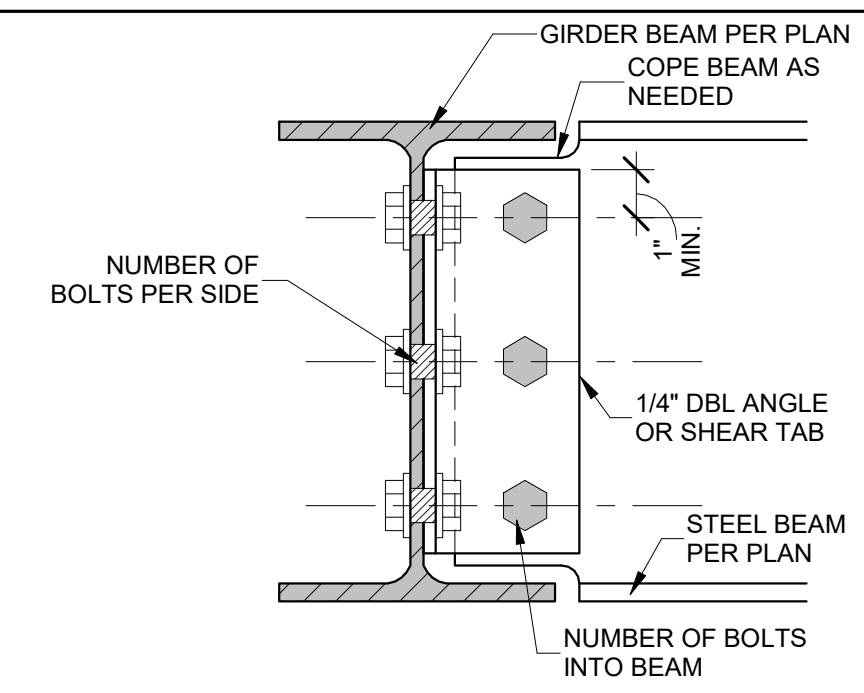
7 OPTION 4 RAFTER BEARING
1" = 1'-0"



6 OPTION 3 RAFTER BEARING
1" = 1'-0"

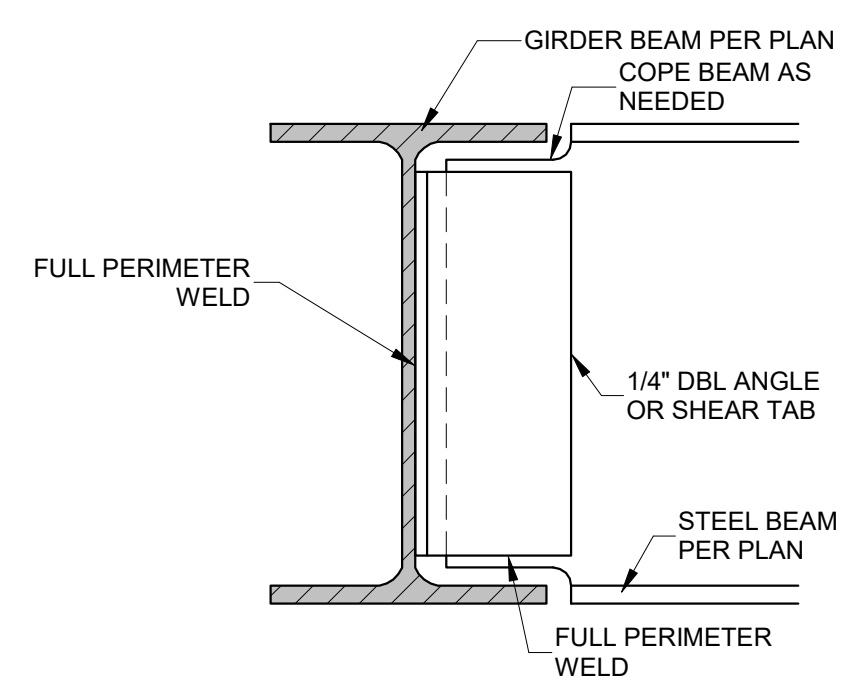


5 OPTION 2 RAFTER BEARING
1" = 1'-0"
THIS OPTION NOT AVAILABLE IN KC, MO



BEAM CONNECTION SCHEDULE		
BEAM SIZE	# OF BOLTS PER SIDE	ANGLE
W8, W10	2	(4" LONG)
W12, W14	3	(8" LONG)
W16, W18	4	(10" LONG)

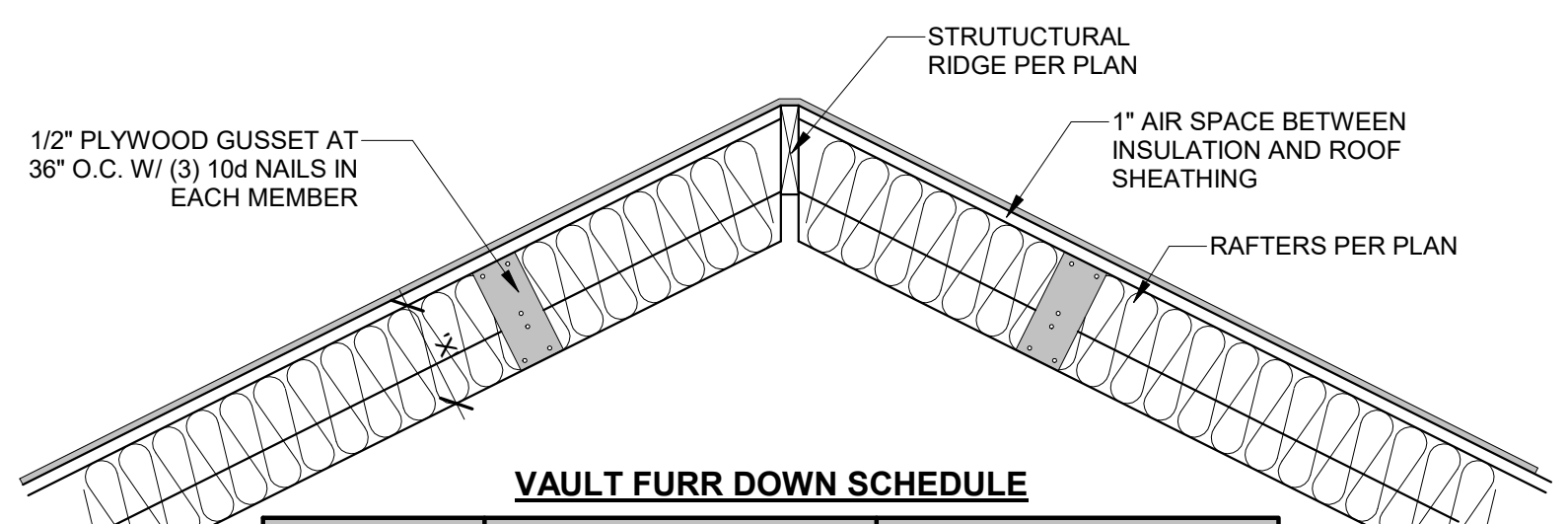
NOTES:
1. NUMBER OF BOLTS DETERMINED BY SMALLER OF TWO BEAMS BEING CONNECTED
2. ALL BOLTS, 3/4" DIAMETER A325-N, UNO
3. BOLTS SHALL BE EVENLY SPACED TOP TO BOTTOM



EITHER METHOD ACCEPTABLE

BEAM CONNECTION SCHEDULE	
BEAM SIZE	ANGLE
W8, W10	1.5x1.5x1/4 (4" LONG)
W12, W14	3x3x3/8 (8" LONG)
W16, W18	3.5x3.5x3/8 (10" LONG)

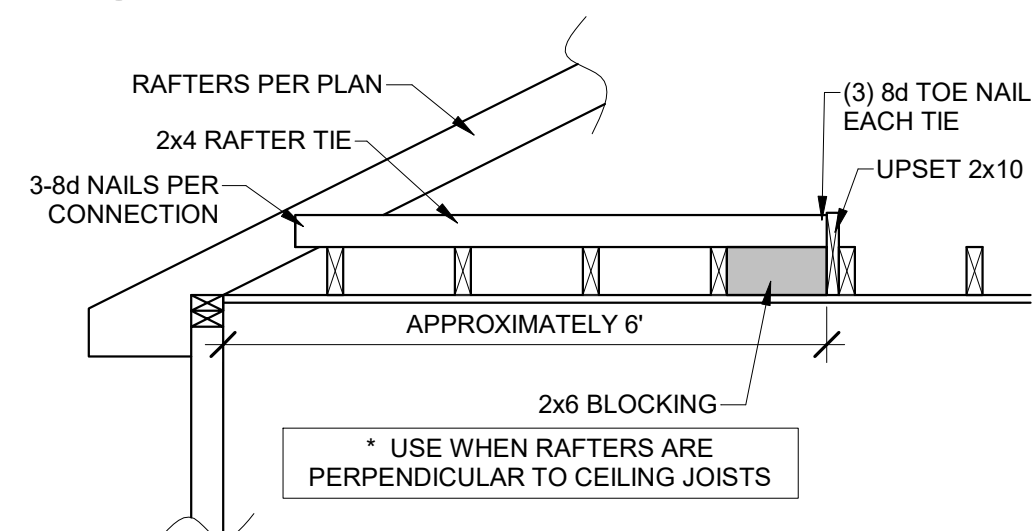
10 BEAM TO GIRDER CONNECTION
3" = 1'-0"



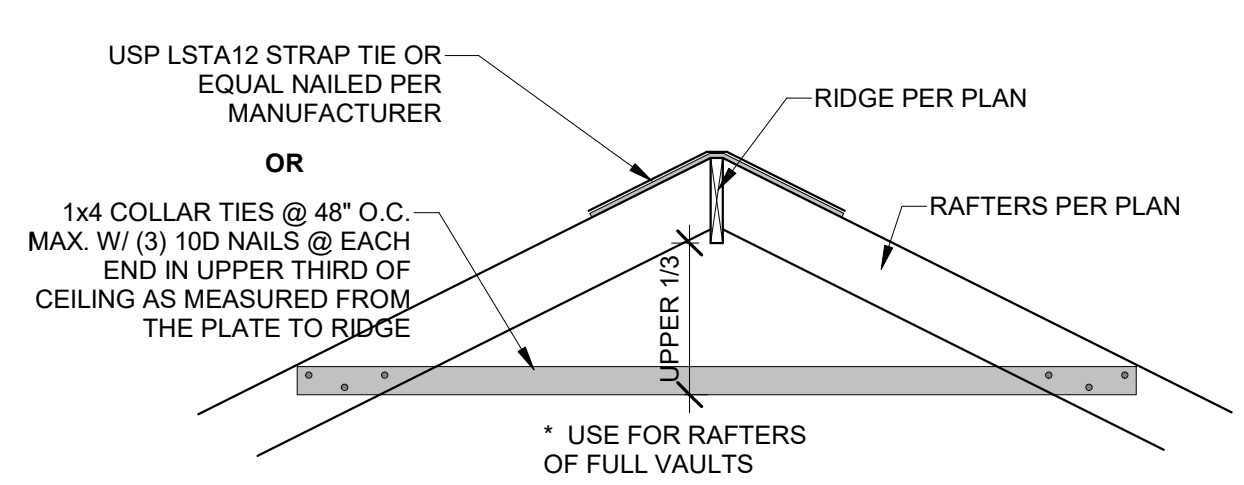
VAULT FURR DOWN SCHEDULE		
RAFTER SIZE	R-30C INSULATION (X = 9 1/4")	R-38C INSULATION (X = 11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	2x2

NOTES:
1. ALL VAULTS SHALL BE FURRED DOWN WITH 2x FRAMING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.
2. R-38C REQUIRED = 11" WITH AIR SPACE.
3. ALL VAULTED RAFTERS SHALL BE MIN. #2 2x6 DFL @ 16" O.C. OR PER ROOF PLAN.

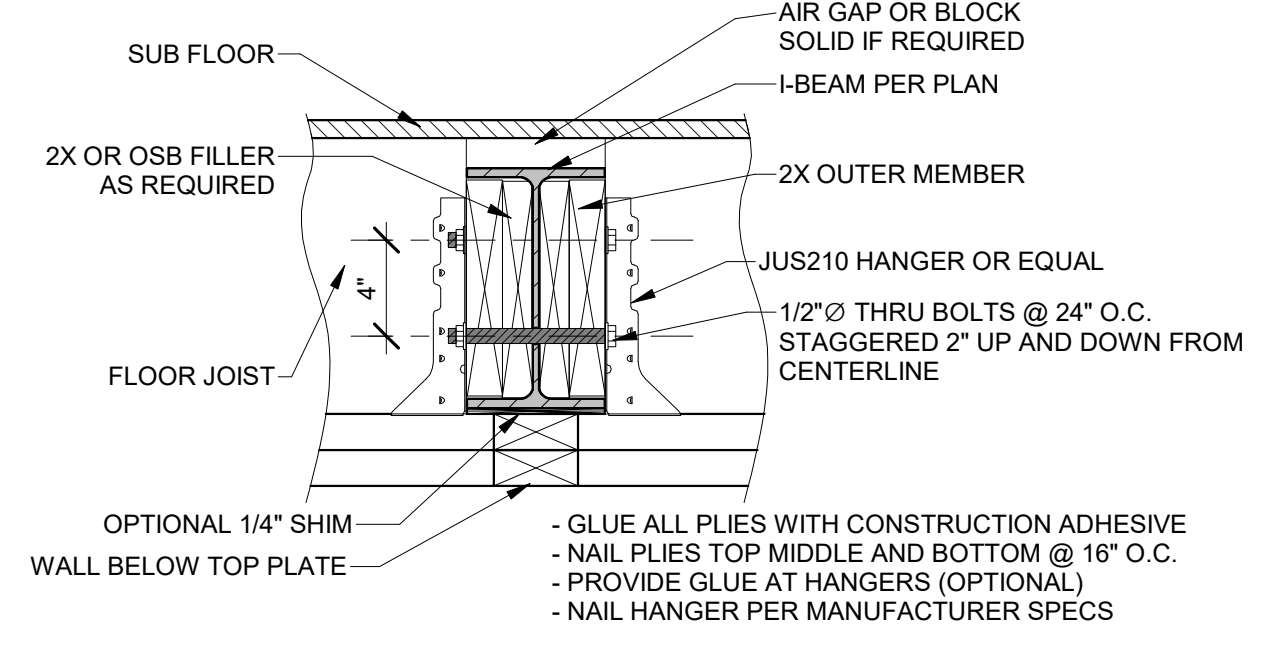
14 VAULTED RAFTER INSULATION
3/4" = 1'-0"



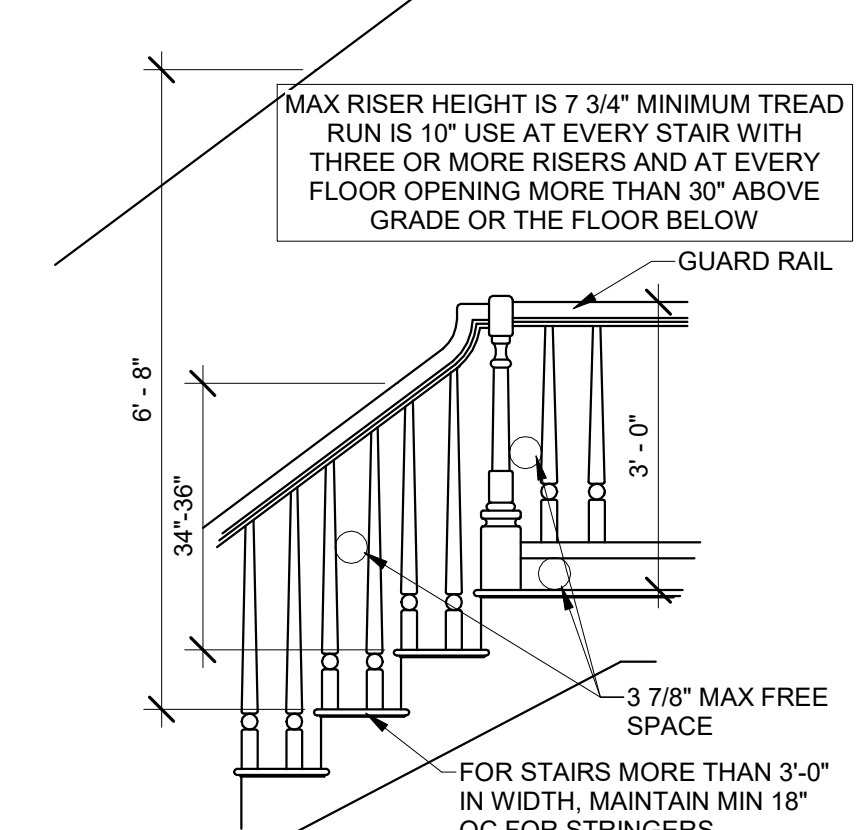
12 RAFTER TIE CONNECTION
1/2" = 1'-0"



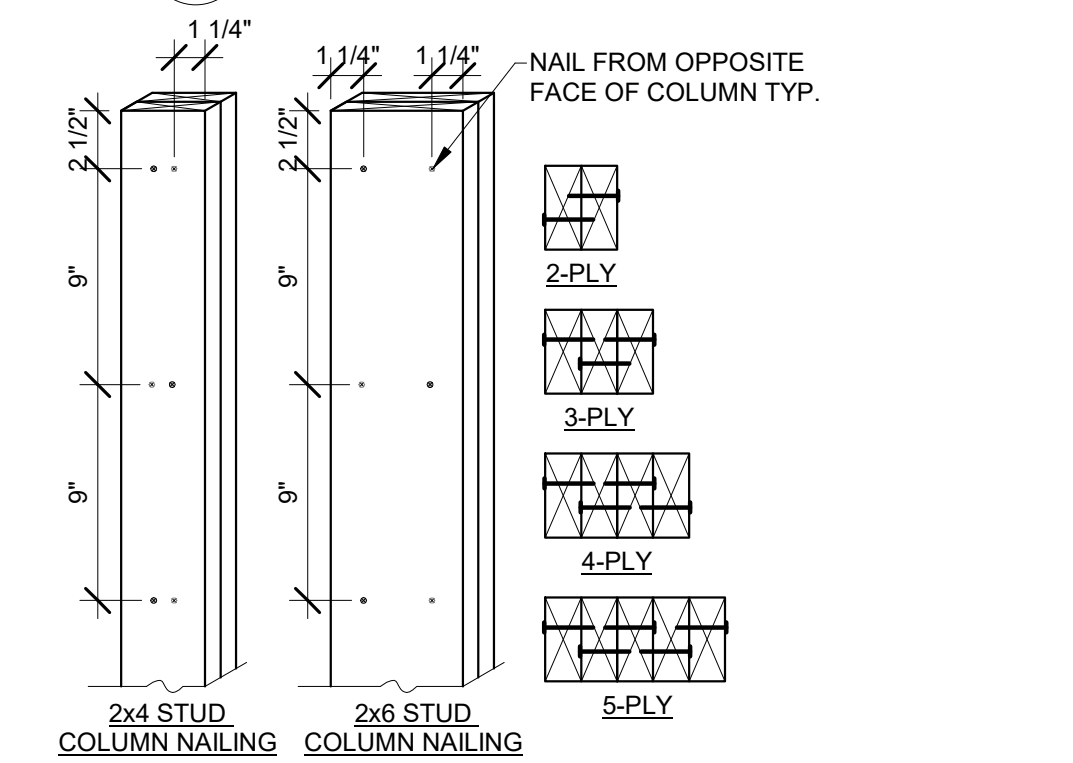
13 RIDGE SUPPORT
1/2" = 1'-0"



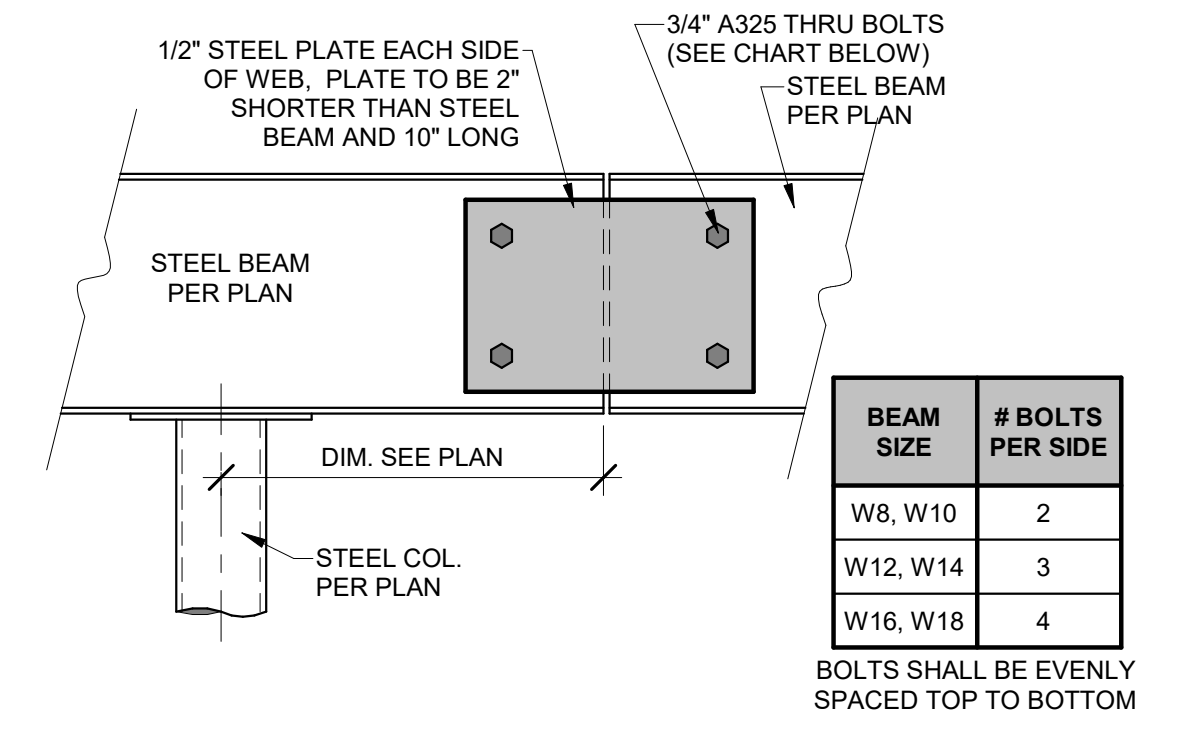
8 UPSET STEEL BEAM DETAIL
1 1/2" = 1'-0"



