

# GENERAL NOTES & DESIGN CRITERIA

This plan was designed and drafted to meet average conditions and codes in the State of Missouri at the time it was designed. This plan was also designed for seismic zone B. Consult your local building official to determine the suitability of these plans for your specific site and application. This plan can be adapted to your local building codes and requirements, but also, it is the responsibility of the purchaser and/or builder of this plan to see that the structure is built in strict compliance with all governing municipal codes (city, county, state and federal). The purchaser and/or builder of this plan releases the designer from any claims or lawsuits that may arise during the construction of this structure or anytime thereafter.

**DESIGN LOADS:**

* Floor: 40 psf. live 10 psf. dead	Roof: 20 psf. live 10 psf. dead	Ceiling: 10 psf. live 5 psf. dead
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\* Soil bearing Capacity - 2000 PSF  
\* Live loads, dead loads, wind loads, snow loads, lateral loads, seismic zoning and any specialty loading conditions will need to be confirmed before construction and adjustments to plans made accordingly. See your local building officials for verification of your specific load data, zoning restrictions and site conditions.

**CONCRETE AND FOUNDATIONS:**

- \* All foundation walls and slabs on grade shall be 3000 PSI (28-day compressive strength concrete), unless noted otherwise.
- \* All interior slabs on grade shall bear on 4" compacted granular fill with 6 mil. polyethylene vapor barrier underneath.
- \* Provide proper expansion and control joints as per local requirements.
- \* Foundation walls are not to be backfilled until properly braced.
- \* Verify depth of frost footings with your local codes.
- \* Provide termite protection as required by HUD minimum property standards.

**STEEL:**

- \* All structural steel for beams and plates shall comply with ASTM specification A-36.
- \* All structural steel for steel columns shall comply with ASTM specification A-53 Grade B or A-501.
- \* All reinforcing steel for concrete shall comply with ASTM specification A-615 Grade 40.
- \* Provide steel shimms in all beam pockets.

**FRAMING MEMBERS:**

- \* Unless noted otherwise, all framing lumber shall have the following characteristics:  
Fb = 1,000 psi      Fv = 75 psi      E = 1,400,000 psi
- \* Contractor to confirm the size, spacing and stress characteristics of all framing and structural members to meet your local code requirements.
- \* Hole sizes and locations in GluLam or Laminated Veneered Lumber members are to be confirmed by a professional engineer.
- \* Any structural or framing members not indicated on the plan are to be sized by contractor.
- \* Double floor joists under all partition walls, unless noted otherwise.
- \* All subflooring is assumed to be 3/4" thick - Glued & Nailed
- \* All exterior walls are dimensioned to outside of 1/2" rigid insulation.
- \* All exterior walls are 4" (3 1/2" stud plus 1/2" rigid insulation), All interior walls are 3 1/2" unless otherwise shown.
- \* Calculated dimensions take precedence over scaled dimensions.
- \* All Main level walls are 9'-1 1/8" high unless otherwise noted or implied.
- \* All angled walls on floor plans are at 45 degree angle, unless otherwise noted.

**FRAMING MEMBERS (continued):**

- \* Any wall 12'-0" high or higher shall be 2x6 and balloon framed.
- \* Unless noted otherwise, above all openings that are:  
(1) Non-load bearing and less than or equal to 6 ft. ....use 4x6.  
(2) Non-load bearing and more than 6 ft. ....use (2) 2x12 w/1/2" Plywood between.
- \* All trusses to be engineered by truss manufacturer according to the loading indicated on this plan.
- \* All exterior corners shall be braced in each direction with let-in diagonal bracing or plywood.
- \* Place (1) row of 1" x 3" cross-bridging on all spans over 8'-0" and (2) rows of 1" x 3" cross-bridging on all spans over 16'-0".
- \* Collar ties are to be spaced 4'-0" o.c.
- \* All purlins and kickers are to be 2x6's, unless noted otherwise.
- \* Any hip or valley rafters over a 28'-0" span are to be Laminated Veneer Lumber (L.V.L.).

**MISC. NOTES:**

- \* Prefabricated fireplaces and flues are to be U.L. approved and installed as per manufacturer's specifications.
- \* All materials, supplies and equipment to be installed as per manufacturer's specifications and as per local codes and requirements.
- \* Note: Provide proper insulation for all plumbing.
- \* 1/2" water-resistant drywall around showers, tubs and whirlpools.
- \* 1/2" drywall on interior walls and ceilings.
- \* 5/8" type "X" fire code drywall on garage walls and ceilings.
- \* Windows are called out by glass size only.
- \* Windows, if not noted, are assumed to be casements.
- \* Header heights are labeled to bottom of arched transoms
- \* Confirm window openings for your local egress requirements and minimum light and ventilation requirements.
- \* Headroom at stairs shall have a minimum clearance of 6'-8" high.
- \* Provide proper handrails at stairs as per local code.
- \* The mechanical and electrical layouts are suggested only. Consult your mechanical and electrical contractors for exact specifications, locations and sizes.
- \* Jog flue to rear of ridge as necessary.
- \* Note: Provide proper wiring for all electrical appliances, mechanical equipment and whirlpools as per manufacturer's specifications.
- \* All air conditioner locations may vary depending on restrictive covenants and codes.
- \* Typical overhang sizes unless noted otherwise on drawing are as follows:

On pitches of 4/12 - 5/12 - 6/12 = 24" overhang
7/12 = 20" overhang
8/12 = 16" overhang
9/12 = 16" overhang
10/12 - 11/12 - 12/12 = 12" overhang

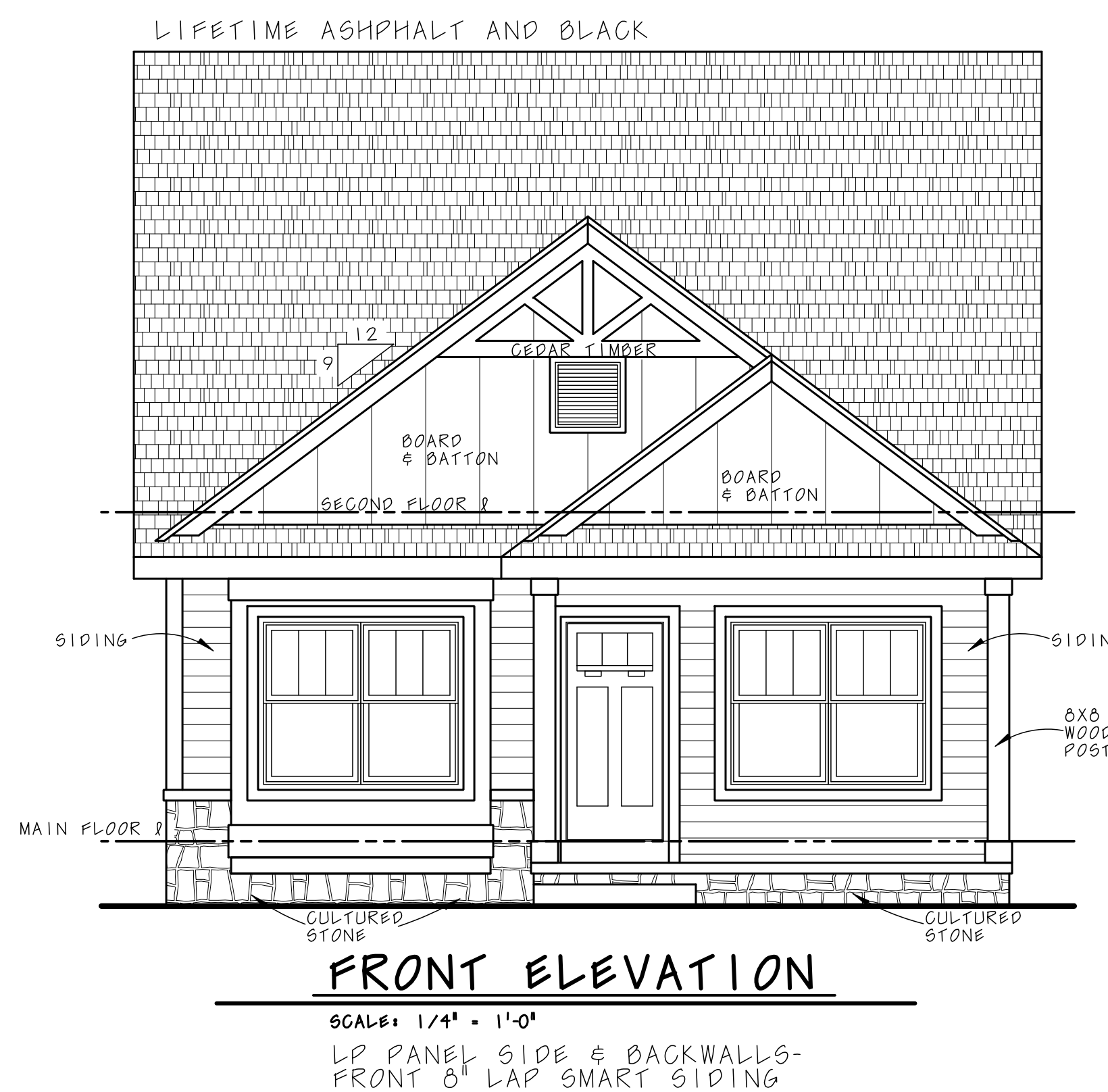
- \* Note: Adjust overhangs to provide clearance for windows to open. Adjust overhangs to maintain a consistent level when the plans call for (2) different pitches at a hip.
- \* Minor alterations to this plan can be made by builder. Please contact our drafting department for information and price quotes if major changes are required.
- \* Plan Pros, Inc. determines finished square footage by measuring to the outside of all walls. We include: interior fireplaces and every location in which the floor joists project from the foundation. We do not include: window boxes where the floor joists do not project from the foundation; 2-story entries; exterior fireplaces; garage; decks; patios; porches; unfinished storage areas; basements or any other unfinished areas.

# ABBREVIATIONS

A/C	Air Conditioner	DISH	Dishwasher	INSUL	Insulation	PROJ	Projection	TRAP	Trap
ADJ	Adjustable	DN	Down	INT	Interior	RAD	Radius	U.L.	Underlayment
AWN	Awning	DRY	Dryer	JST	Joist	RAFTS	Rafters	UNEX	Unexcavated
BLDG	Building	EA	Each	LVL	Laminated Veneer Lumber	REFRIG	Refrigerator	WASH	Washer
BMT	Basement	ENT	Entertainment	LN	Linen	RM	Room	WD	Welded Wire Mesh
BSMT	Basement	EXP	Exposure	MAX	Maximum	SEC	Second	WH	Water Heater
BTM	Bottom	EXT	Exterior	MBR	Master Bedroom	SHWR	Shower	W.W.M.	Welded Wire Mesh
BTW	Between	FIN	Finished	MICRO	Microwave	SL	Side Life		
CANT	Cantilever	F.J.	Floor Joist	MIN	Minimum	SPP	Sump Pump Pit	@	At
C.J.	Ceiling Joist	FLUOR	Fluorescent	MISC	Miscellaneous	STA	Staircase	2W	Two Wide
CEIL	Ceiling	FTG	Footing	O.C.	On Center	STD	Standard	3W	Three Wide
CMU	Concrete Masonry Unit	GALV	Galvanized	O.H.D.	Overhead Door	STL	Steel	4W	Four Wide
C.O.	Cased Opening	GARB	Garbage Disposal	OPNG	Opening	STRUCT	Structural		Center Line
CONC	Concrete	G & N	Glued & Nailed	PC	Picture	T.C.	Trash Compactor	W/	With Diameter
DBL	Double	HDR	Header	PICT	Picture	T & G	Tongue & Groove		
DH	Double Hung			POLY	Polyethylene	TRANS	Transom		

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ARTIST CONCEPTION ONLY



ALL CONSTRUCTION WILL MEET THE REQUIREMENTS OF THE 2018 IRC AND 2017 NEC

WALK THROUGH DOOR @ GARAGE TO HOUSE WILL HAVE SELF CLOSING HARDWARE

ALL EGRESS WINDOW WELLS WILL HAVE DRAINS TO DRAIN TILE SYSTEM

# SYMBOLS

○ Detail Number	Wood Frame Wall	☐ Furnace
○ Section Number	Concrete	⊞ Flue & Duct
↓ Direction of Section	Brick or Stone	⊛ Floor Drain
□ Square Footage	Earth	⊕ Supply Air (Floor)
8/12 or 8/12 Roof Pitch Ratio	Granular or Gravel Fill	⊕ Supply Air (Ceiling)
6° Ceiling Pattern Detail W/Height	Batt Insulation	☂ Shower Head
☐ Roof Louver	Blown Insulation	⊞ Sillcock
	Minimum 3"x3" Solid Bearing or to Match the width of Bearing	
	Sillcock	

# ELECTRICAL LEGEND

○ 110V OUTLET	⊞ FLOOD LIGHT
⊞ HALF SWITCHED 110V OUTLET	⊞ FLUORESCENT LIGHT
○ 220V OUTLET	⊞ TRACK LIGHT
⊞ WEATHERPROOF 110V OUTLET	⊞ UNDER COUNTER LIGHT
⊞ GROUND FAULT 110 V. OUTLET	⊞ EXHAUST FAN
⊞ FLOOR 110V OUTLET	⊞ EXHAUST FAN/LIGHT COMBO
⊞ SURFACE MOUNT LIGHT	⊞ PADDLE FAN/LIGHT FIXTURE
⊞ RECESSED CAN LIGHT	⊞ PADDLE FAN
⊞ WALL MOUNT LIGHT	⊞ SMOKE DETECTOR (WALL)
⊞ PULL-CORD SURFACE MOUNT LIGHT	⊞ SMOKE DETECTOR (CEILING)
⊞ THERMOSTAT	⊞ TWO-WAY SWITCH
⊞ CHIMES	⊞ THREE-WAY SWITCH
	⊞ FOUR-WAY SWITCH

NOTE: WIRE SMOKE DETECTORS IN SERIES

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI 06/22/2021

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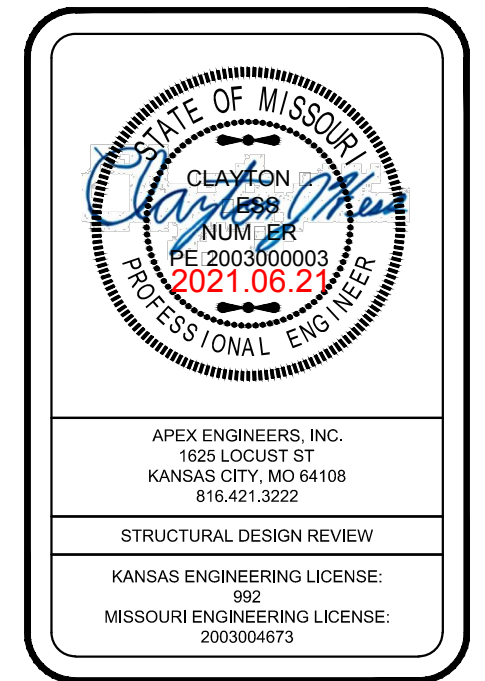
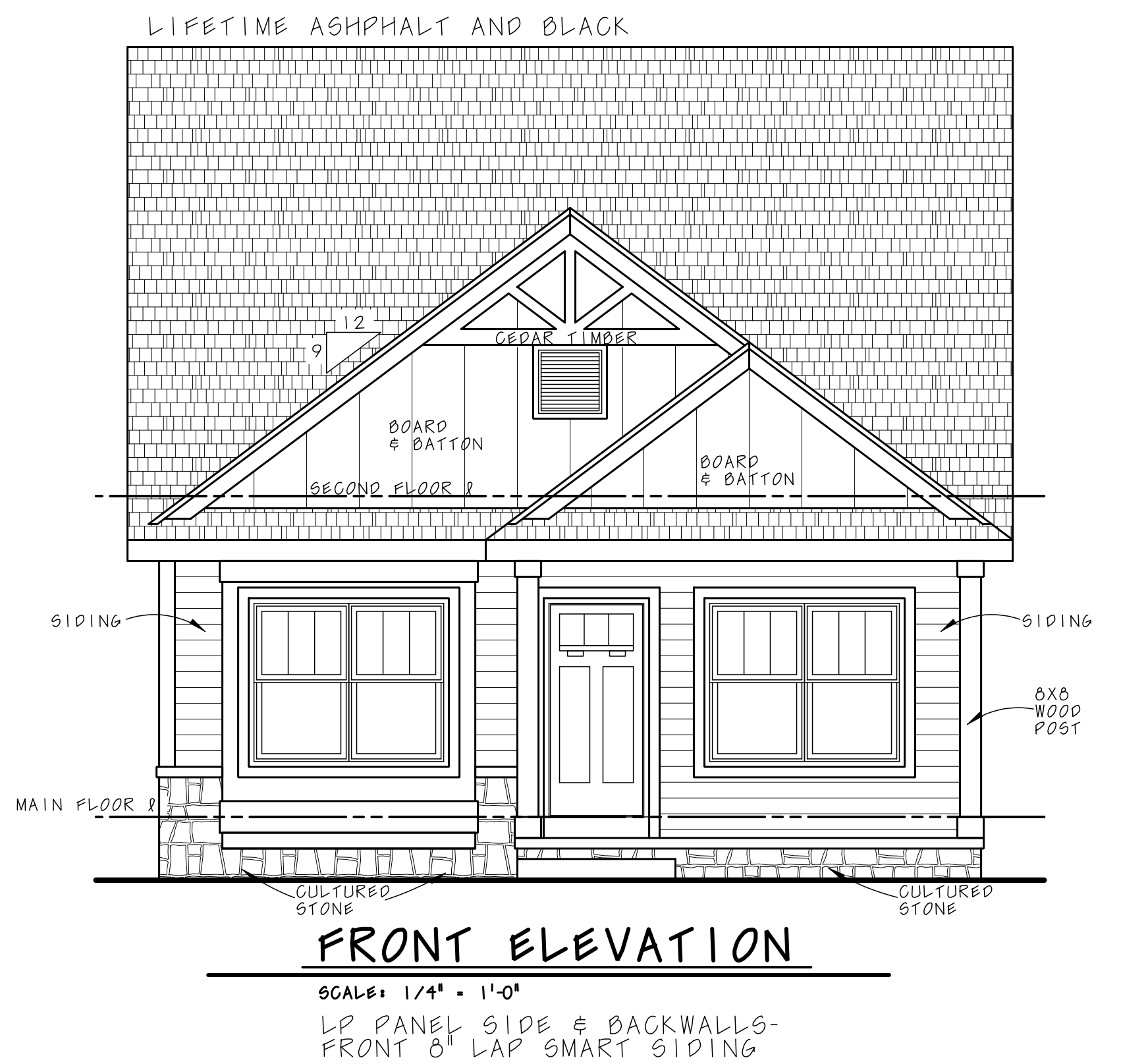
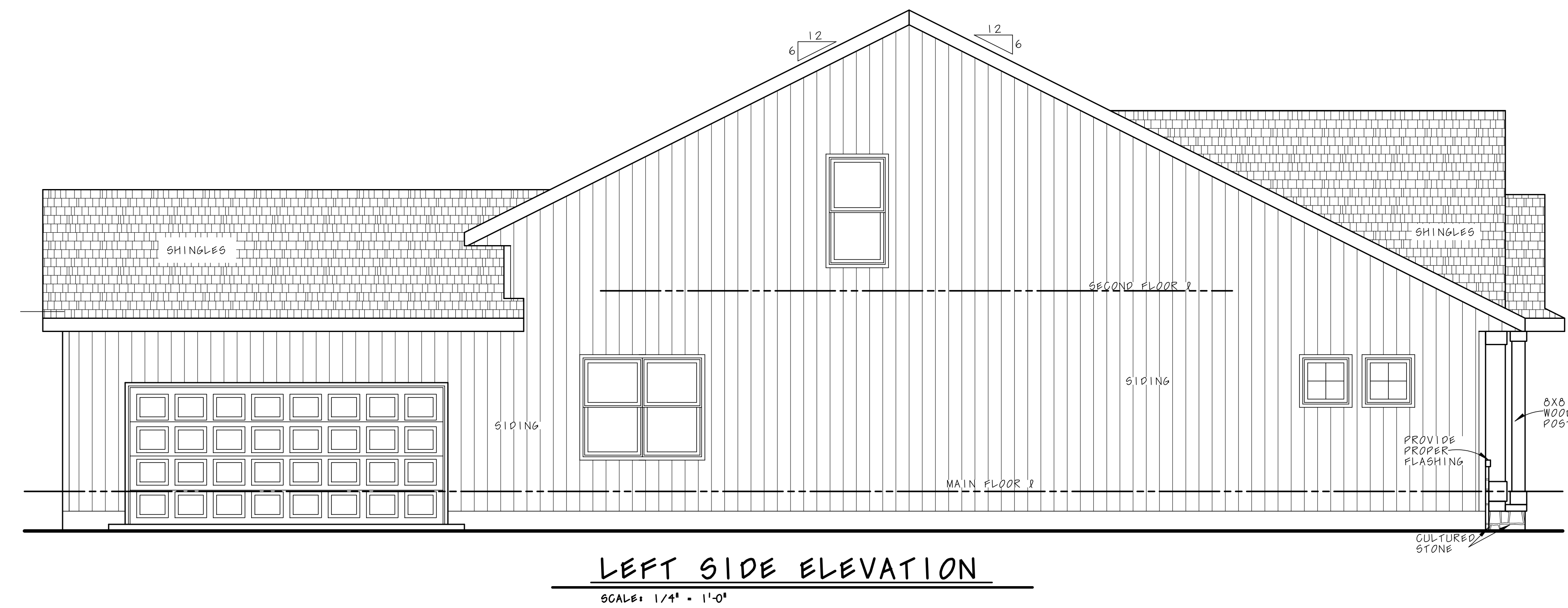
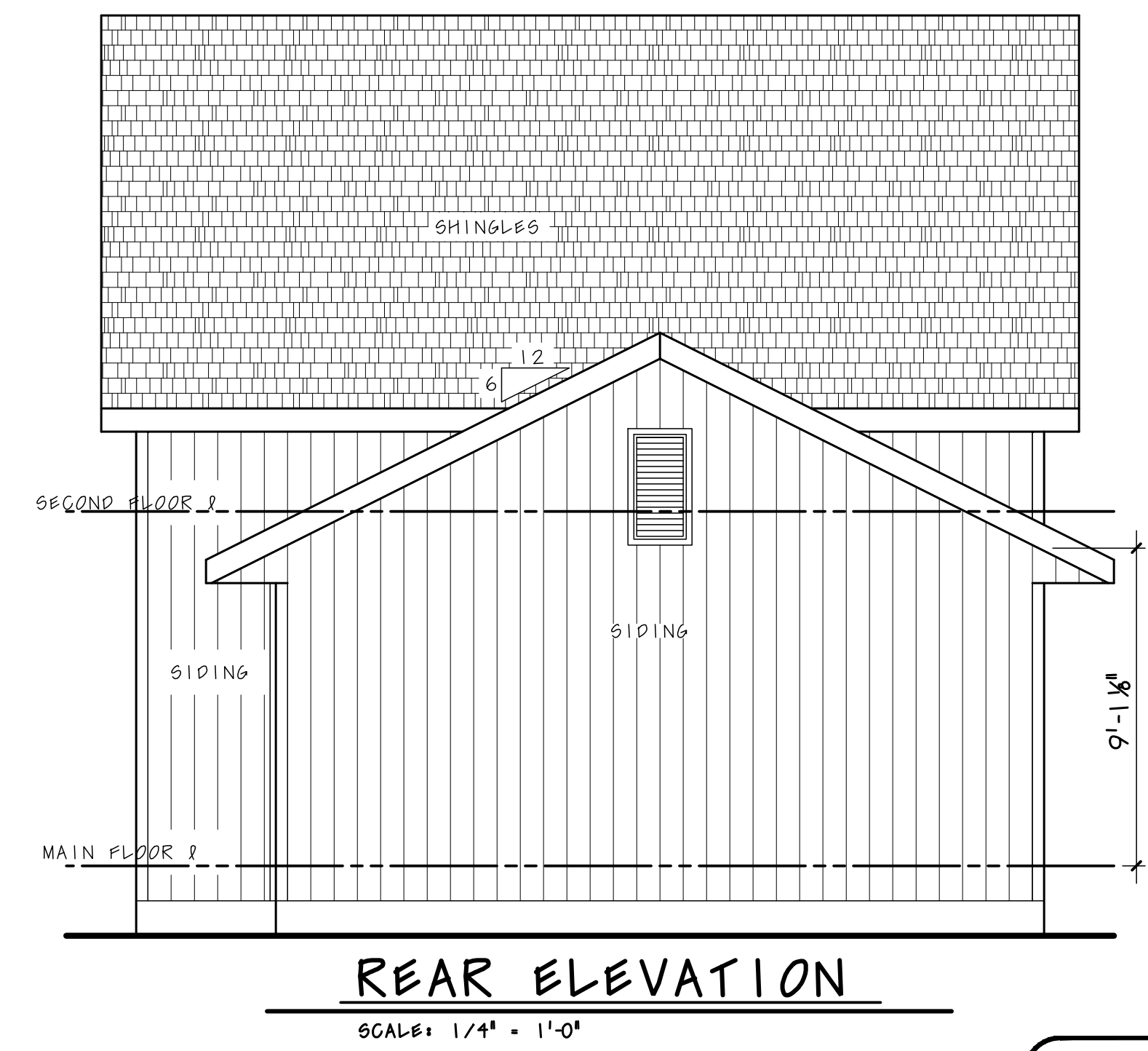
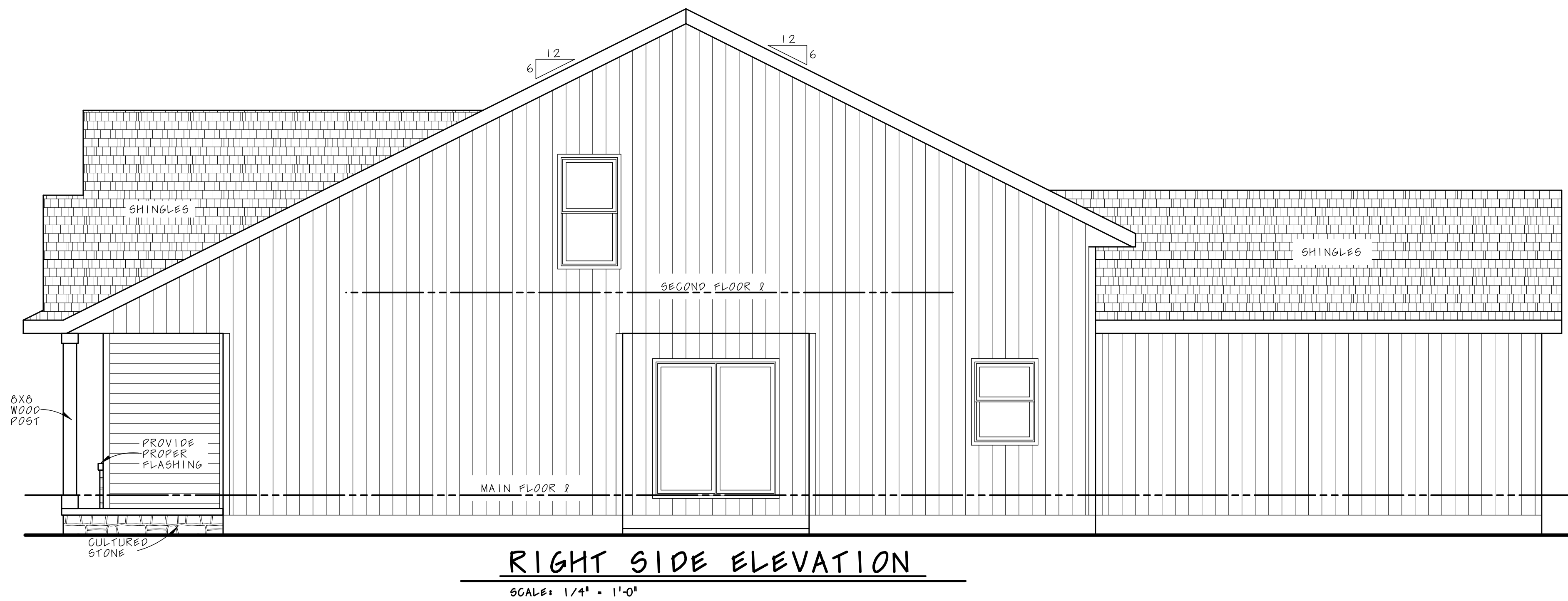
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Sideload garage  
**1626 Plan**  
Revised: 6-3-21

Plan No.

Sheet No.

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RELEASED FOR CONSTRUCTION AS NOTED ON PLAN REVIEW DEVELOPMENT REVISED LEE'S SUMMIT, MISSOURI  
06/22/2021

**EXPANSIVE SOILS DISCLAIMER:**

THESE PLANS HAVE BEEN PREPARED BASED ON A PRESUMPTIVE ALLOWABLE BEARING CAPACITY AS ALLOWED BY IRC CODE AND THE LOCAL ENFORCING JURISDICTION.

APEX ENGINEERS, INC. (APEX) RECOMMENDS THAT ALL FOOTING EXCAVATIONS BE EVALUATED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOUNDATION ELEMENTS. GEOTECHNICAL INVESTIGATION AND/OR TESTING IS NOT A SERVICE PROVIDED OR OFFERED BY APEX.

APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING BELOW THE BASEMENT SLAB), BY USE OF THESE PLANS WITHOUT AN ACCOMPANYING GEOTECHNICAL ENGINEERING REPORT, APEX SHALL NOT BE HELD LIABLE FOR ANY FUTURE MOVEMENT AND/OR DIFFERENTIAL MOVEMENT OF THE PROPOSED STRUCTURE AND THE POSSIBLE DAMAGE THAT MAY BE CAUSED AS A RESULT OF SUCH MOVEMENT. DAMAGE FROM EXPANSIVE SOILS AND/OR SETTLEMENT CAN RESULT IN AMONGST OTHER THINGS, THE FOLLOWING: BASEMENT SLAB HEAVE, SHEETROCK CRACKS, WINDOWS AND DOOR BECOMING OUT OF PLUMB AND STICKING AND/OR NOT OPENING, DAMAGE TO TILE, MOULDING, AND OTHER COSMETIC FINISHES.

COLUMN MARK	PAD SIZE	REINFORCEMENT	COLUMN SIZE	COLUMN TYPE
A	30" x 30" x 12"	(4) #4 BAR E.W.	3" NOMINAL	SCHEDULE 40 STEEL PIPE (F <sub>y</sub> = 36 ksi MIN.)
B	36" x 36" x 12"	(4) #4 BAR E.W.	3" NOMINAL	
C	42" x 42" x 12"	(5) #4 BAR E.W.	3" NOMINAL	
D	48" x 48" x 12"	(6) #4 BAR E.W.	3" NOMINAL	
E	54" x 54" x 16"	(8) #4 BAR E.W.	3 1/2" NOMINAL (4" OD)	
F	60" x 60" x 16"	(10) #4 BAR E.W.	3 1/2" NOMINAL (4" OD)	

- COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0", REQUIRES SEPARATE ENGR'D DESIGN IF GREATER THAN 10'-0" TALL.
- COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2,000psf.