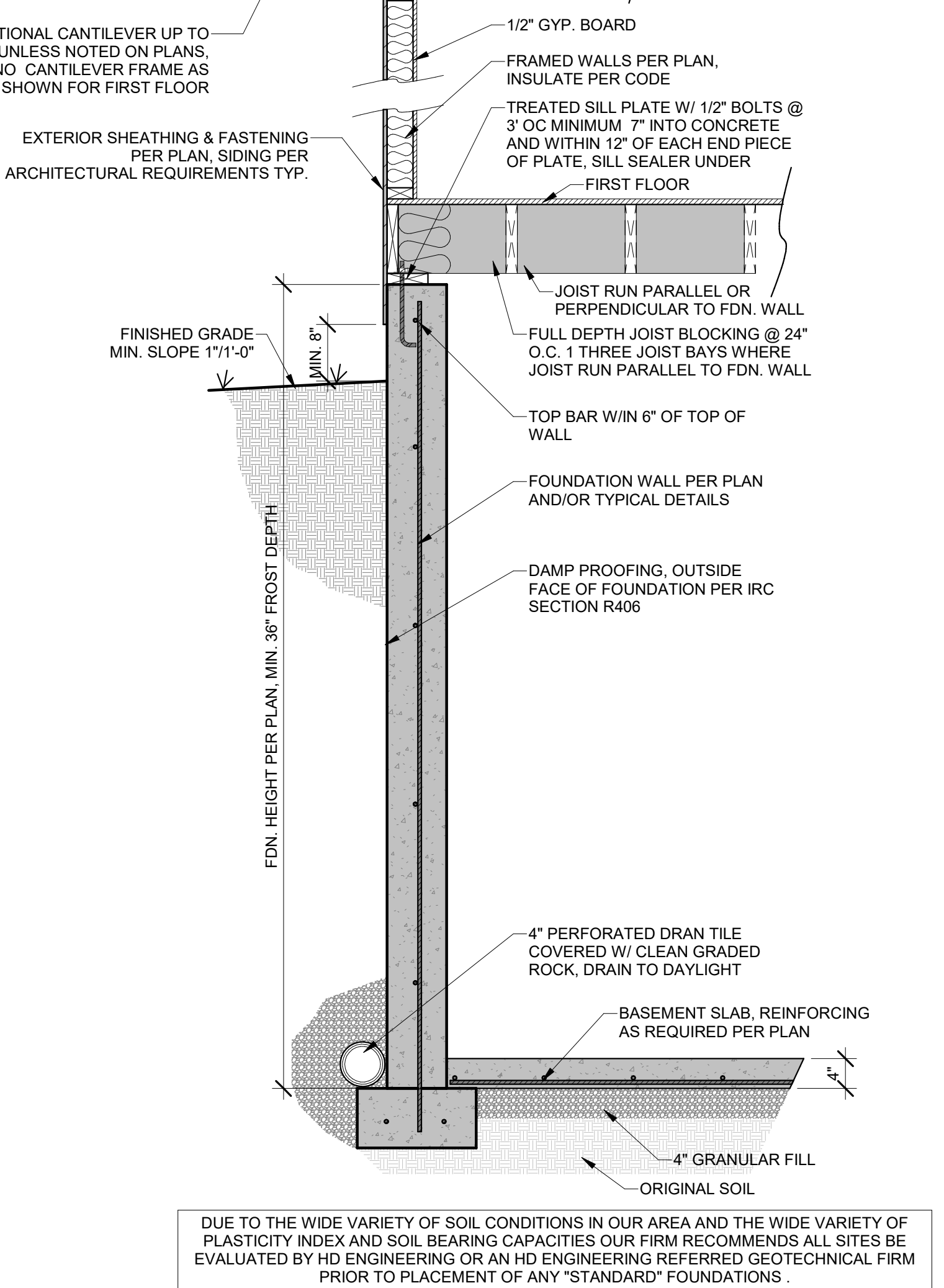
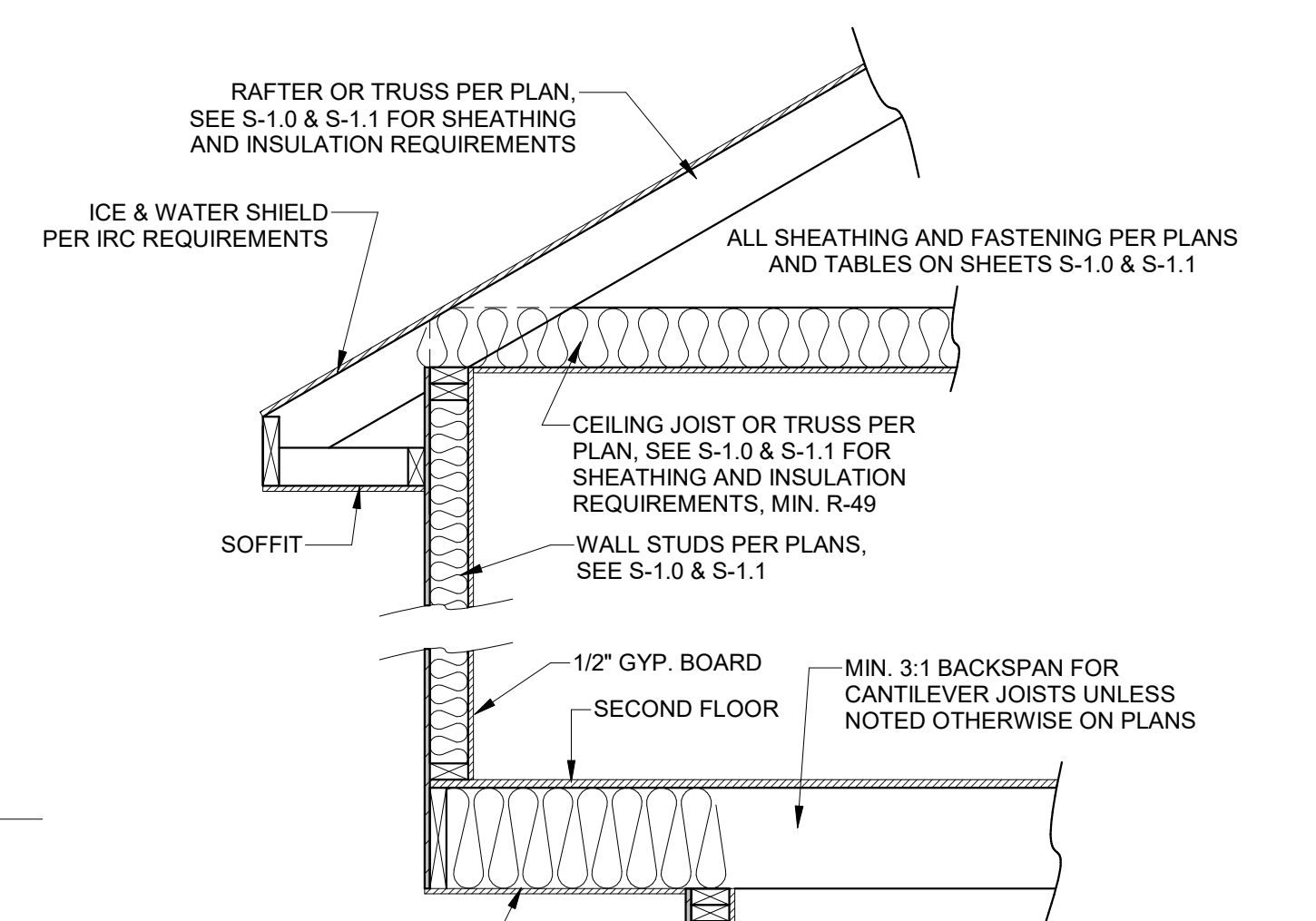
4 STAIR/ RAIL DETAIL
1/2" = 1'-0"



3 BUILT-UP STUD COLUMN
1 1/2" = 1'-0"



9 STEEL BEAM SPLICE DETAIL
1 1/2" = 1'-0"



1 TYPICAL WALL SECTION
3/4" = 1'-0"

DUE TO THE WIDE VARIETY OF SOIL CONDITIONS IN OUR AREA AND THE WIDE VARIETY OF PLASTICITY INDEX AND SOIL BEARING CAPACITIES OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY HD ENGINEERING OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF ANY "STANDARD" FOUNDATIONS.

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LEE'S SUMMIT, MO
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STRUCTURAL DETAILS & NOTES

HD#: 48740
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FRAMING SECTIONS

S-1.2

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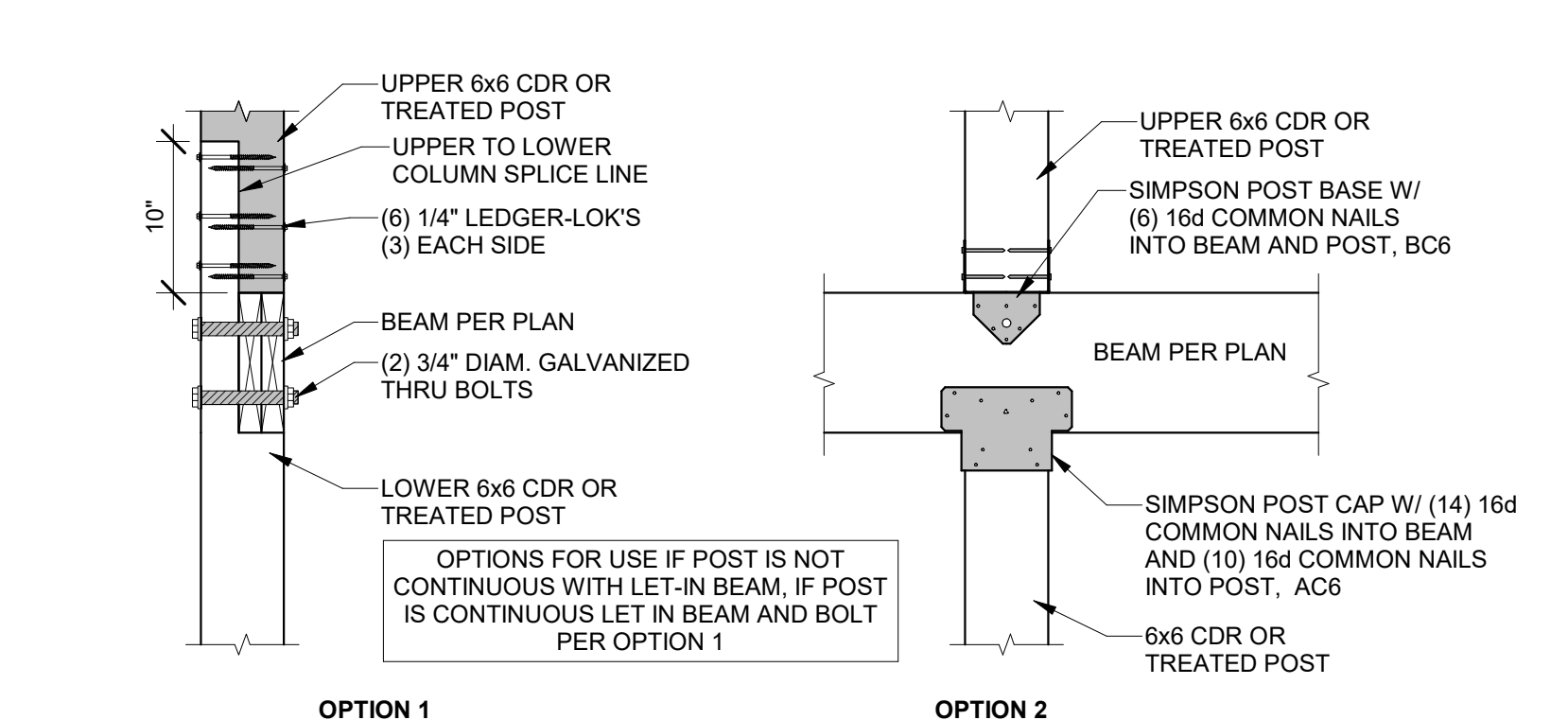
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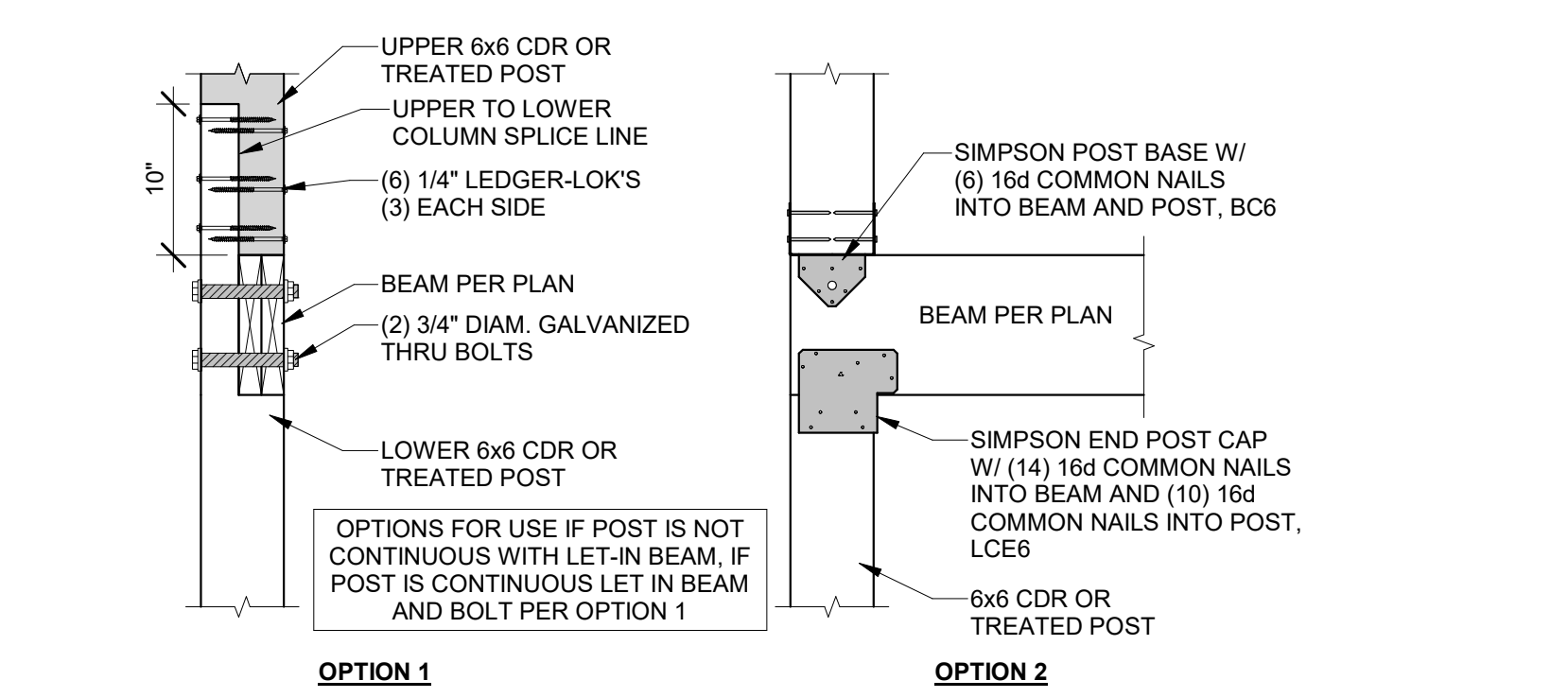
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DECK DETAILS

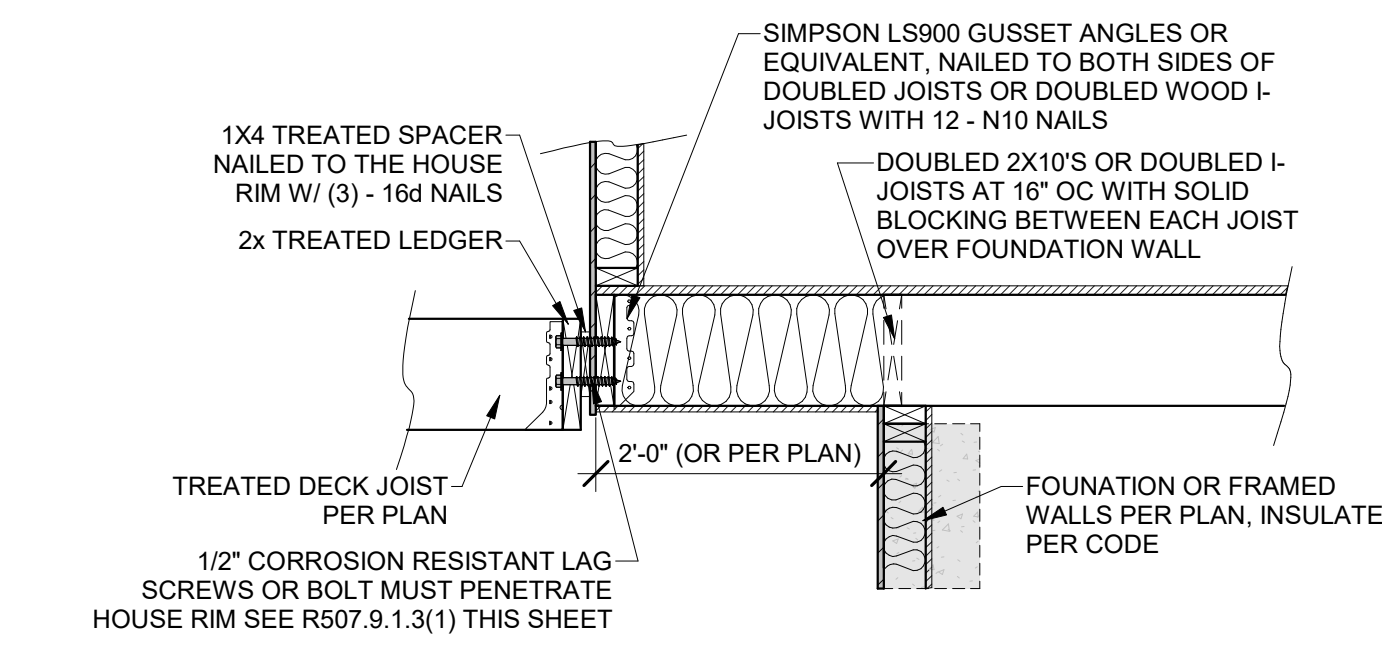
S-1.3



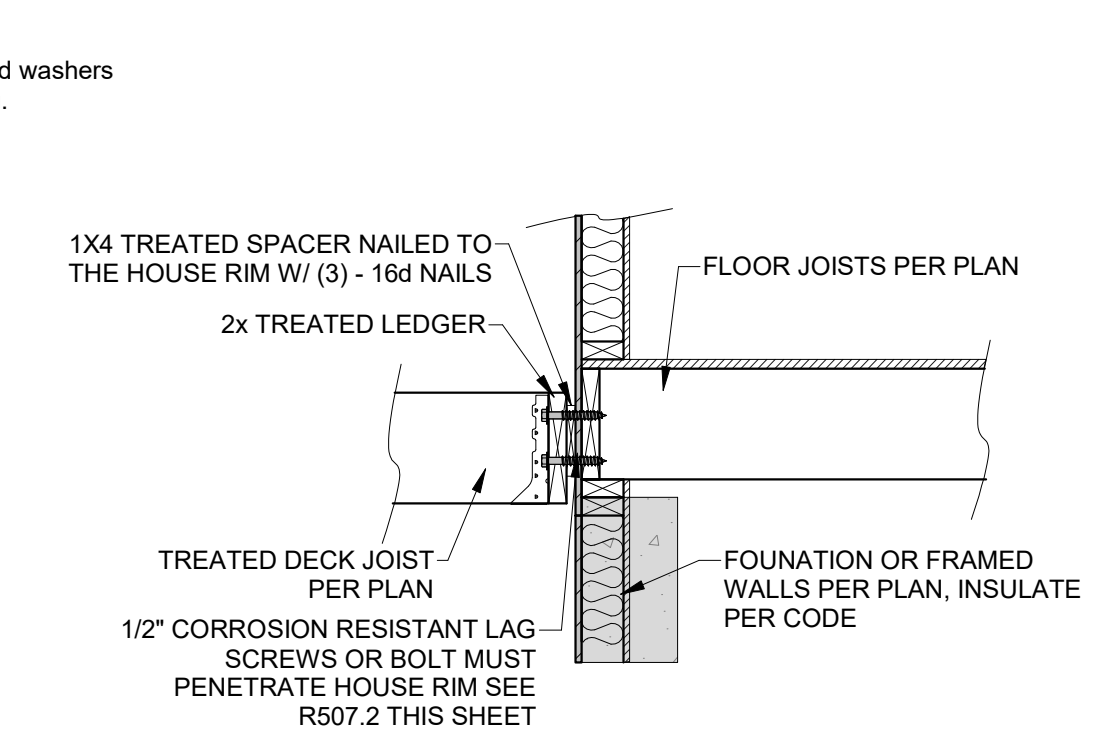
6 DECK LEVEL INTERIOR BEAM TO COLUMN
 1" = 1'-0"



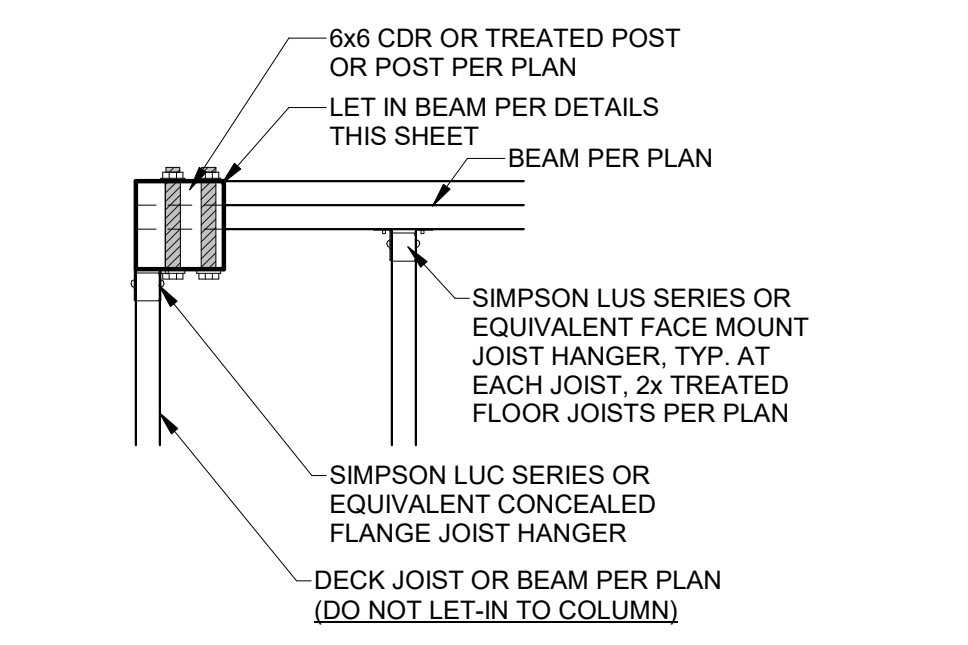
5 DECK LEVEL EXTERIOR BEAM TO COLUMN
 1" = 1'-0"