**COLUMN & PIER SCHEDULE**

MARK	COLUMN SIZE	PIER DIA.
G	6x6	12"
H	6x6	16"
J	6x6	18"
K	6x6	24"
L	6x6	28"

- ALL PIERS TO BEAR ON ORIGINAL, UNDISTURBED SOIL OF 2,000psf BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.
- PIERS SHALL EXTEND BELOW THE FROST LINE: MIN. DEPTH OF 36" BELOW GRADE.
- POST SHALL BE TREATED OR CEDAR WITH SIMPSON ABU66 POST BASE

**DETAIL REFERENCES**

- 1 S2.0 TYPICAL FOUNDATION WALL DETAIL
- 2 S2.0 TYPICAL "UNRESTRAINED" FOUNDATION WALL DETAIL
- 3 S2.0 TYPICAL DEAD MAN DETAIL
- 4 S2.0 FOUNDATION WALL JUMP DETAIL
- 5 S2.0 COLUMN PAD DETAIL
- 1 S2.1 TYPICAL STRUCTURAL GARAGE SLAB PLAN
- 2 S2.1 STRUCTURAL GARAGE SLAB PIER PAD DETAIL
- 3 S2.1 STRUCTURAL GARAGE SLAB / WALL SECTION
- 6 S2.1 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB
- 1 S4.0 ALTERNATE BRACED WALL PANEL DETAIL
- 1 S4.0 APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS ALT.
- △ COLUMN AND PIER PAD SCHEDULE (SHEET S2.0)

**STRUCTURAL NOTES:**

- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)
- BEARING WALL

**ROOF FRAMING NOTES**

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

ROOF SYSTEM IS DESIGNED TO MEET REQUIREMENTS OF IRC 802

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

**CODE MINIMUM**

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	11'-7"
#2-2x6	AT 16" OC	14'-2"
#2-2x8	AT 24" OC	14'-8"
#2-2x8	AT 16" OC	17'-11"
#2-2x10	AT 24" OC	17'-10"
#2-2x10	AT 16" OC	21'-11"

NOTE: CODE MINIMUM ALLOWS FOR A RAFTER DEFLECTION OF L/180 TOTAL LOAD

**HIGHER PERFORMANCE**

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	8'-6"
#2-2x6	AT 16" OC	9'-9"
#2-2x8	AT 24" OC	11'-3"
#2-2x8	AT 16" OC	12'-9"
#2-2x10	AT 24" OC	14'-3"
#2-2x10	AT 16" OC	16'-3"

APEX ENGINEERS, INC. RECOMMENDED DEFLECTION = L/360 LIVE LOAD, L/240 TOTAL LOAD

\*RIDGE BOARDS ARE (UNLESS OTHERWISE NOTED)

#2-2x10 UP TO 9:12 PITCH

#2-2x12 OVER 9:12 PITCH

\*ALL HIP AND VALLEYS ARE (UNLESS OTHERWISE NOTED)

#2-2x10 UP TO 9:12 PITCH

#2-2x12 OVER 9:12 PITCH

\*PURLINS ARE 2x6 MIN

- PURLIN STRUTS ARE AT 4'-0" OC

- PURLIN STRUTS SHALL BE INSTALLED AT NOT LESS THAN A 45 DEGREE ANGLE WITH THE HORIZONTAL

- ALL PURLIN STRUTS SHALL HAVE A MAX 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'-0"
(1)2x4 AND (1)2x6	12'-0"
(1)2x6 AND (1)2x8	20'-0"
(2)2x6 AND (1)2x8	30'-0"
CONSULT ARCH ENGR	>30'-0"

\*EACH END OF STRUT SHALL BE FASTENED WITH MIN (3)#8 OR (2)#6 NAILS

\*RIDGE BRACERS ARE SAME AS PURLIN BRACES-SPACING, SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

\*HIP AND VALLEY BRACES ARE THE SAME AS PURLINS SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

= ROOF BRACE/STRUT (PER CHART)

- SLASH IS TOP END OF BRACE

○ CIRCLE IS BOTTOM END OF BRACE

= PURLIN STRUTS AT 48" OC (PER CHART) U.N.O.

- SLASH IS TOP END OF BRACE

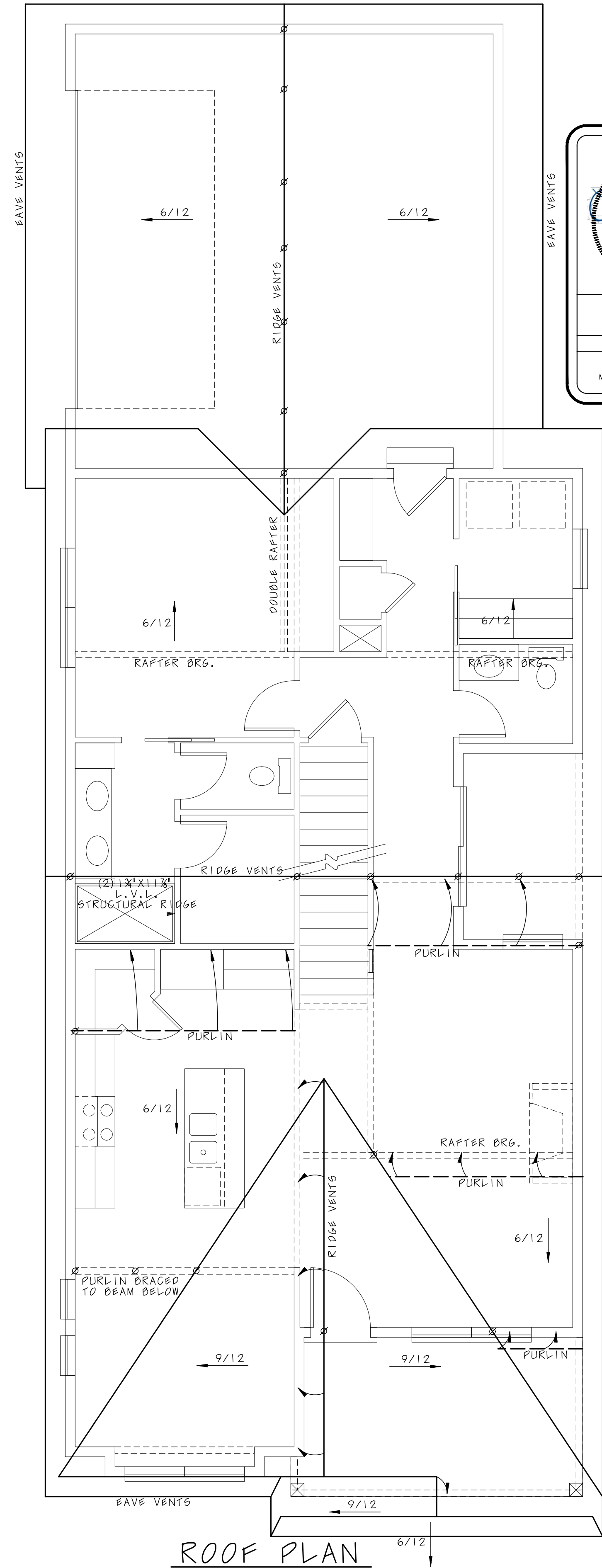
- ARROW IS BEARING LOCATION

▬ DENOTES BEARING WALL

- - - - DENOTES PURLIN

⋯⋯⋯ DENOTES BEARING STRUCTURE

- THIS IS AN ENGINEERED ROOF STRUCTURE DESIGNED FOR COMPLIANCE WITH IRC 802.3, BUILD AS SHOWN WITH NO DEVIATIONS.
- ALL HIP AND VALLEYS ARE DESIGNED TO BE CONTROLLED BY BENDING.
- SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN. FOR VALLEYS REF 4/S3.2



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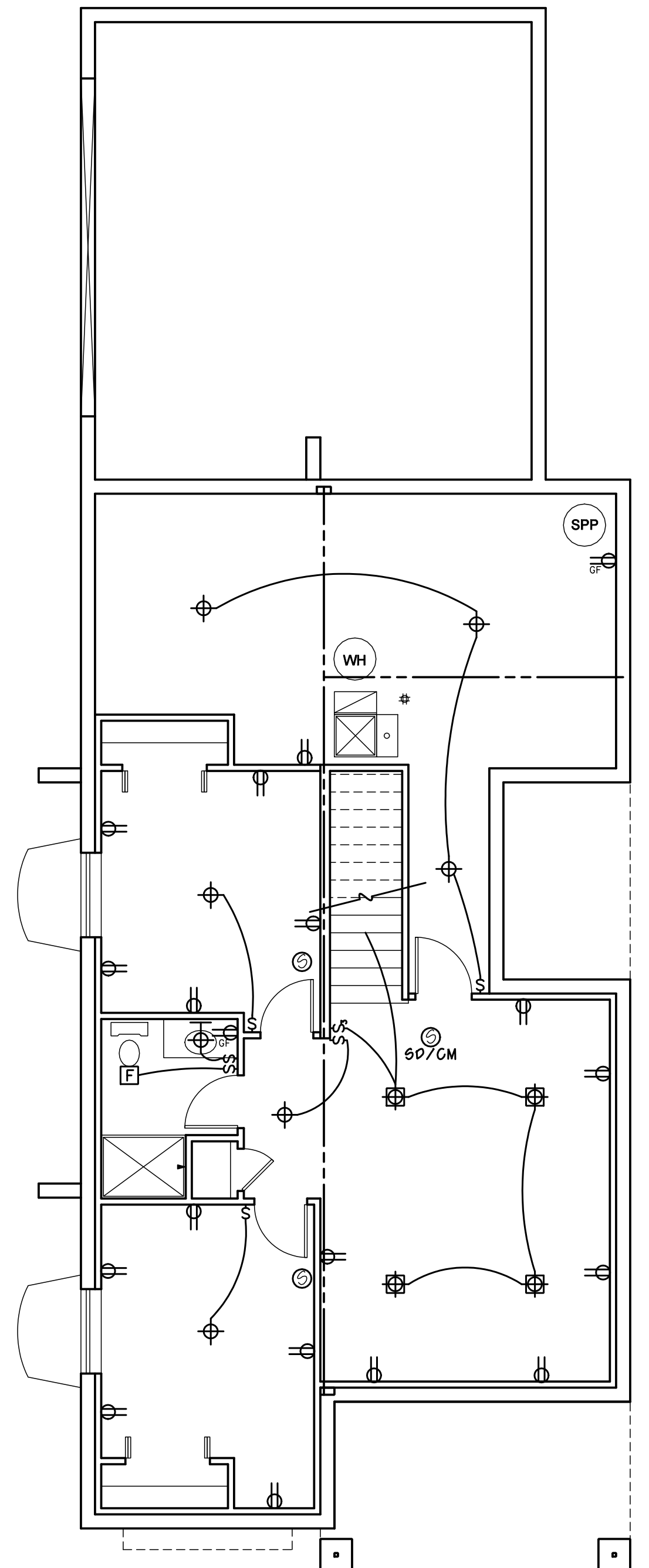
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Sideloop garage  
1626 Plan  
Revised: 6-3-21

Plan No.

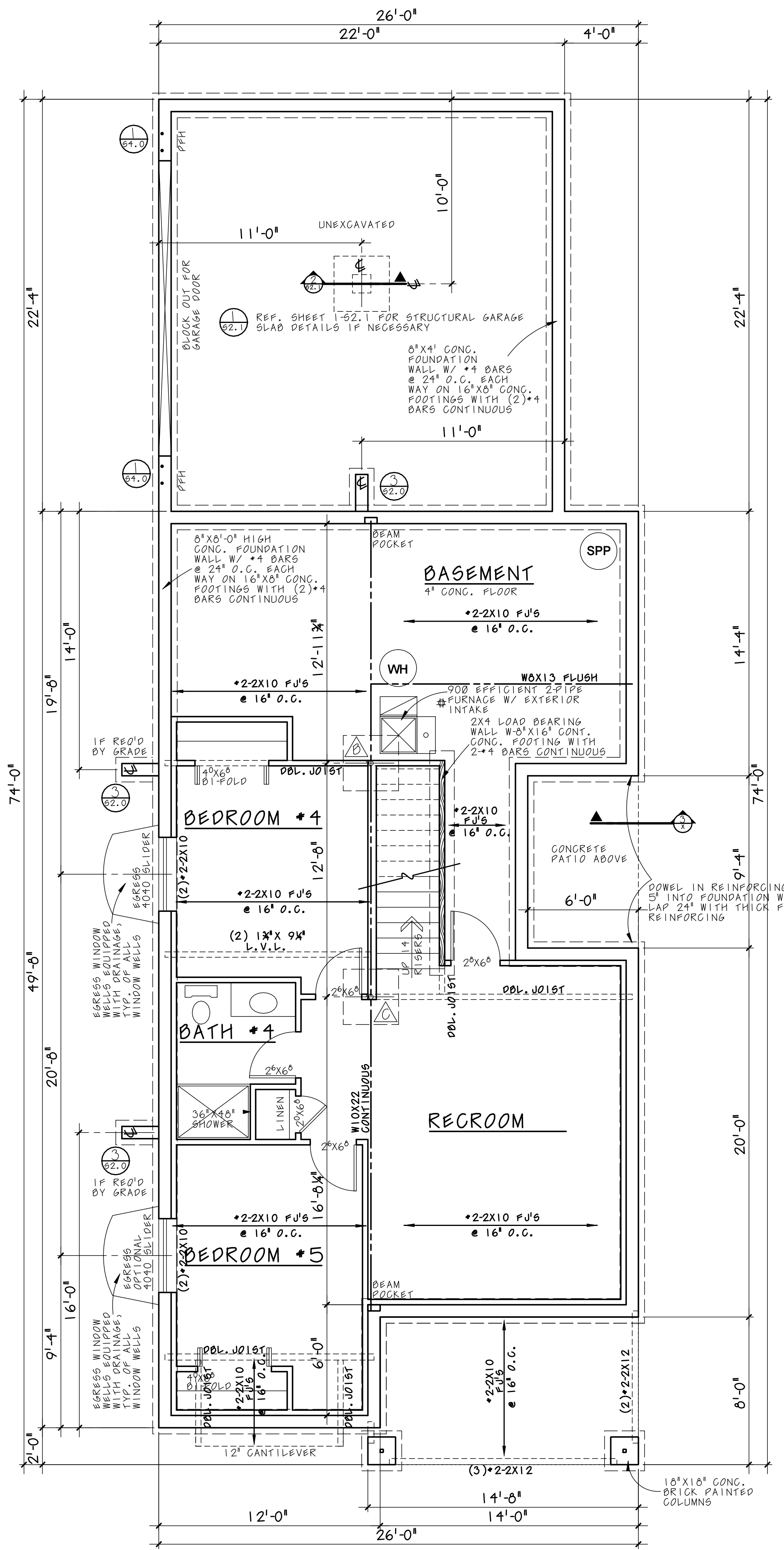
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06/22/2021



FOUNDATION ELECTRICAL

SCALE: 3/16" = 1'-0"



FOUNDATION PLAN

SCALE: 1/4" = 1'-0" OPT. 656 FINISHED 60 FT 343 UNFINISHED 60 FT

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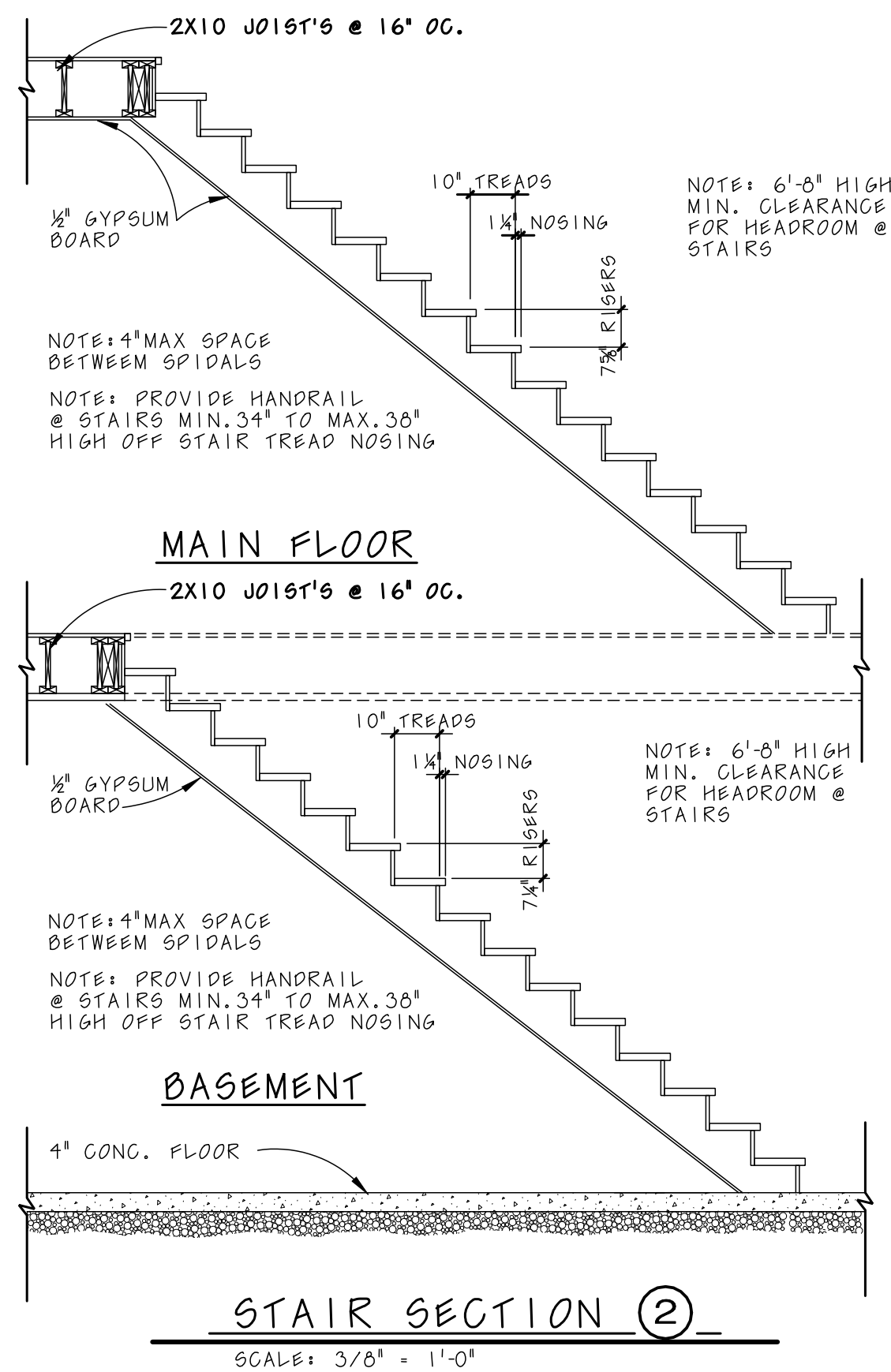
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Sidload garage  
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**STAIR SECTION ②**  
SCALE: 3/8" = 1'-0"

**BRACED WALL METHODOLOGY**

**XXXX EXTERIOR BRACED WALLS:**

**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 AT 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THAN 1/4" WITH MINIMUM SPAN RATING OF 24/0 FOR 24" O.C. SPACING WITH 8d COMMON NAILS AT 8" O.C. EDGES AND 12" O.C. IN FIELD. (NOTE: FRAMING MEMBERS 16" O.C. MAX. UNLOCKED, AND W/ SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

**IIII INTERIOR BRACED WALLS (REF 2/S4.0):**

**GB METHOD:** 1/2" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - 1 1/2" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)

**OR**

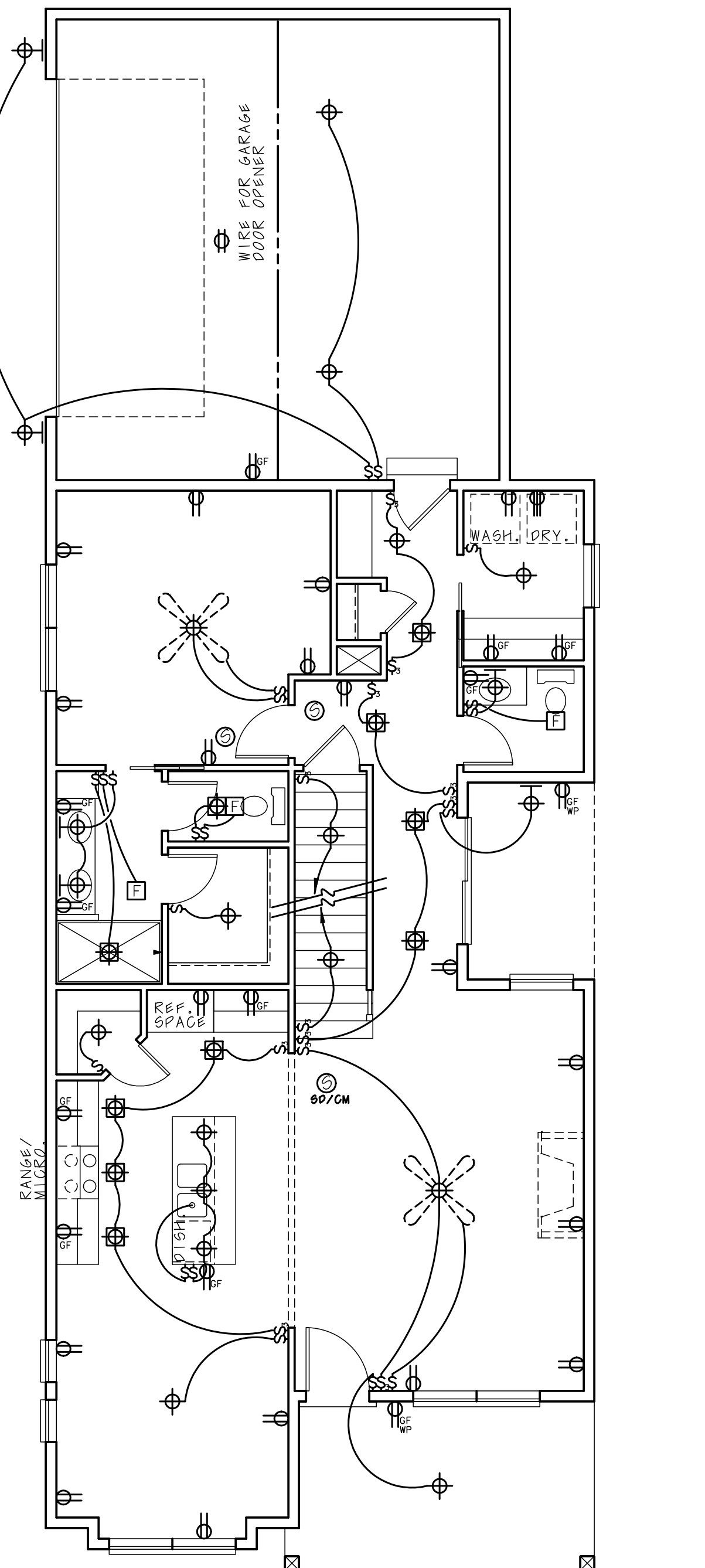
**LIB METHOD:** 1x4 WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUAL) STL. X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

**STRUCTURAL NOTES:**

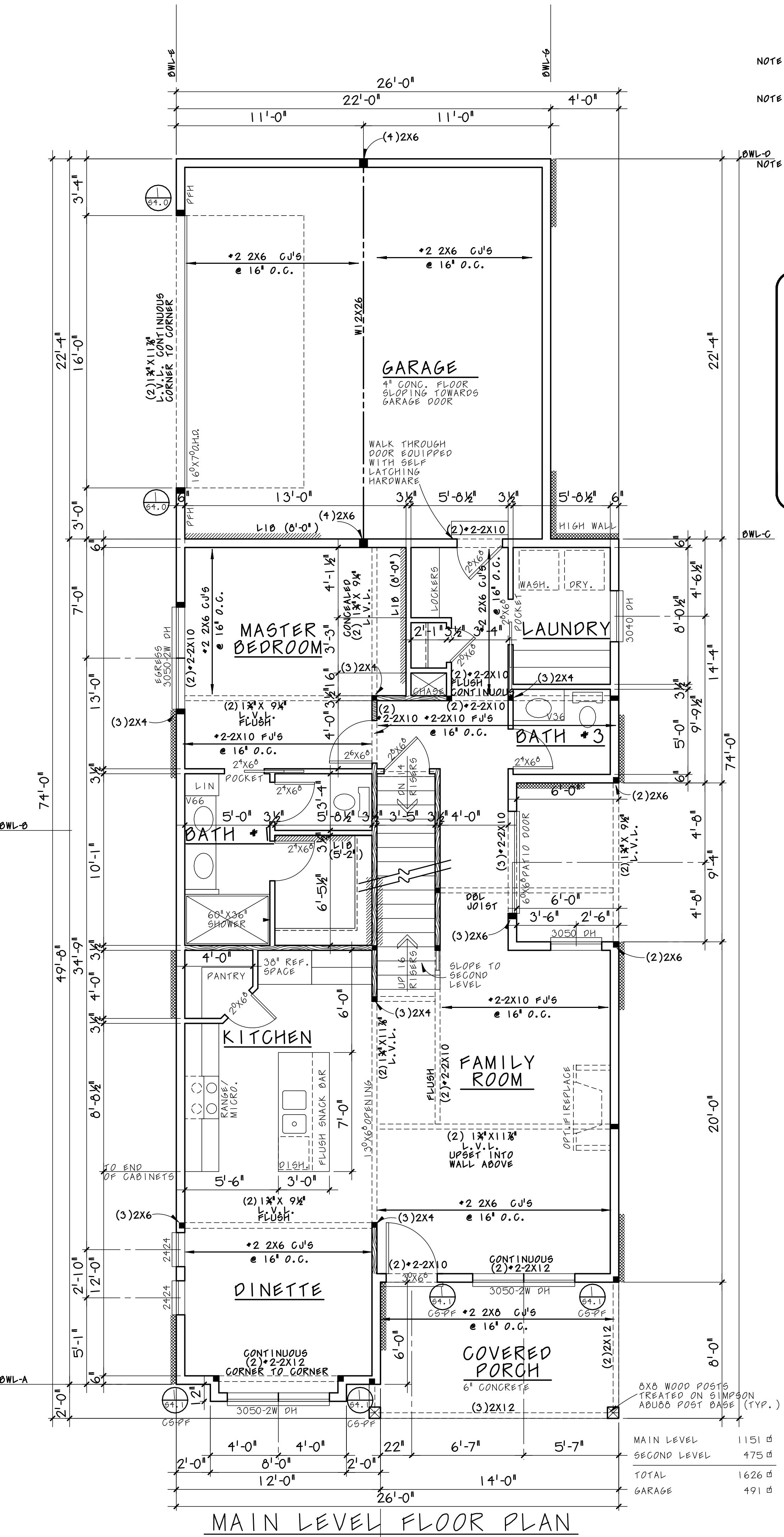
ALL UNMARKED HEADERS MIN (2)#2-2x10

ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)

BEARING WALL



**MAIN LEVEL ELECTRICAL**  
SCALE: 3/16" = 1'-0"

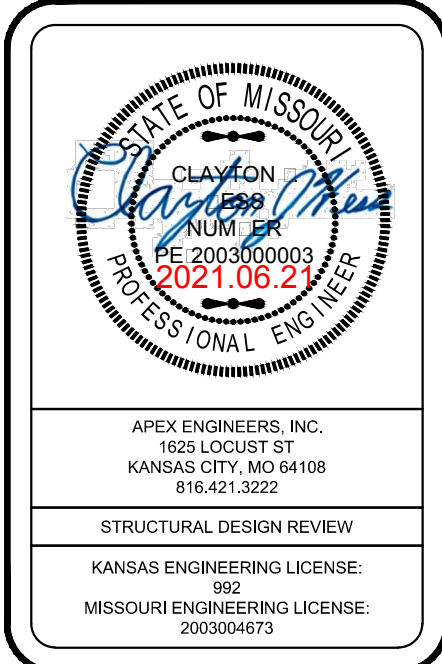


**MAIN LEVEL FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

NOTE: ALL MAIN FLOOR WALLS ARE 9'-1 1/2" HIGH UNLESS NOTED OTHERWISE

NOTE: ALL EXTERIOR WALLS ARE 6" (5 1/2" STUD + 1/2" SHEATHING) ALL INTERIOR WALLS ARE 3/4" UNLESS OTHERWISE SHOWN

NOTE: ALL ANGLED WALLS ARE @ 45°



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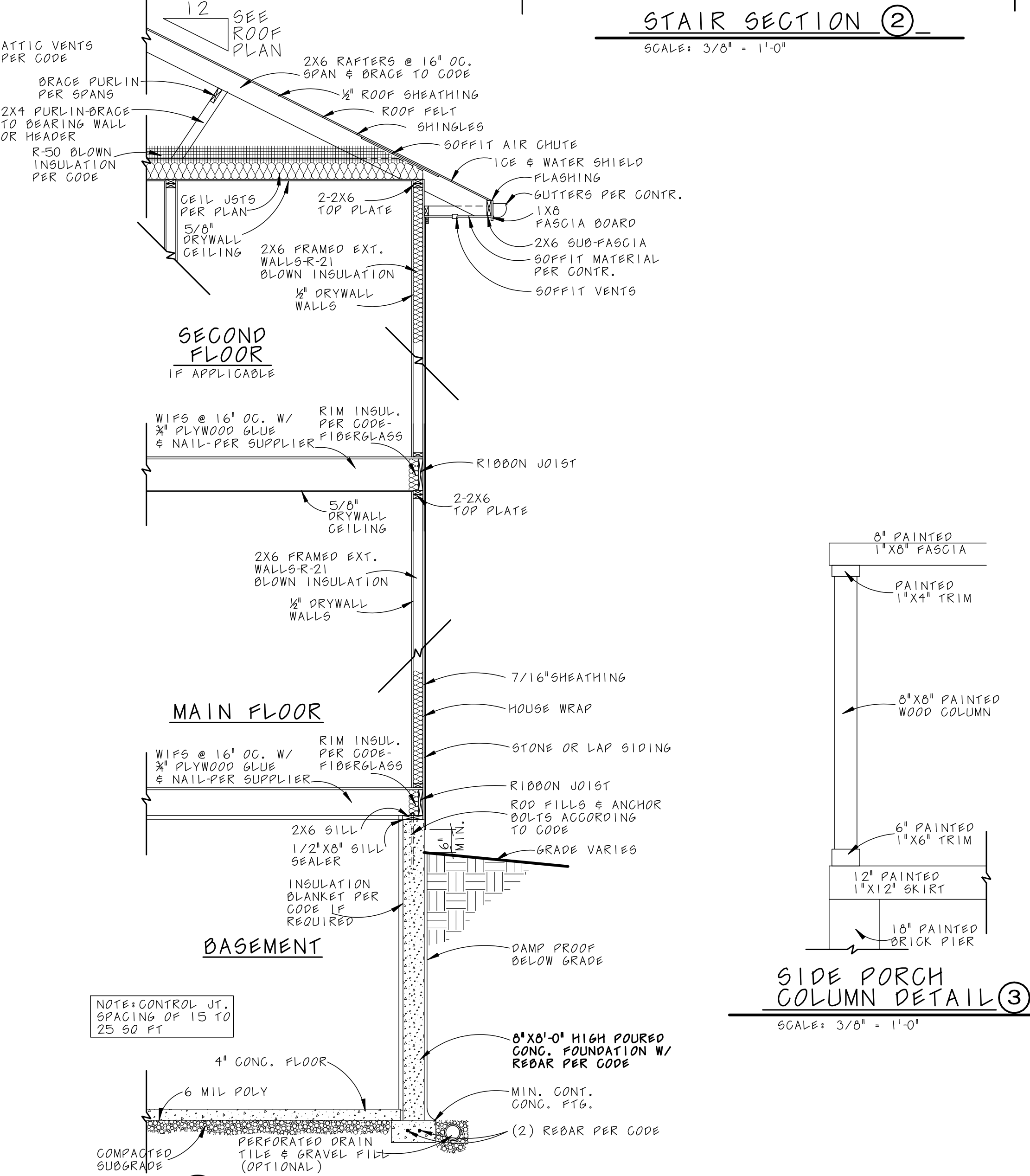
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Sideloar garage  
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Revised: 6-3-21

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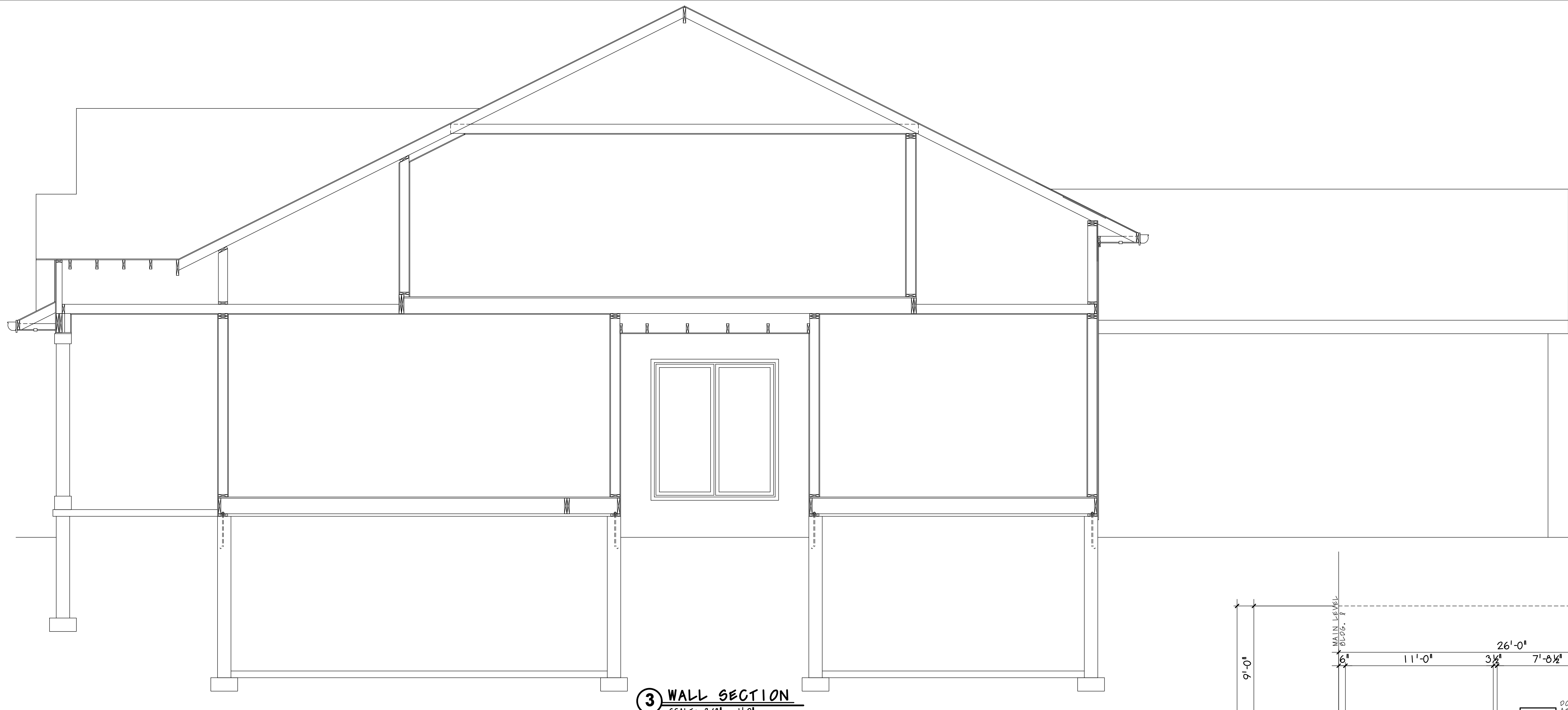
Sheet No.