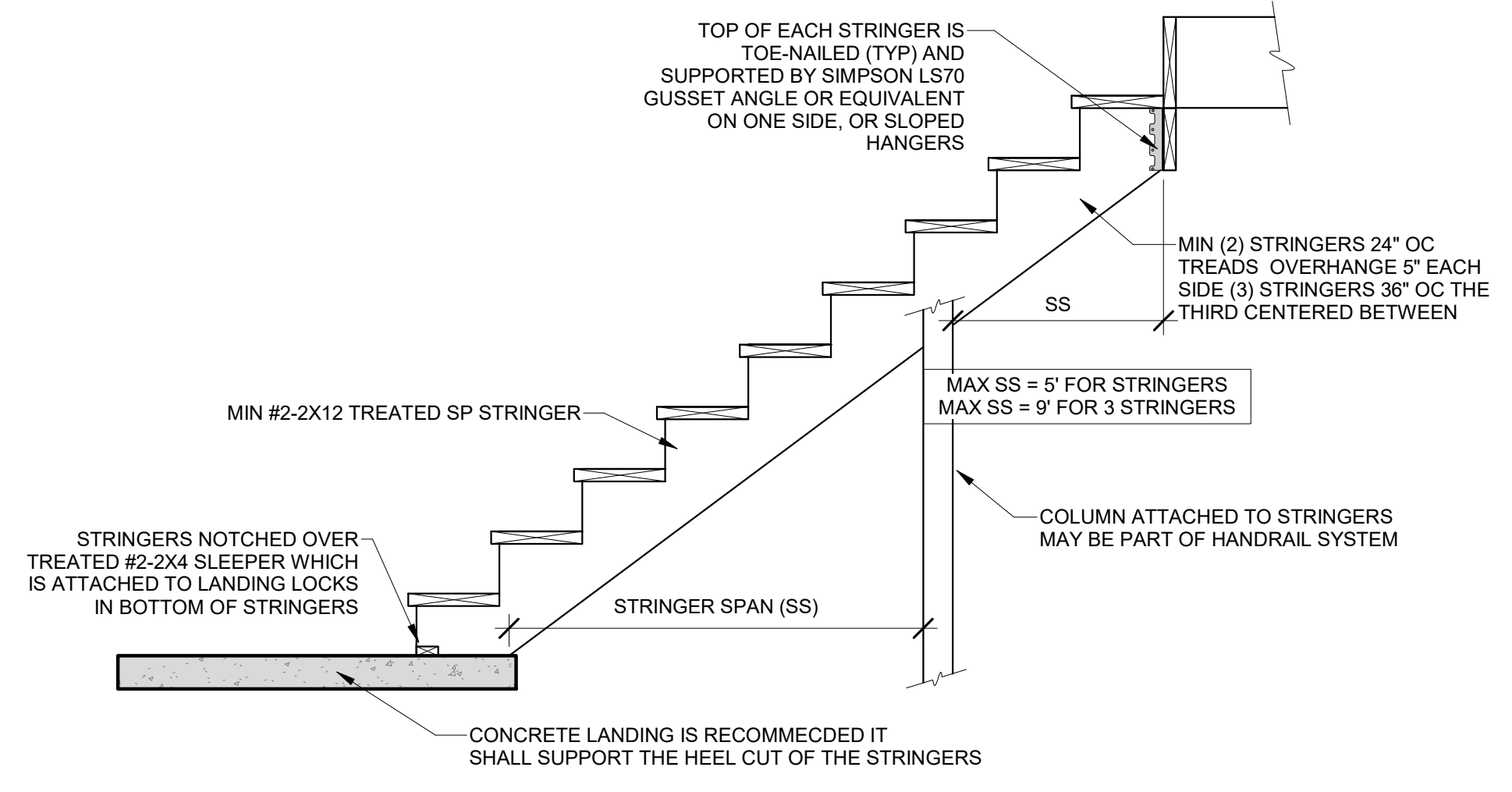
4 DECK LEDGER TO CANTILEVER
 3/4" = 1'-0"



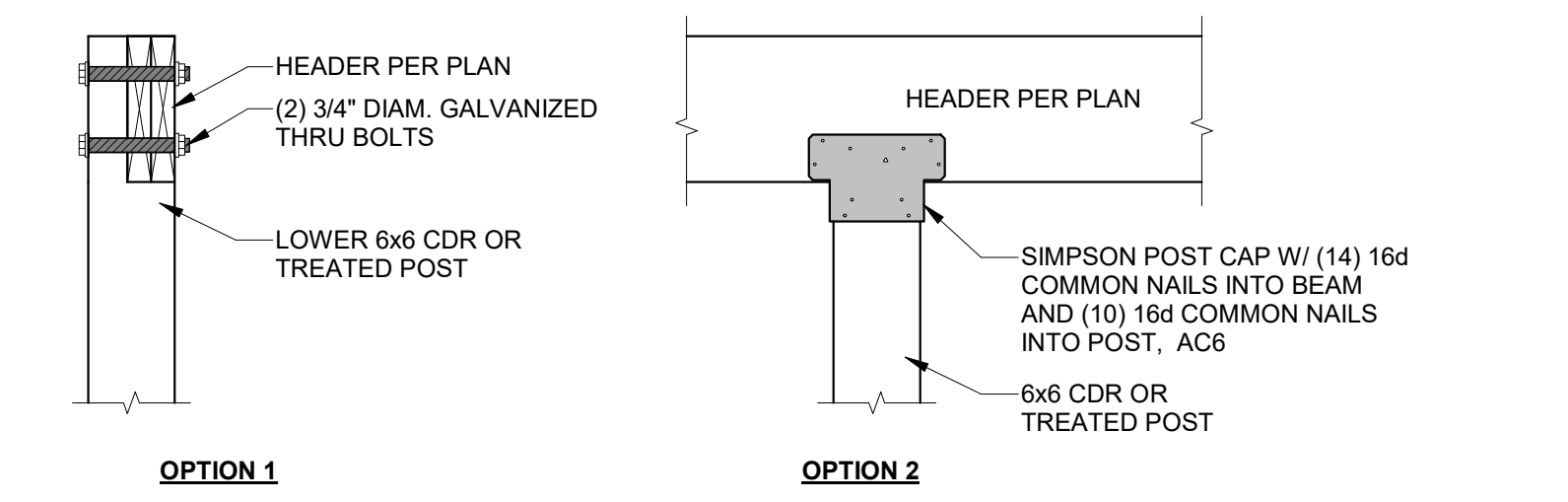
2 DECK LEDGER ATTACHMENT
 3/4" = 1'-0"



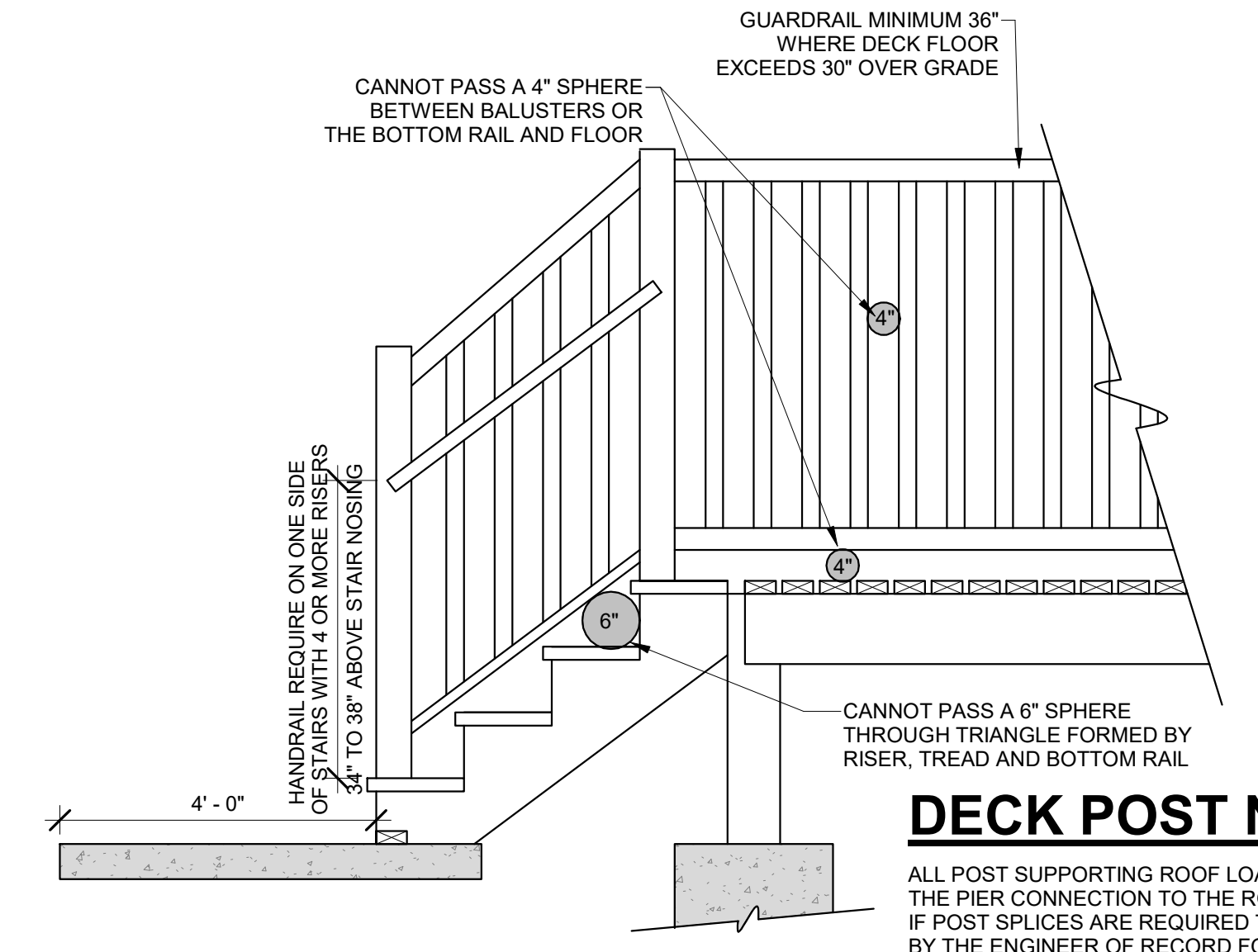
1 DECK CORNER COLUMN
 1" = 1'-0"



9 STAIR STRINGER DETAIL
 1/2" = 1'-0"



7 ROOF LEVEL INTERIOR BEAM TO COLUMN
 1" = 1'-0"



8 GUARD RAIL
 1/2" = 1'-0"

TABLE IRC2018 R507.9.1.3(1) DECK LEDGER CONNECTION TO BAND JOIST
 (DECK LIVE LOAD = 40 PSF, DECK HEAD LOAD = 10 PSF, SNOW LOAD ≤ 40 PSF)

JOIST SPAN	6' AND LESS	6'-1" TO 8'	8'-1" TO 10'	10'-1" TO 12'	12'-1" TO 14'	14'-1" TO 16'	16'-1" TO 18'
CONNECTION DETAILS	ON-CENTER SPACING OF FASTENERS ^{a, b}						
1/2" LAG SCREW WITH 15/32" MAX. SHEATHING ^{c, d}	30	23	18	15	13	11	10
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING ^d	36	36	34	29	24	21	19
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING & 1/2" STACKED WASHERS ^e	36	36	29	24	21	18	16

For SI: 1 inch = 25.4mm, 1 foot = 304.8mm, 1 pound per square foot = 0.0479 kPa
 a. Ledges shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
 b. Snow load shall not be assumed to act concurrently with live load.
 c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
 d. Sheathing shall be wood structural panel or solid sawn lumber.
 e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard lumber or foam sheathing. Up to 1/2" thickness of stacked washers shall be permitted to substitute for you to 1/2" of allowable sheathing thickness where combined with wood structural panel or lumbers sheathing.

TABLE IRC2018 R507.9.1.3(2) PLACEMENT OF LAG SCREWS AND BOLT IN DECK LEDGERS AND BAND JOISTS

	MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS			
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
LEDGER ^a	2 inches ^d	3/4 inches	2 inches ^b	1 5/8 inches ^b
BAND JOIST ^c	3/4 inches	2 inches	2 inches	1 5/8 inches ^b

For SI: 1 inch = 25.4mm.
 a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1)
 b. Maximum 5 inches
 c. For engineered rim joists, the manufacturer's recommendations shall govern.
 d. The minimum distances from bottom row of lag screws or bolts to the top of the ledger shall be in accordance with Figure R507.9.1.3(1)

TABLE R602.3(5) SIZE, HEIGHT AND SPACING OF WOOD STUDS^a

STUD SIZE (INCHES)	BEARING WALLS					NON-BEARING WALLS	
	LATERALLY UNSUPPORTED STUD HEIGHT ^b (FEET)	MAXIMUM SPACING WHERE SUPPORTING A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY, ONLY (INCHES)	MAXIMUM SPACING WHERE SUPPORTING ONE FLOOR, PLUS A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY (INCHES)	MAXIMUM SPACING WHERE SUPPORTING TWO FLOORS, PLUS A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY (INCHES)	MAXIMUM SPACING WHERE SUPPORTING ONE FLOOR HEIGHT ^c (INCHES)	LATERALLY UNSUPPORTED STUD HEIGHT ^b (FEET)	MAXIMUM SPACING (INCHES)
2 x 3 ^b	---	---	---	---	---	10	16
2 x 4	10	24 ^c	16 ^c	---	24	14	24
3 x 4	10	24	24	16	24	14	24
2 x 5	10	24	24	---	24	16	24
2 x 6	10	24	24	16	24	20	24

For S1: 1 inch = 25.4 mm, 1 foot = 304.8 mm.
^a LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD. INCREASES IN UNSUPPORTED HEIGHT ARE PERMITTED WHERE IN COMPLIANCE WITH EXCEPTION 2 OF SECTION R602.3.1 OR DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.
^b SHALL NOT BE USED IN EXTERIOR WALLS.
^c A HABITABLE ATTIC ASSEMBLY SUPPORTED BY 2 x 4 STUDS IS LIMITED TO A ROOF SPAN OF 32 FEET. WHERE THE ROOF SPAN EXCEEDS 32 FEET, THE WALL STUDS SHALL BE INCREASED TO 2 x 6 OR THE STUDS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.

RESIDENTIAL SEISMIC & WIND ANALYSIS

DETERMINE WEIGHT OF HOUSE:				INPUT			
LOCATION	DEAD LOAD (psf)	AREA (ft ²)	WEIGHT (lbs)	LOCATION	DEAD LOAD (psf)	AREA (ft ²)	WEIGHT (lbs)
ROOF	10	3152	31520	CEILING	10	2658	26580
SECOND FLOOR	10	1679	16790	FIRST FLOOR	10	1446	14460
SECOND FLOOR EXT. WALL DL	176	1	176	FIRST FLOOR EXT. WALL DL	176	1	176
SECOND FLOOR INT. PARTITION WALL DL	6	1679	10074	FIRST FLOOR INT. PARTITION WALL DL	6	1446	8676

PROJECTED AREAS (WIND DESIGN PER 115 MPH 3-SECOND GUST EXPOSURE C AND MEAN ROOF HEIGHT <= 30 FT ASSUMED)			
FRONT-TO-BACK		SIDE-TO-SIDE	
AREA	LOAD	AREA	LOAD
SLOPED ROOF	443	1910	446
VERT. ROOF	0	0	0
2ND	6924	2ND	390
1ST	660	1ST	580

SEISMIC	WIND
2ND FLOOR TRIBUTARY WEIGHT	65728
1ST FLOOR TRIBUTARY WEIGHT	109116
S ₁ (SITE GROUND MOTION - %g - FROM ASCE7 SEISMIC MAP)	10.9%
S _s (FROM ASCE7 TABLE 11.4-1)	1.1
S _{1s} (F 2/3 * S ₁ * F _d)	0.073
R (FROM ASCE7 TABLE 12.2-1)	6.5

SEISMIC SHEAR			
LOCATION	LOAD	AREA (ft ²)	WEIGHT (lbs)
2ND FLOOR	65728	1910	19100
1ST FLOOR	174844	4558	45580

Sheathing Location	Min. Sheathing Schedule	Fastening Schedule	Allowable Shear (k/ft)	Code Reference
Exterior (Option #)	7/16" APA Rated Plywood OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing	8d Common Nails w/ 1-3/8" penetration @ 6" O.C. Edges, 12" O.C. Field for 7/16" APA-rated plywood OSB or shiplap panel sheathing OR @ 4" O.C. Edges, 12" O.C. Field for 3/8" shiplap panel sheathing	220	AF&PA SDPPWS Table 4.3A
Interior	1/2" Gypsum Board	No. 6-1 1/4" Type W or S Screws @ 8" O.C. Edges, 12" O.C. Field	60	per IRC Table 2306.4.4
Interior	16 Ga. Simpson/USP Type WB Steel X-Brace (or equal)	(3) 16d @ end studs & (1) 8d @ intermediate studs (per manufacturer specifications - see detail on sheet S3)	325	

EXTERIOR SHEATHING OPTION FOR SECOND FLOOR			
Option	Min. Sheathing Schedule	Fastening Schedule	Allowable Shear (k/ft)
4	7/16" APA Rated Plywood OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing	8d Common Nails w/ 1-3/8" penetration @ 6" O.C. Edges, 12" O.C. Field for 7/16" APA-rated plywood OSB or shiplap panel sheathing OR @ 4" O.C. Edges, 12" O.C. Field for 3/8" shiplap panel sheathing	220

EXTERIOR STRUCTURAL WALL LENGTHS (L) & RESISTANCES							
SEISMIC				WIND			
LOCATION	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)
2ND FLOOR	116	1709	99	1830	41	2312	99
1ST FLOOR	3248	98	27440	116	45472	98	58116

ADDITIONAL RESISTANCE REQUIRED			
SEISMIC	WIND	ANCHOR BOLT SPACING (in.)	16d NAIL SPACING (in.)
2ND FLOOR FRONT-TO-BACK	0	6.5	36
2ND FLOOR SIDE-TO-SIDE	0	9.4	44
1ST FLOOR FRONT-TO-BACK	0	119.3	19
1ST FLOOR SIDE-TO-SIDE	0	145.1	22

RESISTANCE REQUIRED IN ADDITION TO RESISTANCE PROVIDED BY EXTERIOR WALLS ^a					
ADDITIONAL RESISTANCE REQUIRED (POUNDS)	PORTAL FRAMES OR PERFORMED SHEAR WALL RESISTANCE	INTERIOR X-BRACES (32#XBRACE)	INTERIOR WALL LENGTH W/ 1/2" GYPSUM BOARD PER TABLE (FT.)	NET WALL LENGTH SHEATHED W/ OSB (TOTAL LENGTH, ONE SIDE, FT.)	RESISTANCE PROVIDED BY ADDITIONAL METHODS (POUNDS)
2ND FLOOR FRONT-TO-BACK	0	0	0	0	0
2ND FLOOR SIDE-TO-SIDE	0	0	0	0	0
1ST FLOOR FRONT-TO-BACK	0	0	0	0	0
1ST FLOOR SIDE-TO-SIDE	0	0	0	0	0

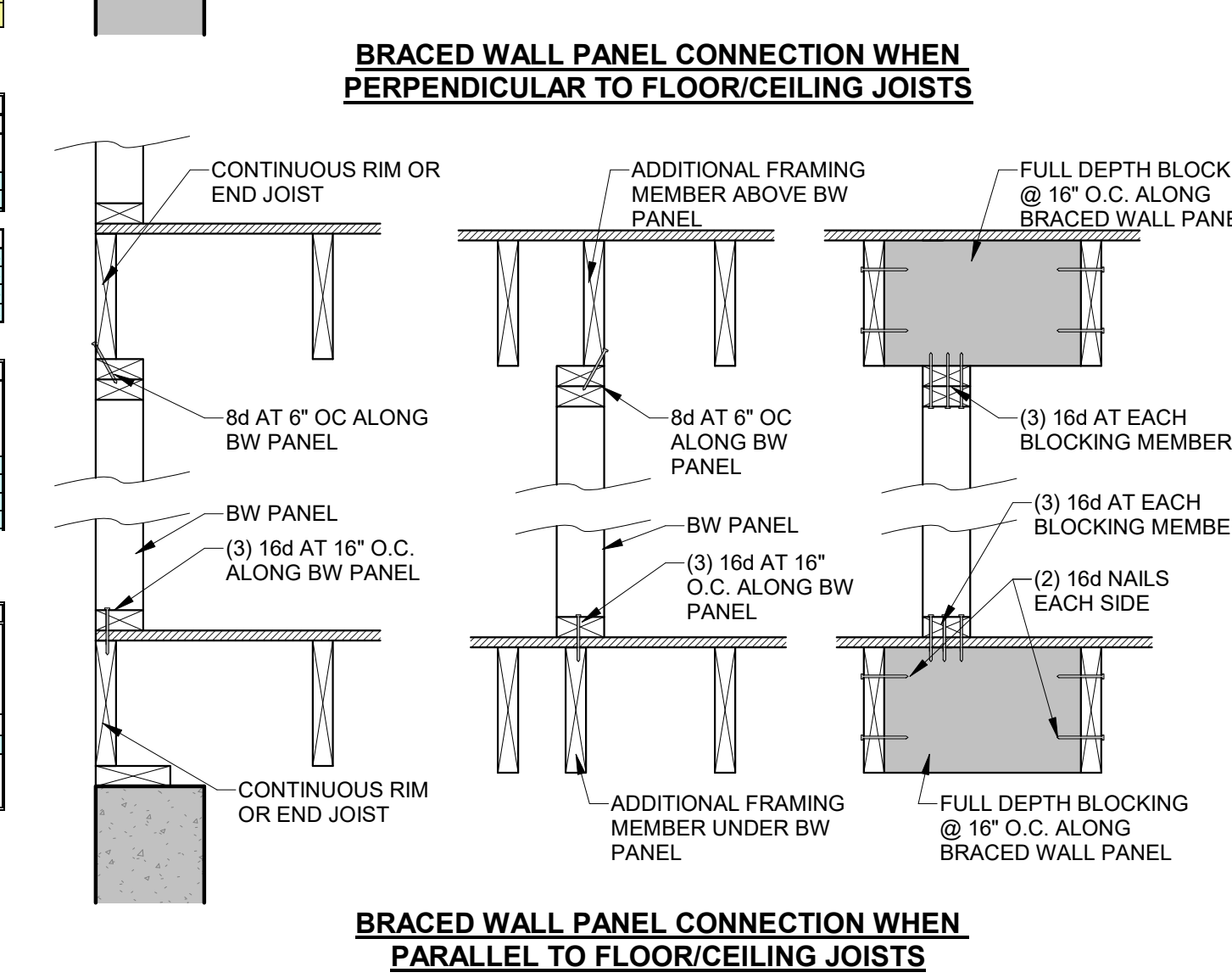
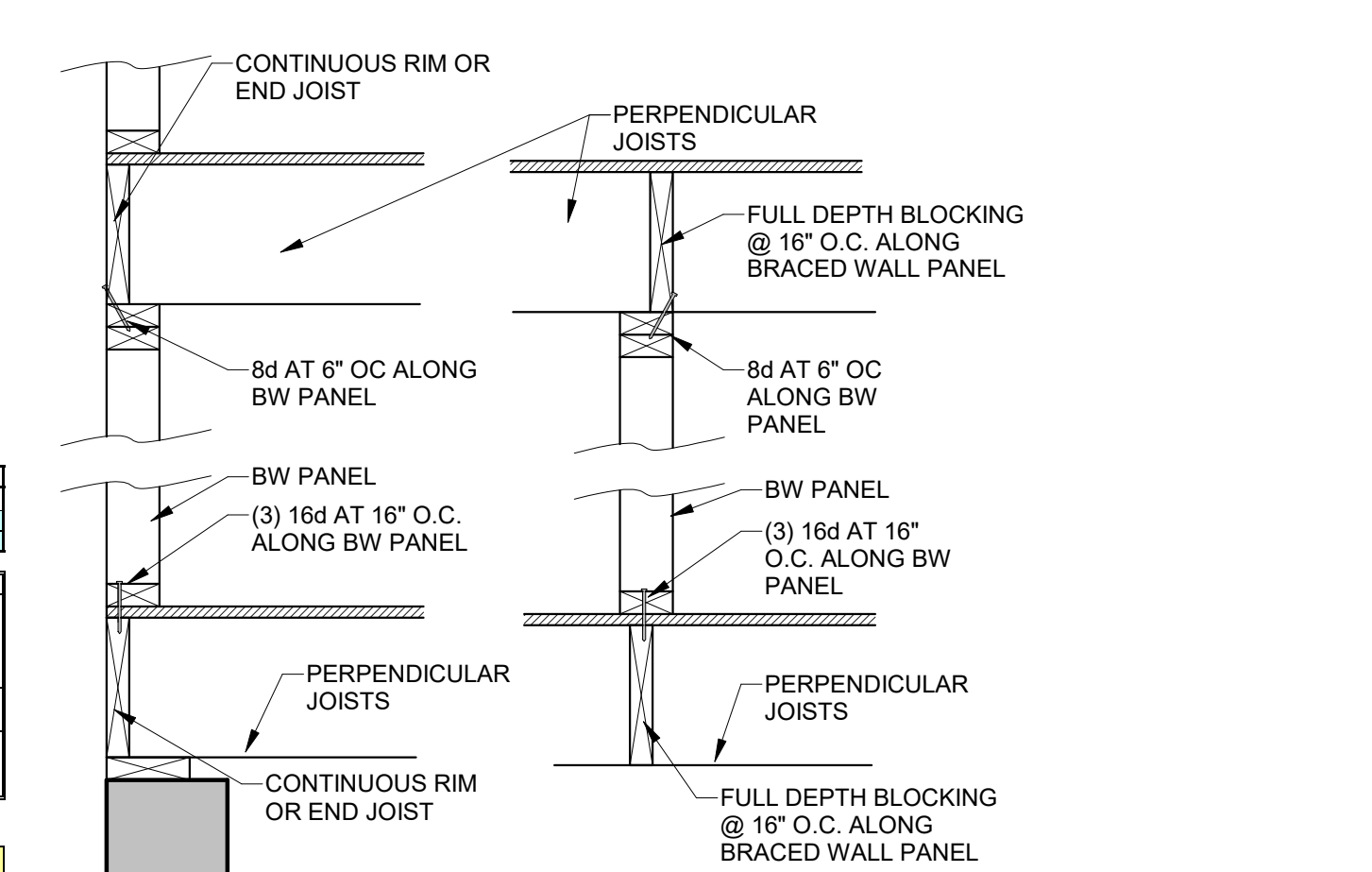
NOTES: 1) SEE ATTACHED CALCULATIONS FOR PORTAL FRAME OR PERFORMED SHEAR WALL RESISTANCE CAPACITIES (IF APPLICABLE).
 2) SEE SHEET S1 FOR INTERIOR STEEL X-BRACE INSTALLATION. 3) INTERIOR WALLS SHEATHED WITH OSB SHALL BE ATTACHED WITH SAME STAPLE/NAILING PATTERN AS EXTERIOR OSB ON SAME FLOOR (SEE TABLE ABOVE) AND ARE ONLY APPLICABLE FOR FULL-HIGHT SECTIONS OF 2'-0" OR LONGER.