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS REVIEW DEVELOPMENT LEE'S SUMMIT, MISSOURI  
06/22/2021



**SIDE PORCH COLUMN DETAIL ③**  
SCALE: 3/8" = 1'-0"

**WALL SECTION ②**  
SCALE: 3/8" = 1'-0"  
REVISED: 5-1-15



**3 WALL SECTION**  
SCALE: 3/8" = 1'-0"

NOTE: ALL SECOND FLOOR WALLS ARE 0'-1 1/2" HIGH UNLESS NOTED OTHERWISE

NOTE: ALL EXTERIOR WALLS ARE 6" (5/8" STUD + 1/2" SHEATHING) ALL INTERIOR WALLS ARE 3/4" UNLESS OTHERWISE SHOWN

NOTE: ALL ANGLED WALLS ARE @ 15°



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STRUCTURAL DESIGN REVIEW  
992  
MISSOURI ENGINEERING LICENSE  
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508 NW Main St  
Lee's Summit

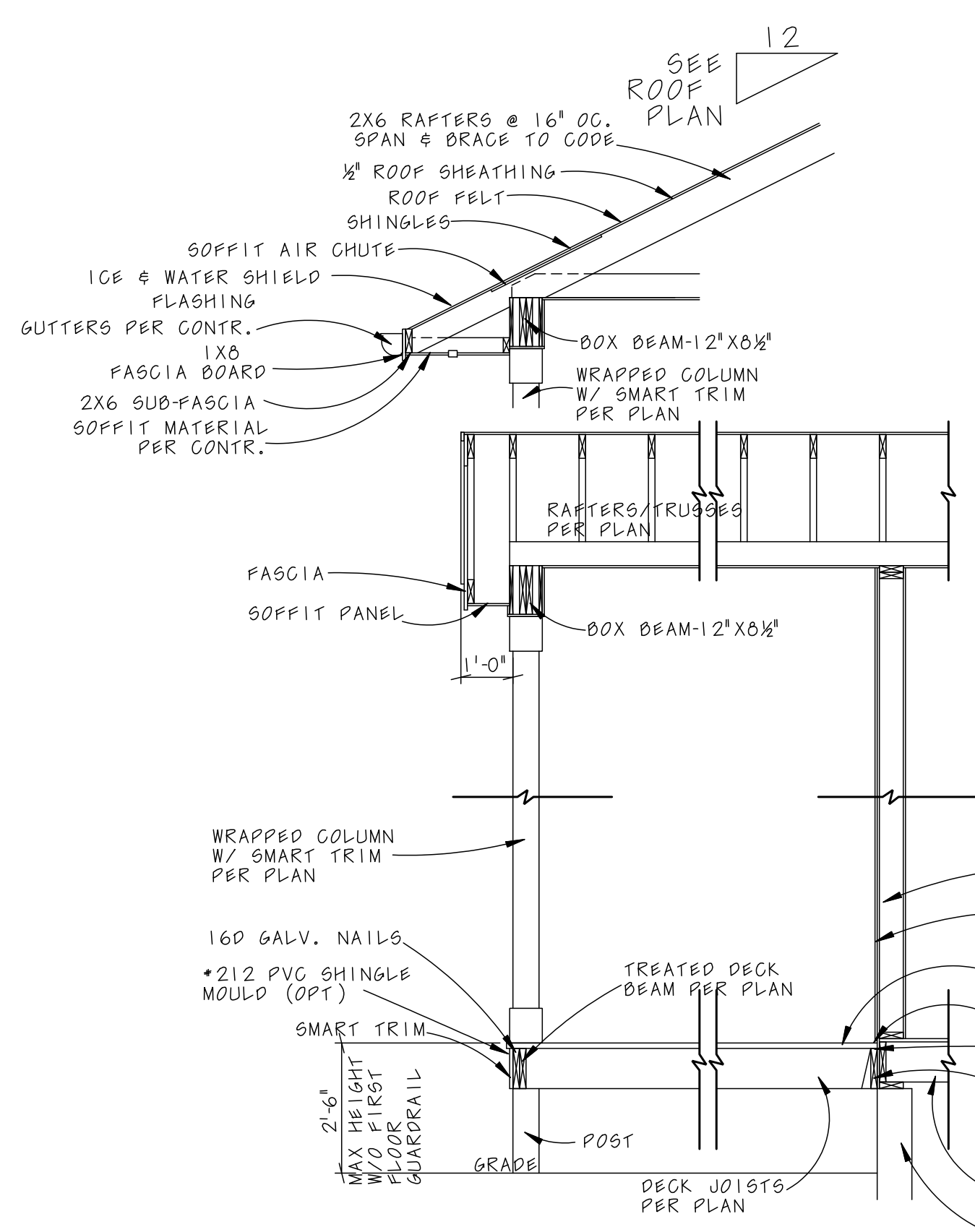
Omaha, Nebraska  
1-402-210-4369

Sideloar garage  
**1626 Plan**  
Revised: 6-3-21

Plan No.

Sheet No.

RELEASE OR CONSTRUCTION AS NOTED ON PLANS REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI  
06/22/2021



**4 DECK SECTION**  
SCALE: 3/8" = 1'-0"

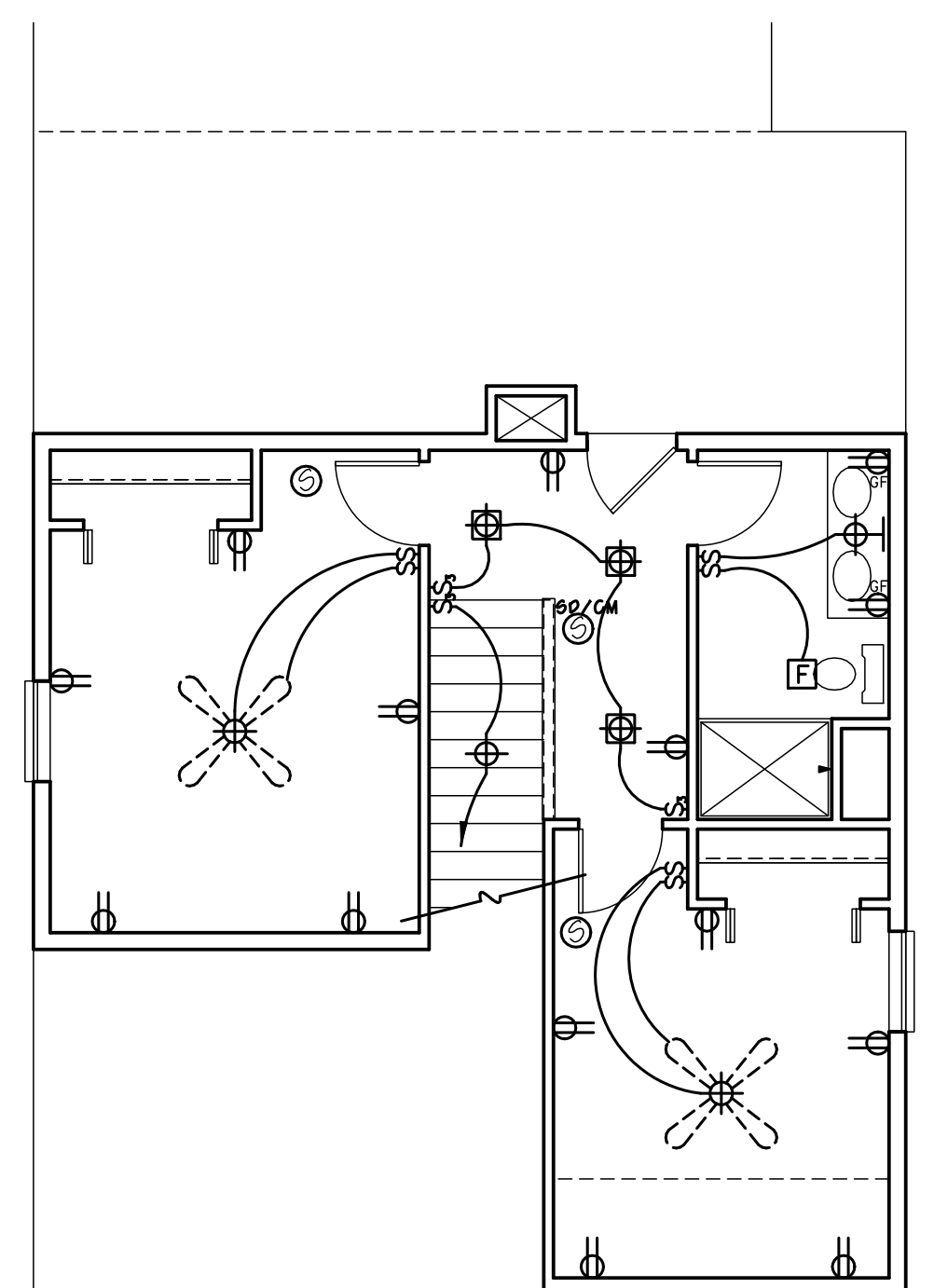
**BRACED WALL METHODOLOGY**

**XXXX EXTERIOR BRACED WALLS:**  
WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/4" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" O.C. STUD SPACING WITH 6d COMMON NAILS AT 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/8" WITH MINIMUM SPAN RATING OF 24/6 FOR 24" O.C. SPACING WITH 8d COMMON NAILS AT 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)

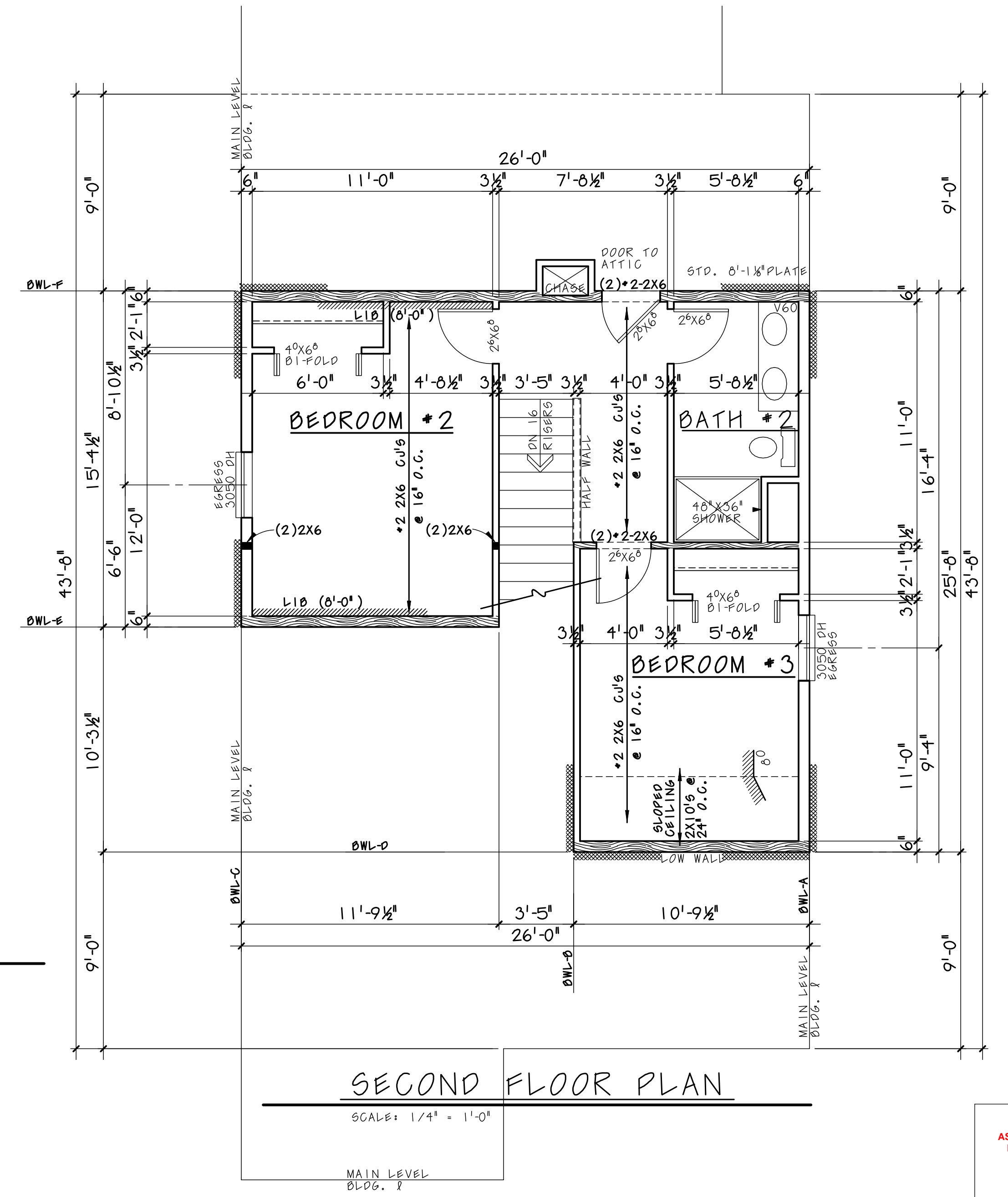
**//// INTERIOR BRACED WALLS (REF 2/S4.0):**  
GB METHOD: 1/2" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - 1 1/2" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)  
OR  
LIB METHOD: 1x4 WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL. X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

**STRUCTURAL NOTES:**

- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
- BEARING WALL



**SECOND FLOOR ELECTRICAL**  
SCALE: 3/16" = 1'-0"



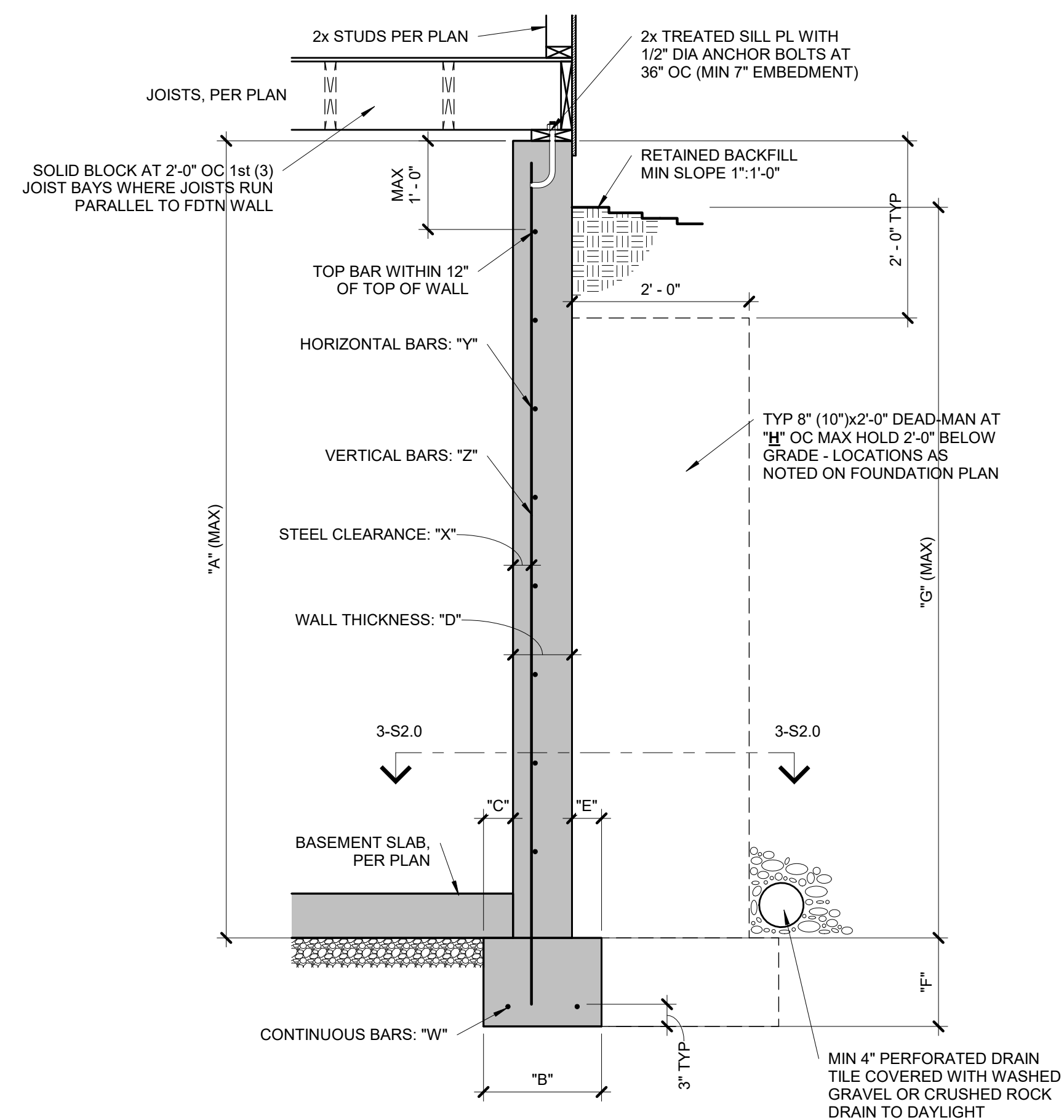
**SECOND FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

MAIN LEVEL BLDG. F

RELEASE OR CONSTRUCTION AS NOTED ON PLANS REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI  
06/22/2021



DATE	COMMENTS



**CONCRETE DIMENSIONS**

"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
8'-0"	1'-4"	4"	8"	4"	8"	7'-6"	20'-0"
9'-0"	1'-4"	4"	8"	4"	8"	8'-6"	20'-0"
10'-0"	1'-8"	5"	10"	5"	10"	9'-6"	20'-0"

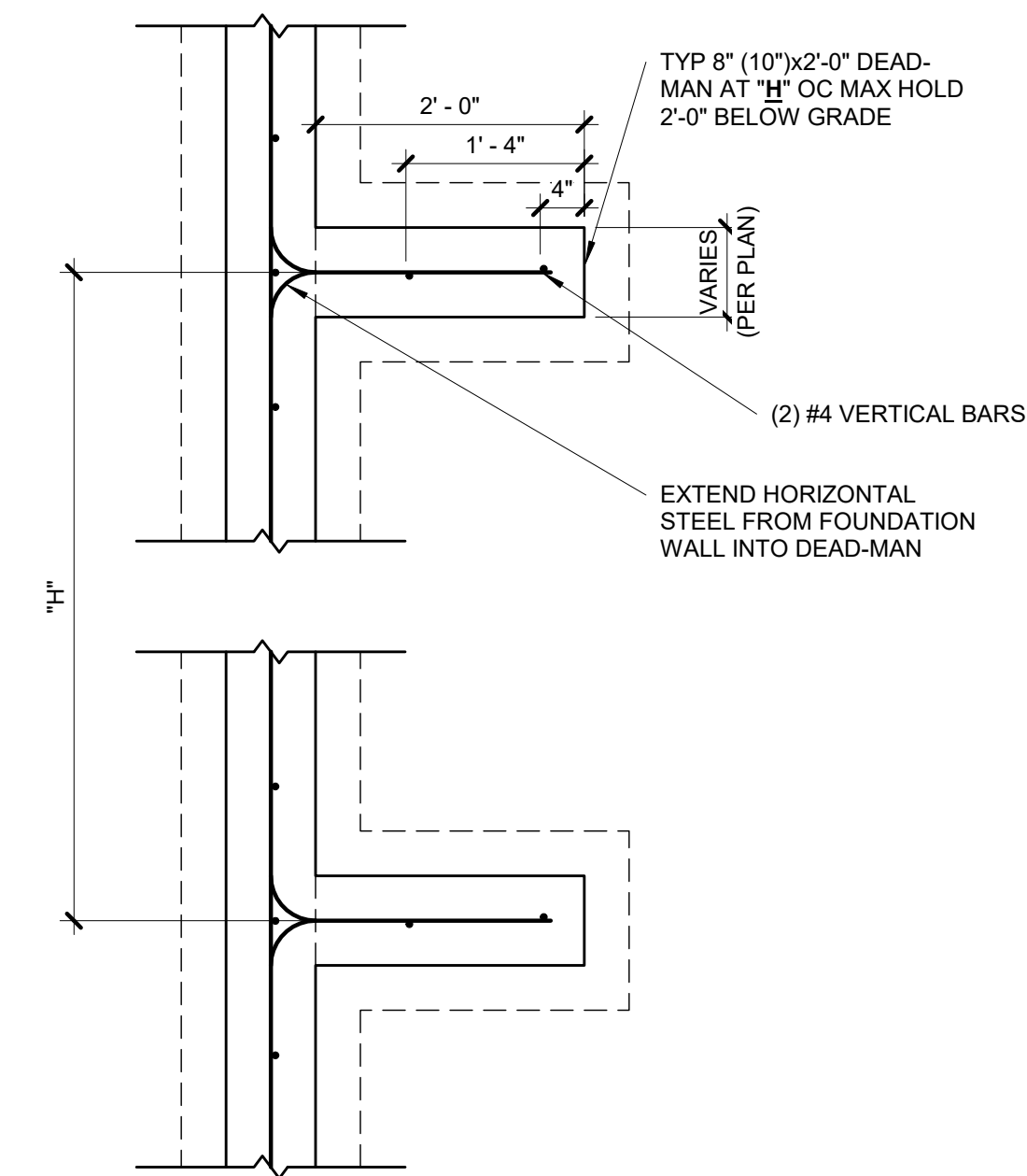
**REINFORCING BARS (GRADE 40 BARS)**

"W"	"X"	"Y"	"Z"
(2) #4	2 1/2"	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	2 1/2"	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	2 1/2"	#4 BARS AT 18" OC	#4 BARS AT 18" OC

- NOTES:  
1. DIMENSION SHOWN IS FOR MAXIMUM UNINTERRUPTED WALL PANEL LENGTH BEFORE A DEAD-MAN SHALL BE INSTALLED. NOTE, A MINIMUM 2'-0" RETURN OR OFFSET IN THE FOUNDATION WALL SHALL SUBSTITUTE AS A DEAD-MAN AND/OR BREAK IN THE WALL PANEL LENGTH.  
2. VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.  
3. BURIED CONCRETE FOUNDATION WALLS UP TO 9'-0" TALL MAY BE 8" NOMINAL THICKNESS WITH #4 BARS AT 24" OC BOTH WAYS OVER 16"x8" CONCRETE FOOTINGS WITH (2) #4 BARS CONTINUOUS, UNLESS OTHERWISE REQUIRED BY ENGINEERING REPORT BASED ON ACTUAL SITE CONDITIONS.  
4. WALL WILL NOT ACHIEVE FULL STRENGTH UNTIL FIRST FLOOR DECK AND BASEMENT SLAB HAVE BEEN PLACED.

**1 TYPICAL FOUNDATION WALL DETAIL**

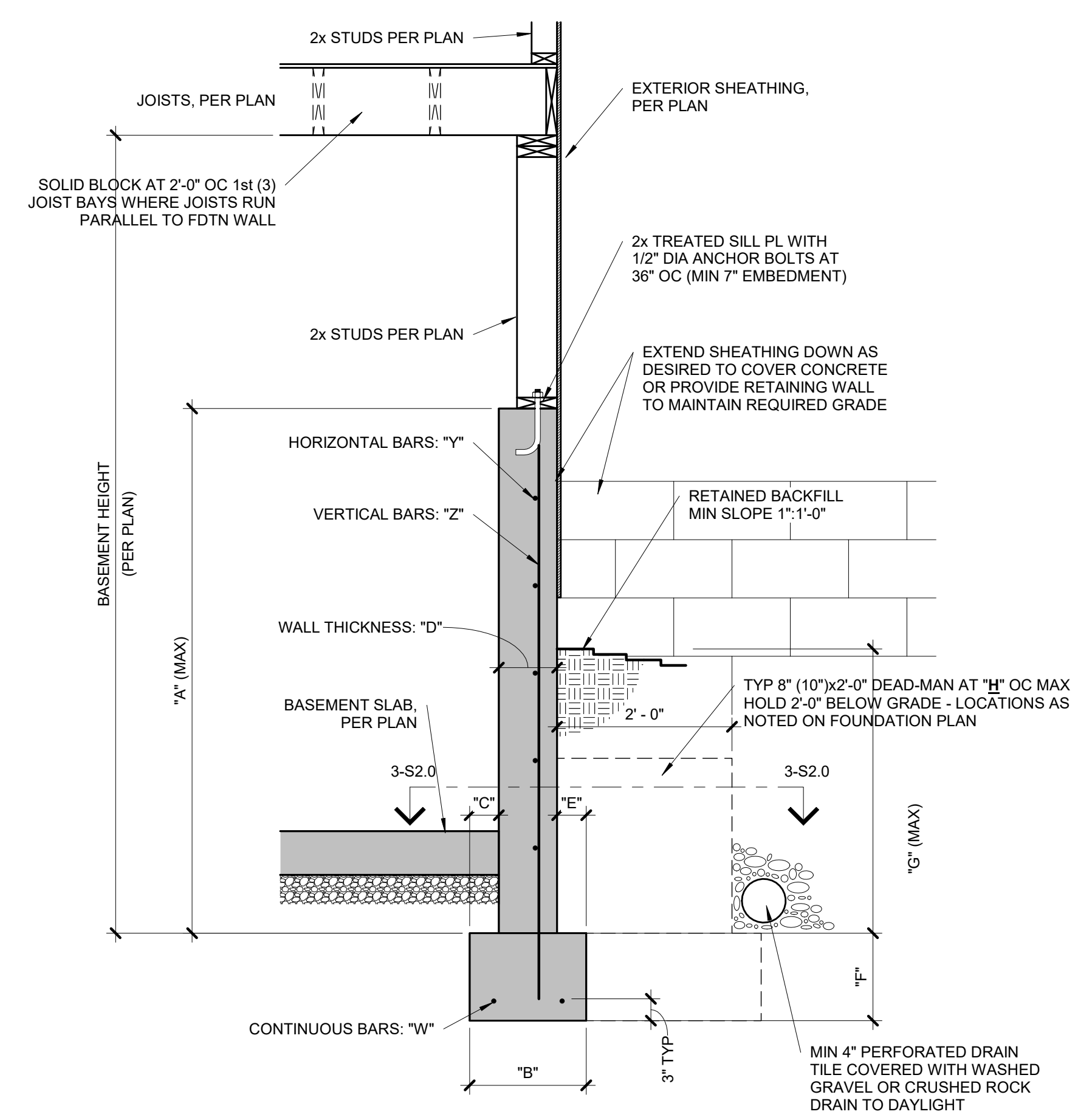
S2.0 3/4" = 1'-0"



- NOTES:  
1. MIN 3000 PSI FOOTING COMPRESSIVE CONCRETE STRENGTH.  
2. MIN 3000 PSI WALL COMPRESSIVE CONCRETE STRENGTH.  
3. AIR ENTRAINMENT BETWEEN 5% & 7% OF CONCRETE VOLUME.  
4. GRADE 40 REINFORCING STEEL UNLESS OTHERWISE NOTED.  
5. LAP SPLICES 24" MIN.  
6. WALL SHALL BE BACK-FILLED WITH CLEAN, LEAN CLAY (OR BETTER) LOW VOLUME CHANGE MATERIAL. ON-SITE MATERIAL MAY BE USED IF DEEMED ACCEPTABLE BY THE GEOTECHNICAL ENGINEER.  
7. ASSUMED 2,000 PSF BEARING (TO BE VERIFIED BY GEOTECHNICAL ENGINEER).

**3 TYPICAL DEAD-MAN SECTION**

S2.0 3/4" = 1'-0"



**CONCRETE DIMENSIONS**

"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
4'-0"	1'-4"	4"	8"	4"	8"	3'-4"	20'-0"
6'-0"	1'-4"	4"	8"	4"	8"	4'-4"	20'-0"
9'-0"	1'-8"	5"	8"	4"	8"	4'-4"	20'-0"

**REINFORCING BARS (GRADE 40 BARS)**

"W"	"X"	"Y"	"Z"
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC

- NOTES:  
1. DIMENSION SHOWN IS FOR MAXIMUM UNINTERRUPTED WALL PANEL LENGTH BEFORE A DEAD-MAN SHALL BE INSTALLED. NOTE, A MINIMUM 2'-0" RETURN OR OFFSET IN THE FOUNDATION WALL SHALL SUBSTITUTE AS A DEAD-MAN AND/OR BREAK IN THE WALL PANEL LENGTH.  
2. VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.  
3. THE BASEMENT SLAB IS AN INTEGRAL PART OF THE 'UNRESTRAINED' FOUNDATION WALL DESIGN THEREFORE, IF THE WALL IS BACKFILLED PRIOR TO PLACEMENT OF THE BASEMENT SLAB, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY BRACING THE WALL UNTIL THE BASEMENT SLAB HAS BEEN PLACED.

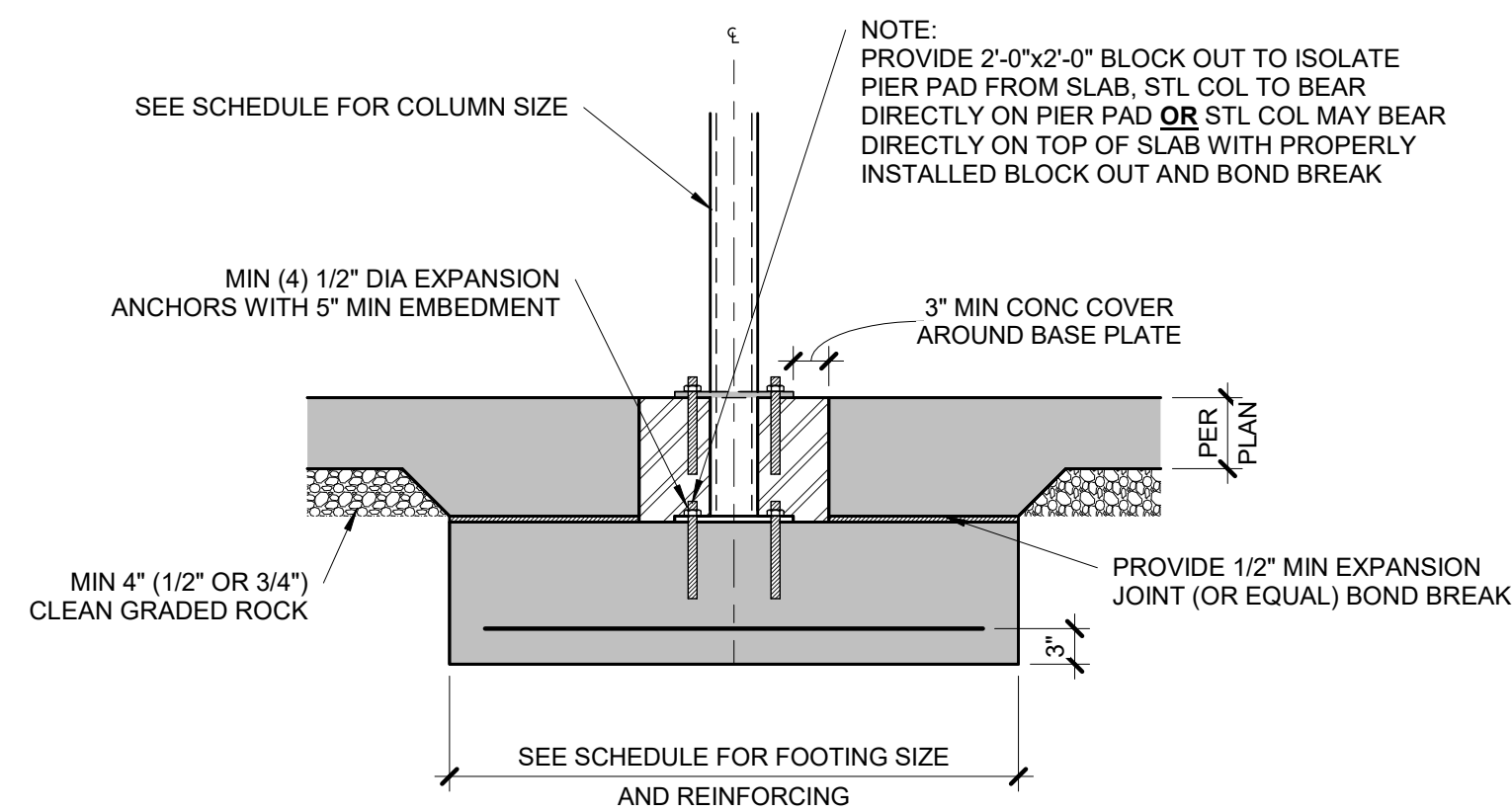
**2 TYPICAL 'UNRESTRAINED' FOUNDATION WALL DETAIL**

S2.0 3/4" = 1'-0"

**COLUMN AND PIER PAD SCHEDULE**

COLUMN MARK	PAD SIZE	REINFORCING	COL SIZE	COL TYPE
A	30"x30"x12"	(4) #4 BARS E-W	3" NOMINAL	SCHEDULE E-40 STEEL COLUMN (F <sub>y</sub> = 58 ksi MIN)
B	36"x36"x12"	(4) #4 BARS E-W	3" NOMINAL	
C	42"x42"x12"	(5) #4 BARS E-W	3" NOMINAL	
D	48"x48"x12"	(6) #4 BARS E-W	3" NOMINAL	
E	54"x54"x16"	(8) #4 BARS E-W	3 1/2" NOMINAL (4" OD)	
F	60"x60"x16"	(10) #4 BARS E-W	3 1/2" NOMINAL (4" OD)	

- NOTES:  
1. COLUMN AND PIER PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0". REQUIRES SEPERATE ENGINEERED DESIGN IF GREATER THAN 10'-0"  
2. COLUMN AND PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF.