WIND UPLIFT ANALYSIS							
ROOF PITCH (MAX)	DEGREES	PITCH OF 6 OR LESS: EOH-11.3, E-7.2, G-5.2	ASCE 7	LINEAL FT. OF OH	UPLIFT PER FT. (LBS)	PERIMETER (LBS)	FORCE PER LINEAL FT. @ PERIMETER (LBS)
6	26.6	248	33.12	33.12	33.12	1113.6	185.3
OVERHANG	6.56	248	33.12	33.12	33.12	1113.6	185.3
MAIN ROOF**	37.12	2231.84	15.12	15.12	15.12	454.4	87.8

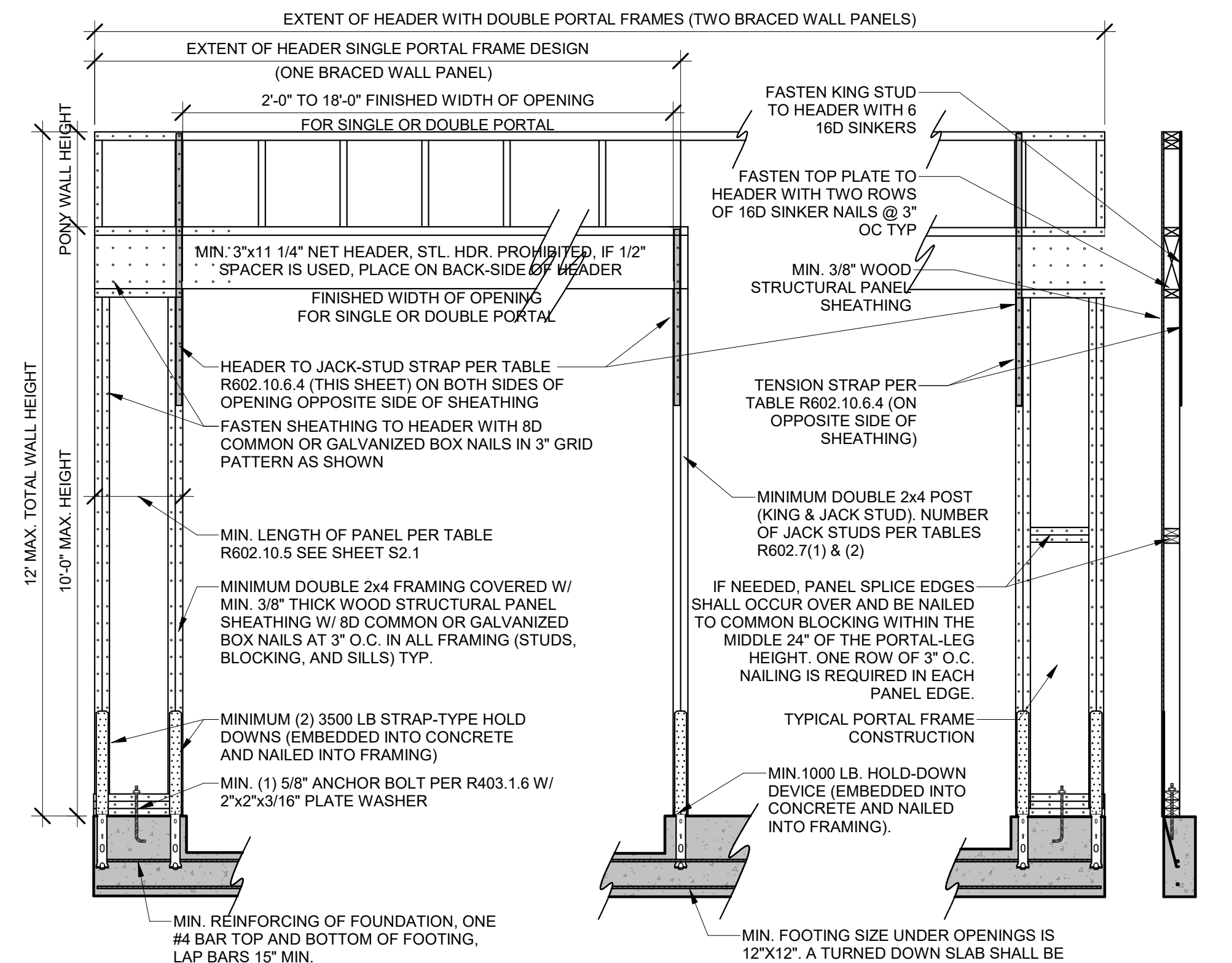
NOTE FOR CONSTRUCTION: THE CONTINUOUS STRUCTURAL PANEL SHEATHING BRACING METHOD REQUIRES USE OF THE ABOVE TABLE FOR SHEATHING OF THE ENTIRE STRUCTURE. IN ADDITION, FRAMING MEMBERS SHALL BE @ 16" O.C. MAX UNBLOCKED, AND WE SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS.

NOTE FOR DESIGN: ALL WALLS USED IN THE CALCULATION OF THE RESISTANCE FOR THIS STRUCTURE SHALL HAVE A MINIMUM UNINTERRUPTED HEIGHT OF 8'-0" AND LENGTH OF 2'-6". ALLOWABLE RESISTANCES HAVE BEEN #FT AND INCREASED BY 40% FOR WIND LOADS. PER VALUES IN 2018 IRC SECTION 2309 AND AF&PA SDPPWS TABLE 4.3A. FOR EXAMPLE, 7/16" APA-RATED SHEATHING WITH 8d @ 6" & 12" HAS A SEISMIC SHEAR VALUE OF 2. A WIND SHEAR VALUE OF 335#FT - 40% GREATER THAN THAT OF SEISMIC.

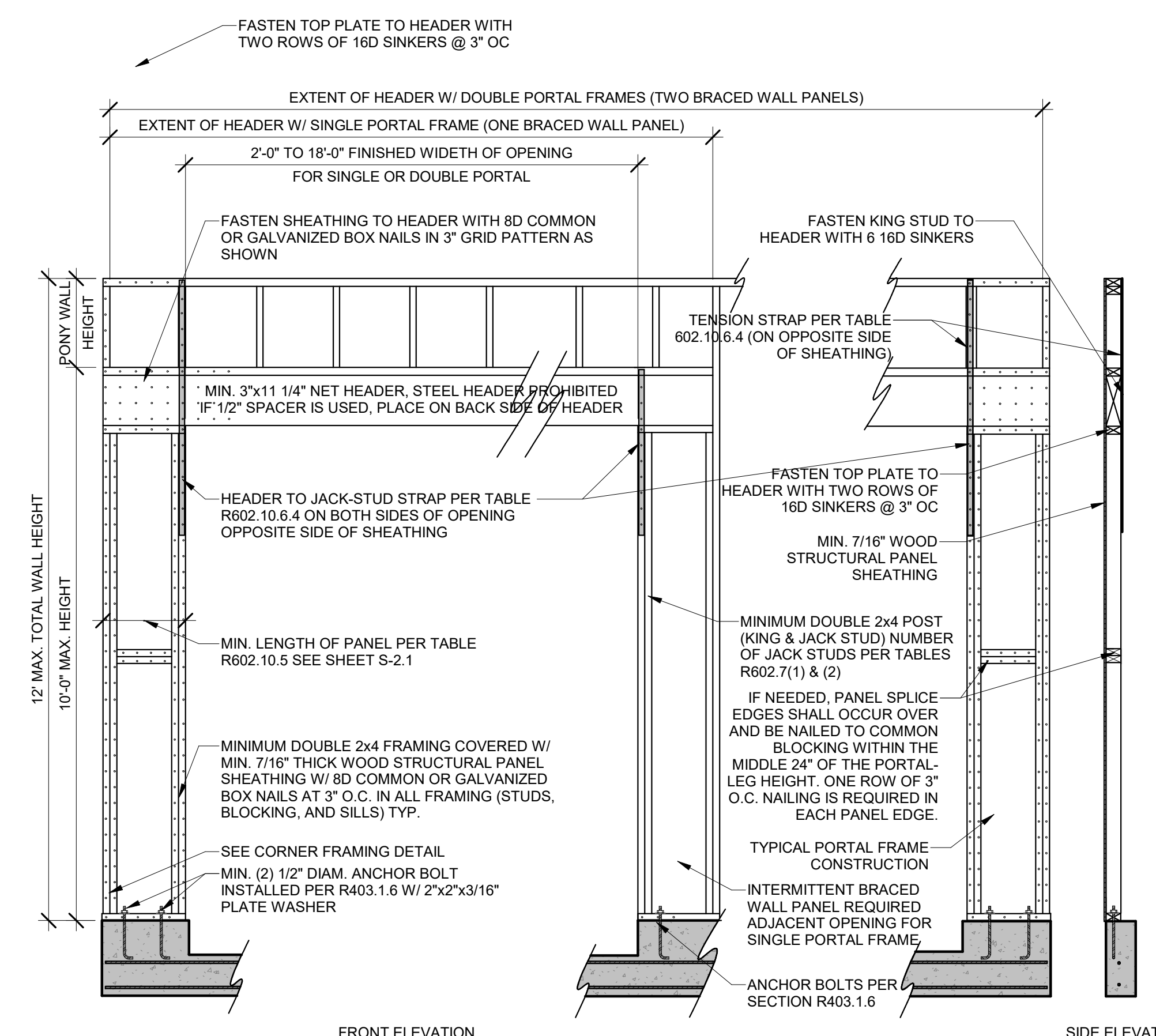
NOTE: SOIL SITE CLASS SHALL BE CLASS D. IF SITE CONDITIONS ARE DETERMINED TO BE CLASS E OR F, CONSULT ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.



3 BRACED WALL PANEL CONNECTIONS
1" = 1'-0"

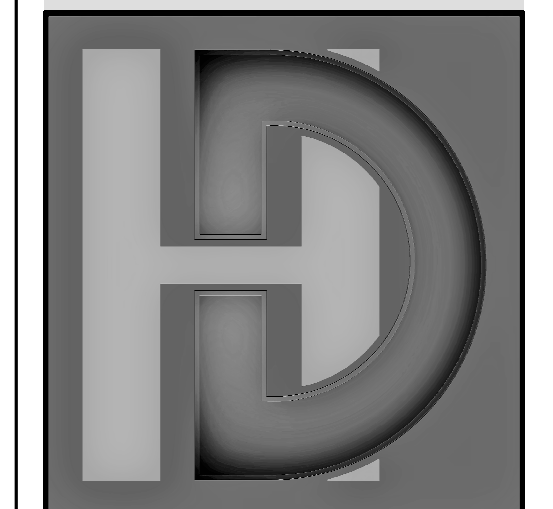


1 PFG PORTAL FRAME W/ HOLD DOWNS (R602.10.6.2)
1/2" = 1'-0"



2 PFG PORTAL FRAME W/OUT HOLD DOWNS (R602.10.6.3)
1/2" = 1'-0"

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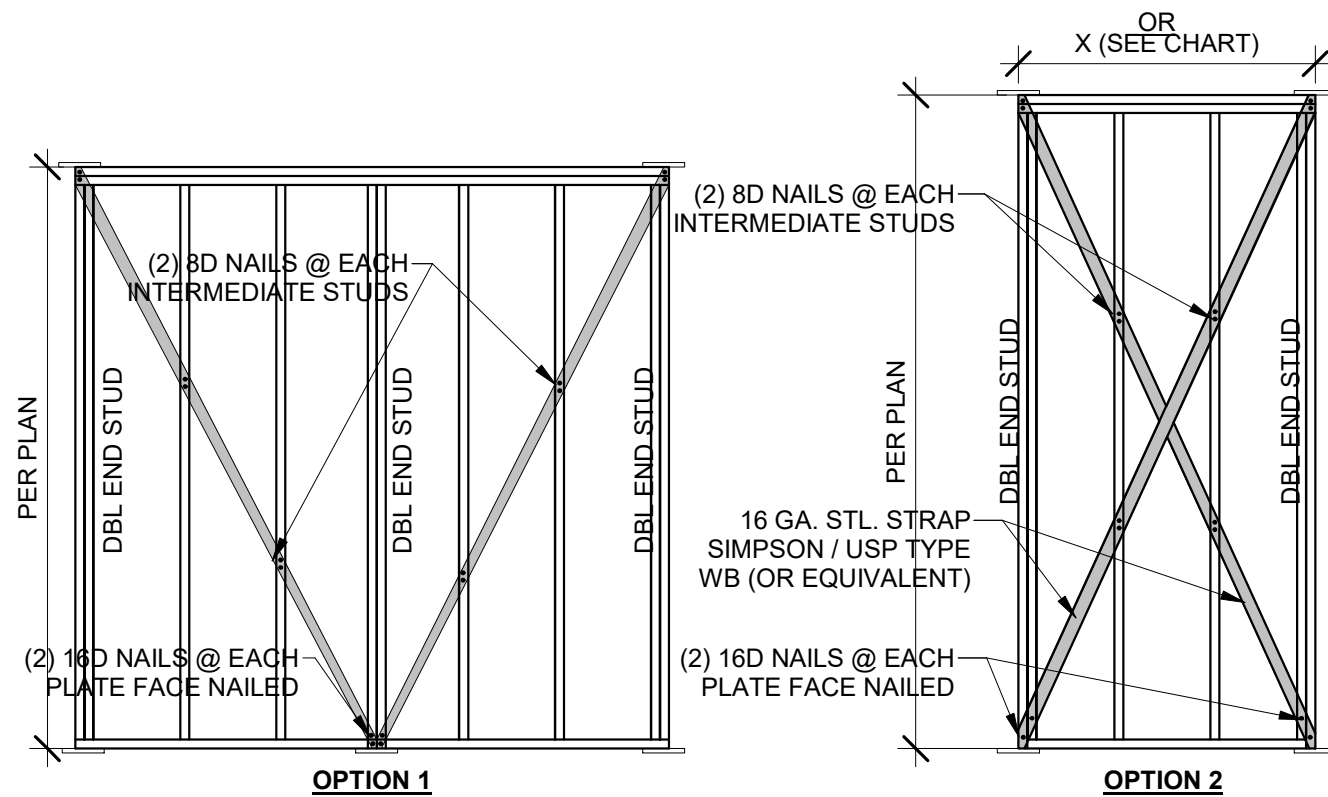
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BRACED WALL NOTES & DETAILS

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BRACED WALL PANEL LENGTH BASED ON WALL HEIGHT FOR IRC, LIB		
WALL HEIGHT	MIN. WALL LENGTH (X)	MAX. WALL LENGTH (X)
8'-0"	4'-7"	8'-0"
9'-0"	5'-2"	9'-0"
10'-0"	5'-9"	10'-0"
11'-0"	NP	---
12'-0"	NP	---

6 LIB BRACING
3/8" = 1'-0"

TABLE R602.10.5 MINIMUM LENGTH OF BRACED WALL PANELS

METHOD (SEE TABLE R602.10.4)	MINIMUM LENGTH (INCHES) ^a					CONTRIBUTING LENGTH (INCHES)	
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET		
DWB,WSP,SFB,PBS,PCP,HPS,BV-WSP	48	48	48	53	58	ACTUAL ^b	
GB	48	48	48	53	58	DOUBLE SIDED = ACTUAL SINGLE SIDED = .5xACTUAL	
LIB	55	62	69	NP	NP	ACTUAL ^b	
ABW	SDC A, B, AND C ULTIMATE DESIGN WIND SPEED <140	28	32	34	38	42	48
	SDC D, D, D ULTIMATE DESIGN WIND SPEED <140	32	32	34	NP	NP	
PFH	SUPPORTING ROOF ONLY	16	16	16	NOTE C	NOTE C	48
	SPTNG. ONE STORY & ROOF	24	24	24	NOTE C	NOTE C	
PFG	24	27	30	NOTE D	NOTE D	1.5 x ACTUAL ^b	
CS-G	24	27	30	33	36	ACTUAL ^b	
CS-PF	16	18	20	NOTE E	NOTE E	ACTUAL ^b	
CS-WSP CS-SFB	ADJACENT CLEAR OPENING HEIGHT (INCHES)						ACTUAL ^b
	≤64	24	27	30	33	36	
	68	26	27	30	33	36	
	72	27	27	30	33	36	
	76	30	29	30	33	36	
	80	32	30	30	33	36	
	84	35	32	32	33	36	
	88	38	35	33	33	36	
	92	43	37	35	35	36	
	96	48	41	38	36	36	
	100	-	44	40	38	38	
	104	-	49	43	40	39	
	108	-	54	46	43	41	
	112	-	-	50	45	43	
	116	-	-	55	48	45	
120	-	-	60	52	48		
124	-	-	-	56	51		
128	-	-	-	61	54		
132	-	-	-	66	58		
136	-	-	-	-	62		
140	-	-	-	-	66		
144	-	-	-	-	72		

a. LINEAR INTERPOLATION SHALL BE PERMITTED.
 b. USE THE ACTUAL LENGTH WHEN IT IS GREATER THAN OR EQUAL TO THE MINIMUM LENGTH.
 c. MAX. HEADER HEIGHT FOR PFH IS 10" IN ACCORDANCE WITH R602.10.6.2. WALL HEIGHT MAY BE INCREASED TO 12" WITH PONY WALL.
 d. MAX. OPENING HEIGHT FOR PFG IS 10" IN ACCORDANCE WITH R602.10.6.3. WALL HEIGHT MAY BE INCREASED TO 12" WITH PONY WALL.
 e. MAX. OPENING HEIGHT FOR CS-PF IS 10" IN ACCORDANCE WITH R602.10.6.4. WALL HEIGHT MAY BE INCREASED TO 12" WITH PONY WALL.

BRACED WALL PRESRIPTIVE METHOD:
 CONTINUOUS EXTERIOR SHEATHING (CS-WSP) PER WSP METHOD (BELOW) UNLESS OTHERWISE NOTED ON THE PLAN

EXTERIOR BRACED WALL METHOD: (SEE ON THIS SHEET)
 WSP METHOD:
 WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" O.C. STUD SPACING WITH 6d COMMON NAILS @ 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" O.C. SPACING WITH 8d COMMON NAILS @ 6" O.C. EDGES AND 12" O.C. IN FIELD.
 (NOTE: FRAMING MEMBERS 16" O.C. MAX. UNBLOCKED, AND W/ SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS).