**5 COLUMN PAD DETAIL**

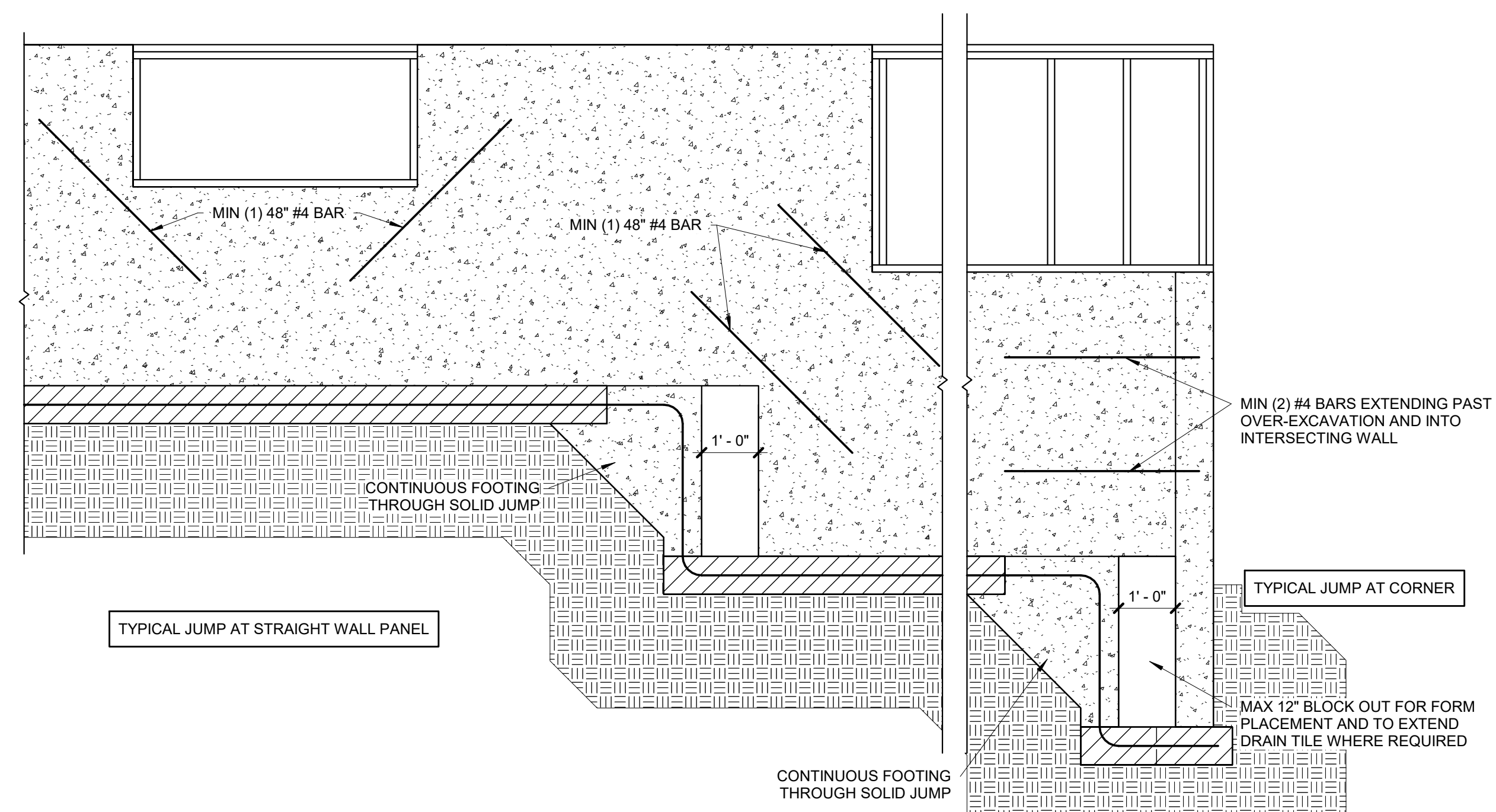
S2.0 3/4" = 1'-0"

**EXPANSIVE SOILS DISCLAIMER:**

THESE PLANS HAVE BEEN PREPARED BASED ON A PRESUMPTIVE ALLOWABLE BEARING CAPACITY AS ALLOWED BY IRC CODE AND THE LOCAL ENFORCING JURISDICTION.

APEX ENGINEERS, INC. (APEX) RECOMMENDS THAT ALL FOOTING EXCAVATIONS BE EVALUATED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOUNDATION ELEMENTS. GEOTECHNICAL INVESTIGATION AND/OR TESTING IS NOT A SERVICE PROVIDED OR OFFERED BY APEX.

APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING BELOW THE BASEMENT SLAB). BY USE OF THESE PLANS WITHOUT AN ACCOMPANYING GEOTECHNICAL ENGINEERING REPORT, APEX SHALL NOT BE HELD LIABLE FOR ANY FUTURE MOVEMENT AND/OR DIFFERENTIAL MOVEMENT OF THE PROPOSED STRUCTURE AND THE POSSIBLE DAMAGE THAT MAY BE CAUSED AS A RESULT OF SUCH MOVEMENT. DAMAGE FROM EXPANSIVE SOILS AND/OR SETTLEMENT CAN RESULT IN AMONGST OTHER THINGS, THE FOLLOWING: BASEMENT SLAB HEAVE, SHEETROCK CRACKS, WINDOWS AND DOOR BECOMING OUT OF PLUMB AND STICKING AND/OR NOT OPENING, DAMAGE TO TILE, MOULDING, AND OTHER COSMETIC FINISHES.

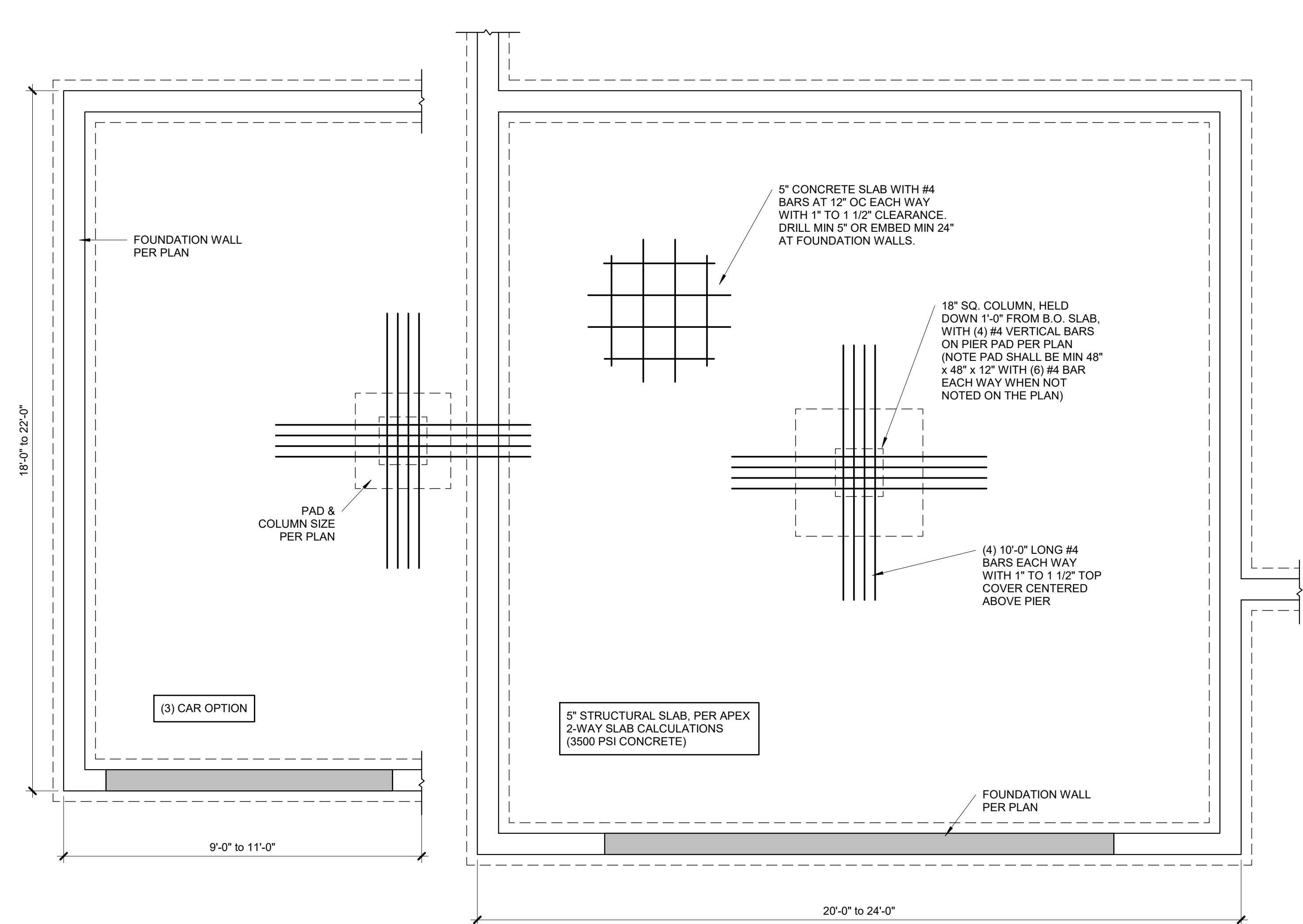


**4 FOUNDATION WALL JUMP DETAIL**

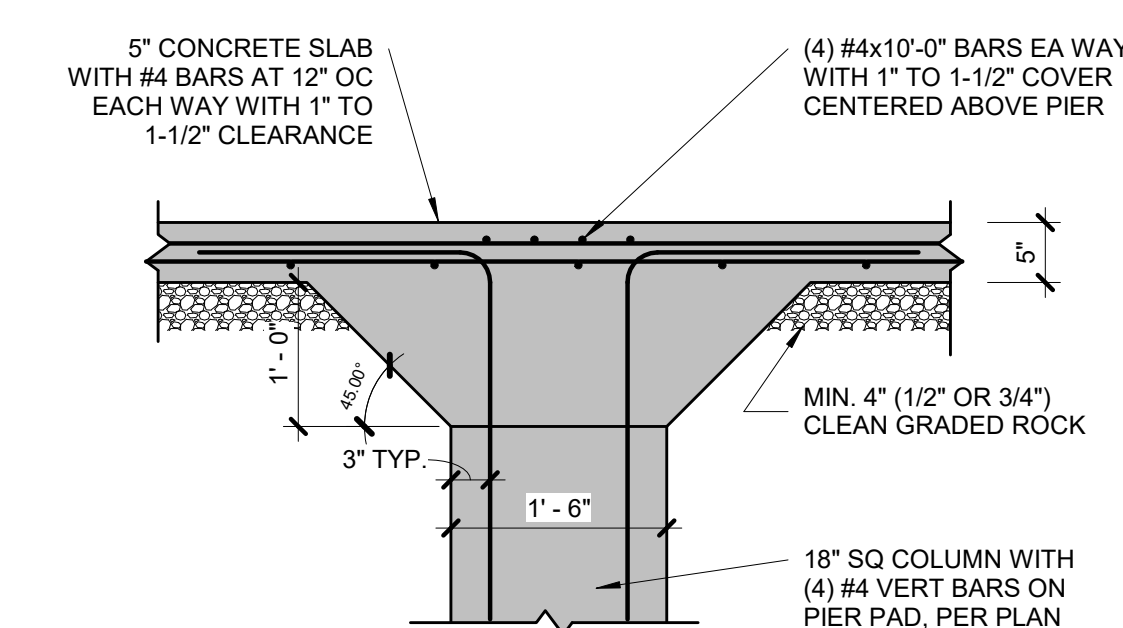
S2.0 1/2" = 1'-0"



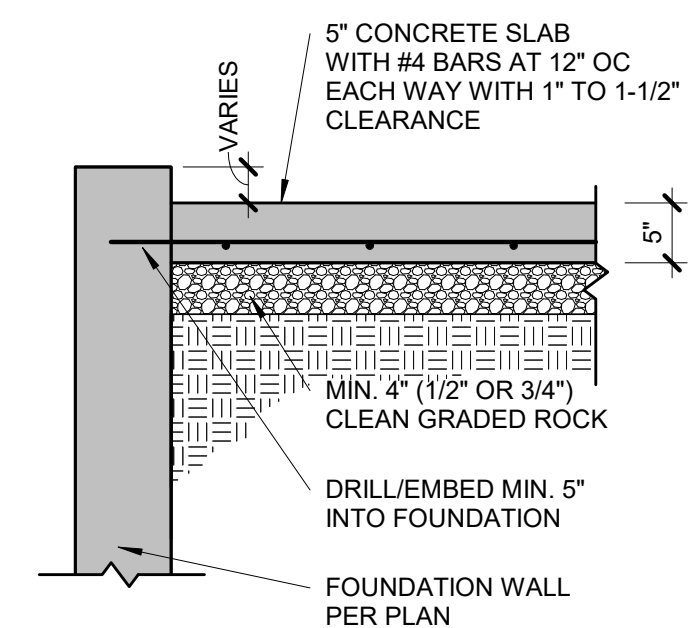
#	DATE	COMMENTS



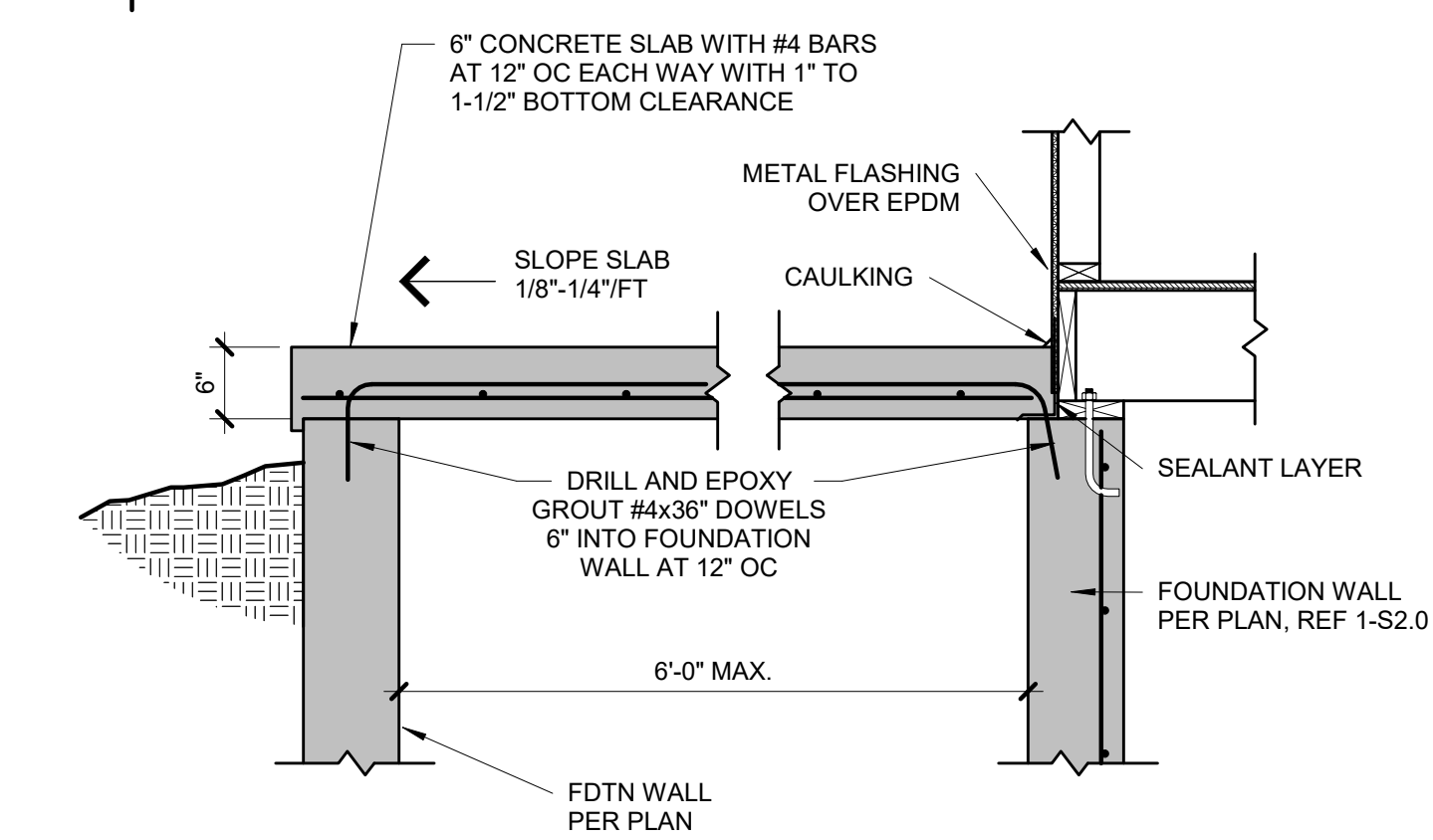
**1 TYPICAL STRUCTURAL GARAGE SLAB PLAN**  
S2.1 | 3/8" = 1'-0"



**2 STRUCTURAL GARAGE SLAB PIER PAD DETAIL**  
S2.1 | 3/4" = 1'-0"



**3 STRUCTURAL GARAGE SLAB/WALL SECTION**  
S2.1 | 3/4" = 1'-0"



**FORMWORK OPTIONS:**  
1. PROVIDE VULCRAFT 2VLI (OR EQUAL) CORRUGATED DECKING (SHORE AT MID-SPAN DURING CONSTRUCTION), OR  
2. PLYWOOD FORMS WITH EXPANDABLE BAR JOISTS OR TEMPORARY FRAMED WALLS BY CONTRACTOR.

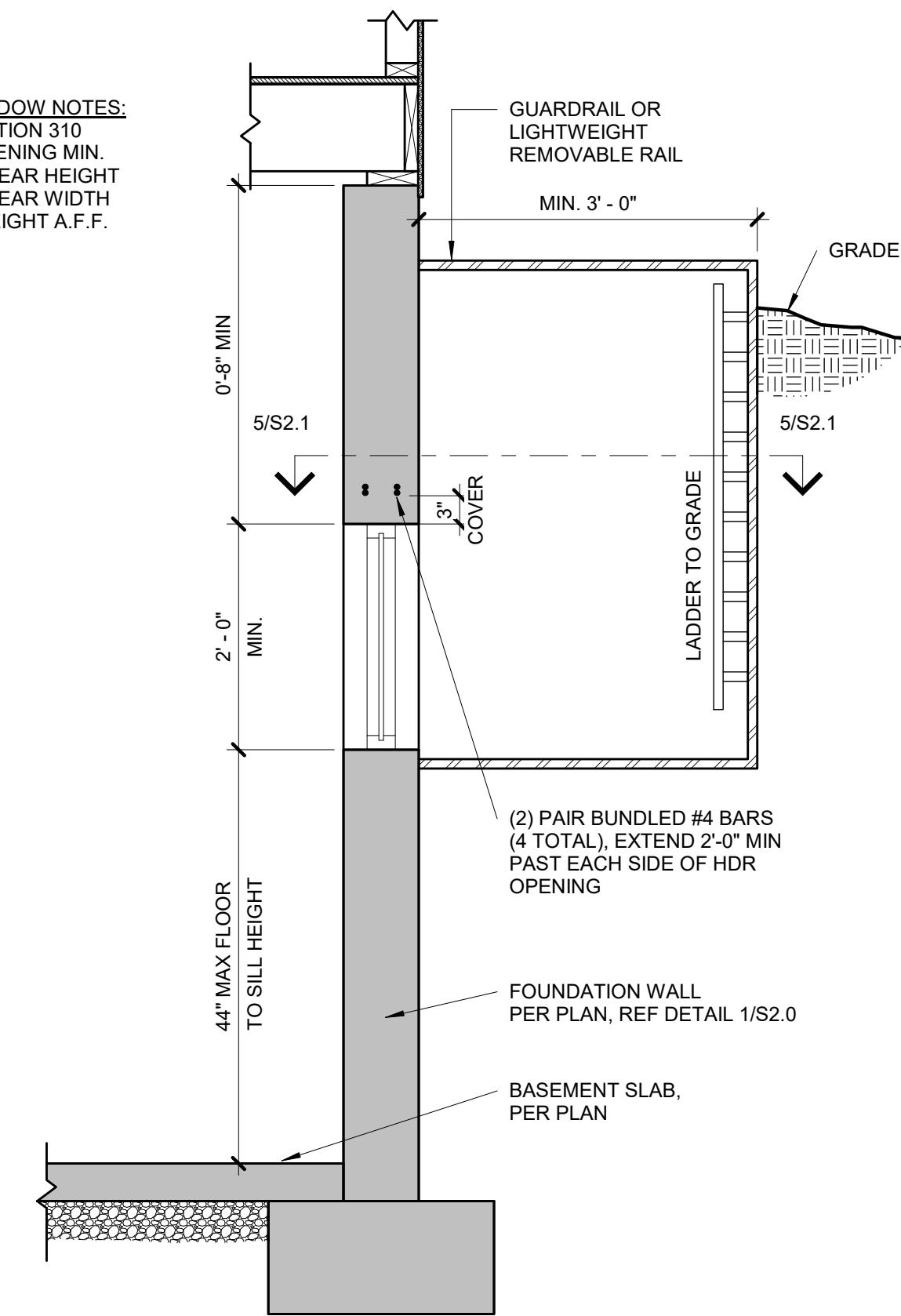
**7 SUSPENDED PORCH STOOP DETAIL**  
S2.1 | 3/4" = 1'-0"

PIER SCHEDULE		
COLUMN MARK	COL SIZE	PIER DIAMETER
G	PER PLAN	12"
H	PER PLAN	16"
J	PER PLAN	18"
K	PER PLAN	24"
L	PER PLAN	28"

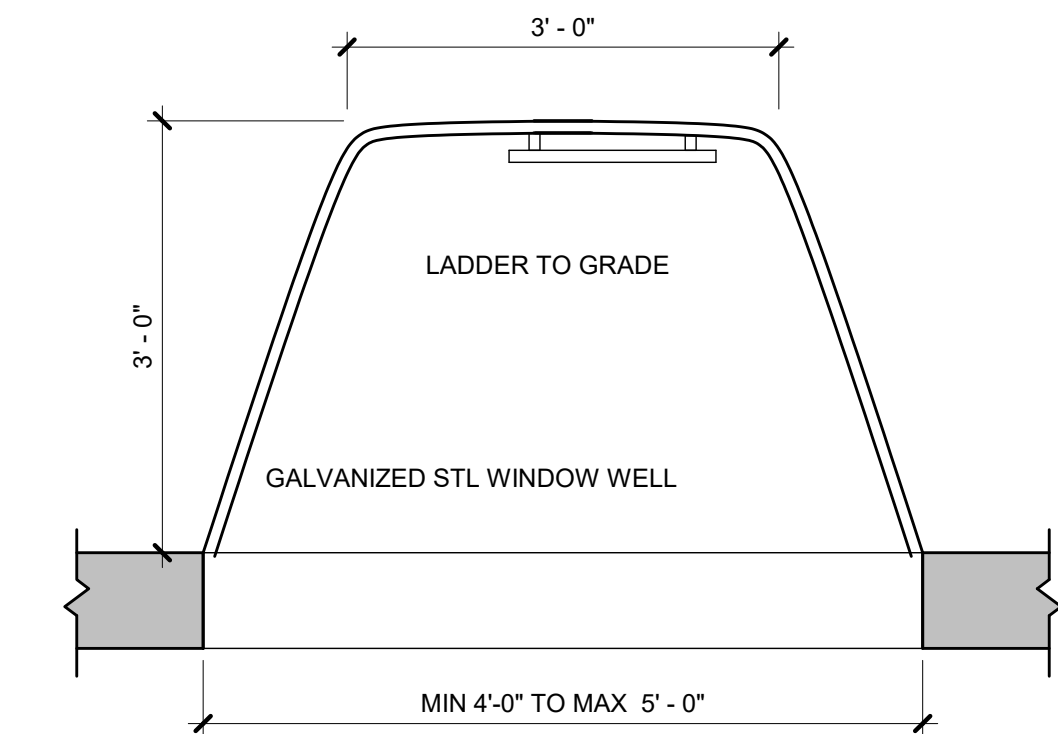


**8 POST BASE DETAIL**  
S2.1 | 3/4" = 1'-0"

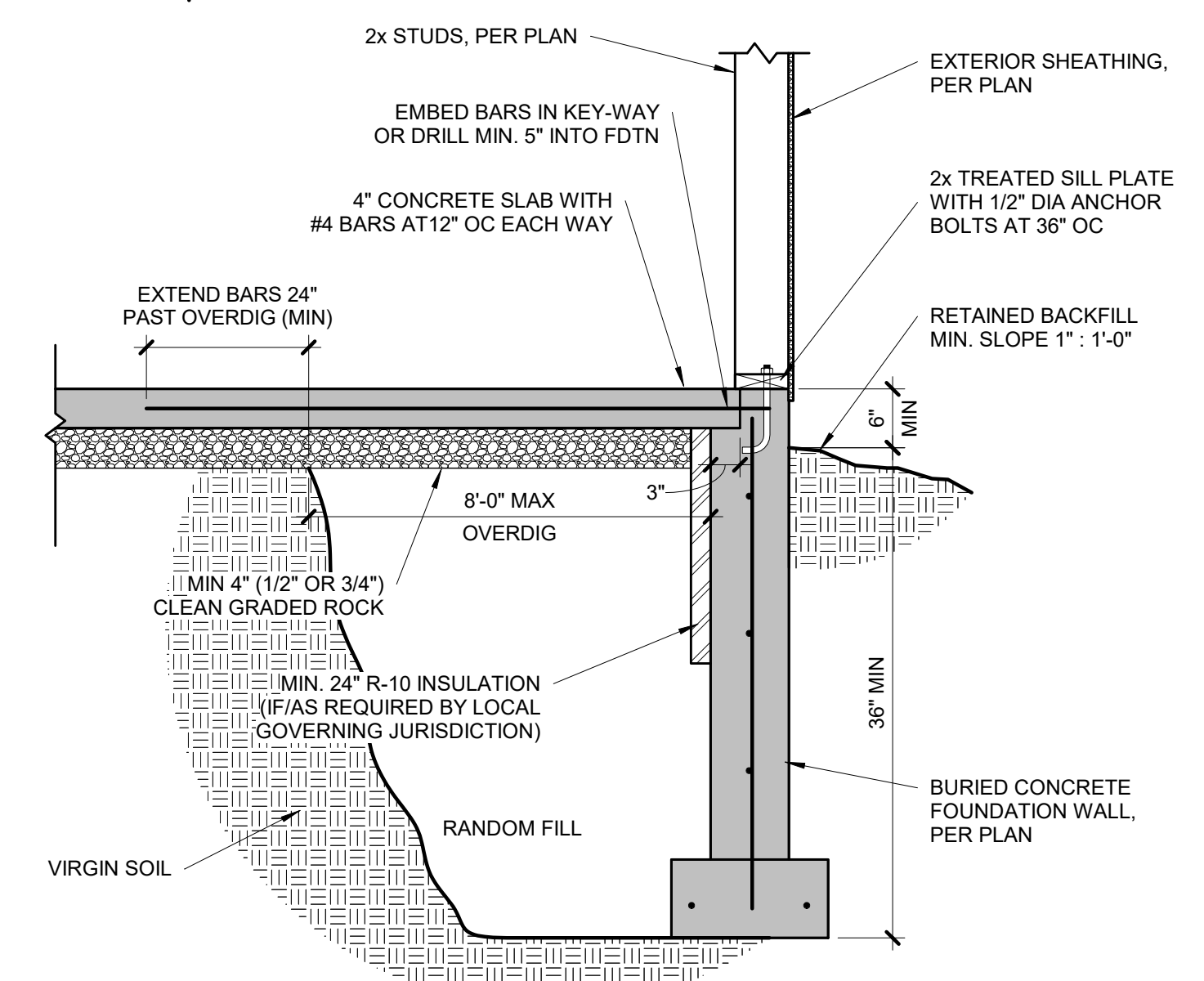
**EGRESS WINDOW NOTES:**  
PER IRC SECTION 310  
1. 5.7 S.F. OPENINGS MIN.  
2. 24" MIN. CLEAR HEIGHT  
3. 20" MIN. CLEAR WIDTH  
4. 44" MAX HEIGHT A.F.F.