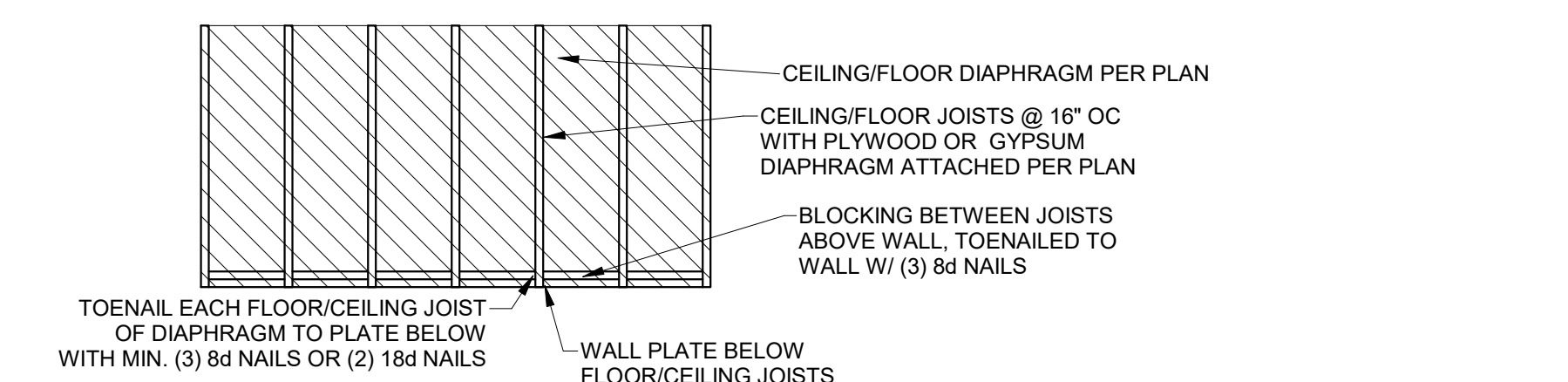
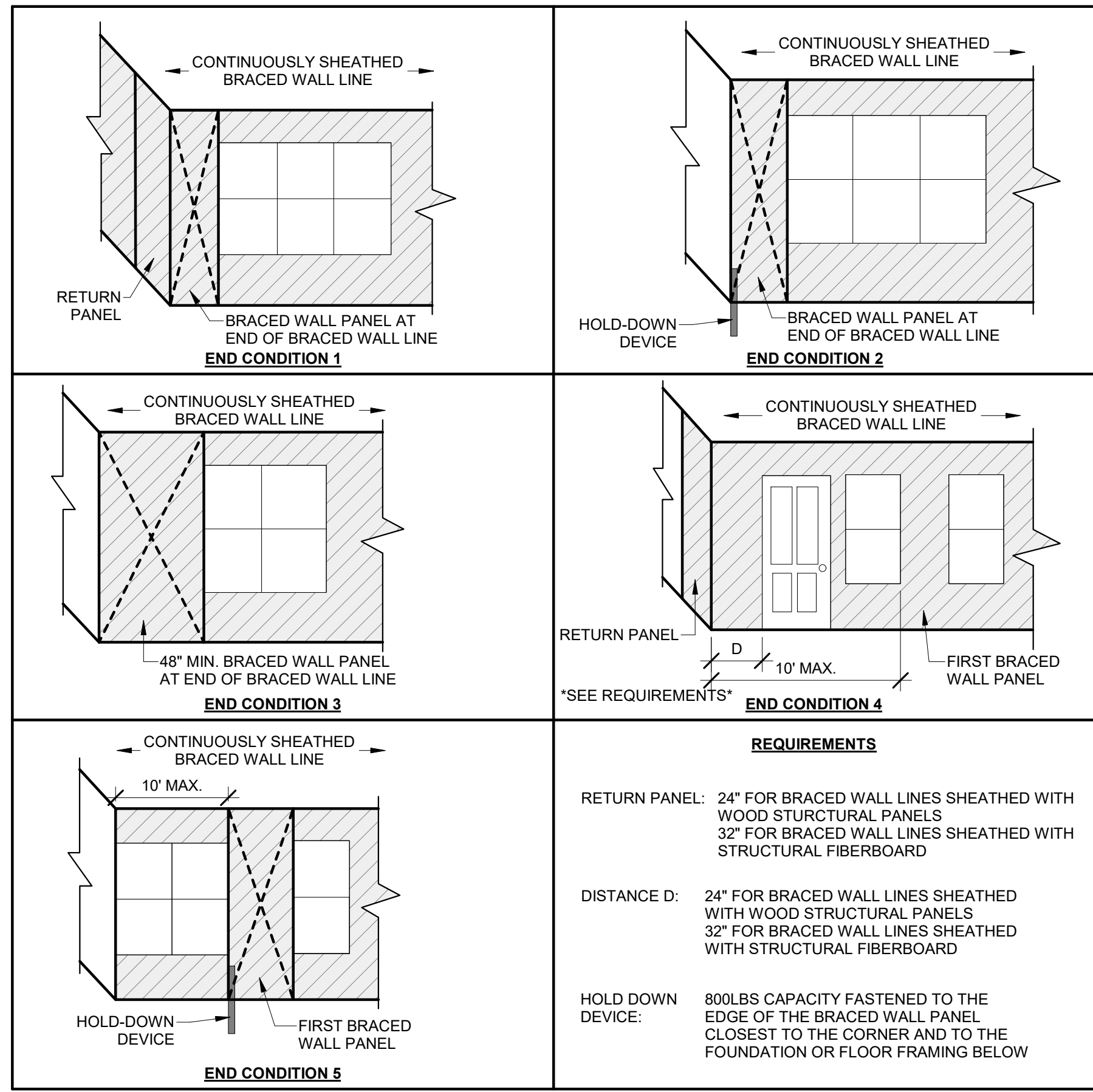
INTERIOR BRACED WALLS (SEE ON THIS SHEET)
 GB METHOD:
 1/2" MINIMUM GYPSUM BOARD OVER STUDS SPACED @ 24" MAXIMUM FASTENED W/ #6 - 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS @ 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES)
 OR
 LIB METHOD:
 1x4 WOOD FASTENED W/ (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUIVALENT) STL. X-BRACE(S) @ 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUDS FASTENED PER MANUF. SPECS.

TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO METHOD PFH, PFG AND CS-PF BRACED WALL PANELS IRC2018 TABLE R602.10.6.4

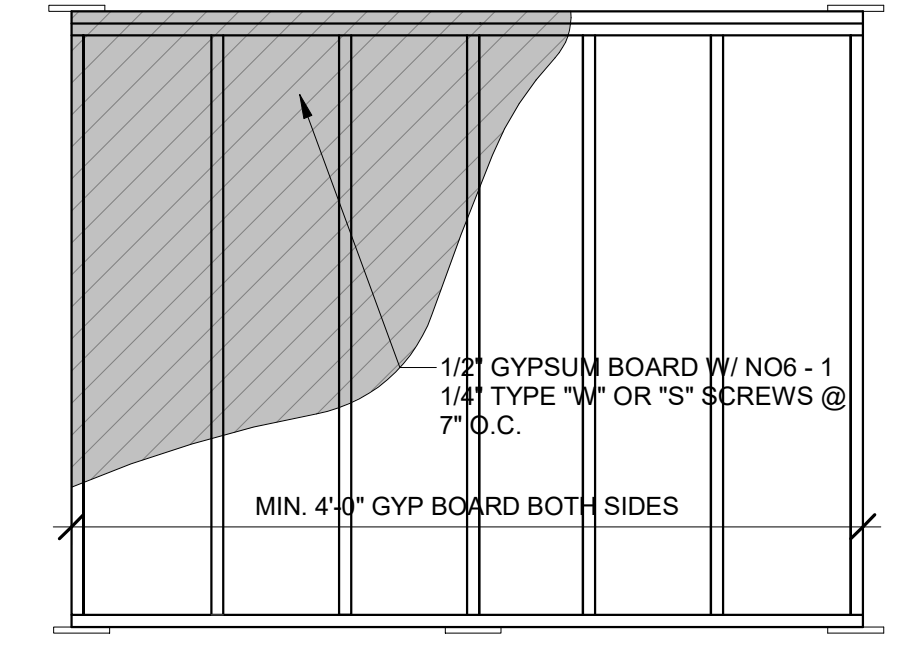
MINIMUM WALL STUD FRAMING NOMINAL SIZE & GRADE	MAX. PONY WALL HEIGHT (FEET)	MAX. TOTAL WALL HEIGHT (FEET)	MAX. OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQUIRED (POUNDS) ^a	
				ULTIMATE DESIGN WIND SPEED V (MPH)	
				115	115
				EXPOSURE B	EXPOSURE C
2x4 NO. 2 GRADE	0	10	18	1,000	1,000
				9	1,000
				16	1,025
				18	1,275
				9	1,000
				11	2,175
	2	10	18	2,500	DR
				9	1,500
				16	3,375
				18	3,975
				9	2,750
				12	3,775
2x6 STUD GRADE	2	12	12	1,000	2,025
				16	2,150
				18	2,550
				9	1,750
				16	2,400
				18	3,800
	4	12	12	9	DR
				16	DR
				18	DR
				9	DR
				16	DR
				18	DR

a. DR = DESIGN REQUIRED
 b. STRAP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

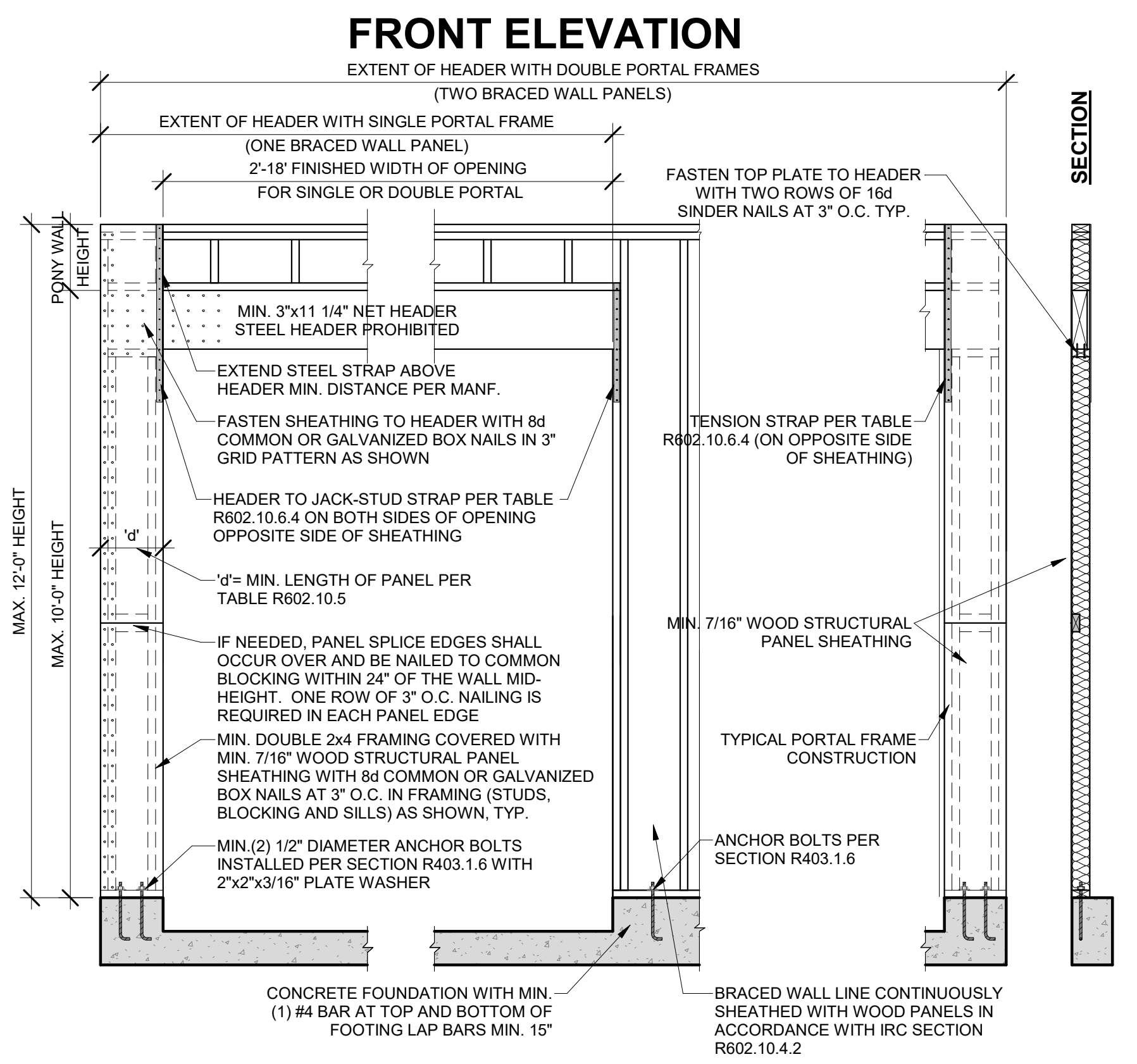
END WALL CONDITIONS



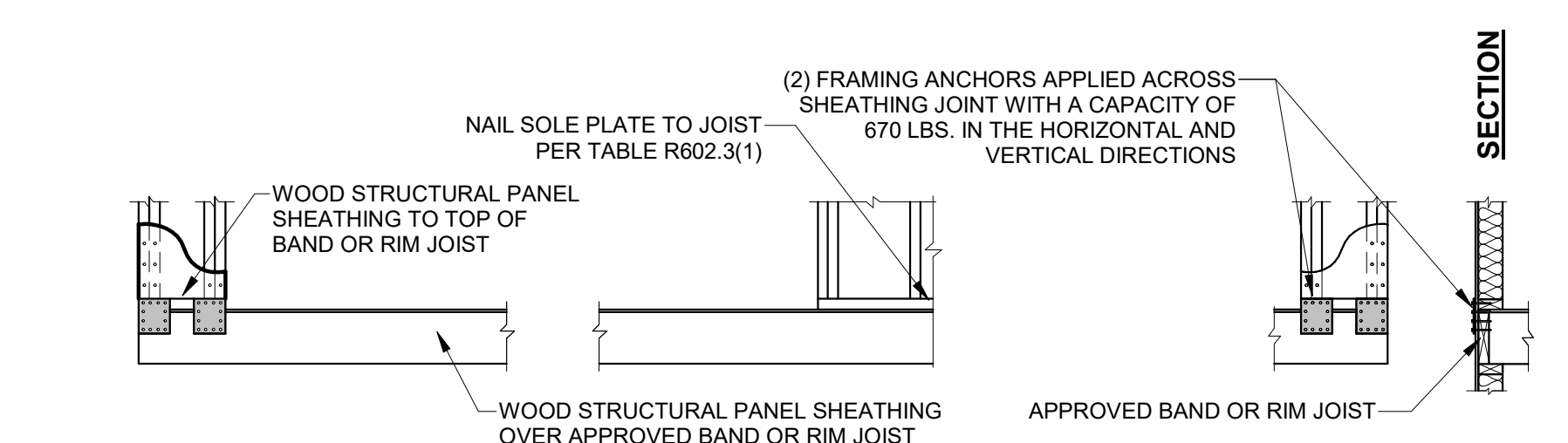
1 DIAPHRAGM CONNECTION TO INTERIOR WALL
3/8" = 1'-0"



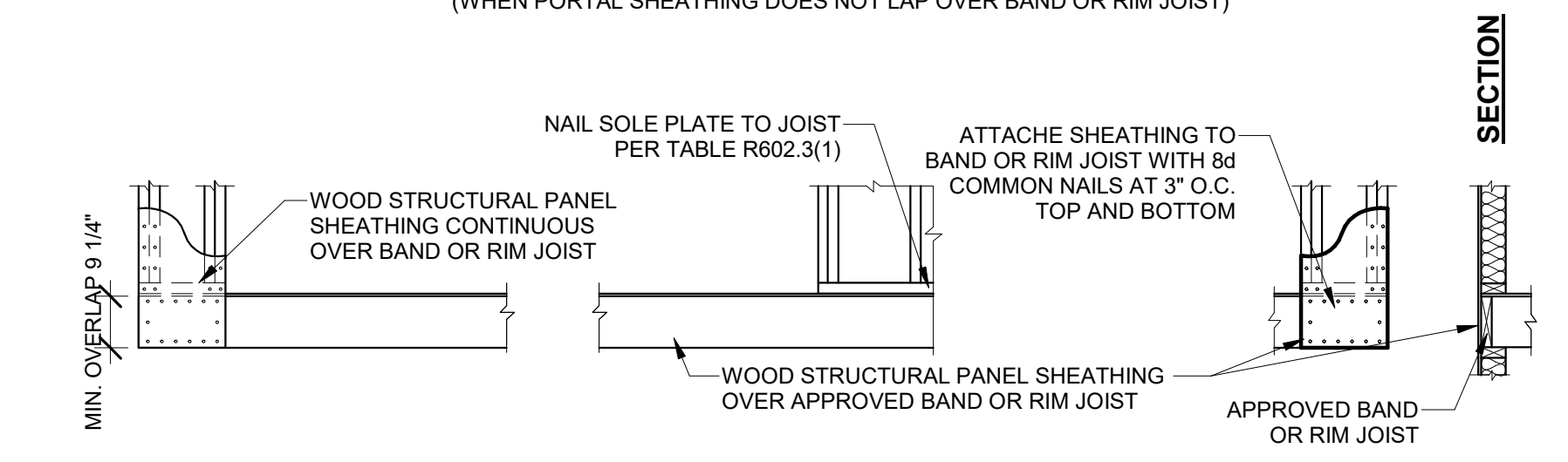
5 GB BRACING
1/2" = 1'-0"



OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - OVERLAP OPTION



OVER RAISED WOOD FLOOR - OVERLAP OPTION
(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

4 CS-PF
1/2" = 1'-0"

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STATE OF MISSOURI
 CHRIS SAATHOFF
 LICENSE NUMBER 2008001865
 EXPIRES 12/18/2024
 REGISTERED PROFESSIONAL ENGINEER

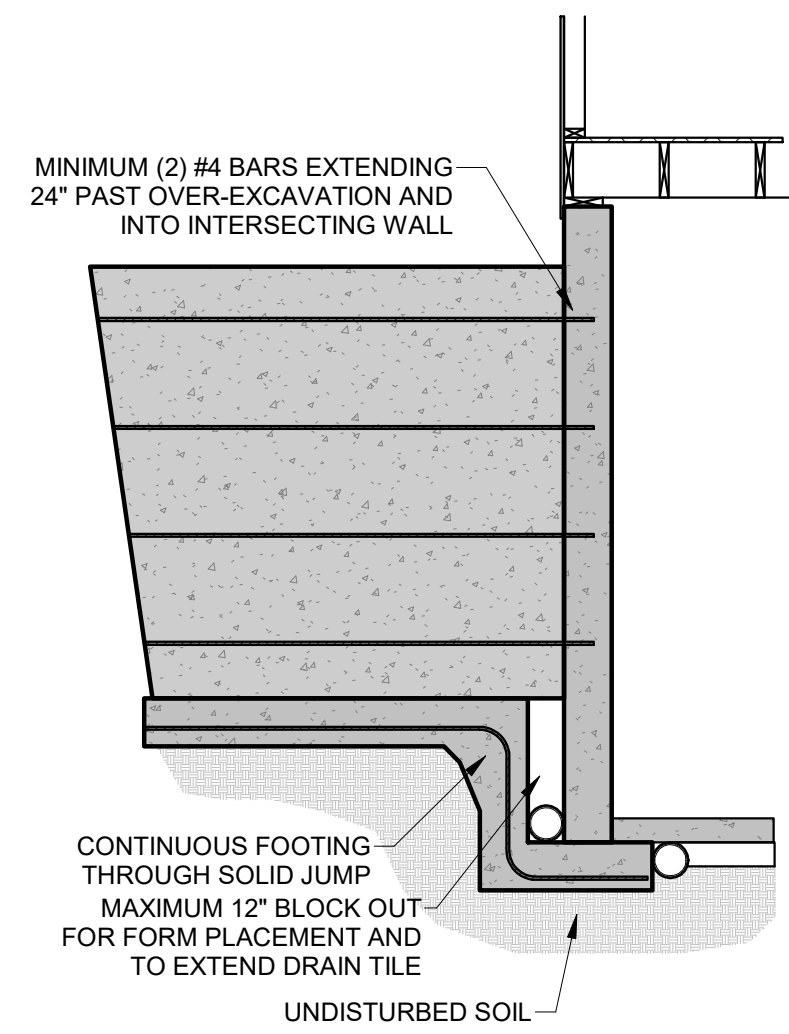
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 LEE'S SUMMIT, MO
 2221 SW Crown Dr. Lee's Summit, MO 64082
 STRUCTURAL DETAILS & NOTES

HD#: 48740
 DATE: 12/18/2024
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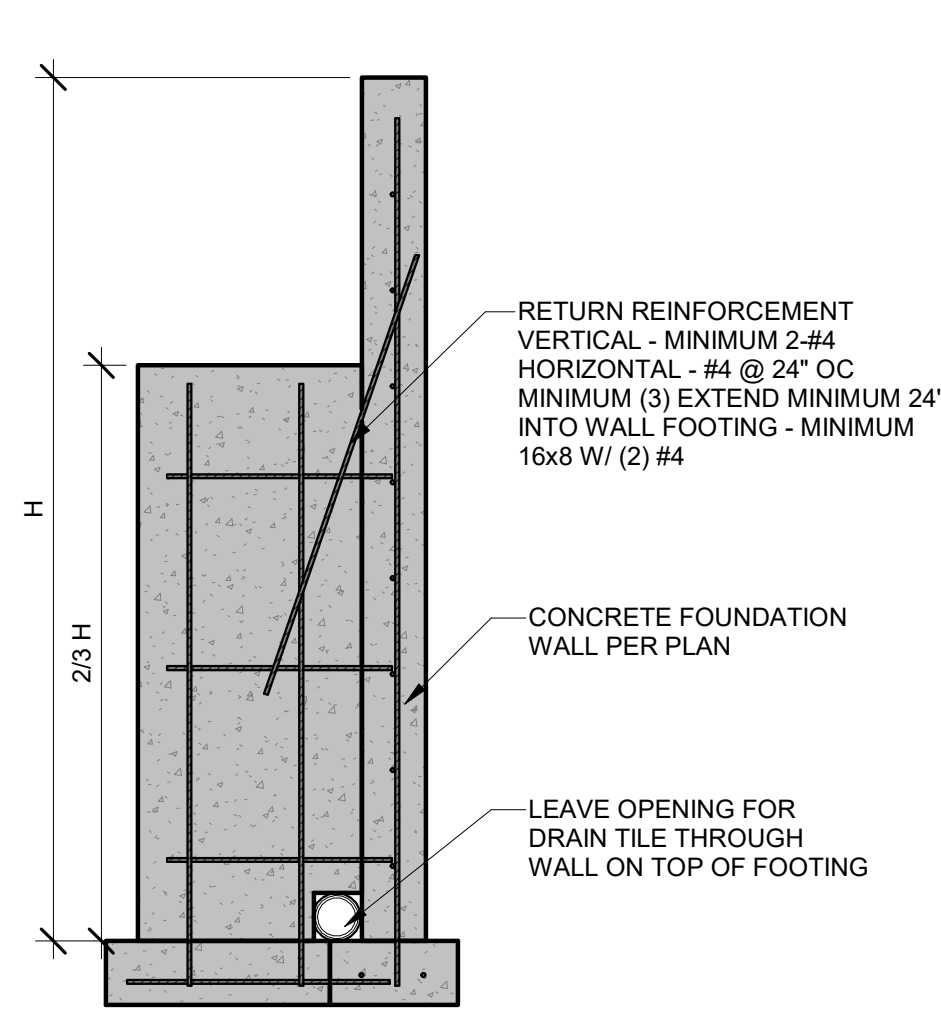
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BRACED WALLS NOTES & DETAILS

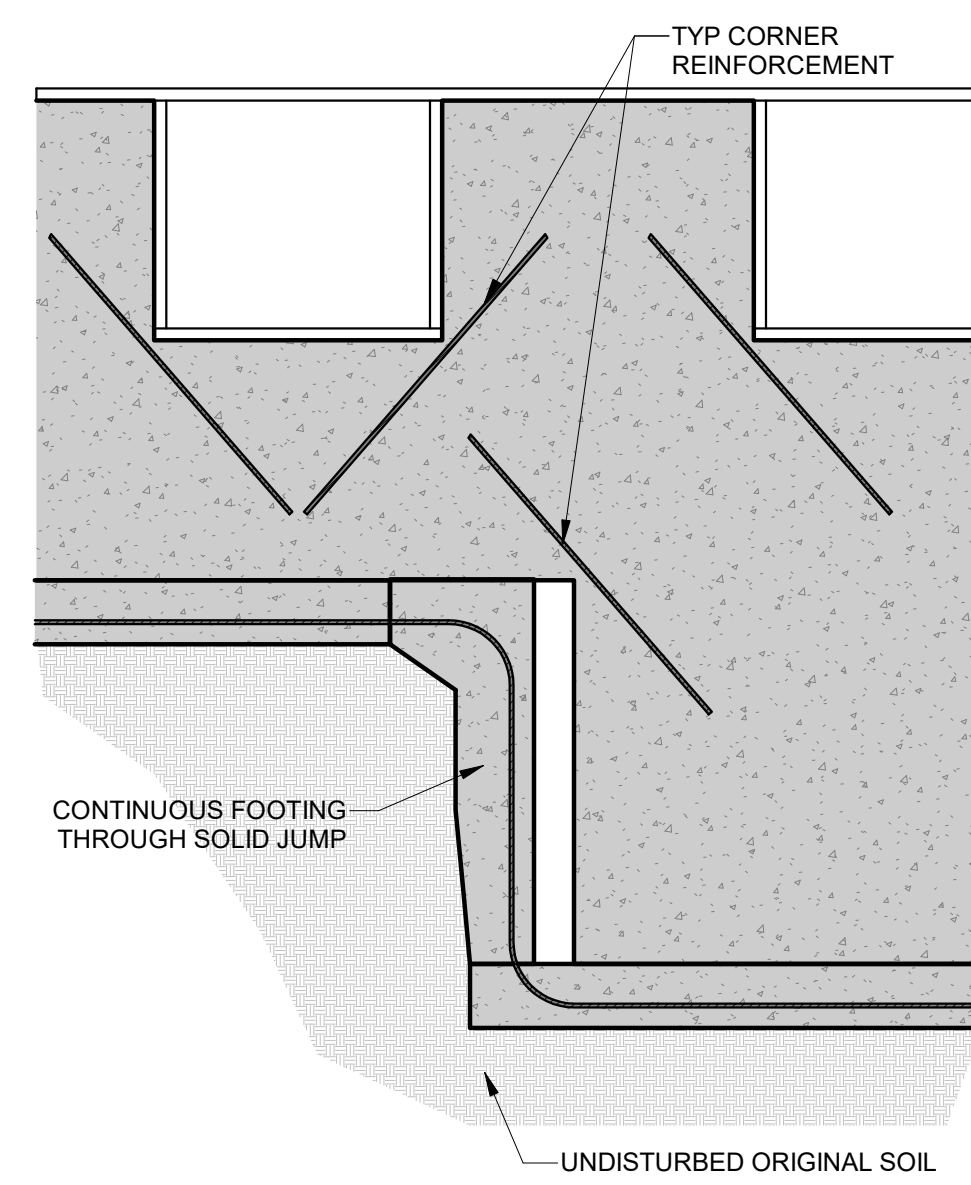
S-2.1



1 SOLID FOOTING JUMP DETAIL
3/8" = 1'-0"

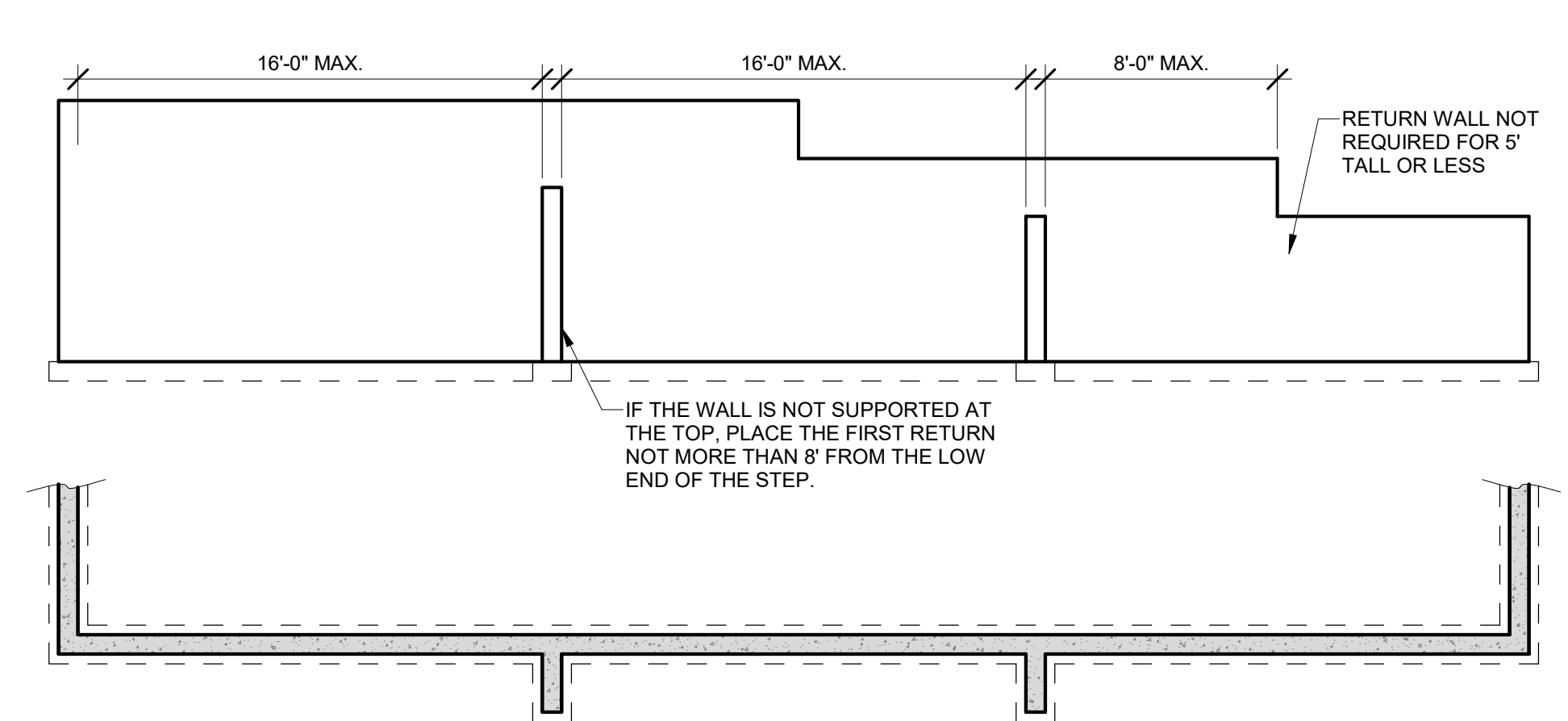


2 RETURN WALL DETAIL
1/2" = 1'-0"

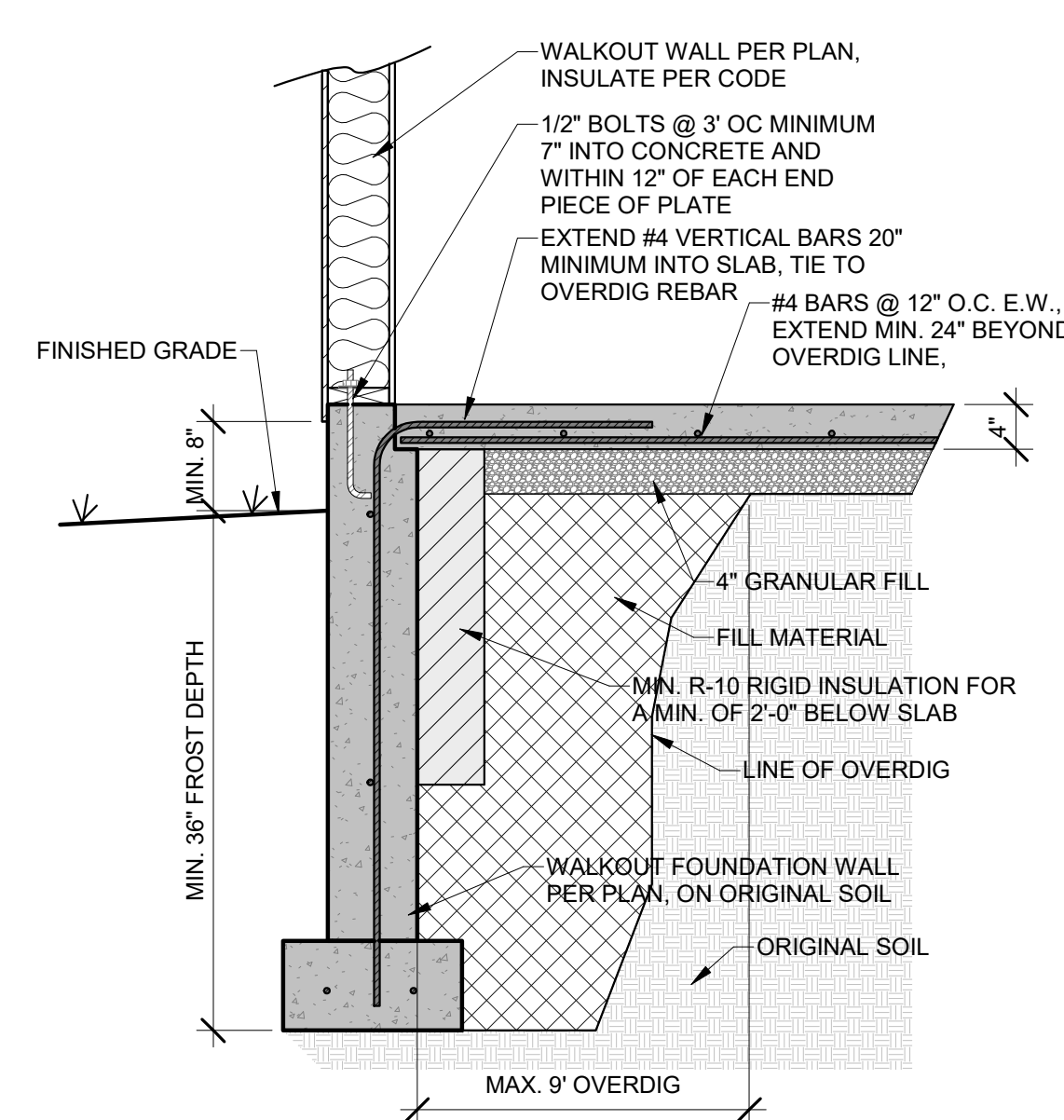


WHERE OPENINGS OR ABRUPT ELEVATION CHANGES OCCUR IN THE TOP OR BOTTOM OF THE WALL AT LEAST ONE #4 BAR 48\"/>

9 REINFORCEMENT AT CORNERS AND STEPS
1/2" = 1'-0"



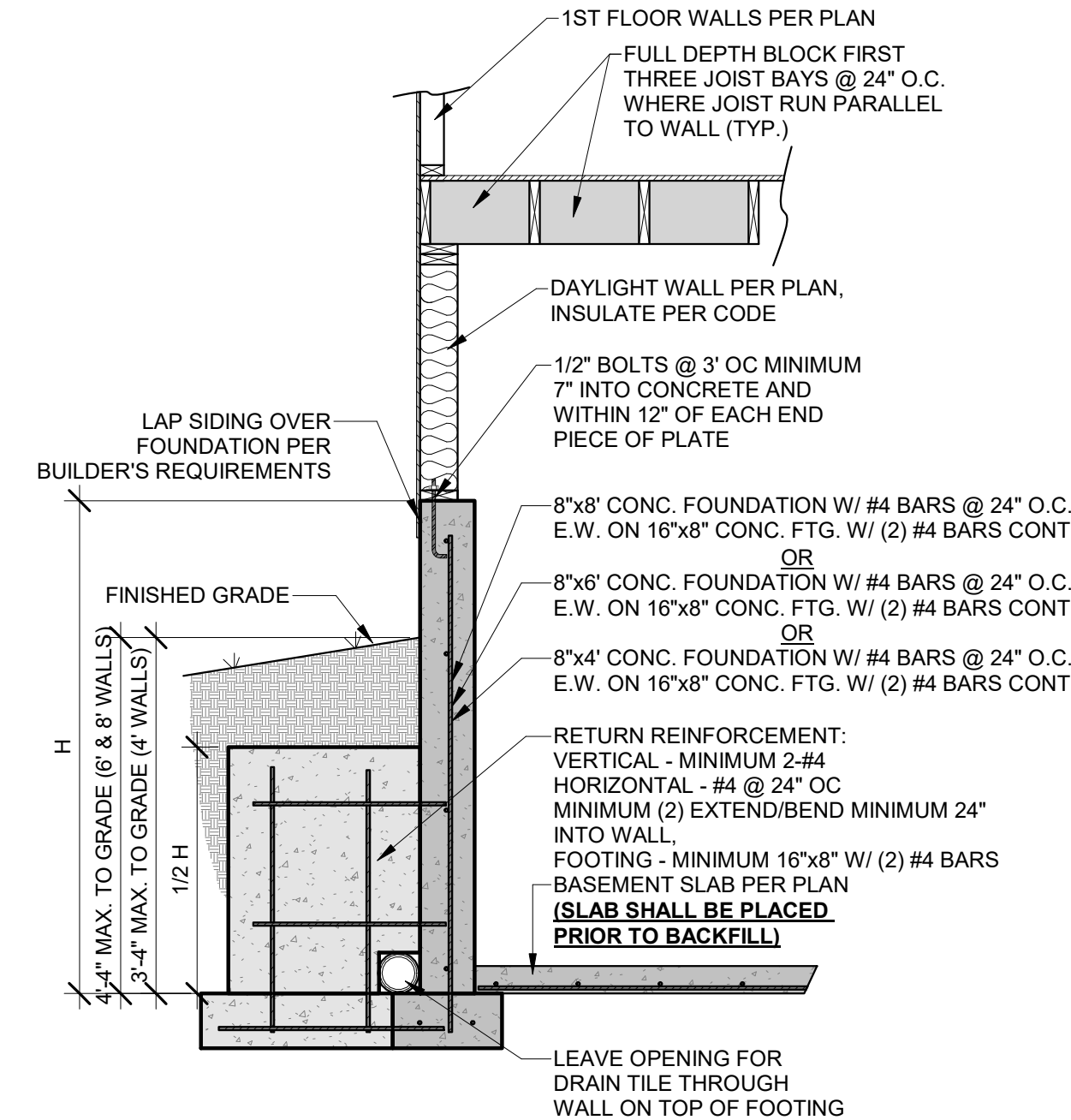
4 RETURN WALL PLACEMENT
3/16" = 1'-0"



IF OVER 9' OVERDIG SEE HD ENGINEERING FOR STRUCTURAL BASEMENT SLAB DESIGN

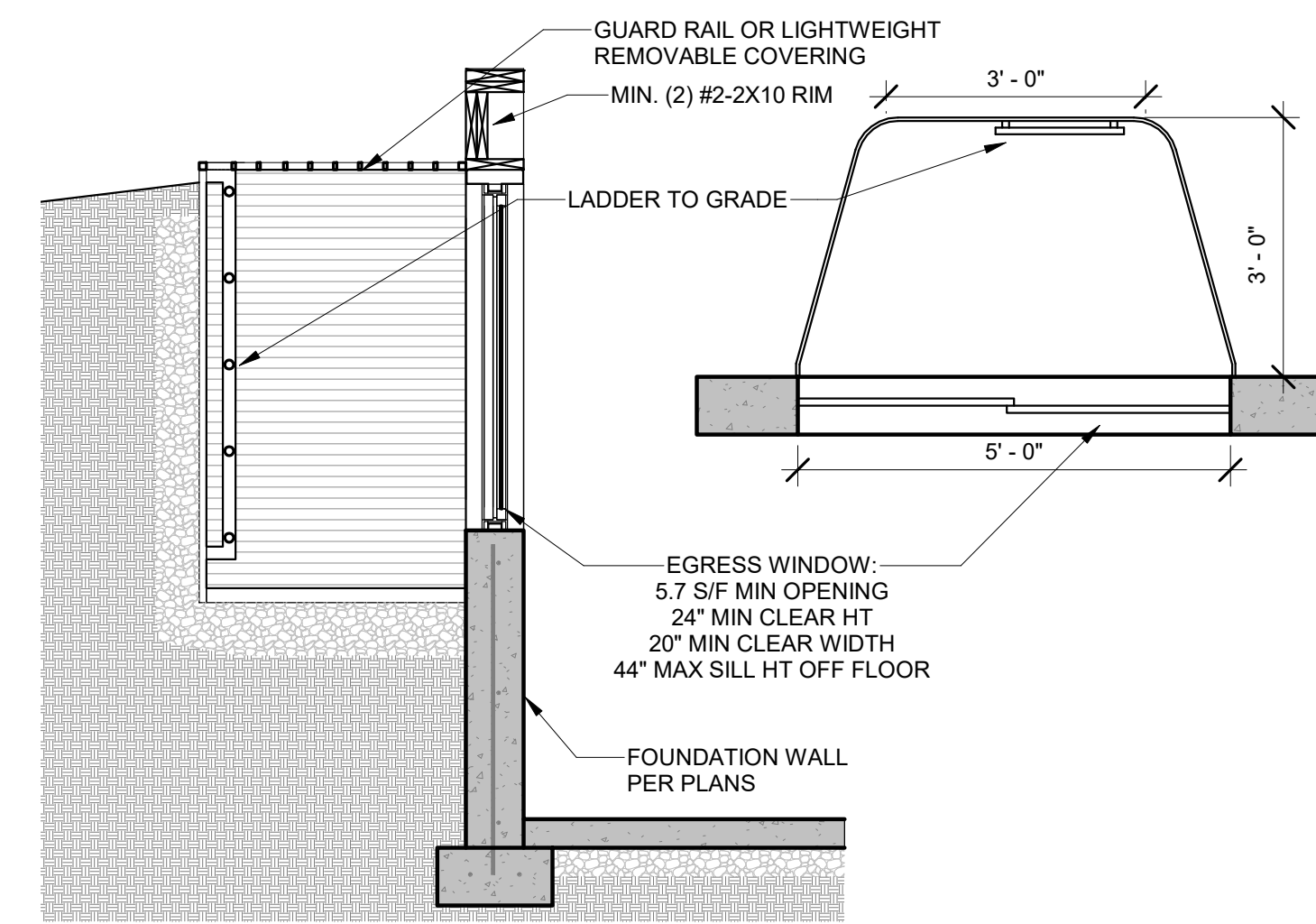
IMPORTANT NOTE:
ANY SLAB WITH GREATER THAN 2' OF GRADED ROCK OR 8' OF FILL SOIL BELOW SHALL BE DESIGNED AS STRUCTURAL PER PLAN. OUR FIRM SHOULD BE CONTACTED IMMEDIATELY FOR DESIGN RECOMMENDATIONS. DESIGN MUST BE COMPLETED PRIOR TO PLACEMENT OF PIERS OR FOOTINGS.

10 WALKOUT DETAIL
3/4" = 1'-0"



8"x4', 8"x6', AND 8"x8' DAYLIGHT FOUNDATION
IF SLAB IS NOT PLACED PRIOR TO BACKFILL CONTRACTOR IS RESPONSIBLE FOR BRACING THE FOUNDATION AS REQUIRED

7 UNRESTRAINED FOUNDATION WALL
1/2" = 1'-0"



11 EGRESS WINDOW SECTION
1/2" = 1'-0"

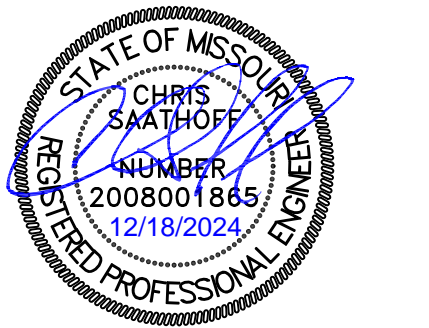
VERTICAL REINFORCEMENT SPACING* 60 PSF SOIL; 40 & 60 KSI STEEL						
CONCRETE STRENGTH	8" THICK WALL			10" THICK WALL		
	8'	9'	8'	9'	10'	10'
3000 PSI/ 40 KSI	16	12	24	16	12	12
3500 PSI/ 40 KSI	16	12	24	24	12	12
3000 PSI/ 60 KSI	24	16	24	20	16	16
3500 PSI/ 60 KSI	24	16	24	24	16	16

HORIZONTAL REINFORCEMENT**						
ONE BAR 12" FROM TOP OF WALL; MAX. SPACING 24" O.C.	4- #4	5- #4	4- #4	5- #4	6- #4	6- #4

* CONCRETE SHALL HAVE AIR ENTRAINMENT OF 5-7%.
* MINIMUM REQUIREMENT FOR VERTICAL REBAR IN PLAIN CONCRETE WALLS IS #4 @ 36" ON CENTER (ACI 332).
* VERTICAL BARS SHALL BE CONTINUED UP TO WITHIN 8" OF THE TOP OF THE WALL.
* REBAR SHALL BE POSITIONED AT THE TENSION FACE OF THE WALL (2" FROM THE INSIDE FACE).
* REINFORCEMENT SHALL LAP A MINIMUM OF 24 INCHES AT ENDS, SPLICES, AND AROUND CORNERS.
** #4 BARS @ 24" ON CENTER.
** #4 BAR WITHIN 12 OF TOP AND BOTTOM OF WALL.
** MINIMUM GRADE 40 (40ksi) STEEL (PER ACI 332).
** HORIZONTAL REINFORCEMENT SHALL BE INSTALLED ON THE COMPRESSION SIDE (SOIL SIDE) OF THE VERTICAL REINFORCEMENT

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STRUCTURAL DETAILS & NOTES

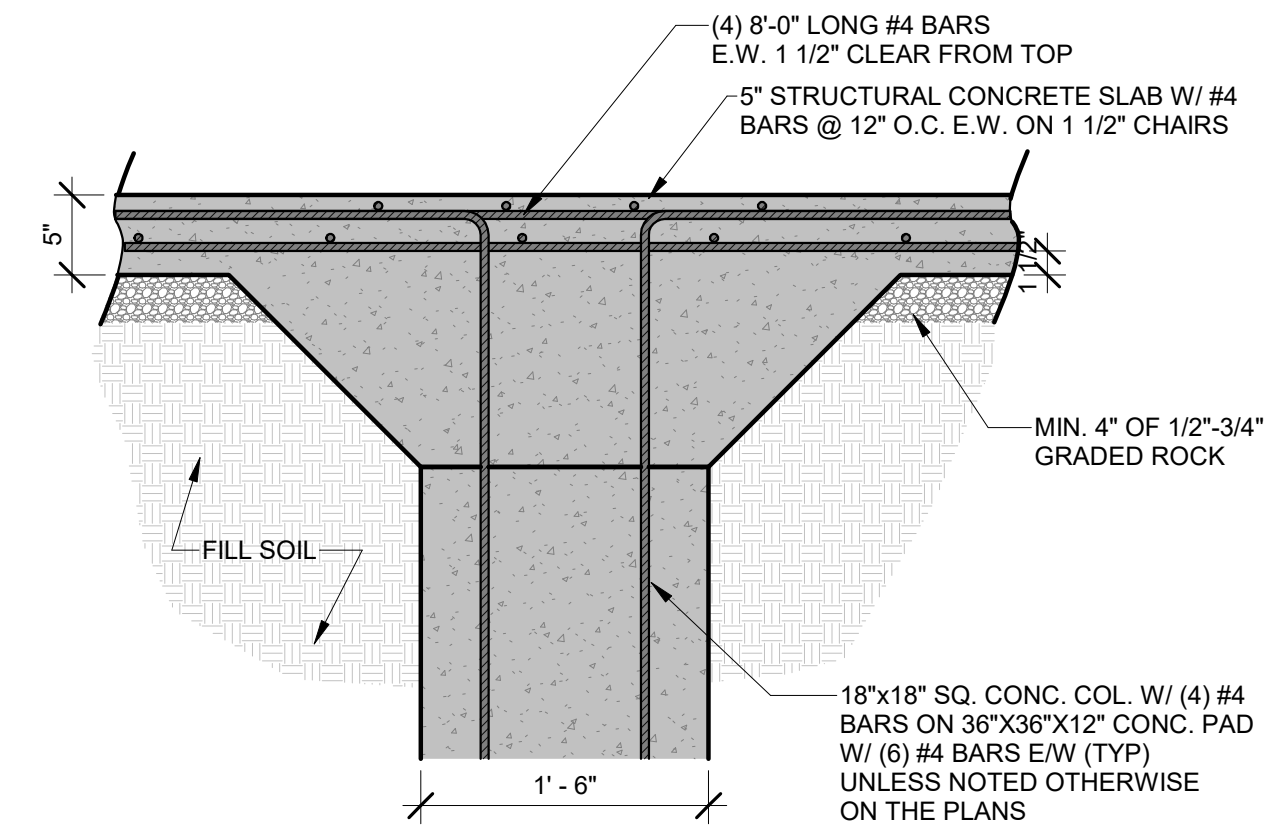
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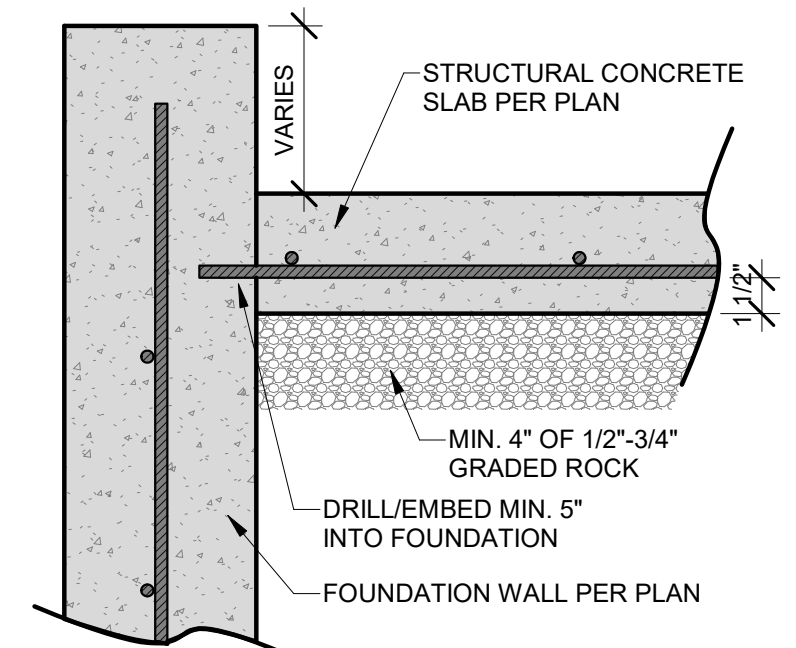
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CONCRETE DETAILS