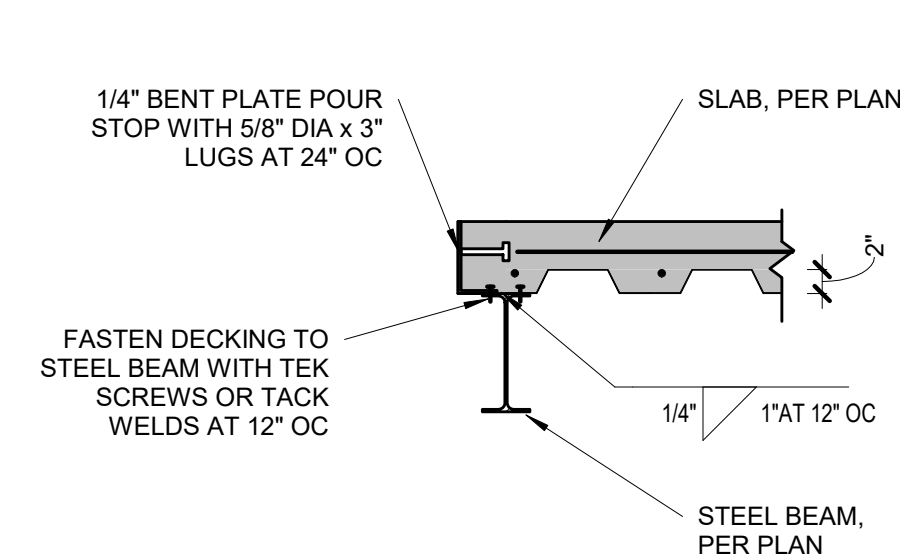
**4 TYPICAL EGRESS WINDOW SECTION DETAIL**  
S2.1 | 3/4" = 1'-0"



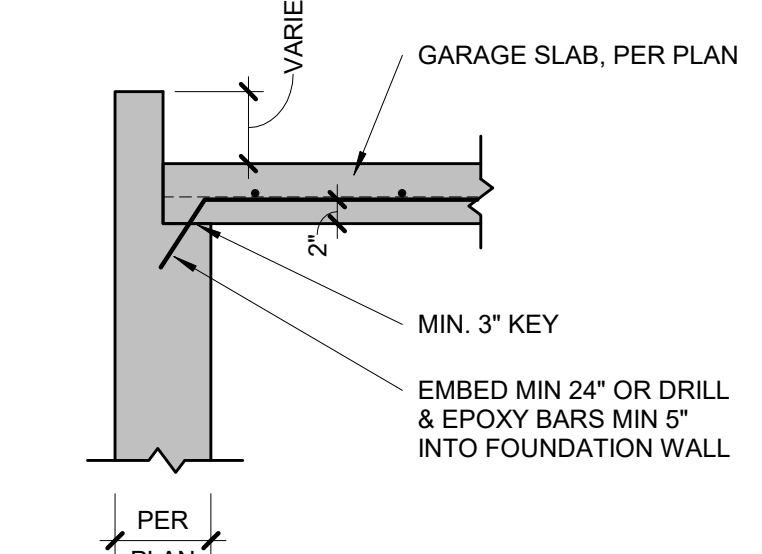
**5 TYPICAL EGRESS WINDOW PLAN SECTION**  
S2.1 | 3/4" = 1'-0"



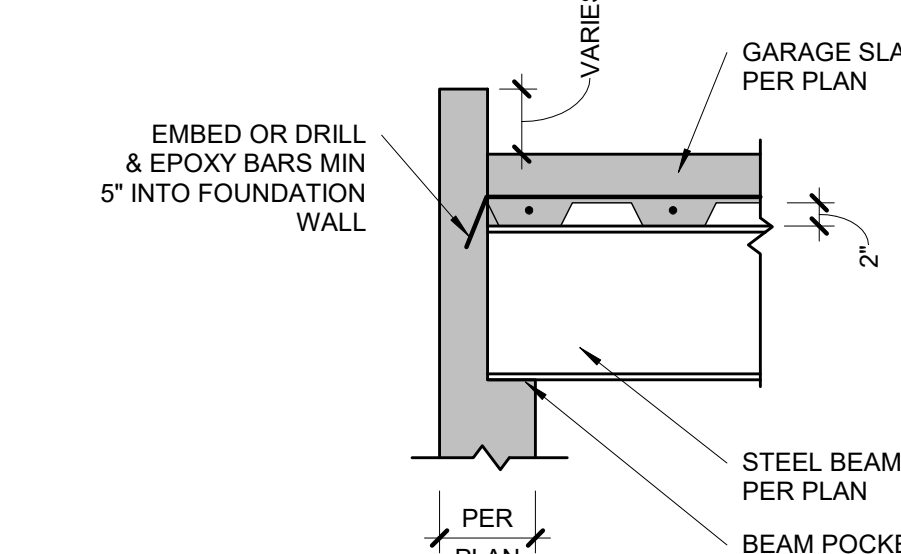
**6 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB**  
S2.1 | 3/4" = 1'-0"



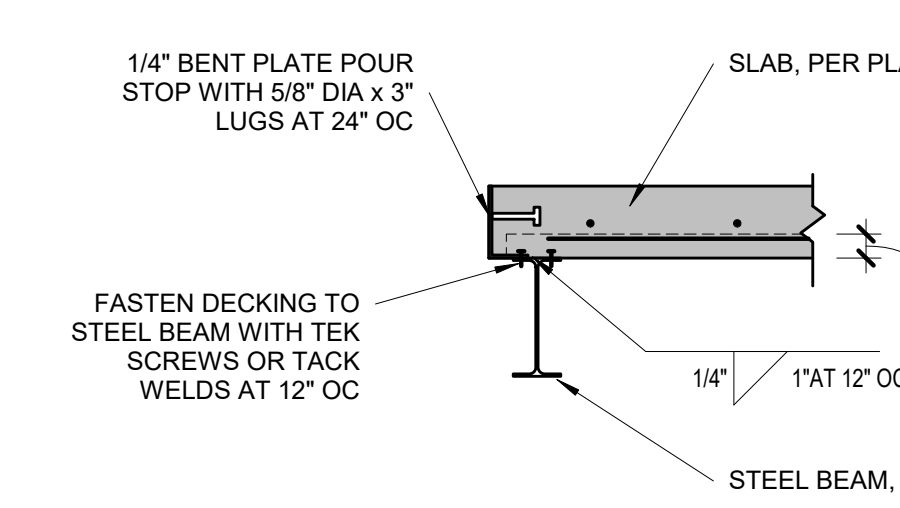
**9 POUR STOP DETAIL**  
S2.1 | 3/4" = 1'-0"



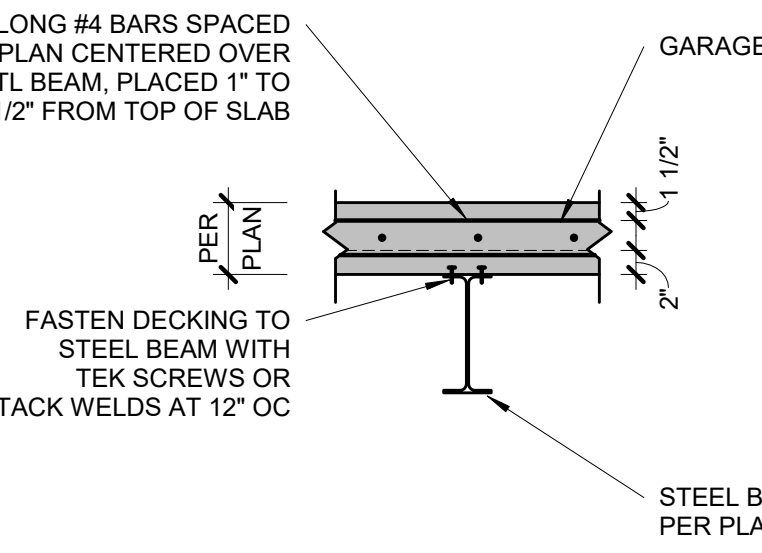
**10 GARAGE SLAB BEARING**  
S2.1 | 3/4" = 1'-0"



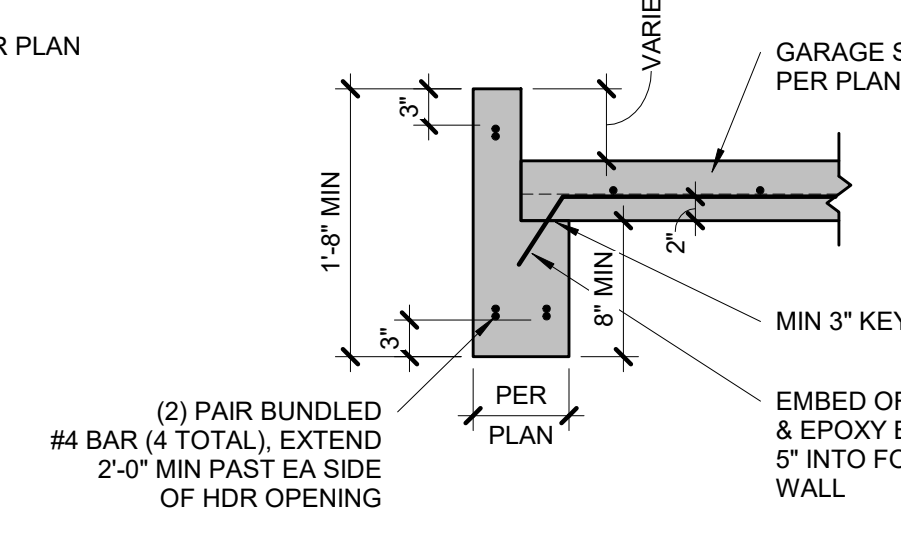
**11 GARAGE SLAB BEAM BEARING**  
S2.1 | 3/4" = 1'-0"



**12 POUR STOP DETAIL**  
S2.1 | 3/4" = 1'-0"



**13 GARAGE SLAB BEAM BEARING**  
S2.1 | 3/4" = 1'-0"

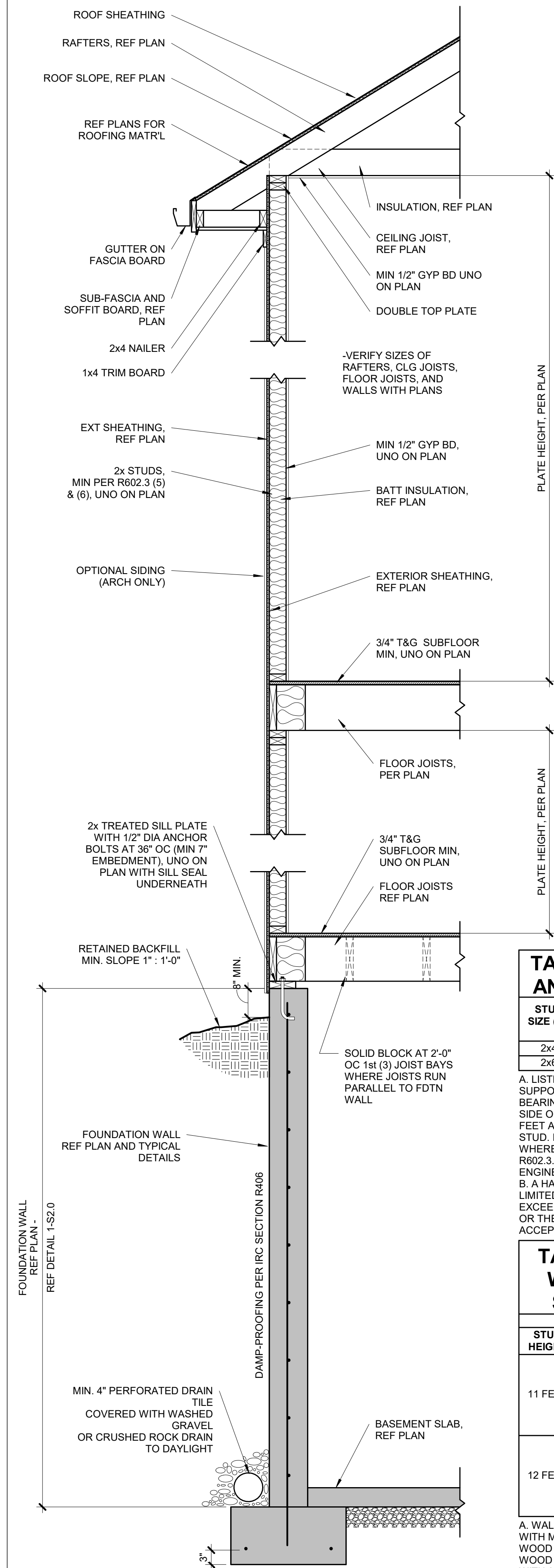


**14 CONCRETE HEADER DETAIL**  
S2.1 | 3/4" = 1'-0"

**STEEL DECKING NOTES:**

- MINIMUM 1-1/2" BEARING
- FASTEN TO SUPPORT STEEL WITH 5/8" VISIBLE PUDDLE WELDS AT EDGE RIBS AND 12" CENTERS ALONG END BEARING
- FASTEN SIDE LAPS AND PERIMETER EDGES AT 36" CENTERS WITH #10 TEK SCREWS OR 5/8" PUDDLE WELDS
- MAX UNSUPPORTED CONSTRUCTION SPAN 6'-0". UNO ON PLANS BY APEX

**TYPICAL SUSPENDED SLAB DETAIL**



**TABLE R602.3 (5) - SIZE, HEIGHT, AND SPACING OF WOOD STUDS**

STUD SIZE (IN)	LATERALLY UNSUPPORTED STUD HEIGHT*	STRUCTURE SUPPORTED		
		ROOF ONLY	ROOF AND (1) FLOOR	ROOF AND (2) FLOORS
2x4	10 FEET	24" OC	16" OC	N/A
2x6	10 FEET	24" OC	24" OC	16" OC

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 THE COMPLIANCE WITH EXCEPTION 2 OF SECTION R602.3.1 OR DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.

B. A HABITABLE ATTIC ASSEMBLY SUPPORTED BY 2x4 STUDS IS LIMITED TO A ROOF SPAN OF 32 FEET. WHERE THE ROOF SPAN EXCEEDS 32 FEET, THE WALL STUDS SHALL BE INCREASED TO 2x6 OR THE STUDS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.

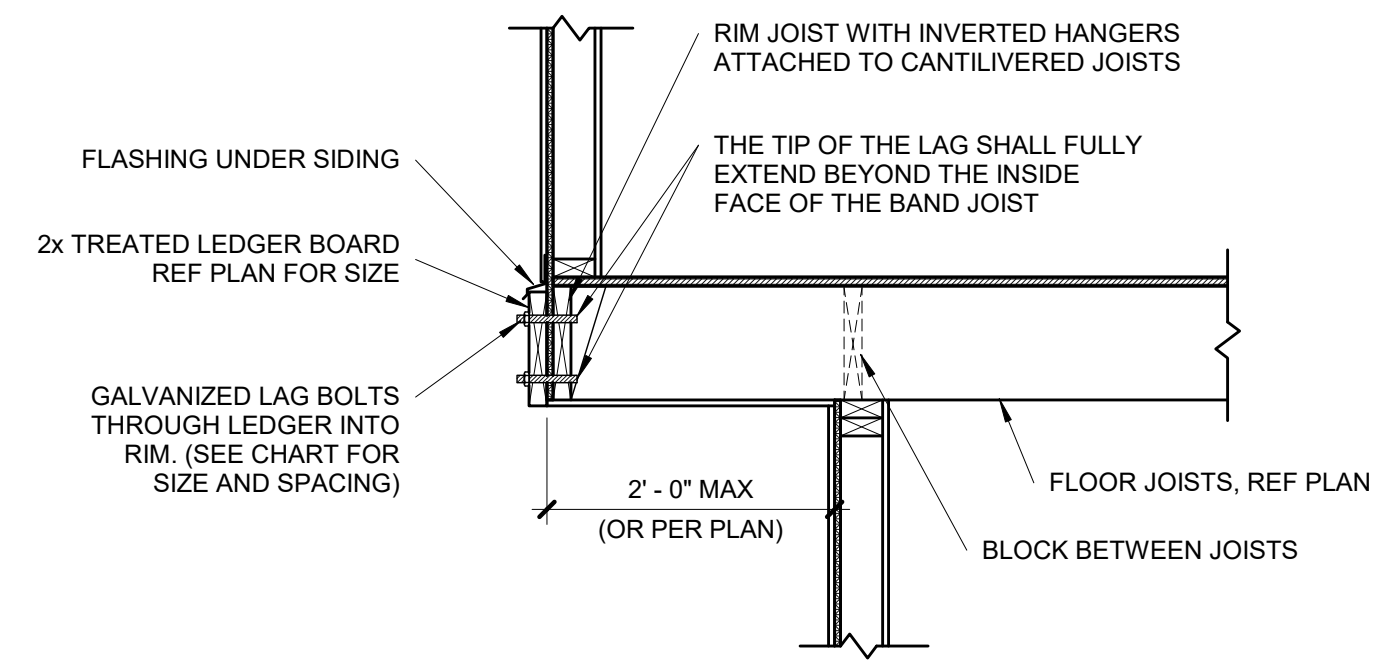
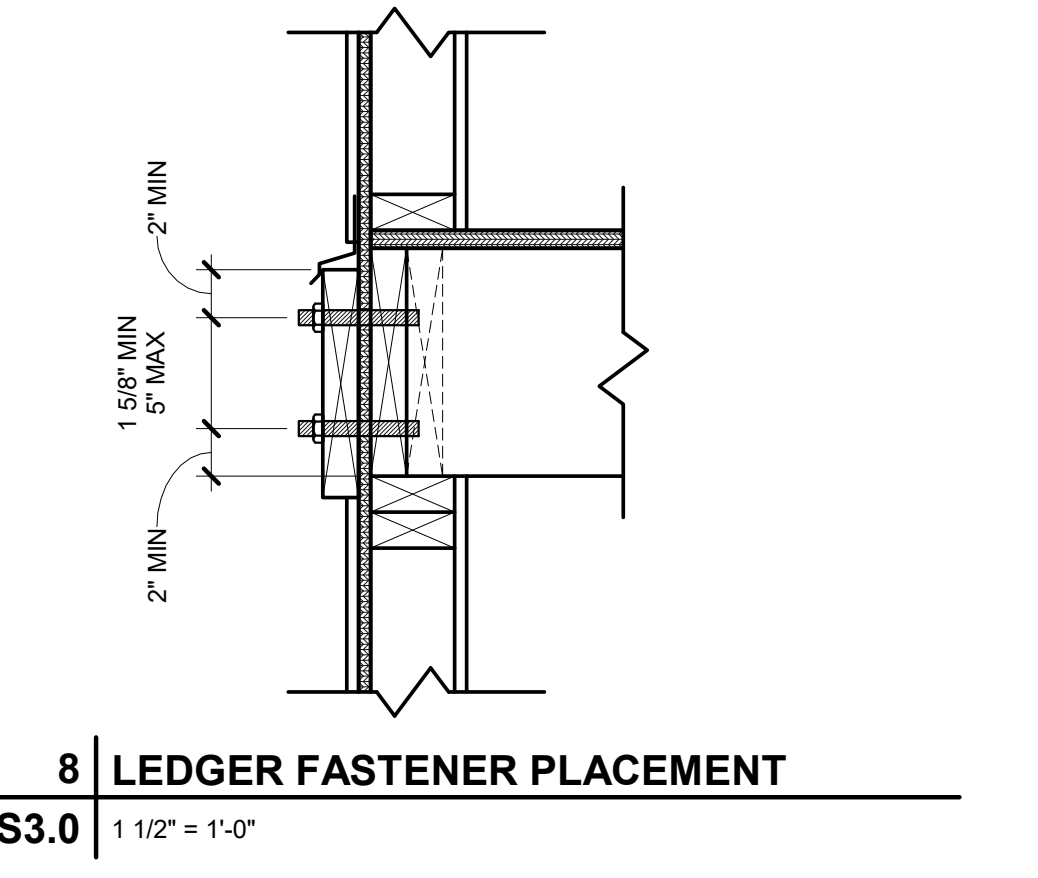
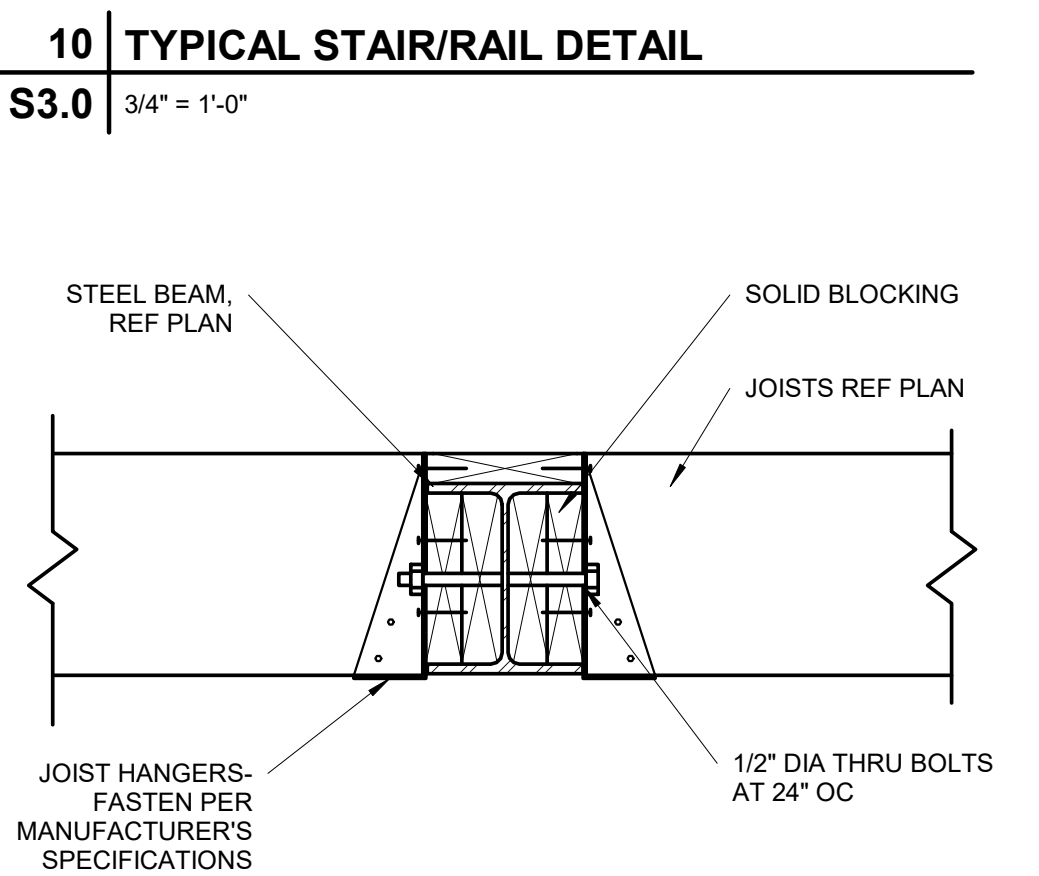
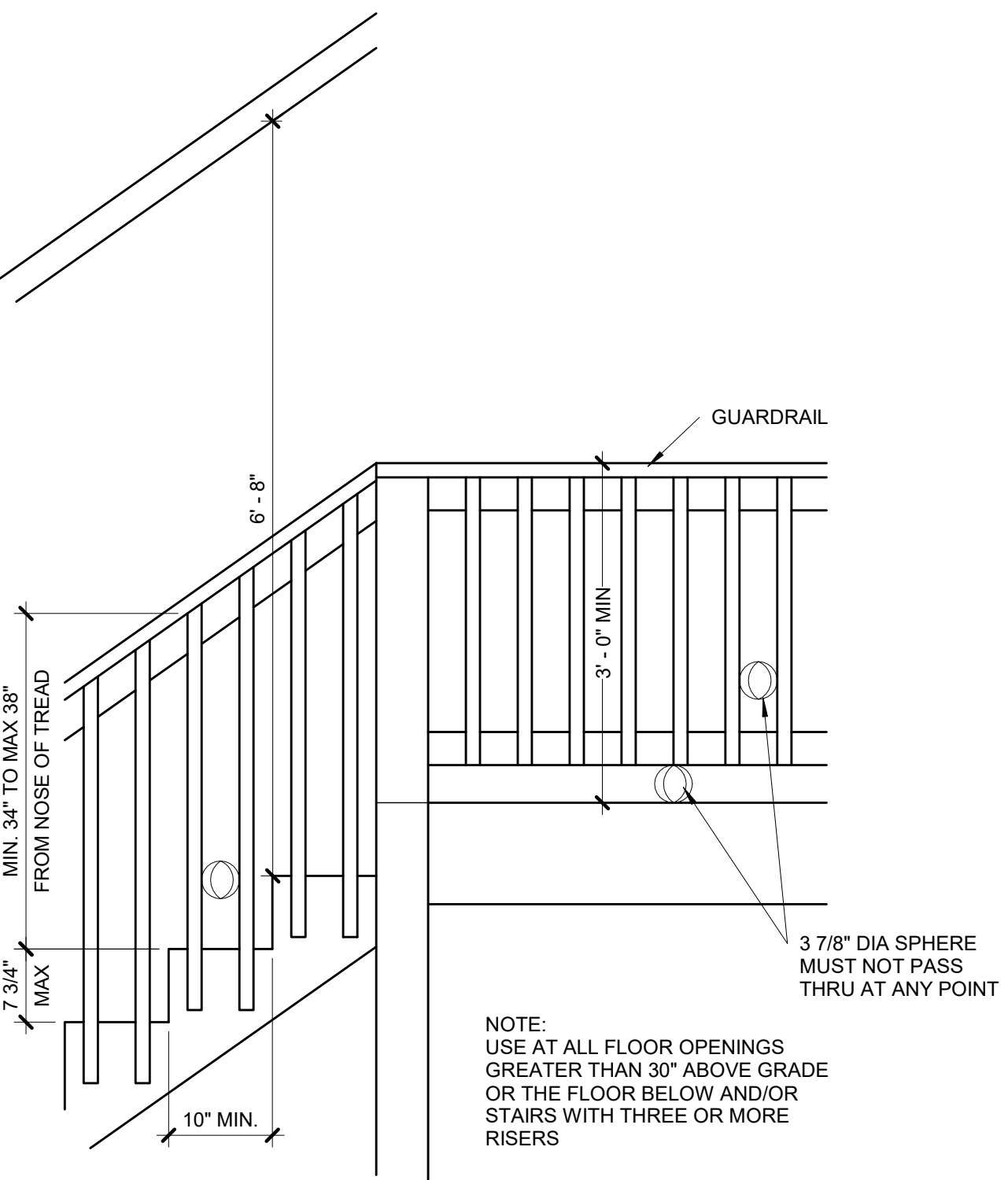
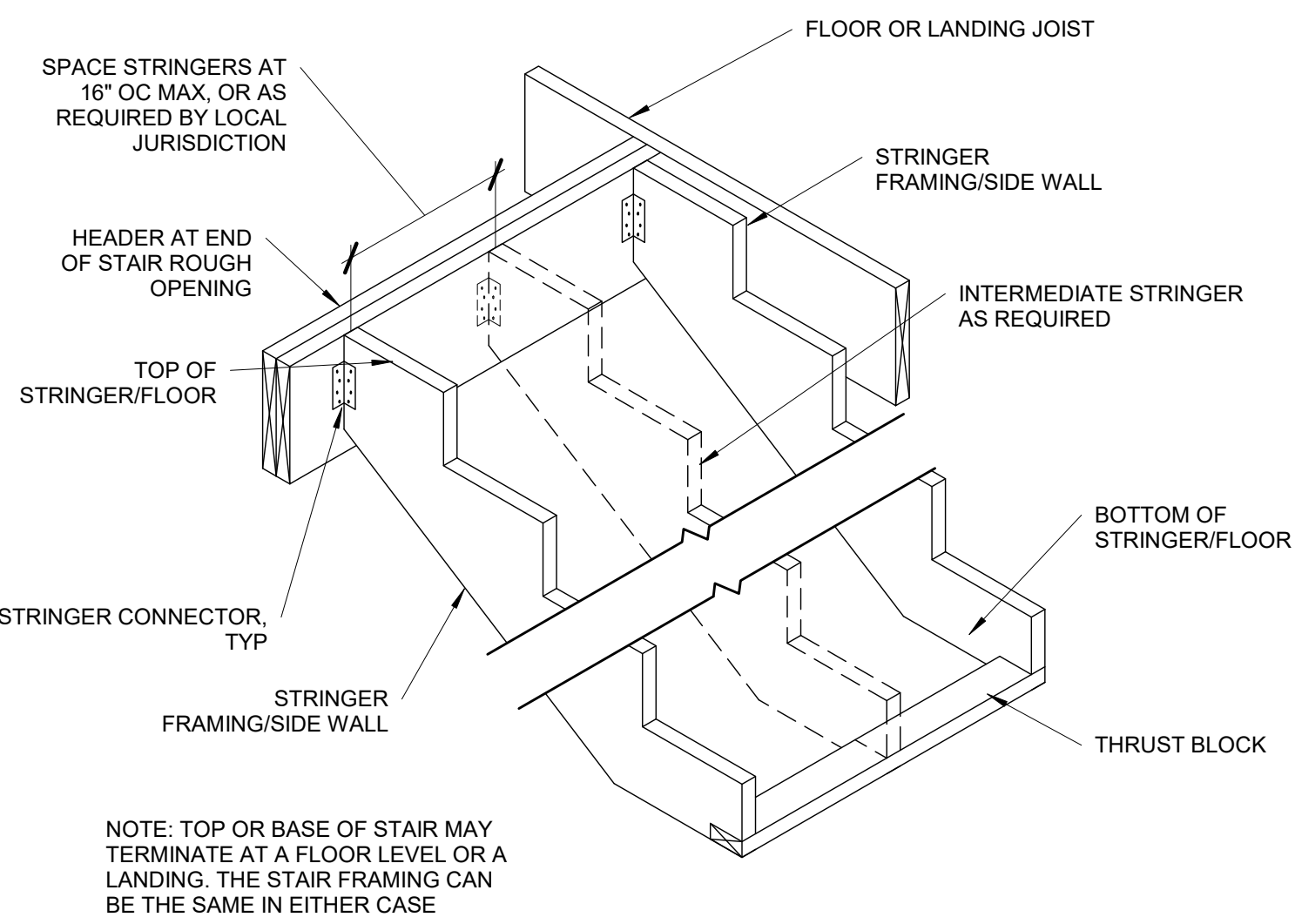
**TABLE R602.3 (6) - ALTERNATE WOOD BEARING WALL STUD SIZE, HEIGHT AND SPACING**

ULTIMATE DESIGN WIND SPEED = 115 MPH

STUD HEIGHT	SUPPORTING	STUD SPACING	MAX ROOF/FLOOR SPAN,	
			12 FEET	24 FEET
11 FEET	ROOF ONLY	12 IN	2x4	2x4
		16 IN	2x4	2x4
	ROOF AND ONE FLOOR	12 IN	2x4	2x6
		16 IN	2x6	2x6
12 FEET	ROOF ONLY	12 IN	2x4	2x4
		16 IN	2x4	2x6
	ROOF AND ONE FLOOR	12 IN	2x4	2x6
		16 IN	2x6	2x6

A. WALL STUDS NOT EXCEEDING 16" OC SHALL BE SHEATHED WITH MINIMUM 1/2" GYPSUM BOARD ON THE INTERIOR AND 3/8" WOOD STRUCTURAL PANEL SHEATHING ON THE EXTERIOR. WOOD STRUCTURAL PANEL SHEATHING SHALL BE ATTACHED WITH 8d (2.5" x 0.131") NAILS NOT GREATER THAN 6" OC ALONG PANEL EDGES AND 12" OC AT INTERMEDIATE SUPPORTS, AND ALL PANEL JOINTS SHALL OCCUR OVER STUDS OR BLOCKING.

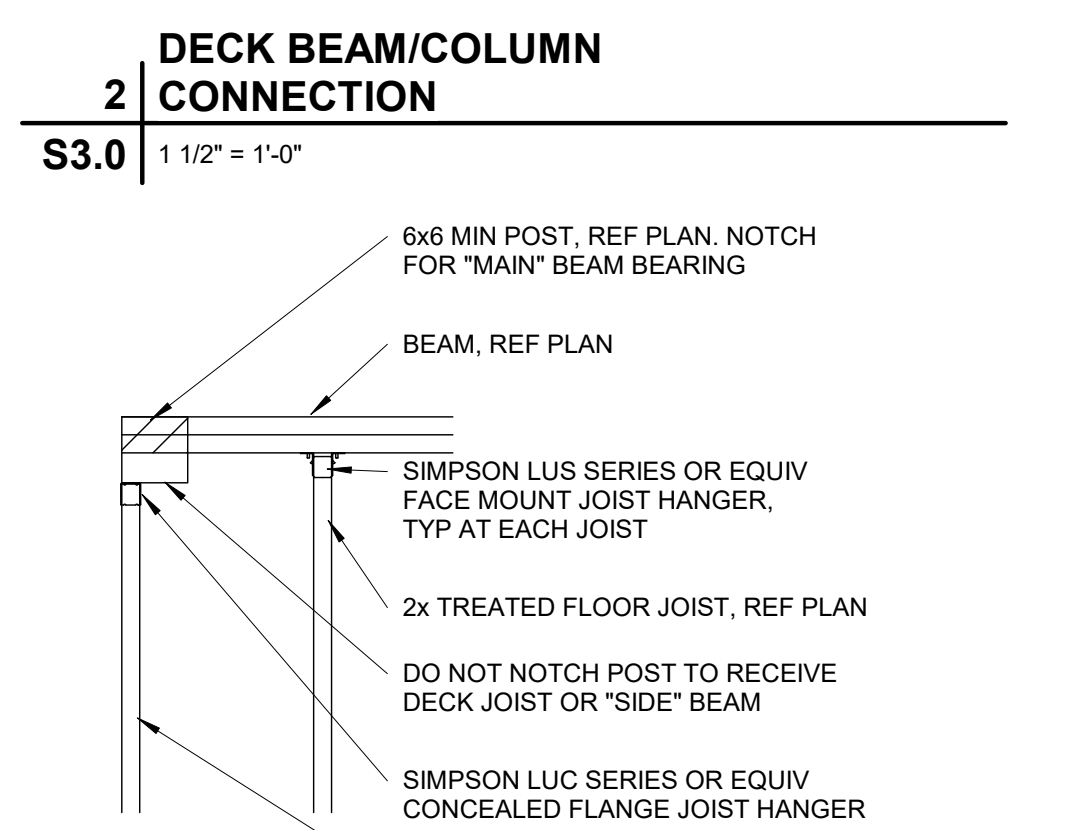
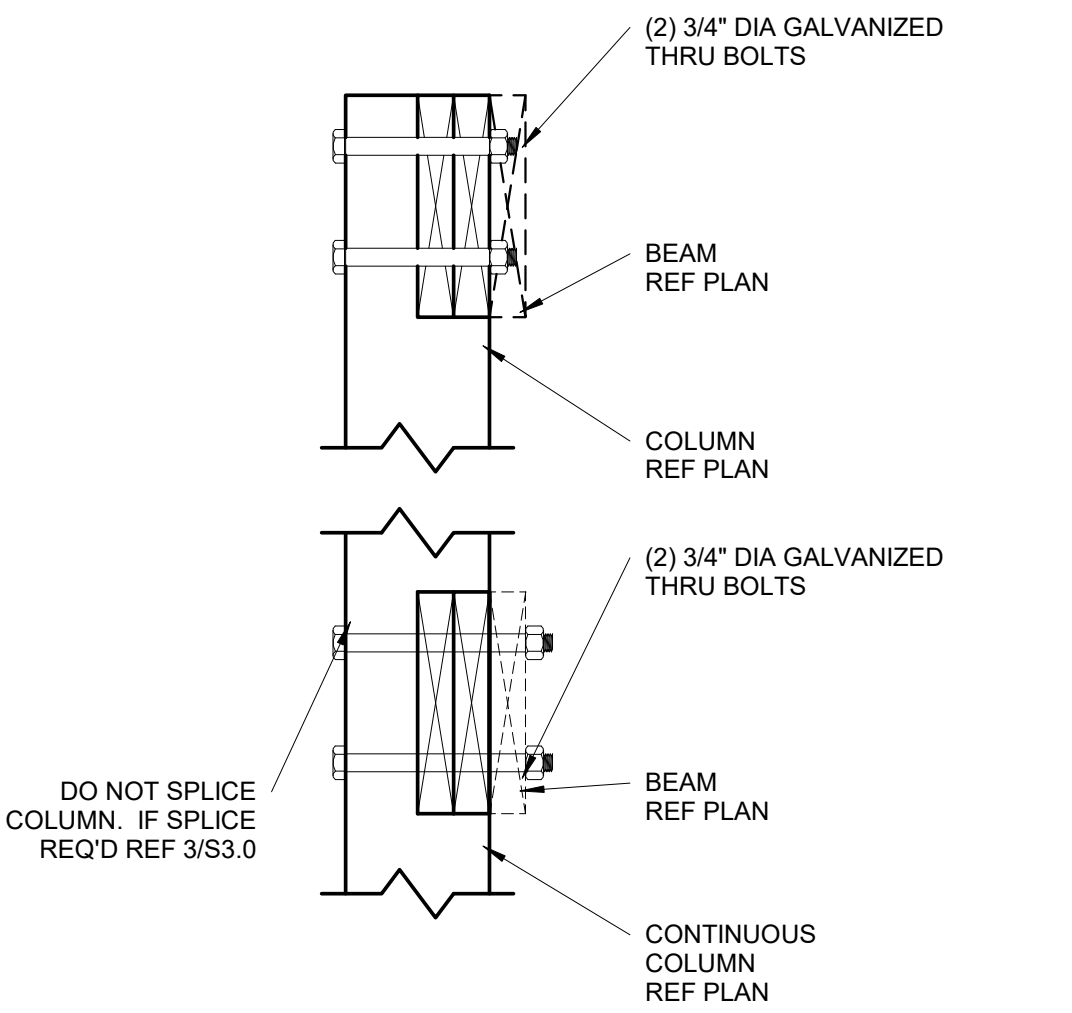
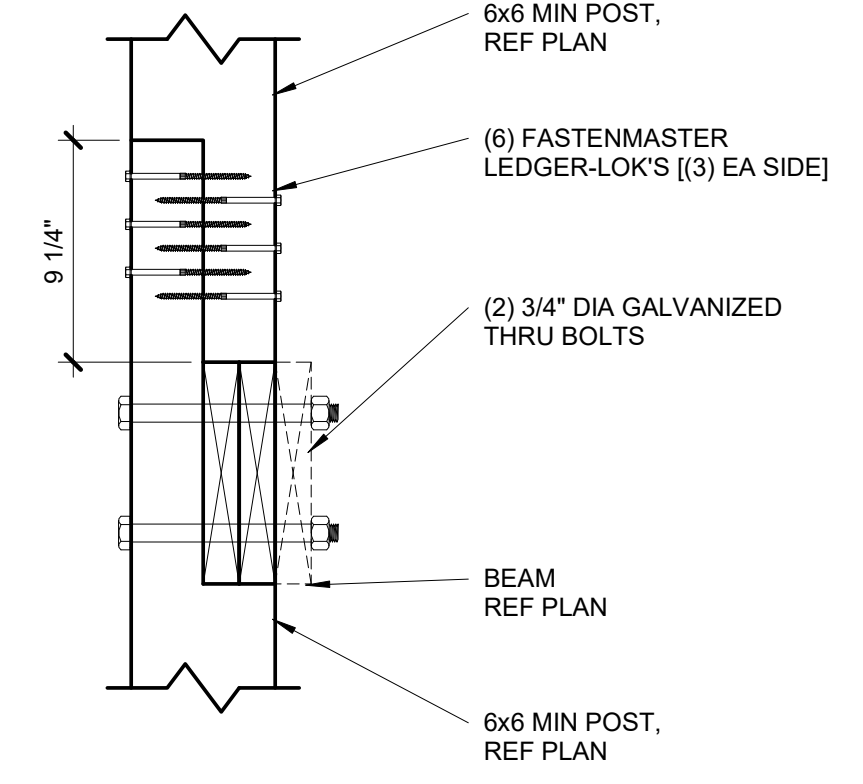
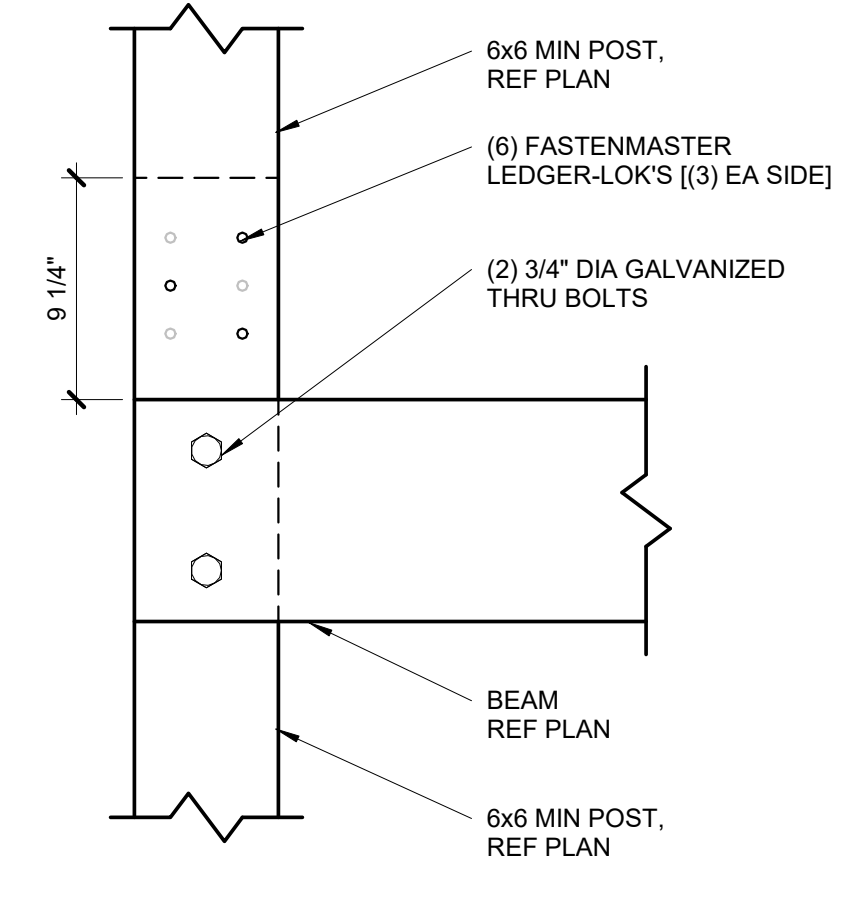
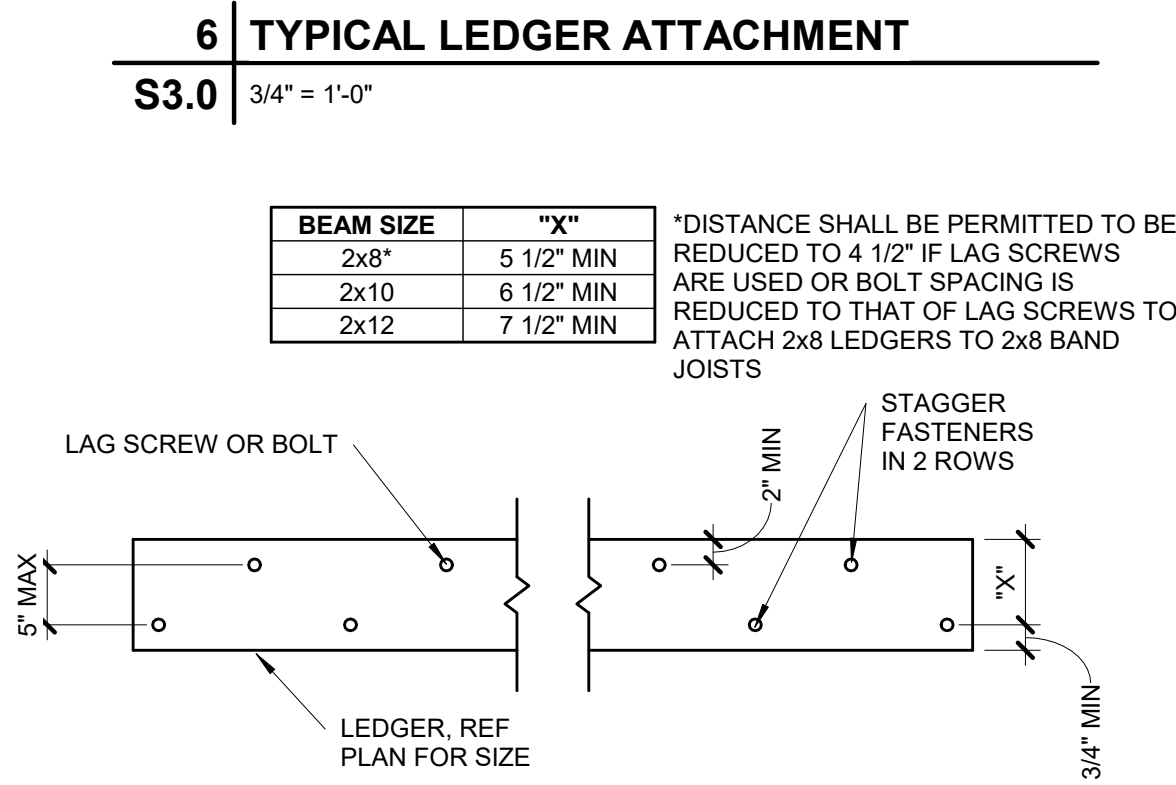
B. THE MAXIMUM SPAN IS APPLICABLE TO BOTH SINGLE AND MULTIPLE SPAN ROOF AND FLOOR CONDITIONS. THE ROOF ASSEMBLY SHALL NOT CONTAIN A HABITABLE ATTIC.



**DECK LEDGER ATTACHMENT CHART**

DECK JOIST SPAN	1/2" DIA LAG SPACING	EQUIVALENT SPACING FOR 16" OC JOIST BAYS
UP TO 10'-0"	16" OC	N/A
10'-1" TO 12'-0"	15" OC	16" OC DBL EVERY OTHER
12'-1" TO 14'-0"	13" OC	16" OC DBL EVERY OTHER
14'-1" TO 16'-0"	11" OC	16" OC DBL EVERY JOIST BAY
16'-1" TO 18'-0"	10" OC	16" OC DBL EVERY JOIST BAY

NOTE: CHART IS APPLICABLE ONLY WHEN DECK IS SHOWN ON APPROVED PLAN.



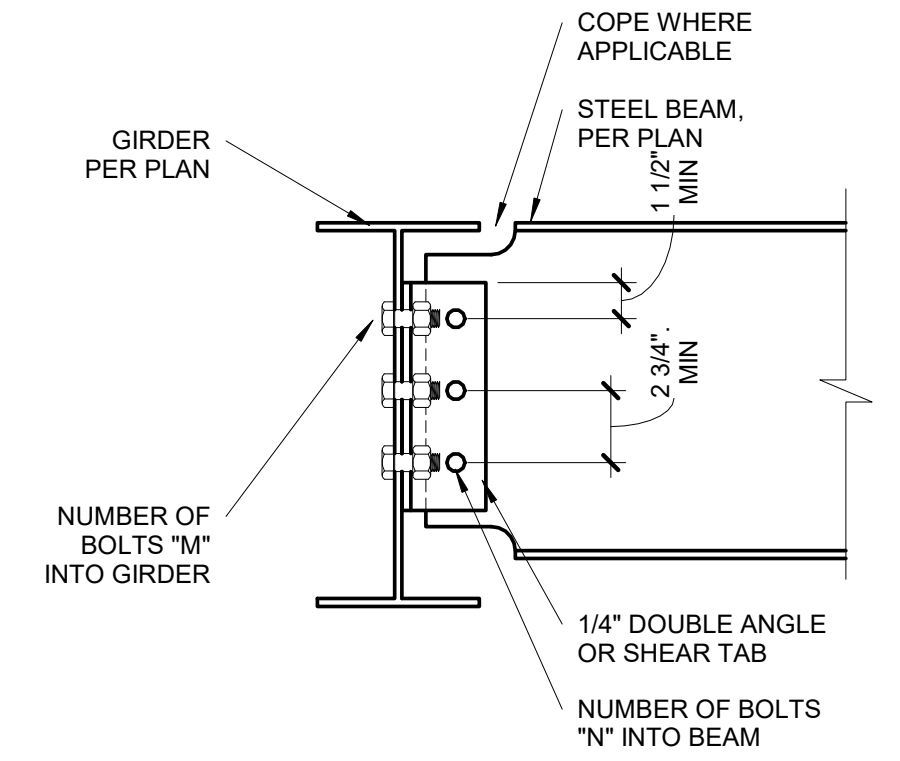
12 TYPICAL WALL CROSS-SECTION  
S3.0 3/4" = 1'-0"

9 UPSET STEEL BEAM/JOIST CONNECTION  
S3.0 1 1/2" = 1'-0"

5 TYPICAL LEDGER BOLT SPACING  
S3.0 3/4" = 1'-0"

1 DECK BEAM/COLUMN CORNER CONDITION  
S3.0 3/4" = 1'-0"

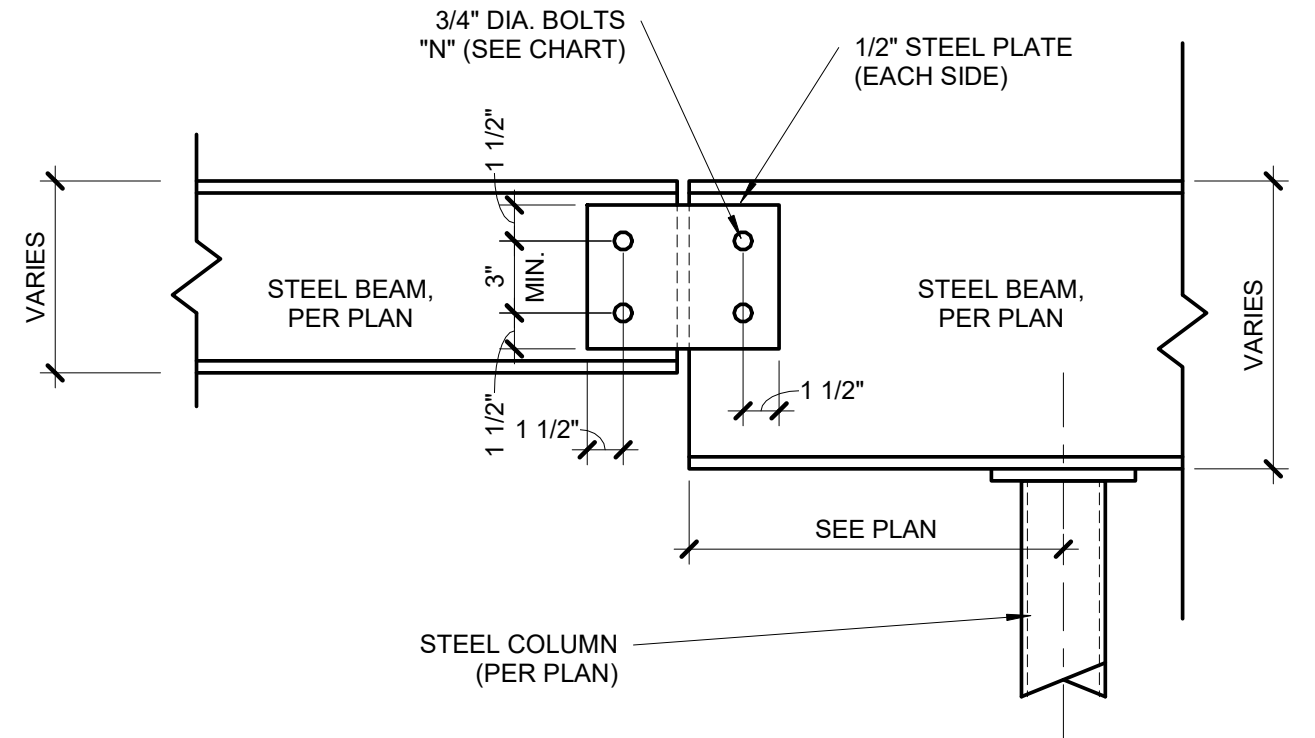
DATE	COMMENTS



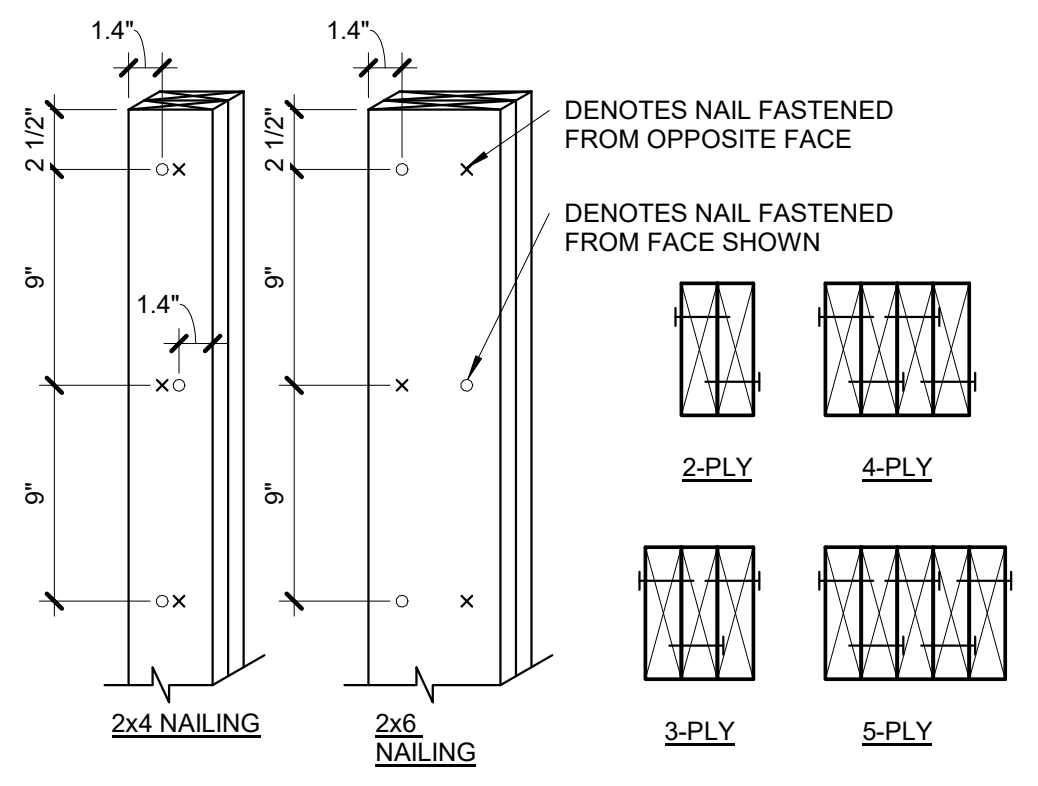
**3 BEAM TO GIRDER CONNECTION**  
S3.1 1 1/2" = 1'-0"

BEAM CONNECTION SCHEDULE		
BEAM SIZE	# OF BOLTS "N"	# OF BOLTS "M"
W8, W10	2	4
W12, W14	3	6
W16, W18	4	8

NOTES:  
1. THESE CONNECTIONS ARE TYPICAL, UNO.  
2. NUMBER OF BOLTS IN UPSET BEAM CONNECTIONS DETERMINED BY SMALLER OF TWO BEAMS AT CONNECTION.  
3. ALL AROUND 1/4" FILLET WELD MAY BE SUBSTITUTED FOR EITHER BOLTED CONNECTION.  
4. ALL BOLTS, 3/4" DIAMETER, A325-N, UNO.

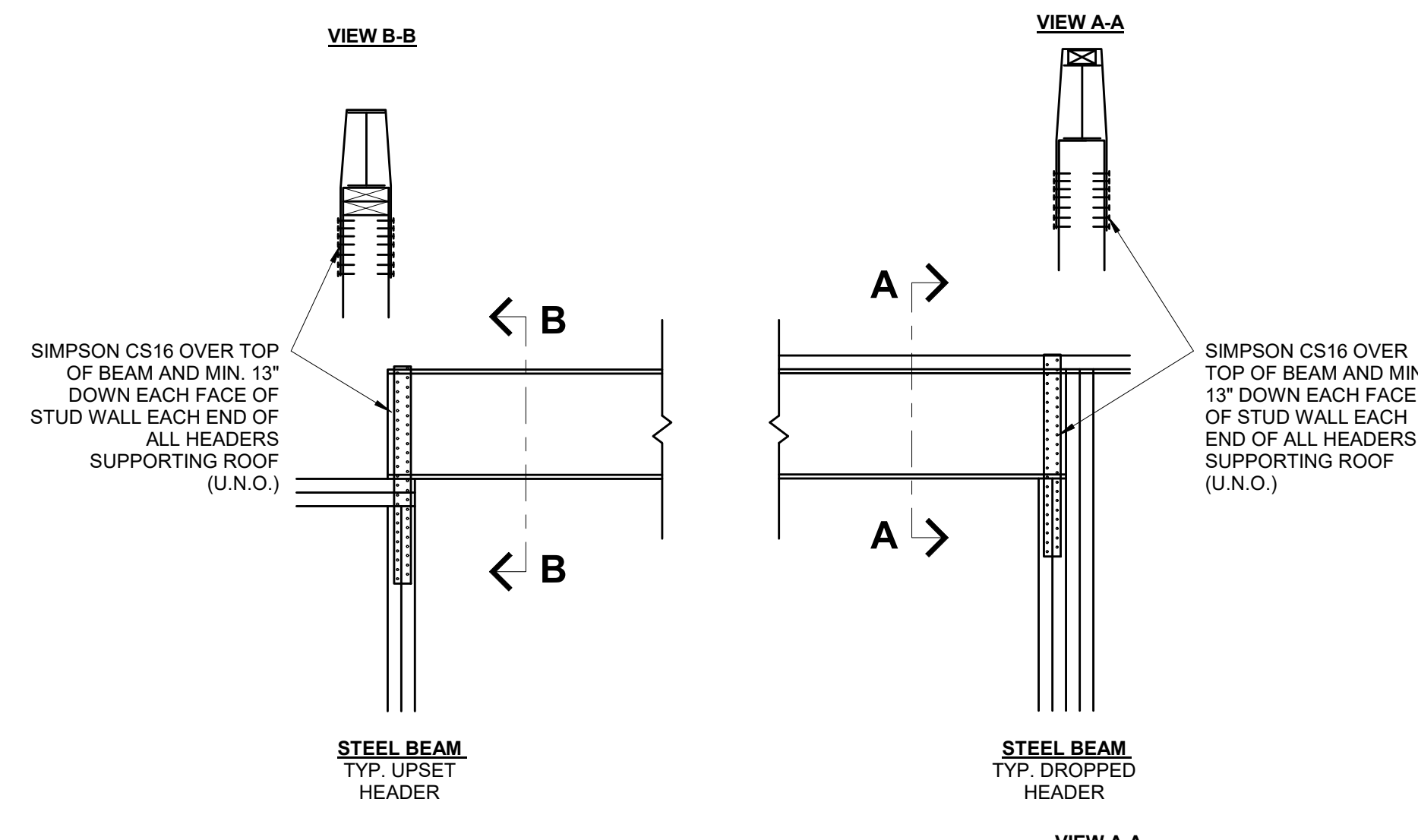


**2 BEAM SPLICE DETAIL**  
S3.1 1 1/2" = 1'-0"

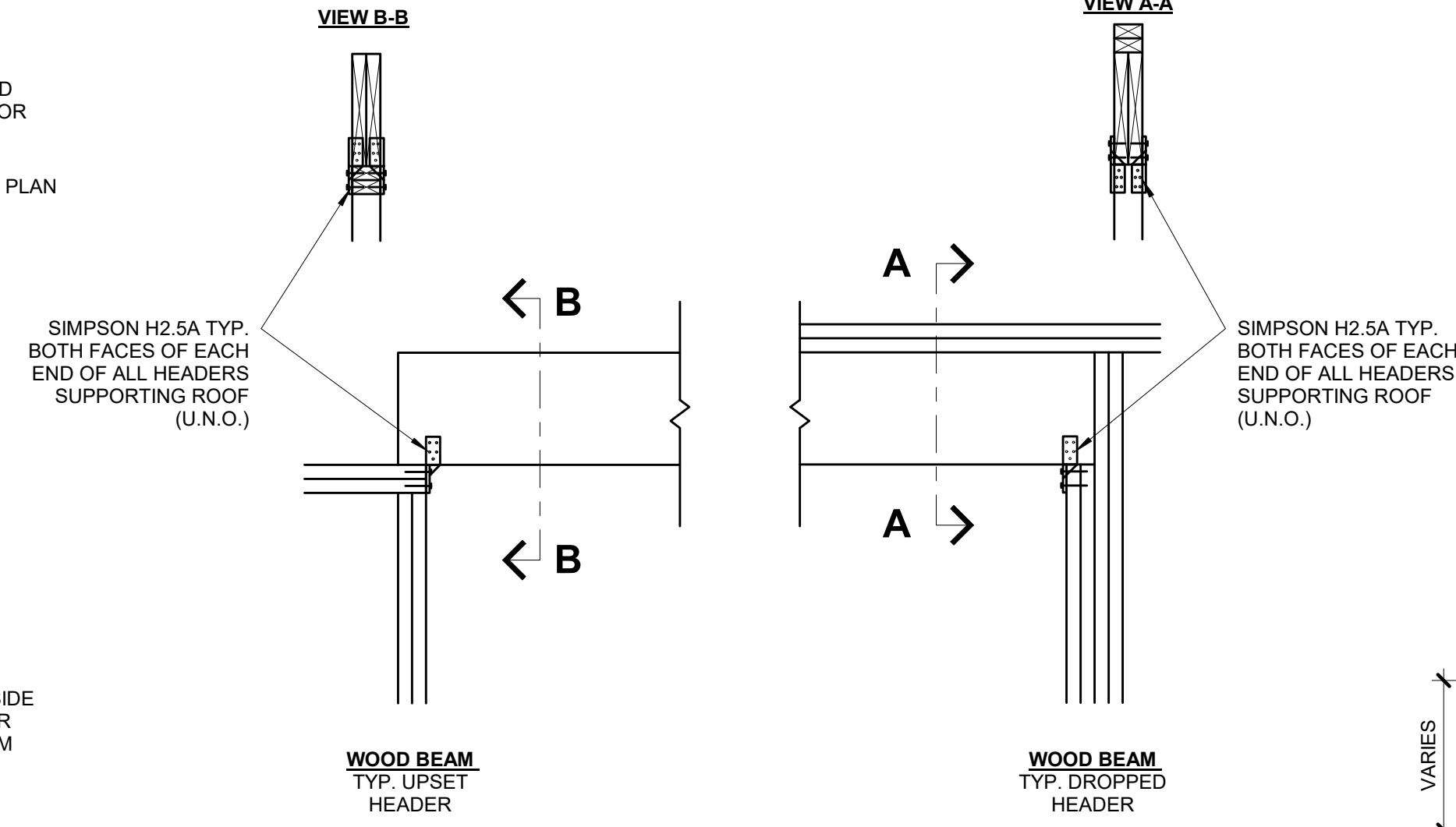


NOTES:  
1. EACH 2x PLY SHALL BE FASTENED WITH (1) ROW OF 10d NAILS AT 9" OC, ALTERNATING SIDE TO SIDE.  
2. 1.4" MIN EDGE DISTANCE, AND STARTING 2 1/2" FROM EACH END.  
3. EXTEND FULL AREA OF COLUMN AS SOLID BLOCKING THROUGH JOIST BAYS AND WALLS TO LOAD-BEARING BEAM/WALL BELOW

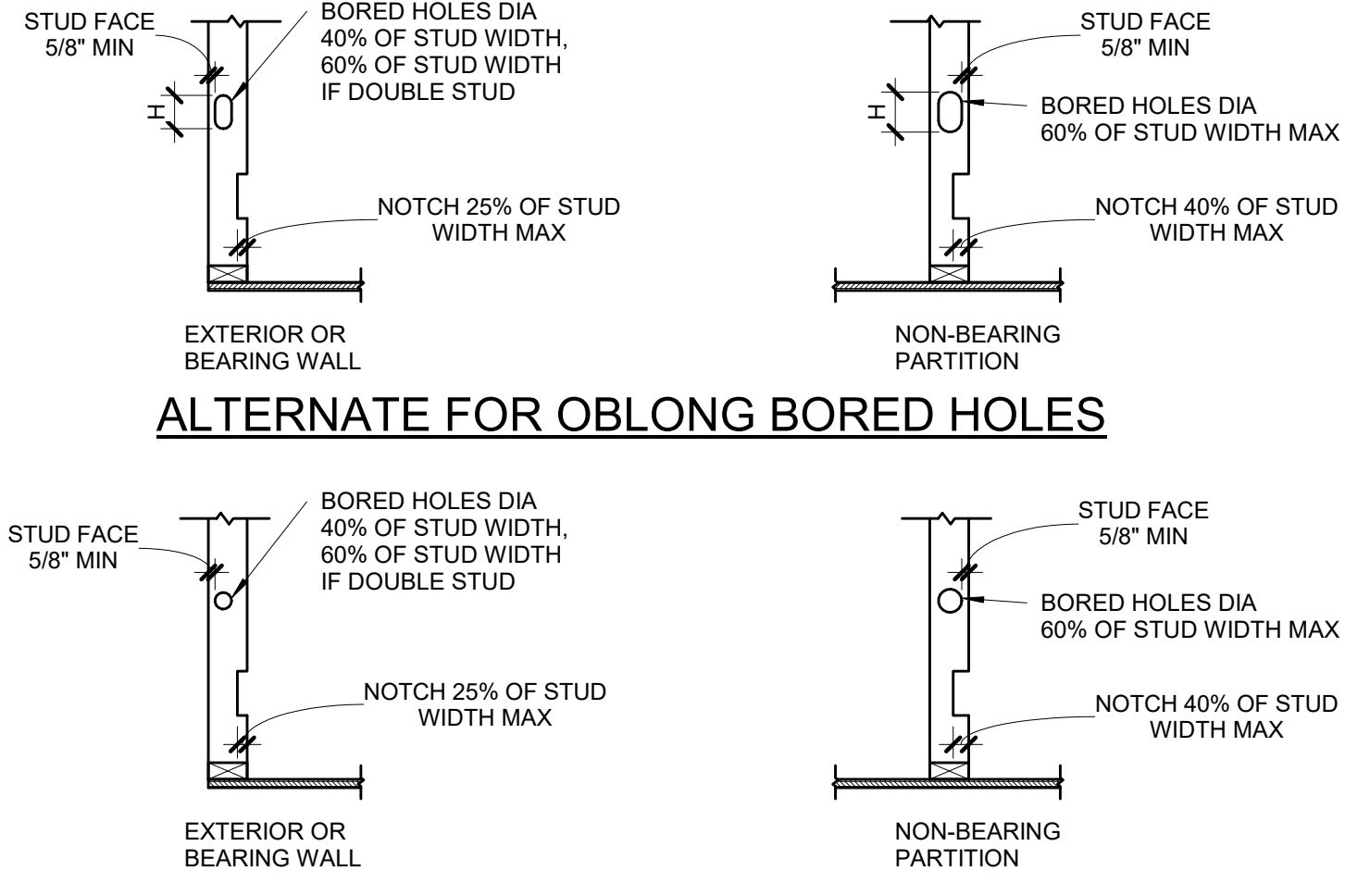
**1 BUILT-UP STUD COLUMN**  
S3.1 1 1/2" = 1'-0"