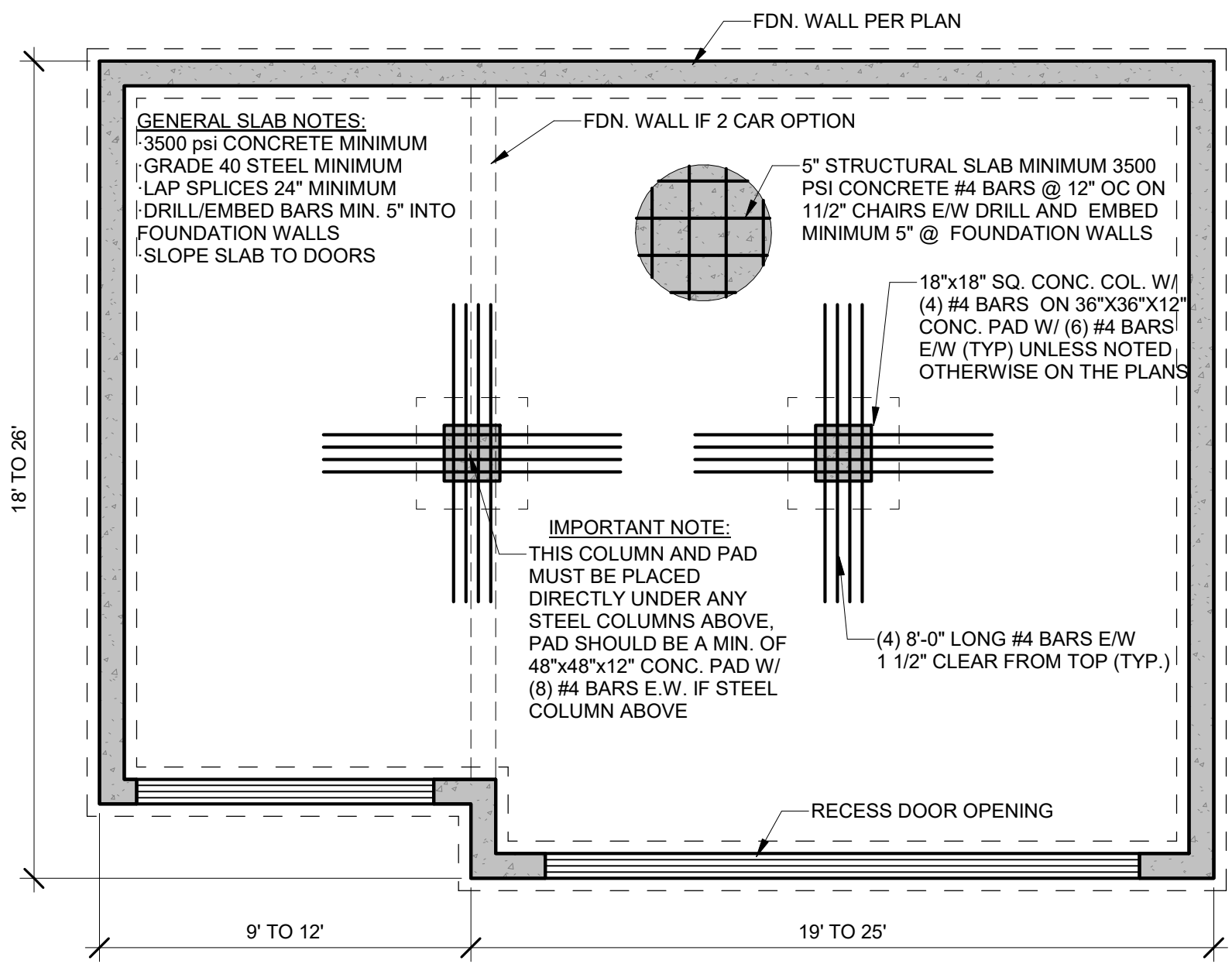
S-3.0



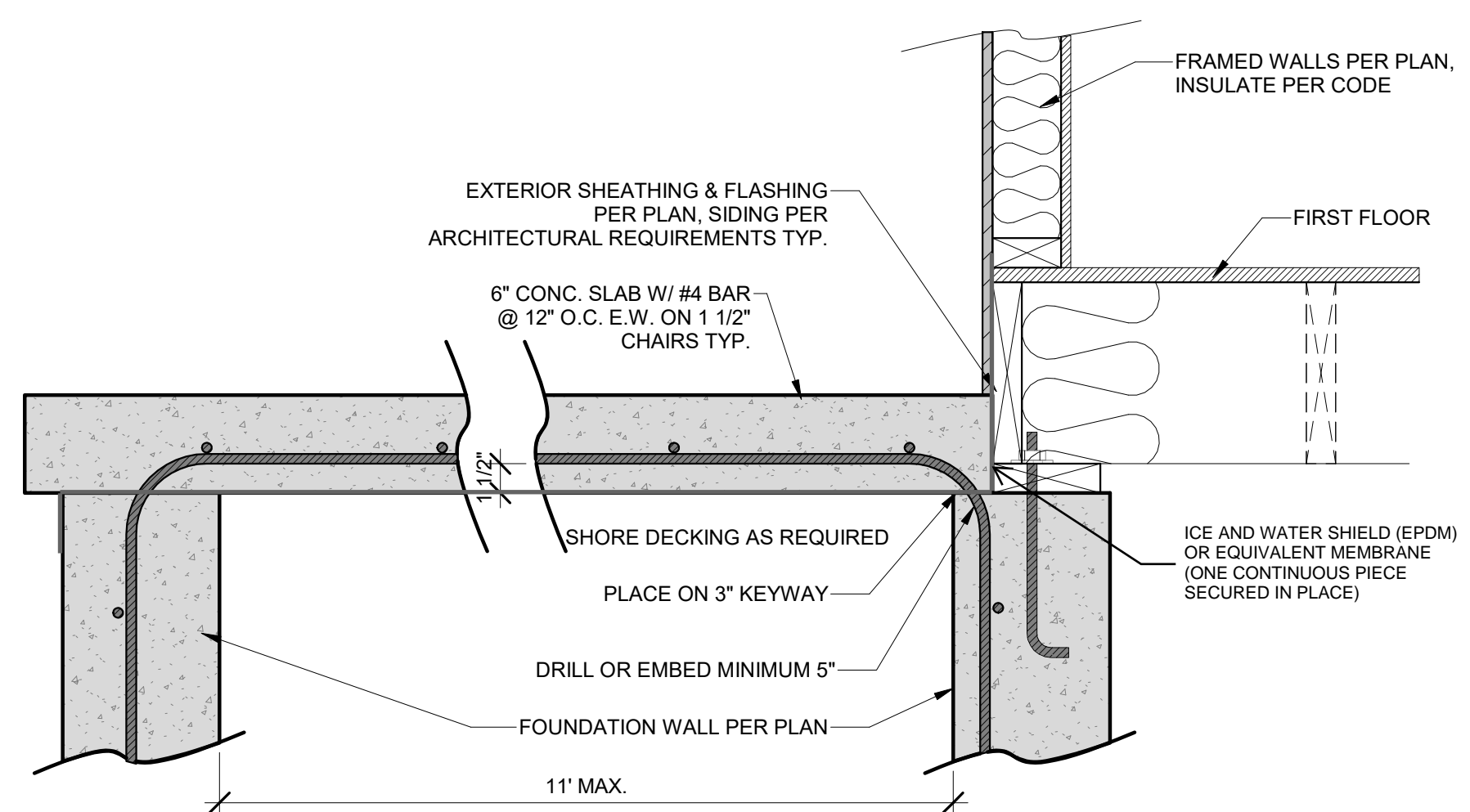
8 GARAGE SLAB COLUMN DETAIL
1" = 1'-0"



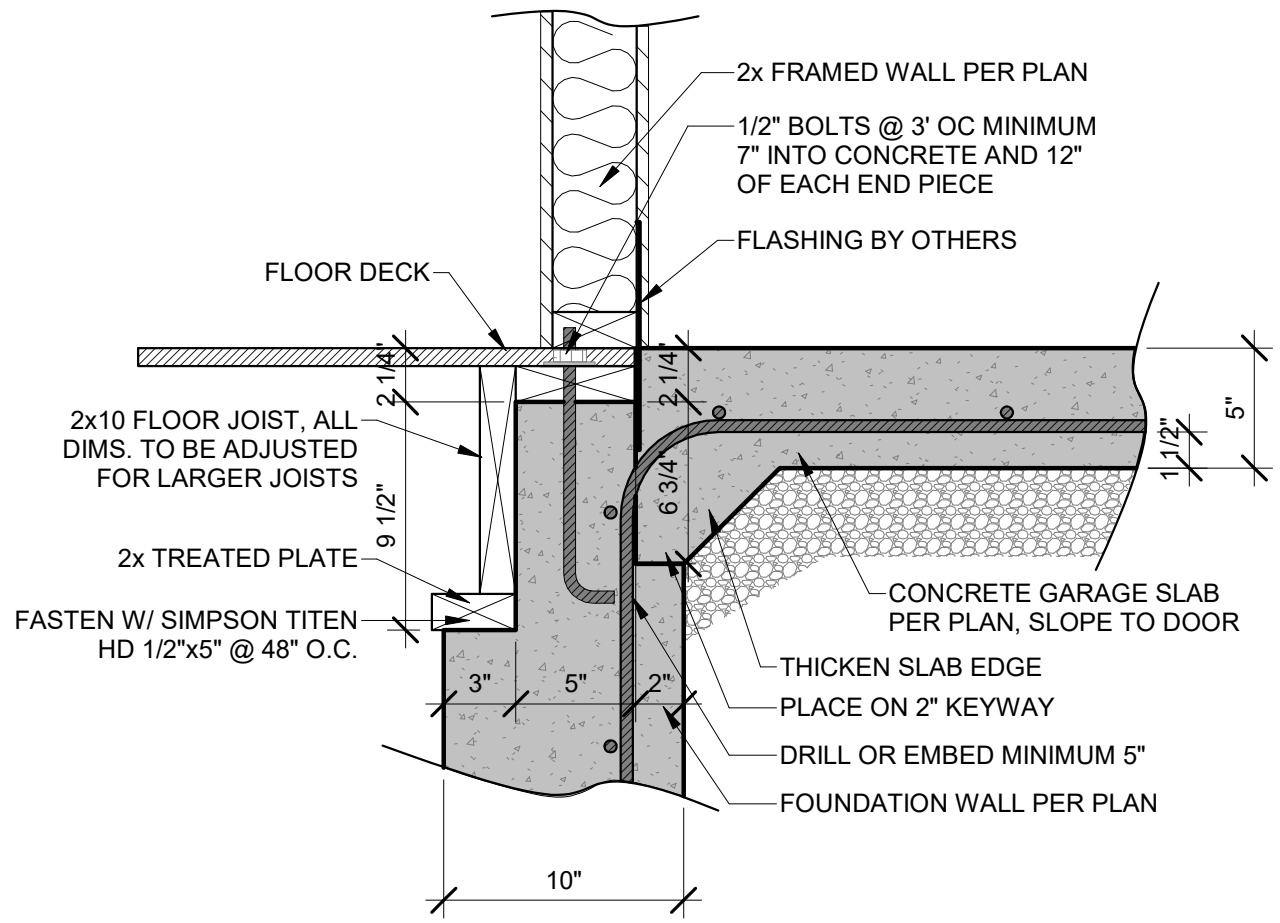
9 STRUCTURAL SLAB/ WALL
1 1/2" = 1'-0"



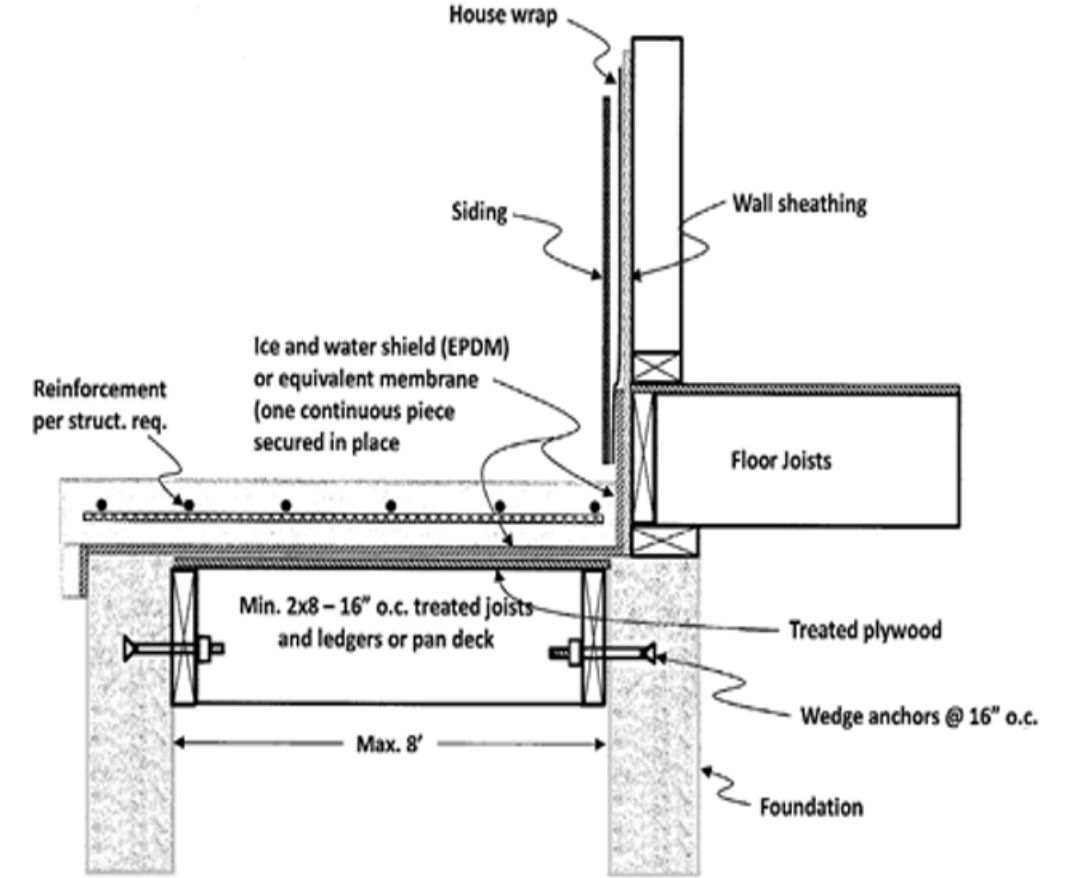
10 TYPICAL GARAGE SLAB
1/4" = 1'-0"



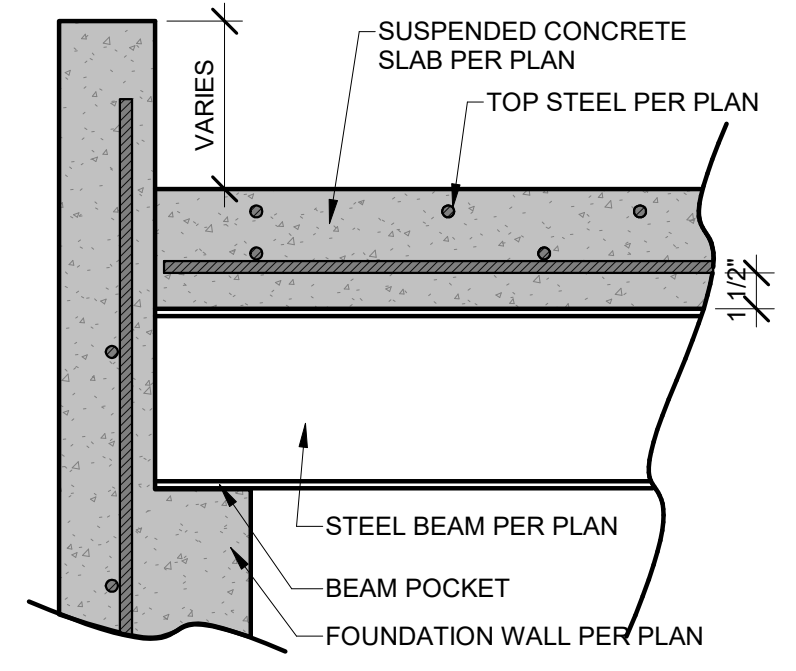
6 SUSPENDED PORCH STOOP SLAB
1 1/2" = 1'-0"
SEE JOCOBO FLASHING DETAIL FOR ADDITIONAL INFORMATION



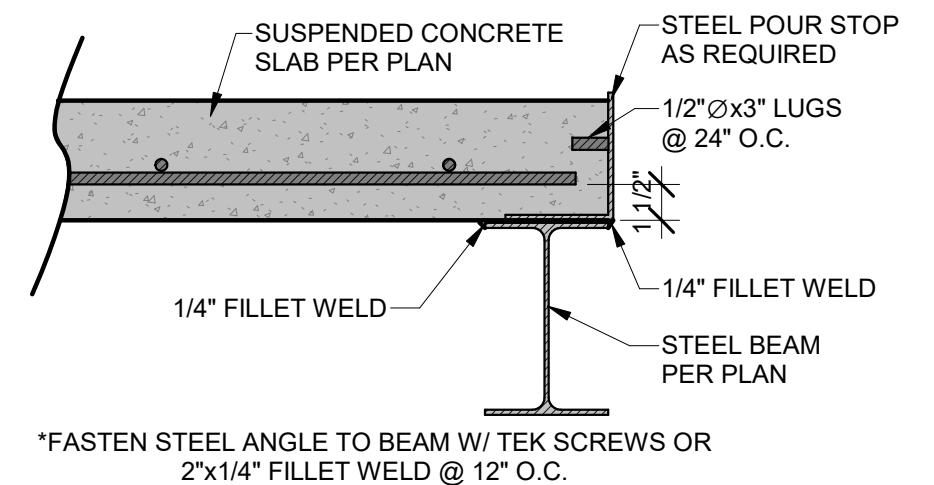
7 ZERO ENTRY GARAGE DETAIL
1 1/2" = 1'-0"



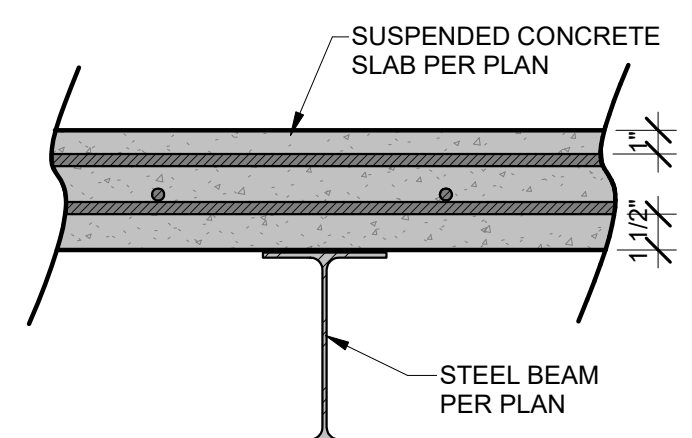
JOCOBO FLASHING DETAIL



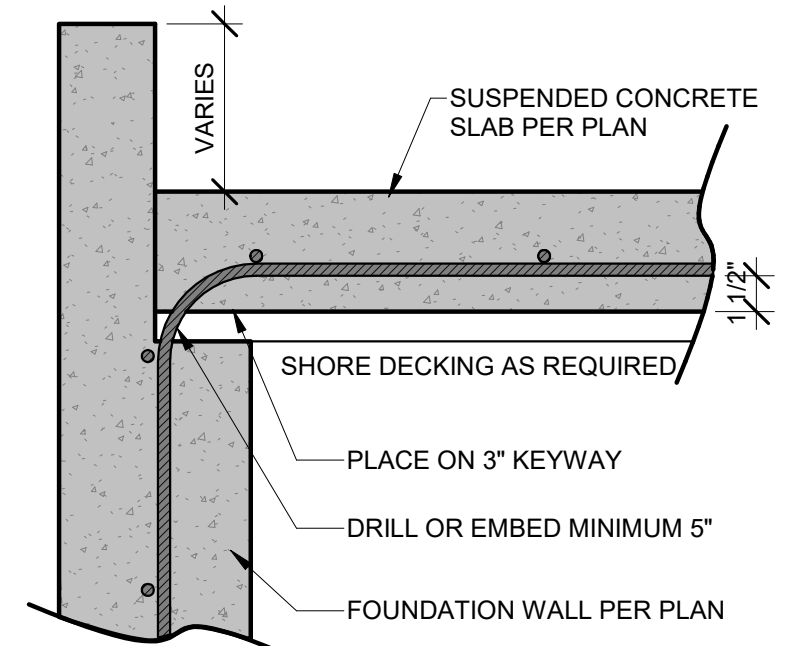
1 SUSPENDED SLAB BEAM/WALL CONNECTION
1 1/2" = 1'-0"



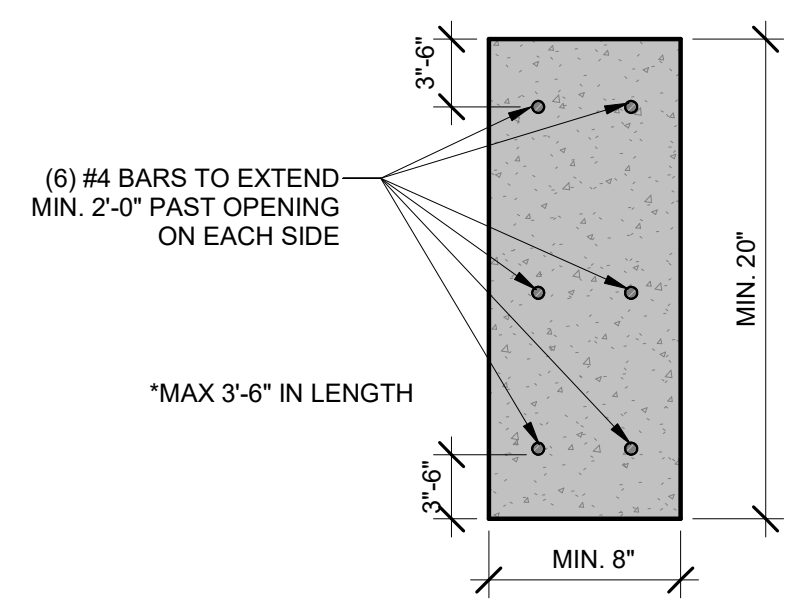
2 SUSPENDED SLAB POUR STOP
1 1/2" = 1'-0"
FASTEN STEEL ANGLE TO BEAM W/ TEK SCREWS OR 2"x1/4" FILLET WELD @ 12" O.C.



3 SUSPENDED SLAB/STEELBEAM CROSS SECTION
1 1/2" = 1'-0"



4 SUSPENDED SLAB/WALL CONNECTION
1 1/2" = 1'-0"



5 CONCRETE HEADER DETAIL
1 1/2" = 1'-0"

IMPORTANT NOTE:
FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW: TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C. / #2-2X4 STUDS AT 16" O.C. W/ TOP AND BOTTOM PLATE. WALL TO HAVE CONTINUOUS DIAGONAL BRACING. LATERAL BRACING TO BE RUN FROM WALL TO WALL AT MID HEIGHT 4' ON CENTER. SHORING TO REMAIN IN PLACE FOR AT LEAST 21 DAYS.
ANY CAST IN PLACE SLABS FORMED MORE THAN 10' ABOVE THE FLOOR BELOW SHALL HAVE A SITE SPECIFIC SHORING DESIGN DONE. OUR FIRM SHOULD BE CONSULTED FOR THIS DESIGN ONCE FOUNDATION WALLS ARE IN PLACE TO EVALUATE ALL FIELD CONDITIONS. IT SHOULD BE NOTED THAT FAILURE TO HAVE AN ADEQUATE SHORING DESIGN CAN RESULT IN FORM COLAPSE AND/OR CATASTROPHIC FAILURE.

HD ENGINEERING STRUCTURAL GARAGE SLAB DETAILS

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SUSPENDED SLAB DETAILS

S-3.1

MINIMUM INSULATION & FENSTRATION VALUES BY COMPONENT, PER IRC2018 N1102.1.2

VALUES BELOW ARE PER 2018 IECC. ACTUAL VALUES MAY VARY BASED ON ALTERNATE ENERGY COMPLIANCE PATH CHOSEN (IN JURISDICTIONS WHERE ALTERNATIVE PATHS ARE AVAILABLE)

CLIMATE ZONE	FENSTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED SHGC FENSTRATION	INSULATED METAL DOOR U-VALUE	INSULATED WOOD DOOR U-VALUE	CEILING R-VALUE	WOOD FRAMED WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE	DUCTWORK OVER OUTSIDE R-VALUE	DUCTWORK (ALL OTHER) R-VALUE
4 EXCEPT MARINE	0.32	0.55	0.40	0.60	0.50	49	20 OR 13 CAV. +5	19	10 CONTINUOUS OR 13 CAVITY	R-10, 2 FT.	10 CONTINUOUS OR 13 CAVITY	8	6

NOTES: 1) BUILDING THERMAL ENVELOPE IS REQUIRED TO BE SEALED WITH AN AIR BARRIER AS PER N1102.4.1 OF THE 2018 IRC
 2) RECESSED LIGHTING SHALL BE SEALED TO PREVENT LEAKAGE BETWEEN THE CONDITIONED SPACE AND UNCONDITIONED SPACE
 3) ALL DUCTS, AIR HANDLERS, FILTER BOXES, AND BUILDING CAVITIES USED AS DUCTS SHALL BE SEALED AS PER N1103.2 OF THE 2018 IRC

CATHEDRAL / VAULTED CEILING FRAMING AND INSULATION

MINIMUM R-38 INSULATION REQUIRED, SEE DETAIL 14/S-1.2

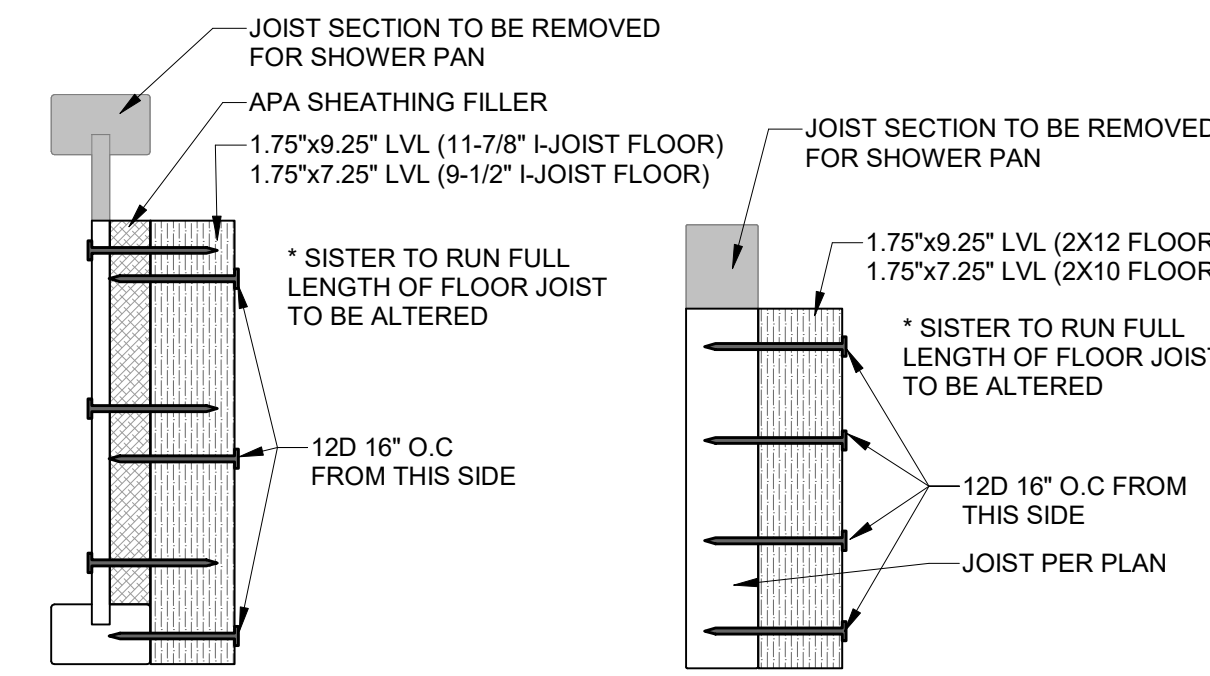
WHERE THE CEILING IS APPLIED DIRECTLY TO THE BOTTOM OF THE RAFTERS, A MINIMUM 1" AIR SPACE SHALL BE PROVIDED BETWEEN THE TOP OF THE INSULATION AND THE SHEATHING FOR VENTILATION (R806.3)
 NOTE: RAFTER SIZES SPECIFIED ON PLANS ARE THE MINIMUM REQUIRED FOR STRUCTURAL PURPOSES ONLY. BUILDER TO VERIFY.
 IF FULL RAFTER DEPTH IS NOT ADEQUATE FOR MINIMUM INSULATION VALUE, RAFTER SIZES WILL NEED TO BE INCREASED, OR ADEQUATE FURRING SHALL BE USED TO OBTAIN THE MINIMUM JOIST DEPTH FOR THE REQUIRED INSULATION. IN ADDITION, IF THE RAFTER SIZE IS INCREASED IT SHALL BE VERIFIED THAT THE RIDGE BE A MINIMUM OF ONE NOMINAL SIZE LARGER THAN THE RAFTERS BEING RECEIVED. (SEE CHART BELOW)

MAXIMUM INSULATION VALUE 1" AIR SPACE (FIBERGLASS)	2x6	2x8	2x10	2x12
	R-13, 3 1/2"	R-19, 6 1/4"	CONDENSED R-38, 8 1/4"	R-38, 10 1/4"

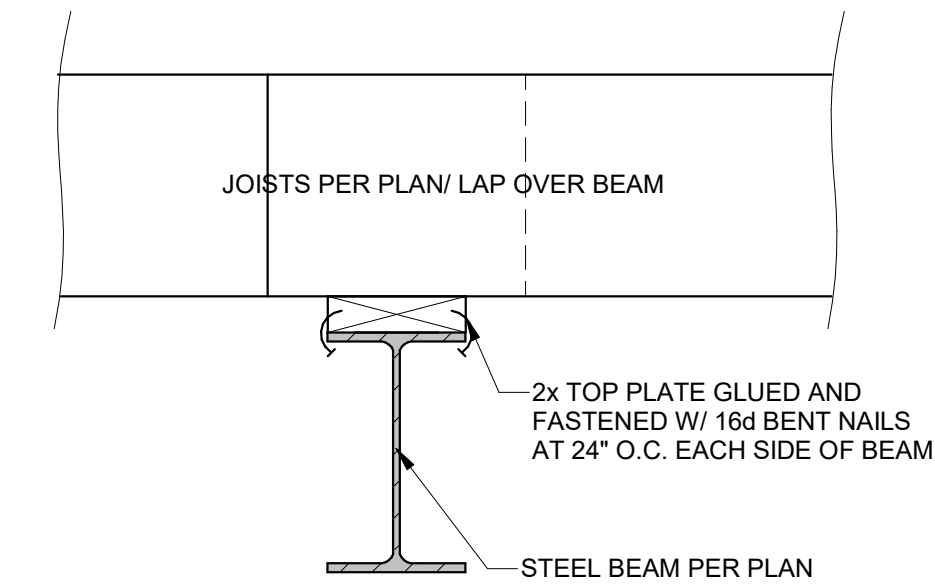
TABLE N1103.6.1 (R403.6.1) WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY^a

FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
HRV OR ERV	ANY	1.2 CFM/WATT	ANY
RANGE HOODS	ANY	2.8 CFM/WATT	ANY
IN-LINE FAN	ANY	2.8 CFM/WATT	ANY
BATHROOM, UTILITY ROOM	10	1.4 CFM/WATT	< 90
BATHROOM, UTILITY ROOM	90	2.8 CFM/WATT	ANY

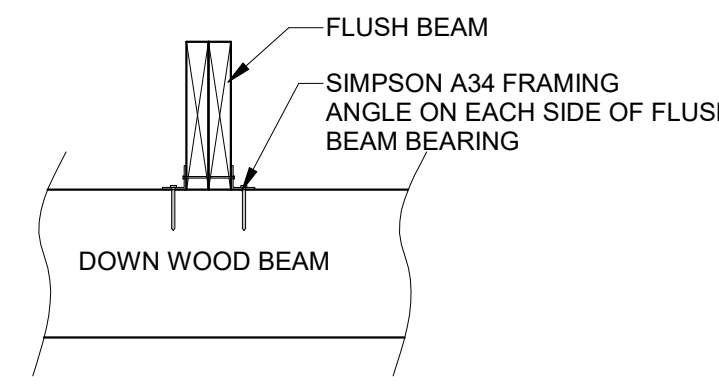
For SI: 1 cubic foot per minute = 28.3 L/min.
^a WHEN TESTED IN ACCORDANCE WITH THE STANDARD ONE



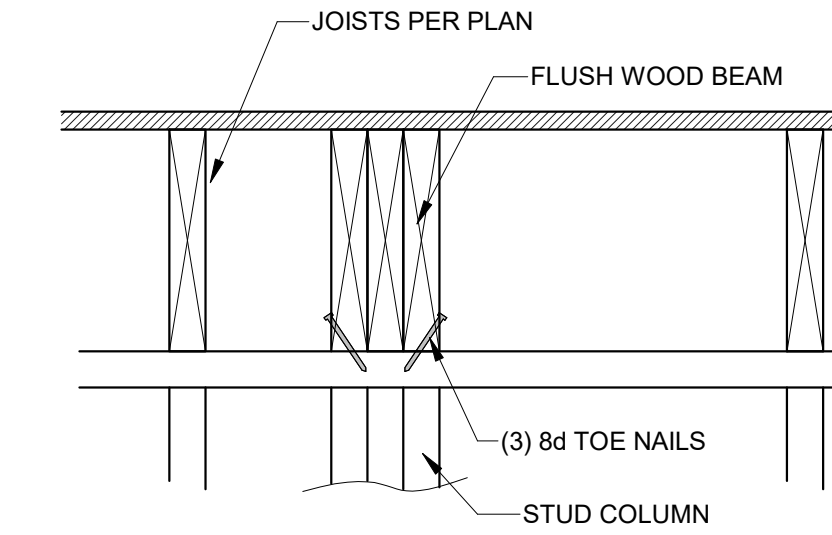
10 ZERO ENTRY SHOWER DETAIL
1/4" = 1'-0"



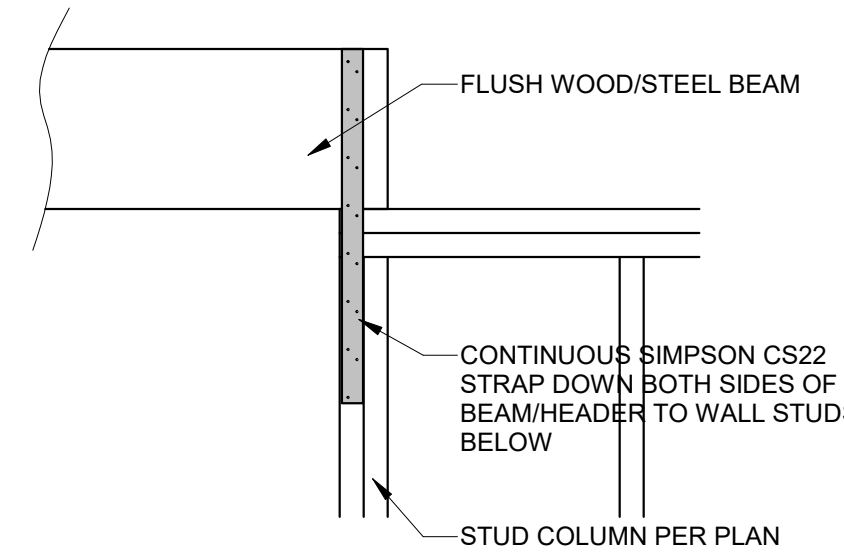
5 STEEL BEAM TO WOOD PLATE
1 1/2" = 1'-0"



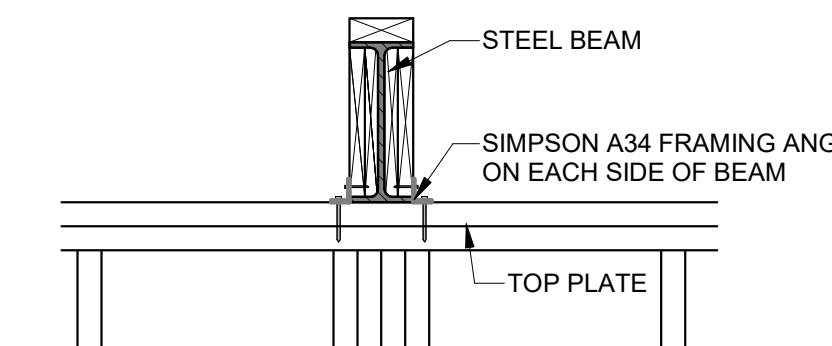
9 WOOD TO WOOD STACKED CONNECTION
1" = 1'-0"



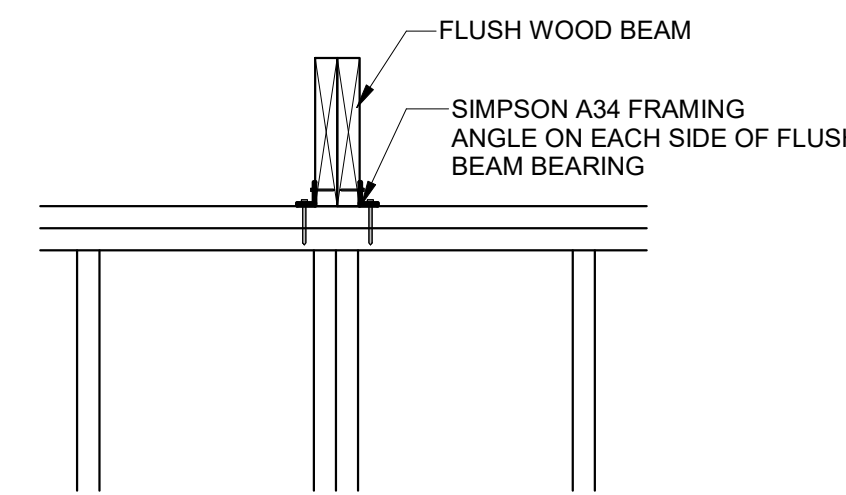
4 FLUSH WOOD BEAM CONNECTION
1 1/2" = 1'-0"



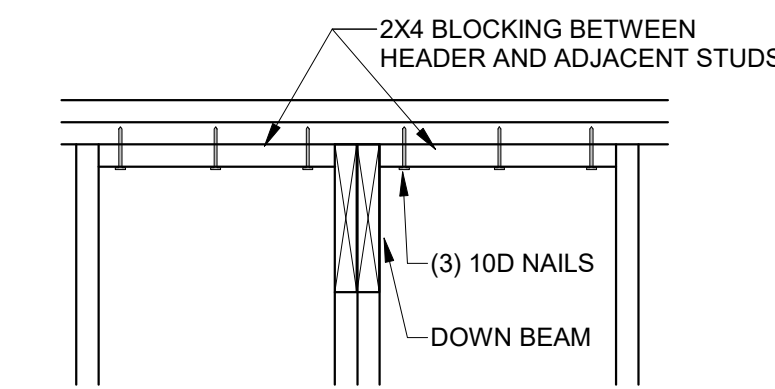
8 UPSET WOOD/STEEL PARALLEL TO WALL
1" = 1'-0"



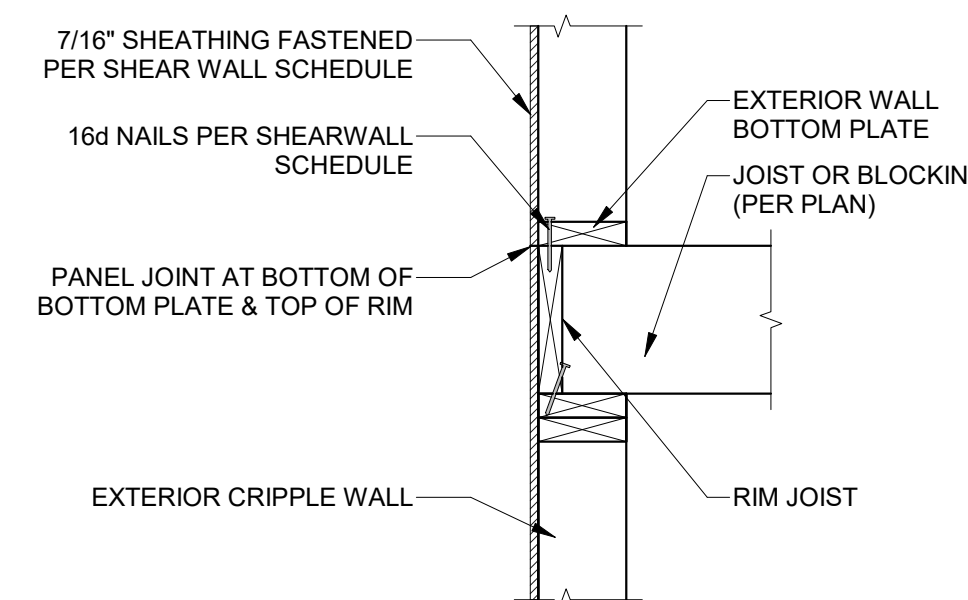
3 EXTERIOR WALL STEEL BEAM BEARING
1" = 1'-0"



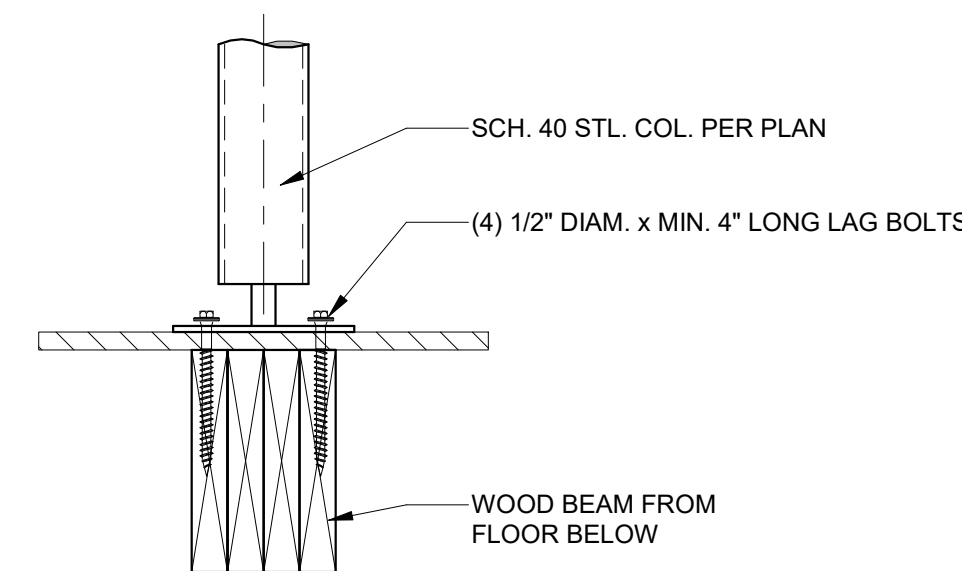
7 UPSET WOOD PERPENDICULAR TO WALL
1" = 1'-0"



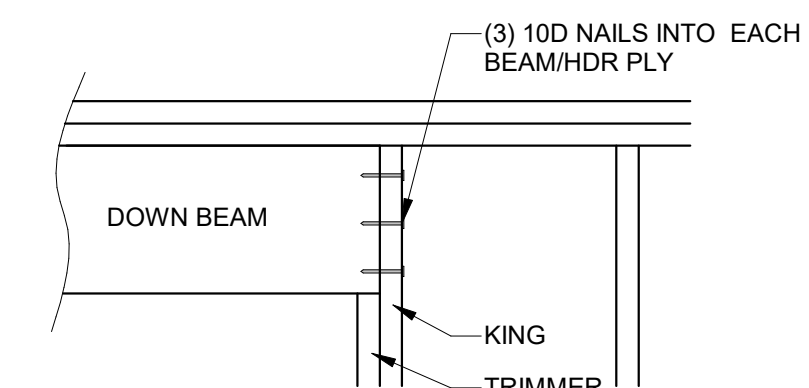
2 DOWN WOOD BEAM PERPENDICULAR
1" = 1'-0"



11 SHEATHING JOINT LOCATION
1" = 1'-0"



6 STEEL COLUMN TO WOOD FLOOR
1 1/2" = 1'-0"



1 DOWN WOOD BEAM PARALLEL
1" = 1'-0"

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GENERAL DETAILS

S-4.0