**9 FLUSH STEEL BEAM TO STEEL BEAM**  
S3.1 1 1/2" = 1'-0"



**5 ROOF SUPPORTING BEAM HOLD DOWN**  
S3.1 3/4" = 1'-0" (COMPLIANCE WITH IRC R602.11)



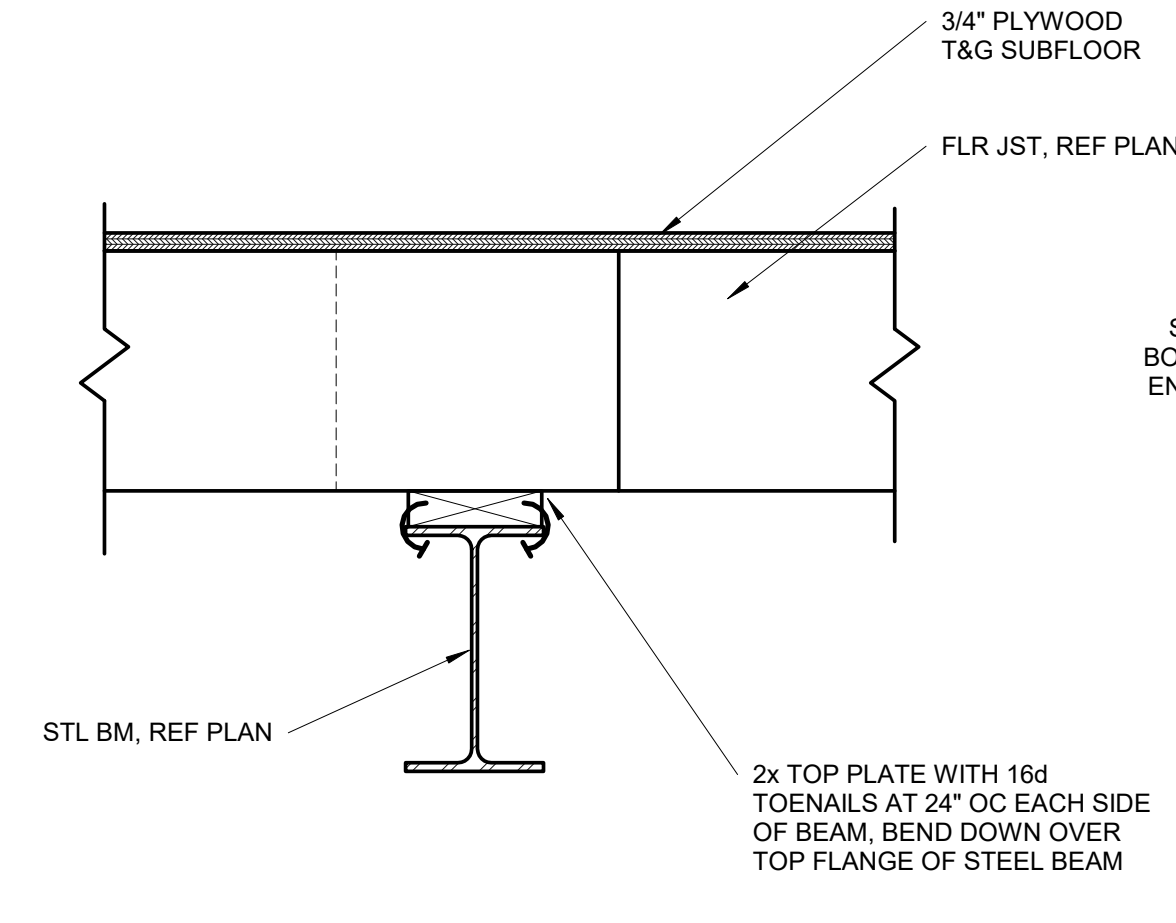
**ALTERNATE FOR OBLONG BORED HOLES**

WALL SIZE	BORED HOLE SIZE				WALL NOTCH	
	STUDS LOAD BEARING OR EXTERIOR WALL		NON LOAD BEARING WALL		LOAD BEARING WALL	NON LOAD BEARING WALL
	40%	60%	60%	7/8"	25%	40%
2x4	1 3/8"	-	2 1/8"	7/8"	1 3/8"	1 3/8"
(2) 2x4	-	2 1/8"	2 1/8"	7/8"	1 3/8"	1 3/8"
2x6	2 1/4"	-	3 15/16"	1 3/8"	2 1/4"	2 1/4"
(2) 2x6	-	3 5/16"	3 15/16"	1 3/8"	2 1/4"	2 1/4"
2x8	2 7/8"	-	4 3/8"	1 13/16"	2 7/8"	2 7/8"
(2) 2x8	-	4 3/8"	4 3/8"	1 13/16"	2 7/8"	2 7/8"

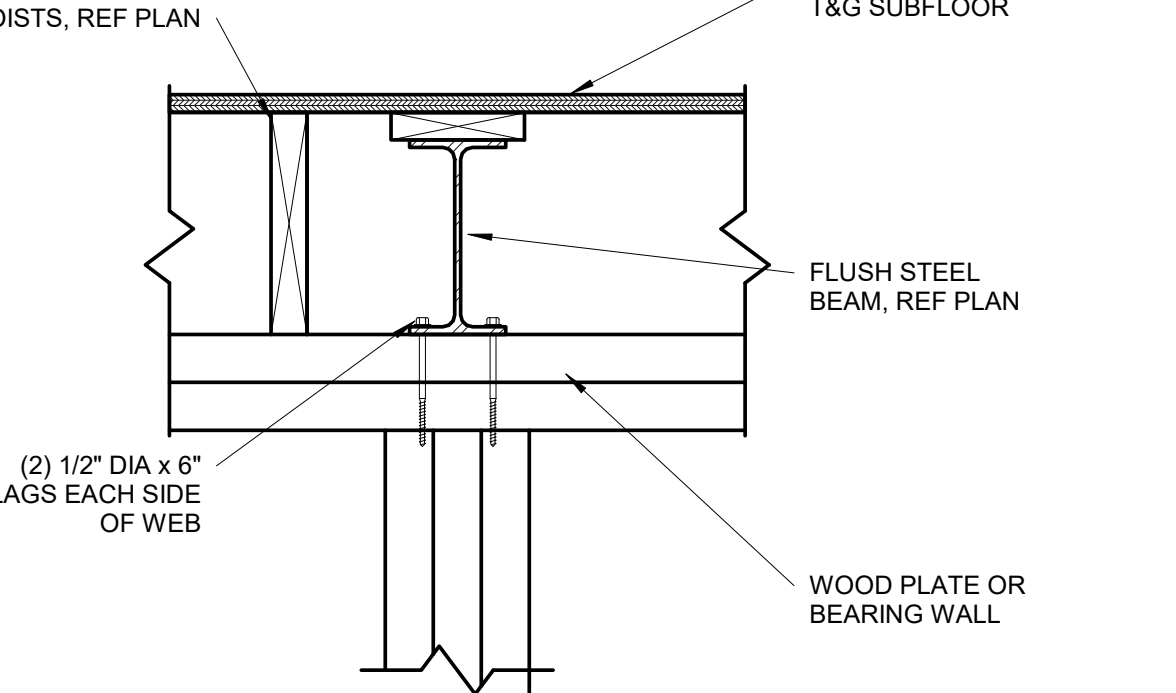
PLATES:	WALL SIZE	HOLE SIZE	VERTICAL HOLE SIZE (H)
TOP AND BOTTOM PLATE HOLE, CUT OR NOTCH THAT IS 50% MORE OF WIDTH MUST BE REPAIRED USING 16 GA (MIN) METAL TIE THAT IS AT LEAST 1-1/2" WIDE IF WALL IS A SHEAR WALL IT MUST BE REPAIRED USING HARDY FRAME SADDLE (HFS).	2x4	1 3/4"	D+1/2" AT Lvl 1 & 2
	2x6	2 3/4"	D+1" AT Lvl 3
	2x8	3 5/8"	D+1 1/4" AT Lvl 4
			D+1 1/2" AT Lvl 5

NOTE:  
SEE SECTION R602.6 AND FIGURES R602.6.1 AND R602.6.2

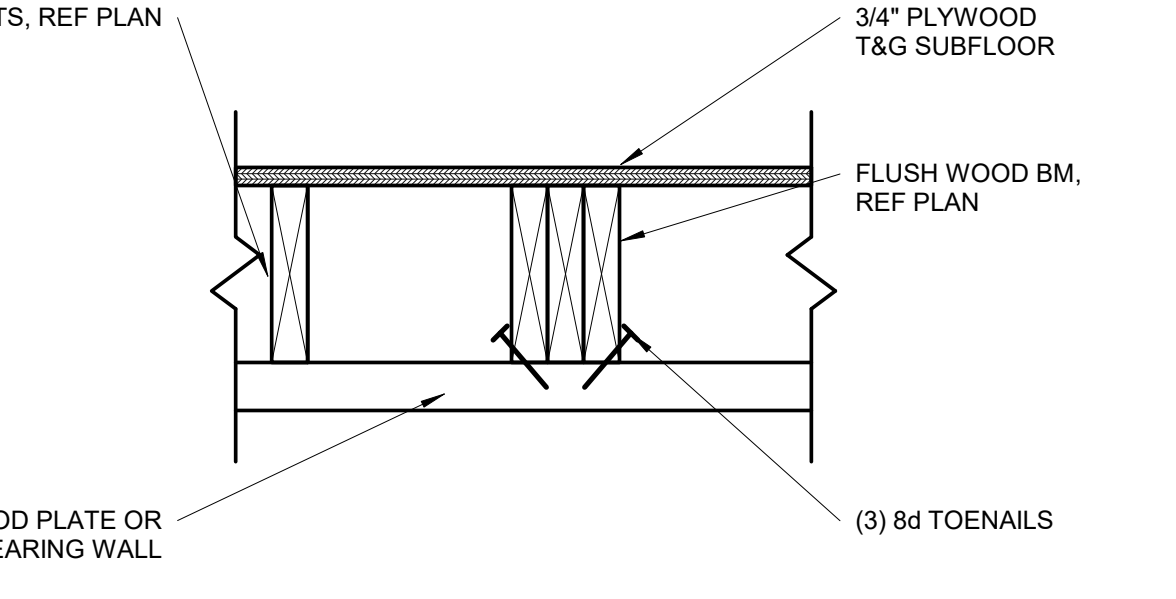
**4 DRILLING & NOTCHING DETAIL**  
S3.1 3/4" = 1'-0"



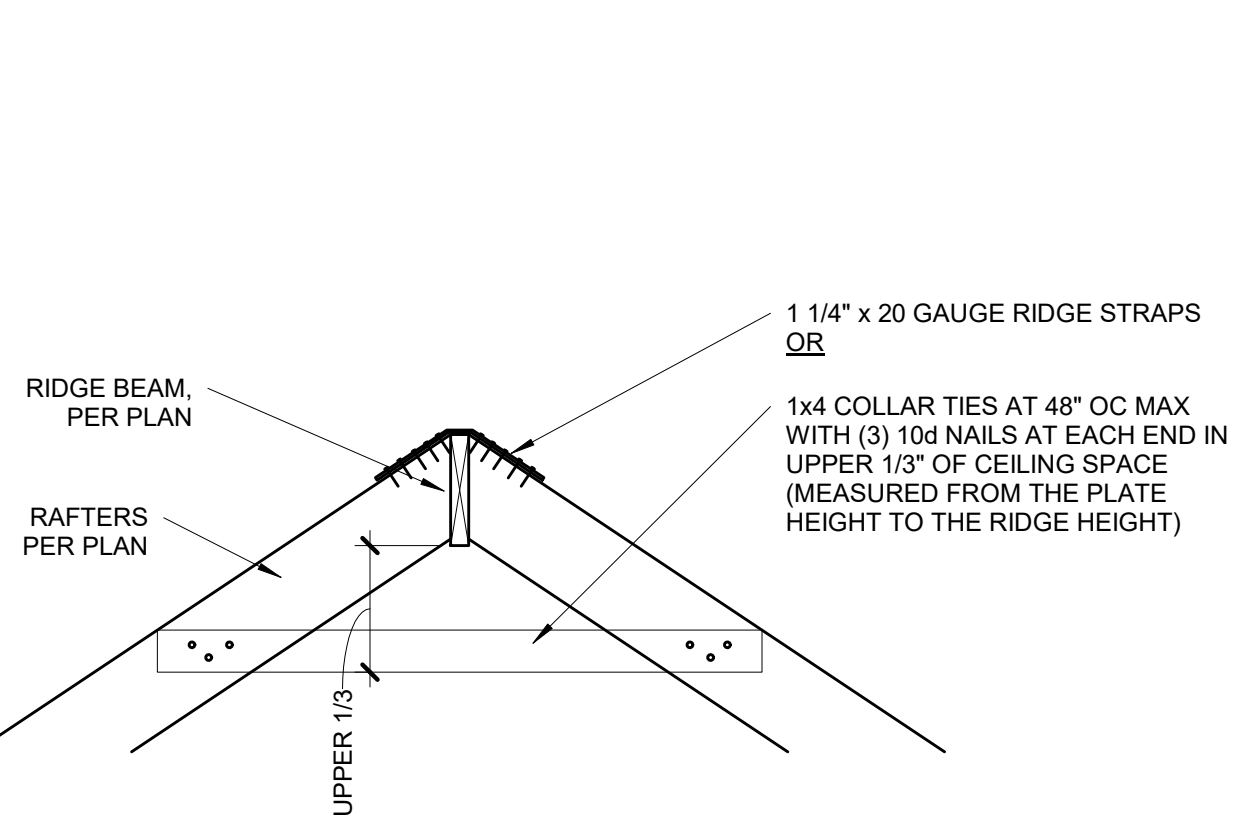
**8 WOOD PLATE TO STEEL BEAM CONNECTION**  
S3.1 1 1/2" = 1'-0"



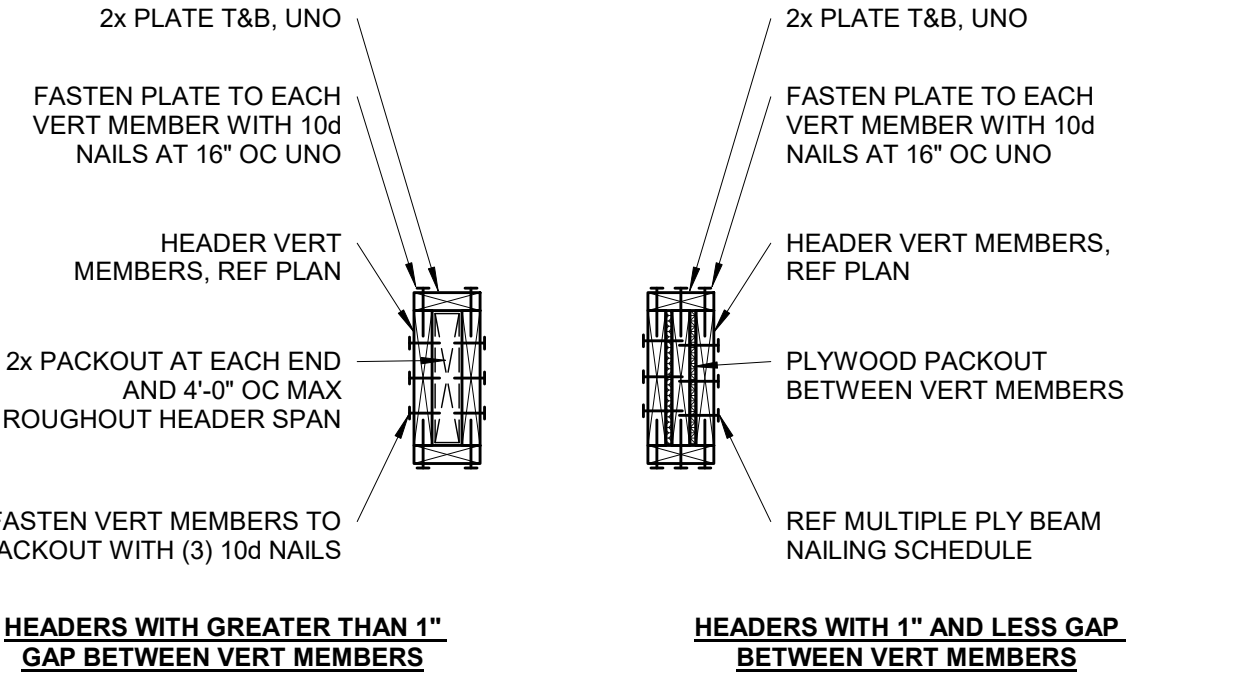
**7 FLUSH STEEL BEAM CONNECTION**  
S3.1 1 1/2" = 1'-0"



**6 FLUSH WOOD BEAM CONNECTION**  
S3.1 1 1/2" = 1'-0"



**12 RIDGE BEAM DETAIL**  
S3.1 3/4" = 1'-0"

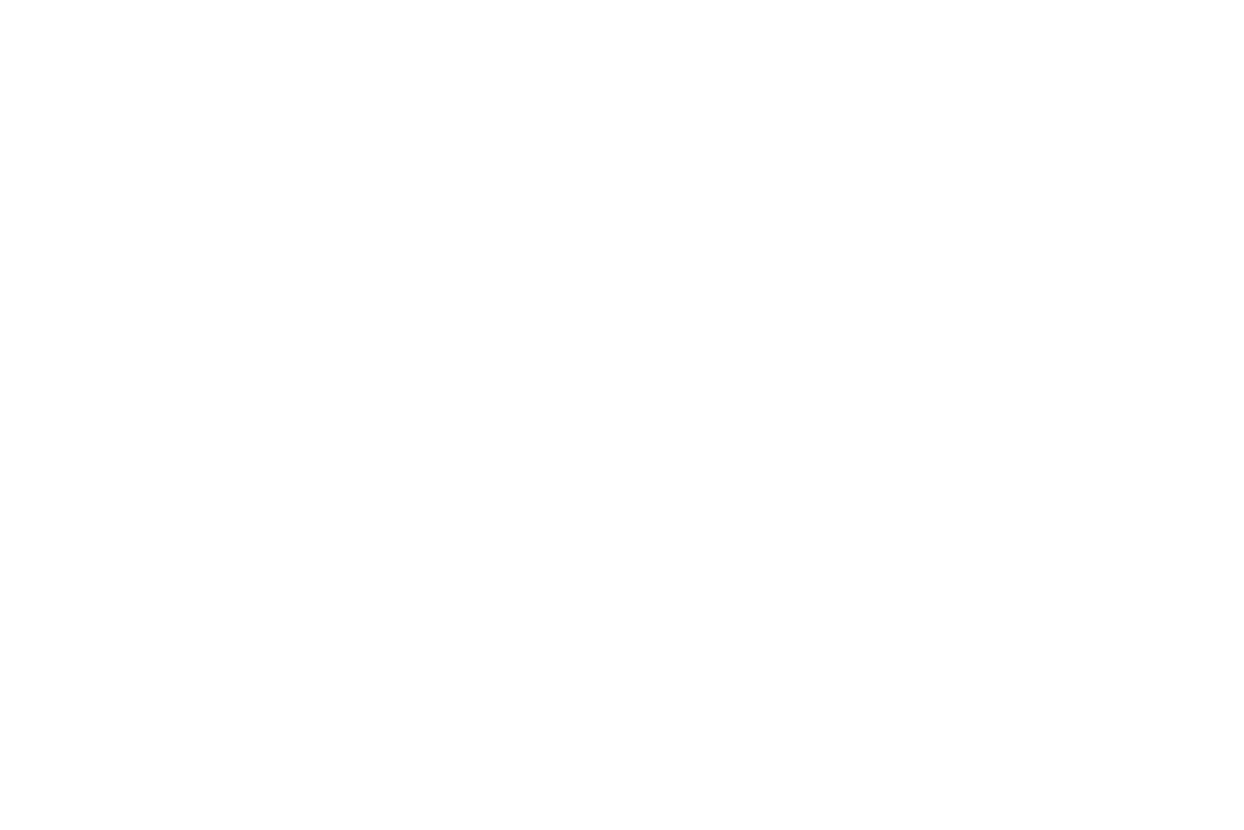


**11 TYPICAL WOOD HEADER DETAIL**  
S3.1 NOT TO SCALE

2 - PLY	3 - PLY	4 - PLY
(3) ROWS OF 16d x 3-1/2" NAILS AT 6" OC	(3) ROWS OF 16d x 3-1/2" NAILS AT 4" OC	(2) ROWS OF 1/2" DIA. A307 THRU-BOLTS AT 12" OC STAGGERED

NOTES:  
1. NAILING SHOWN APPLIES UNLESS SPECIFICALLY NOTED IN DETAILS.  
2. SPACE NAILS EVENLY THROUGHOUT DEPTH OF BEAM.

**10 MULTIPLE PLY BEAM NAILING SCHEDULE**  
S3.1 NOT TO SCALE



**9 FLUSH STEEL BEAM TO STEEL BEAM**  
S3.1 1 1/2" = 1'-0"

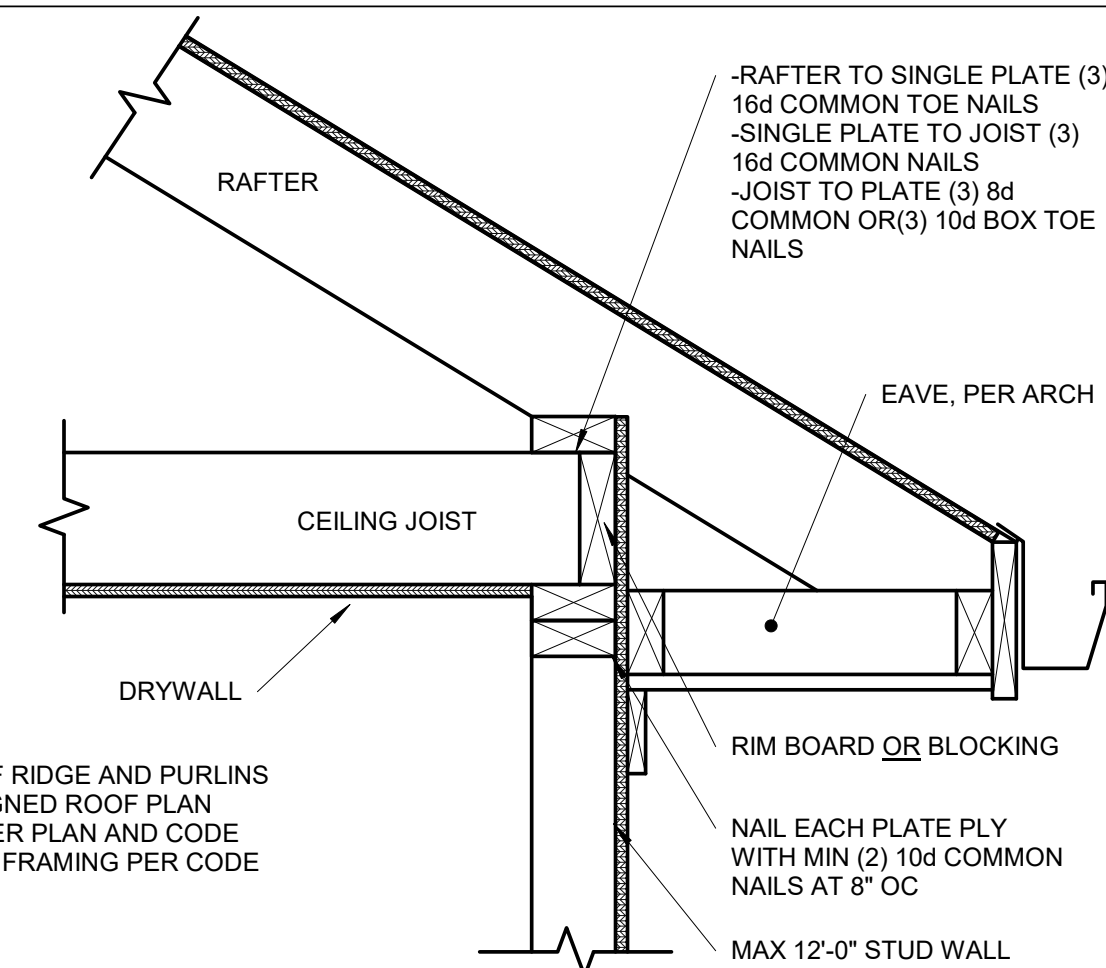
DATE	COMMENTS

**UPLIFT CONNECTION SCHEDULE**

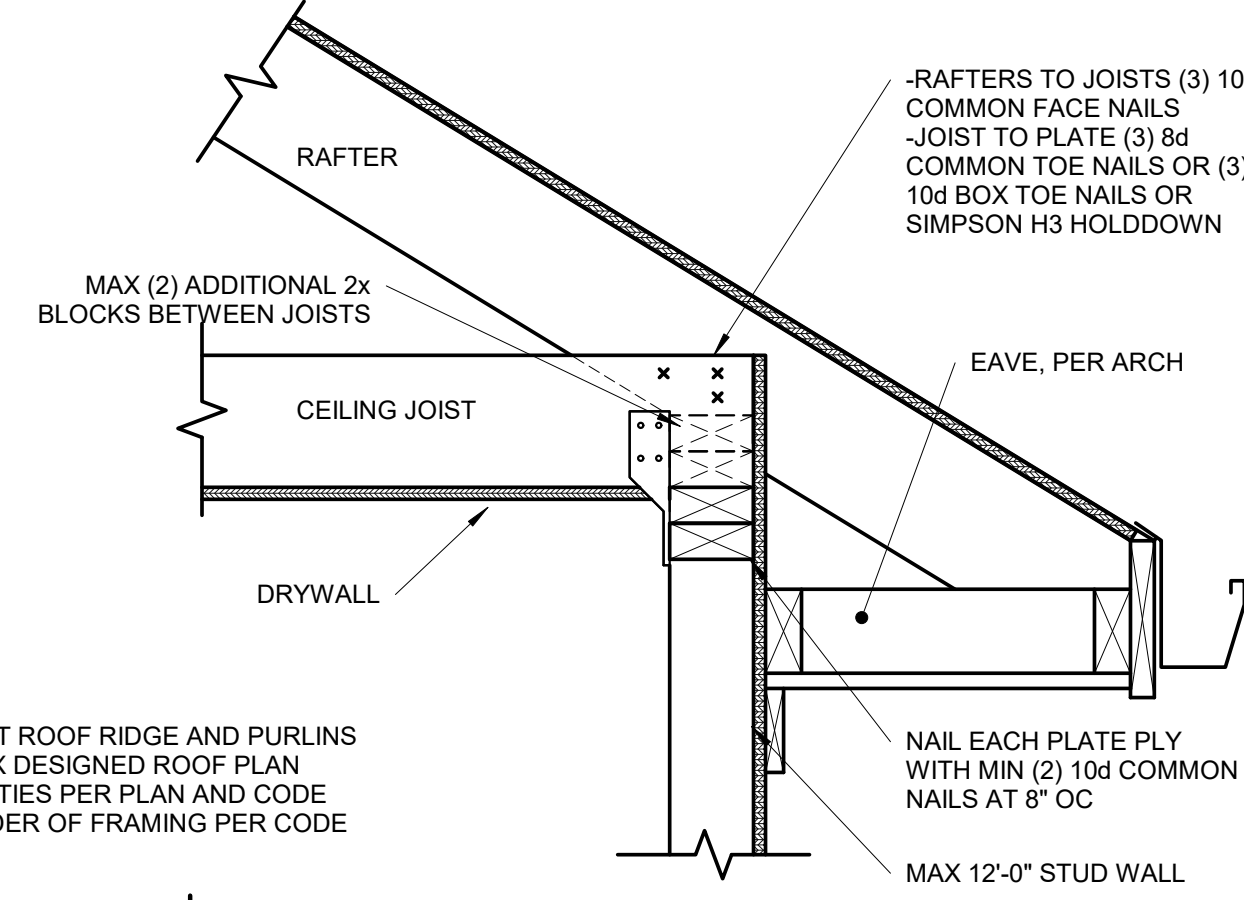
OVERHANG SPAN: 1'-1" TO 1'-9"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
16" OC	SIMPSON H2.5A	(1) AT 32" OC	(1) AT 16" OC
24" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
OVERHANG SPAN: 1'-10" TO 2'-6"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 12" OC	(1) AT 12" OC
16" OC	SIMPSON H2.5A	(1) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	(2) AT 24" OC
OVERHANG SPAN: 2'-7" TO 3'-9"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(2) AT 12" OC	(2) AT 12" OC
16" OC	SIMPSON H2.5A	(2) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	N/A

OVERHANG SPAN	MIN BACKSPAN LENGTH
≤1'-0"	1'-0"
1'-1" to 2'-0"	EQUALS OVERHANG SPAN
≥2'-1"	OVERHANG SPAN x2

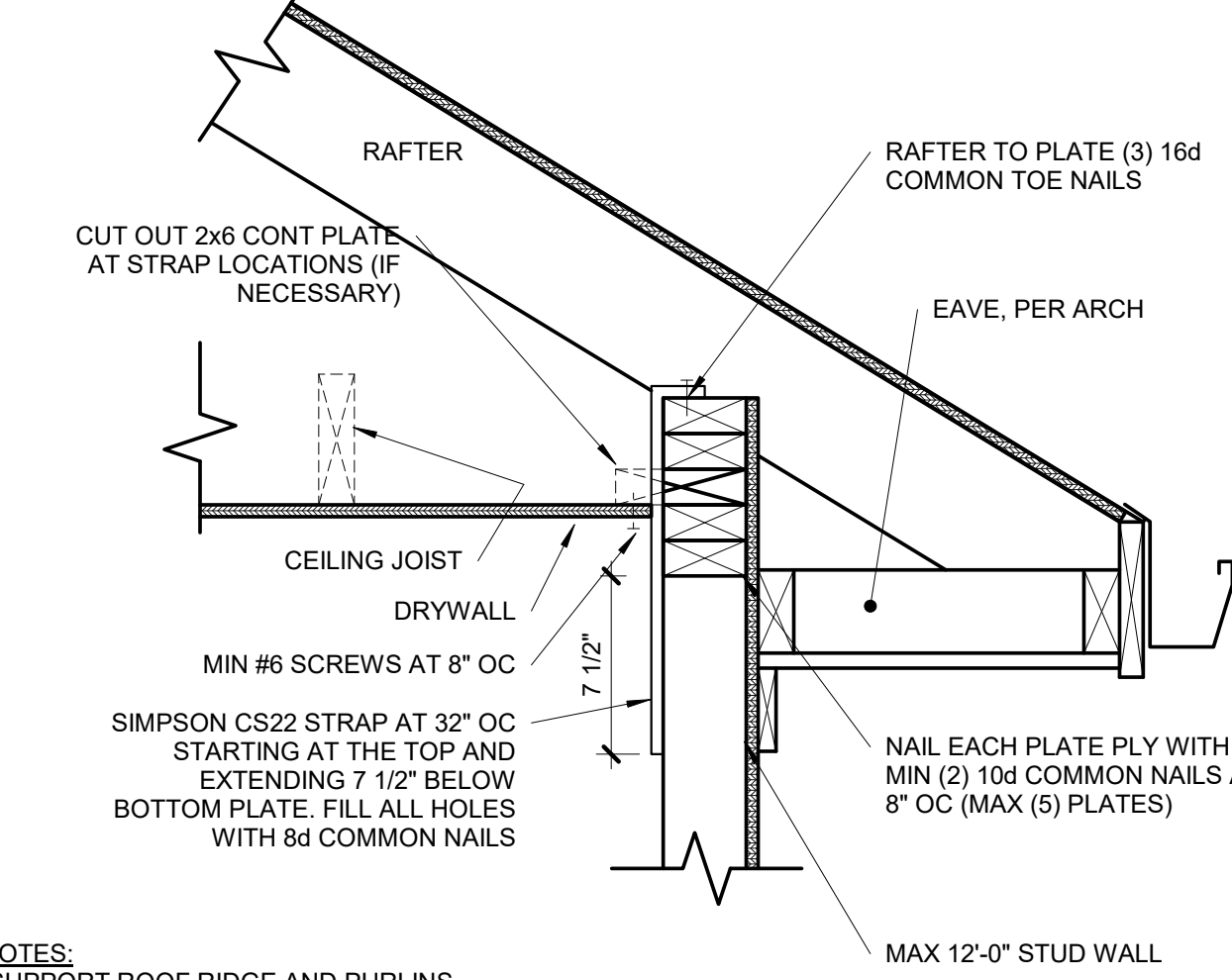
NOTES:  
-CHART IS ONLY APPLICABLE IF NO RAFTER BEAM SHOWN ON PLAN.  
-CONTACT EOR IF OVERHANG LENGTH EXCEEDS CHART OPTIONS.  
-ALTERNATE, REF BARGE RAFTER DETAIL FOR OVERHANGS 1'-0" OR LESS.



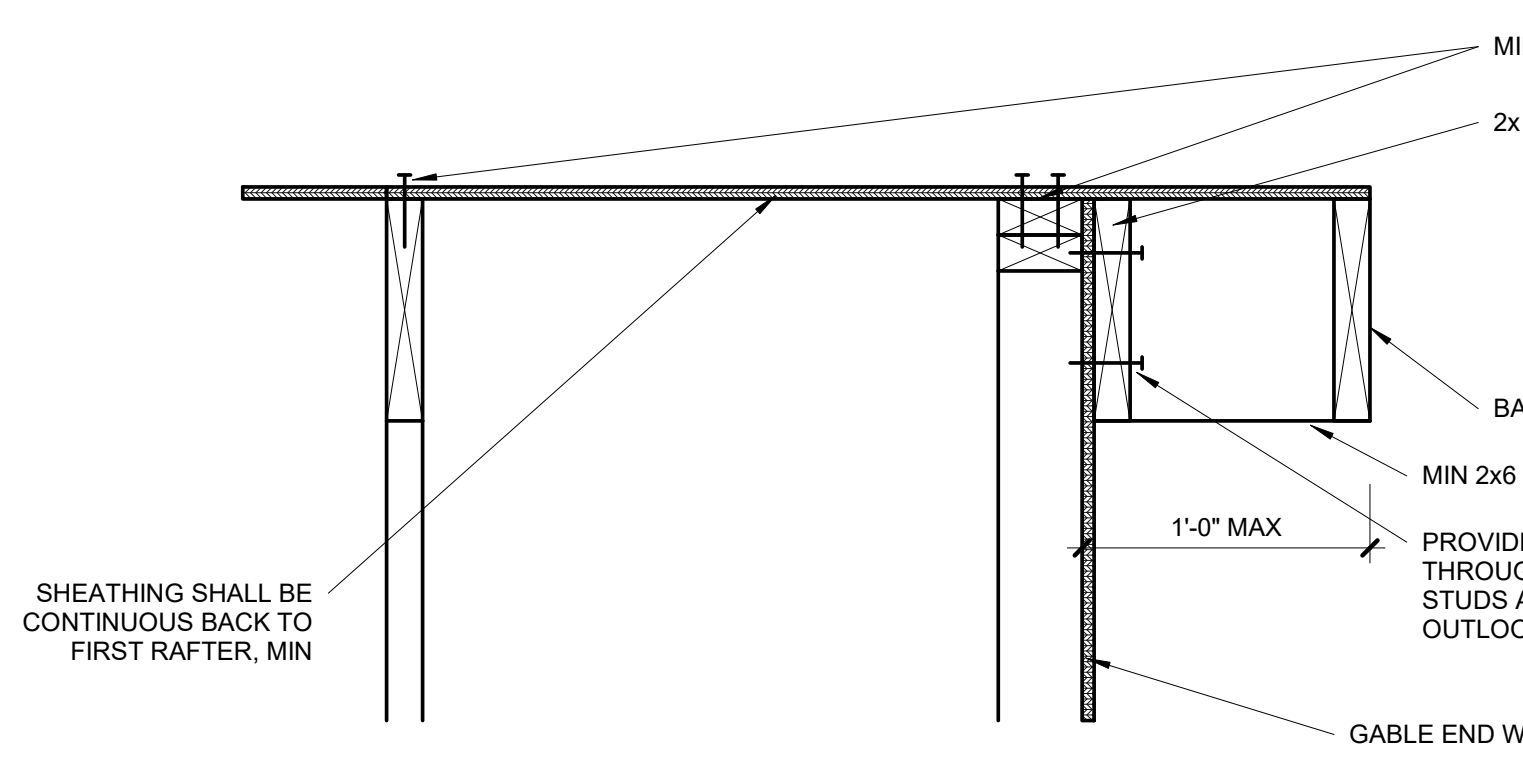
**9 | OPTIONAL RAFTER BEARING**  
S3.2 | 1 1/2" = 1'-0"



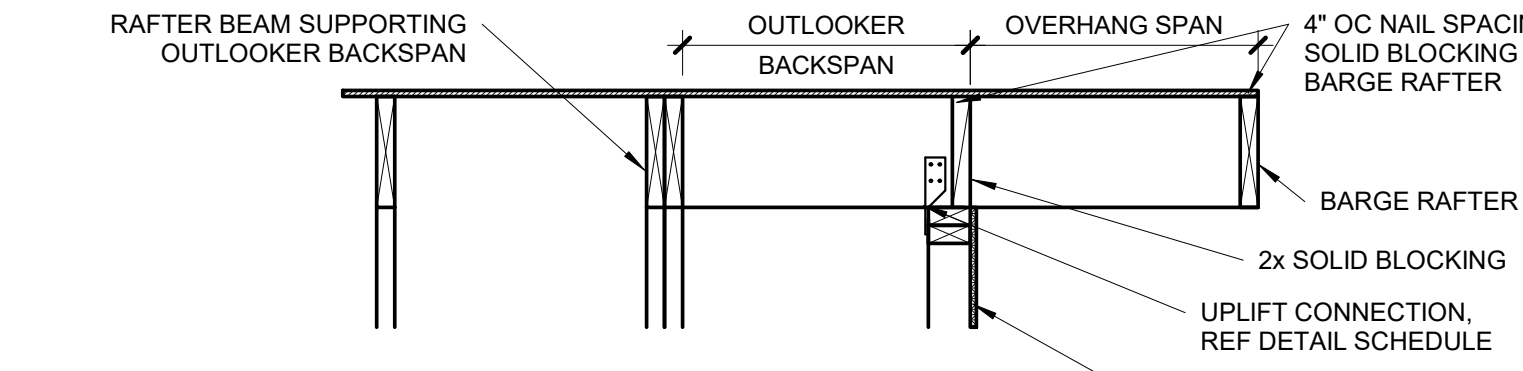
**8 | OPTIONAL RAFTER BEARING**  
S3.2 | 1 1/2" = 1'-0"



**7 | OPTIONAL RAFTER BEARING**  
S3.2 | 1 1/2" = 1'-0"

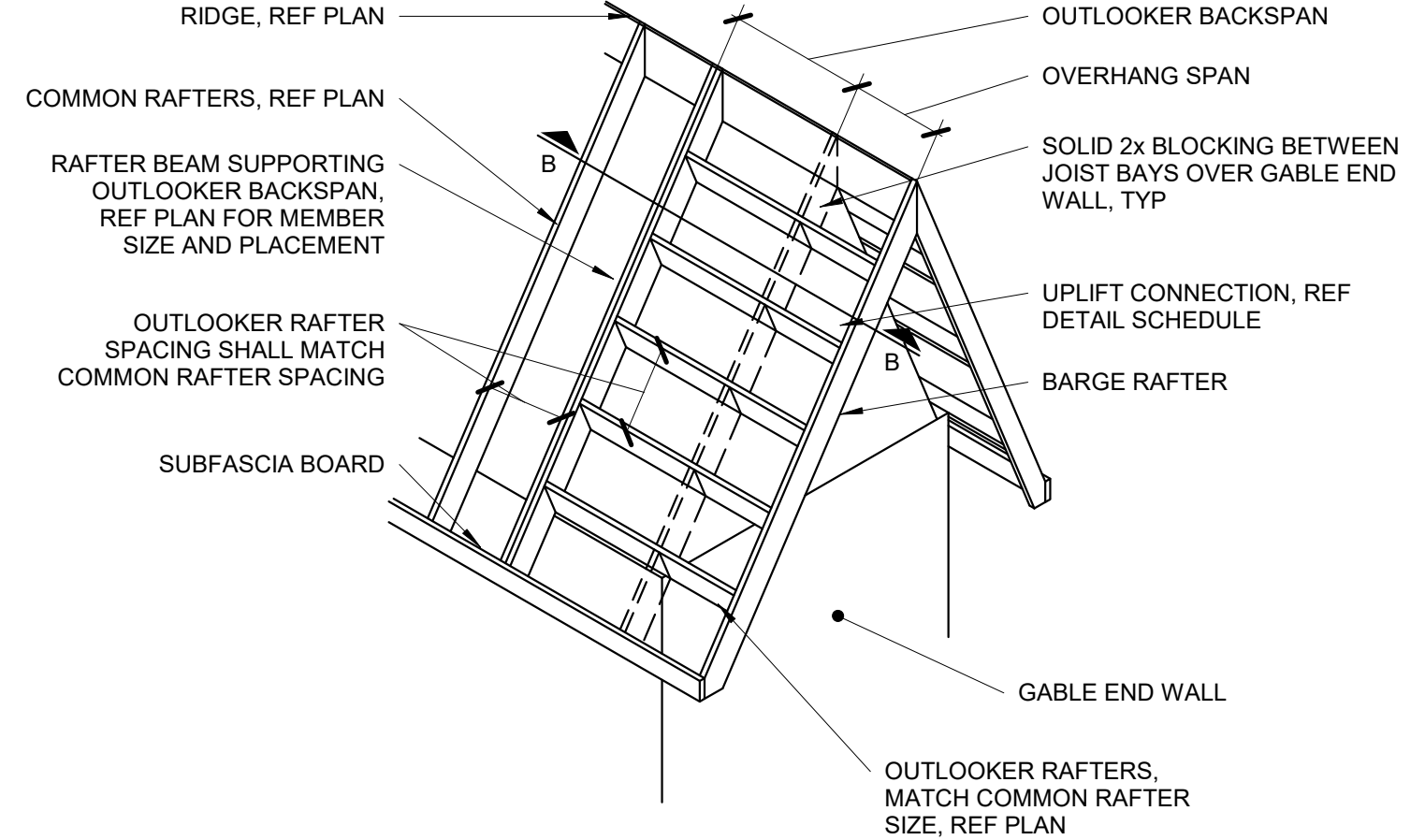


**6 | OPTIONAL OVERHANG 1'-0" OR LESS**  
S3.2 | 1 1/2" = 1'-0"



**5 | OUTLOOKER RAFTERS ROOF FRAMING**

S3.2 | NOT TO SCALE



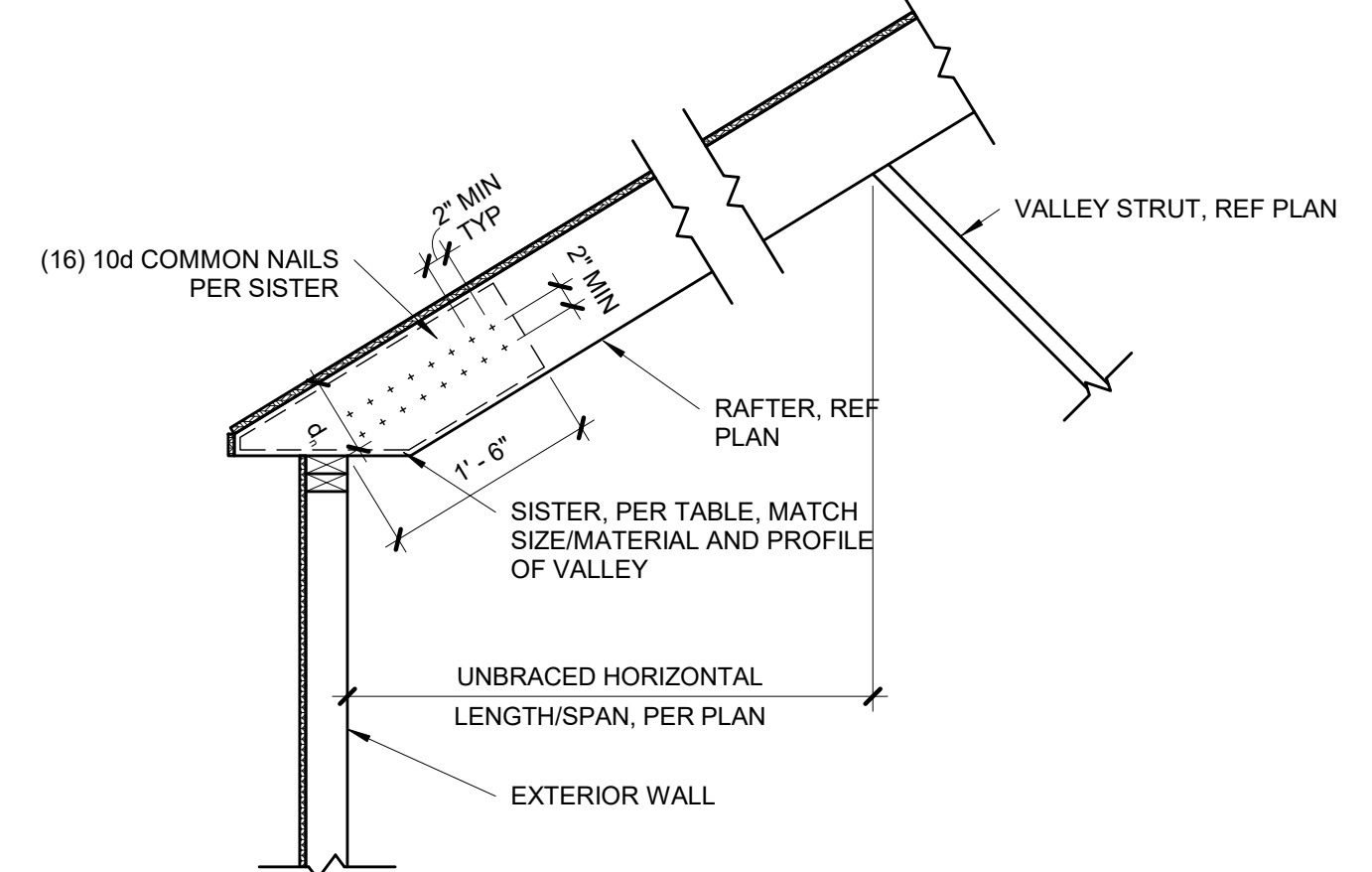
**4 | TAPERED VALLEY**

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

**REQUIRED NUMBER OF SISTER PLIES**

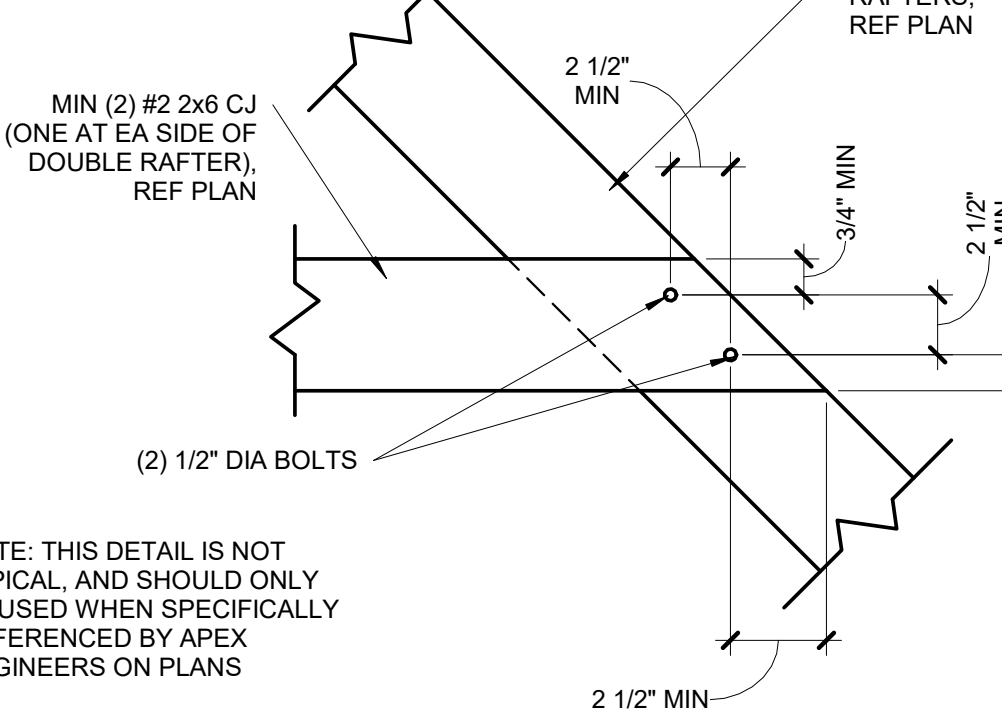
LIGHT ROOF						
# OF SISTER PLIES	2x VALLEY			LVL VALLEY		
	2x6	2x8	2x10	2x6	2x8	2x10
0	4'-8"	6'-2"	7'-11"	0	8'-8"	11'-5"
1	9'-5"	*	*	1	*	*
2	*	N/A	N/A	2	N/A	N/A
HEAVY ROOF						
# OF SISTER PLIES	2x VALLEY			LVL VALLEY		
	2x6	2x8	2x10	2x6	2x8	2x10
0	3'-6"	4'-7"	5'-11"	0	6'-8"	8'-7"
1	7'-1"	9'-3"	*	1	13'-1"	*
2	*	*	N/A	2	*	N/A

\*VALLEYS OF A LENGTH GREATER THAN THAT FOUND IN THE CELL ABOVE ARE CONTROLLED BY BENDING. APPLY THE NUMBER OF SISTER PLIES CORRESPONDING TO THIS ROW.  
1. THIS TABLE IS INTENDED TO BE USED IN CONJUNCTION WITH THE STAMPED, ENGINEERED PLANS AS THEY ARE DRAWN BY APEX. BRACING LOCATIONS SHALL DETERMINE HORIZONTAL UNSUPPORTED SPAN FROM VALLEY BEARING AND BE USED TO DETERMINE THE NUMBER OF SISTERS REQUIRED. BRACING LOCATIONS ARE NOT TO BE INFERRED USING THIS TABLE.  
2. TABLE VALUES ARE BASED ON A DEPTH OF MEMBER REMAINING, d<sub>r</sub>, EQUAL TO THE DEPTH OF THE RAFTERS. IF d<sub>r</sub> IS OBSERVED TO BE LESS THAN THE DEPTH OF THE RAFTER, THE VALLEY WILL NEED TO BE EITHER REPLACED OR ANALYZED BY APEX.  
3. TABLE VALUES ARE VALID FOR TAPERED CUTS ONLY. REF DETAIL 4/53.2.  
4. IF MULTI-PLY VALLEY IS SPECIFIED ON PLAN TREAT EACH ADDITIONAL PLY AS A SISTER PLY WHEN LOOKING UP MAX SPAN.  
5. MAX 14'-0" HORIZONTAL RAFTER SPAN IN BOTH DIRECTIONS FROM VALLEY.  
6. ALL HIPs ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN.



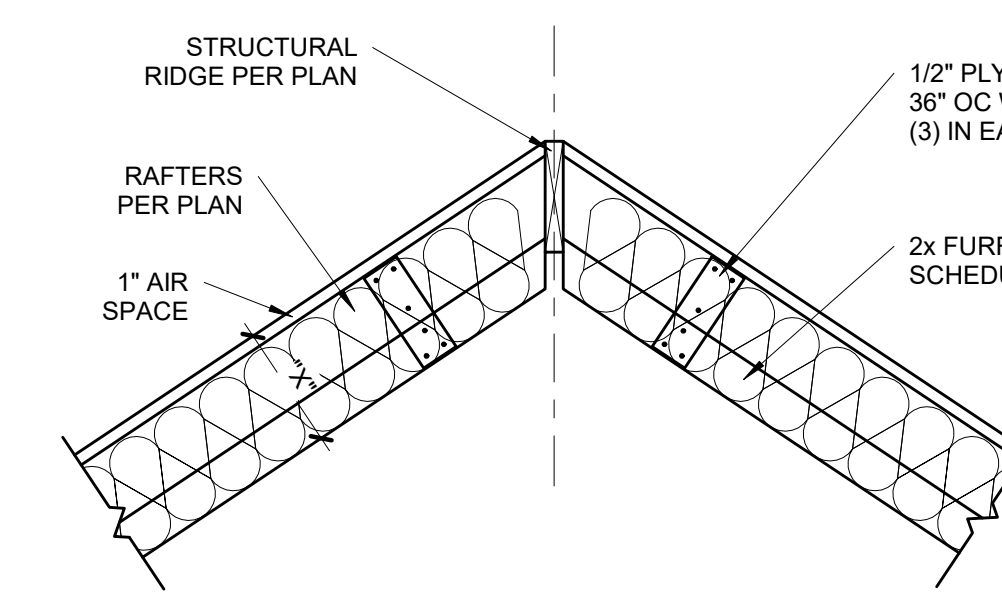
**3 | ROOF WITH PERP CEILING JOISTS**

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



**2 | BOLTED RAFTER HIP CONNECTION**

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



**1 | FURR OUT SCHEDULE**

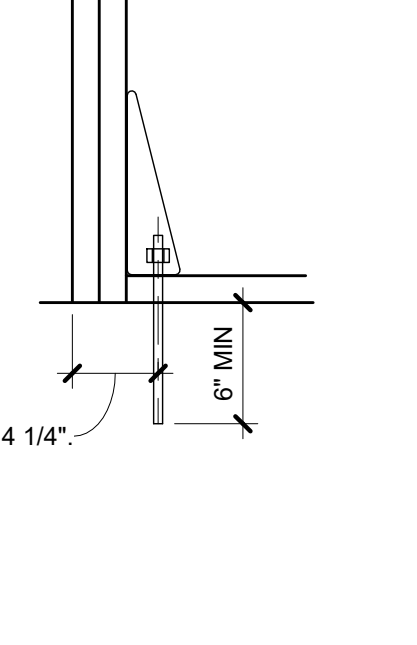
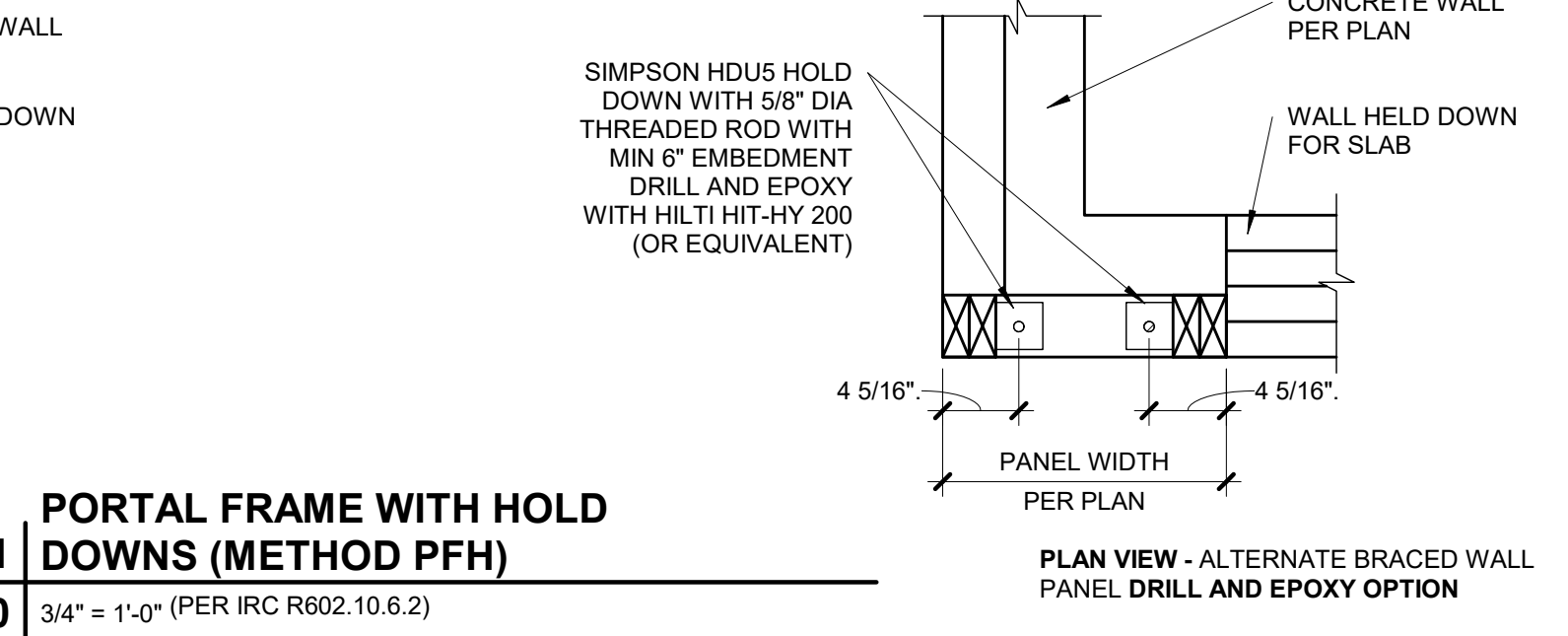
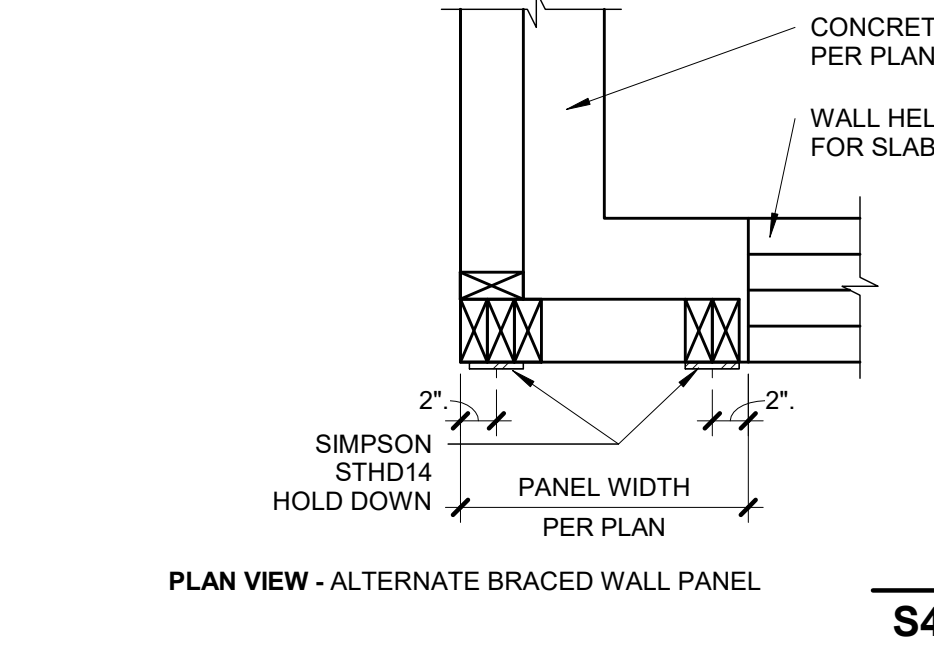
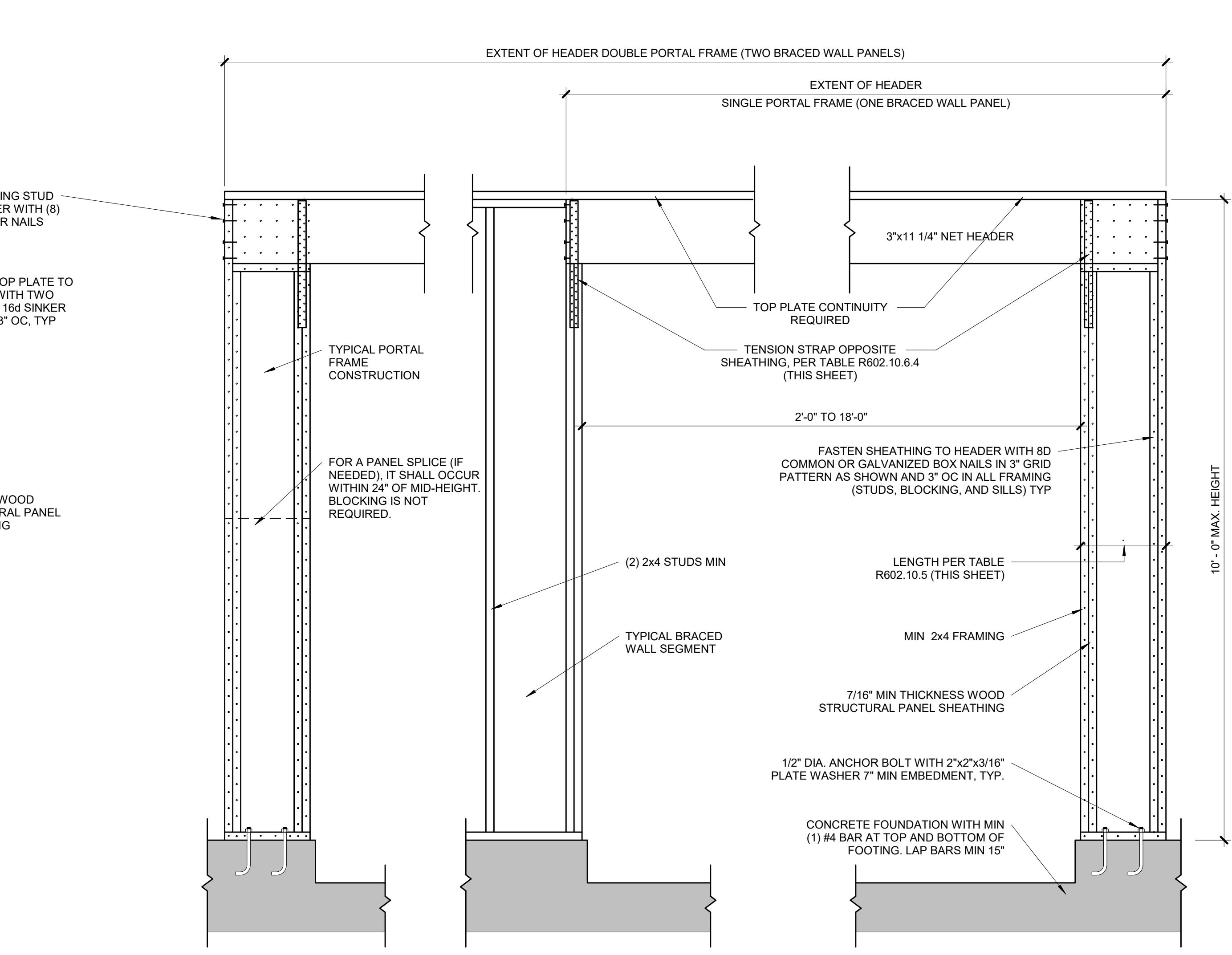
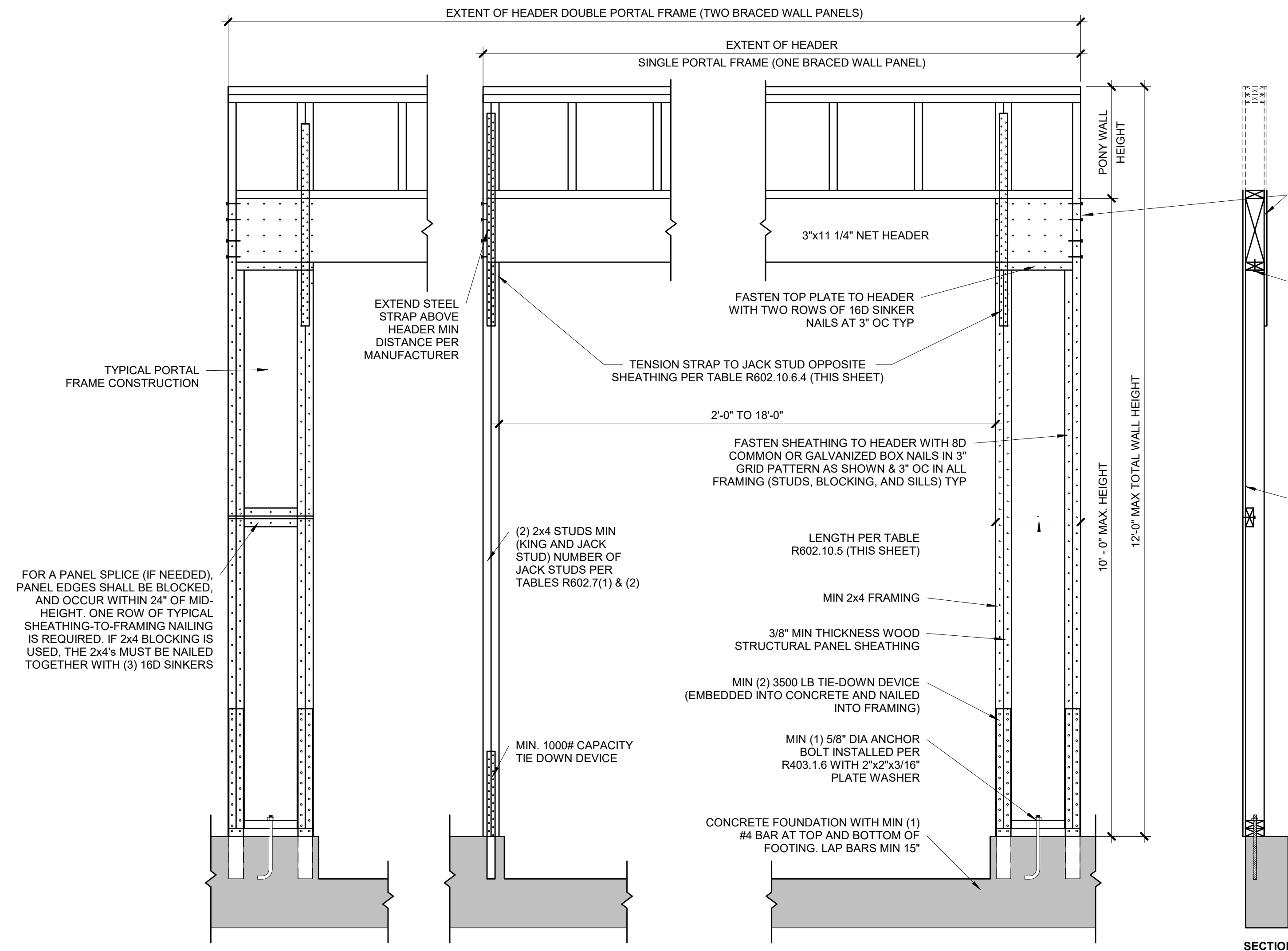
RAFTER SIZE	R-30C INSULATION (X= 9 1/4")	R-38C INSULATION (X=11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	REQUIRED

NOTES:  
1. ALL VAULTED RAFTERS SHALL BE #2-2x6 DF-L, MINIMUM, AT 16" OC, PER SPAN CHART, UNLESS NOTED OTHERWISE.  
2. ALL VAULTS SHALL BE FURRED DOWN WITH 2x FRAMING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.  
3. R-30C INSULATION = 8 1/4" THICK  
4. R-38C INSULATION = 10 1/4" THICK  
5. INSULATION REQUIREMENTS MAY BE REDUCED TO R30 IF ROOF/CEILING ASSEMBLY DOES NOT ALLOW SUFFICIENT SPACE BUT IS LIMITED TO VAULTED CEILING AREAS THAT ARE LESS THAN 500 SQUARE FEET OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA, WHICHEVER IS LESS. (PER N1102.2.2)

**1 | FURR OUT SCHEDULE**

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

DATE	COMMENTS



**PORTAL FRAME AT GARAGE DOOR WITHOUT HOLD DOWNS (METHOD PFG)**  
1  
S4.0 ALT 3/4" = 1'-0" (ALT ALLOWED AT GARAGE DOOR ONLY) (PER IRC R602.10.6.3)

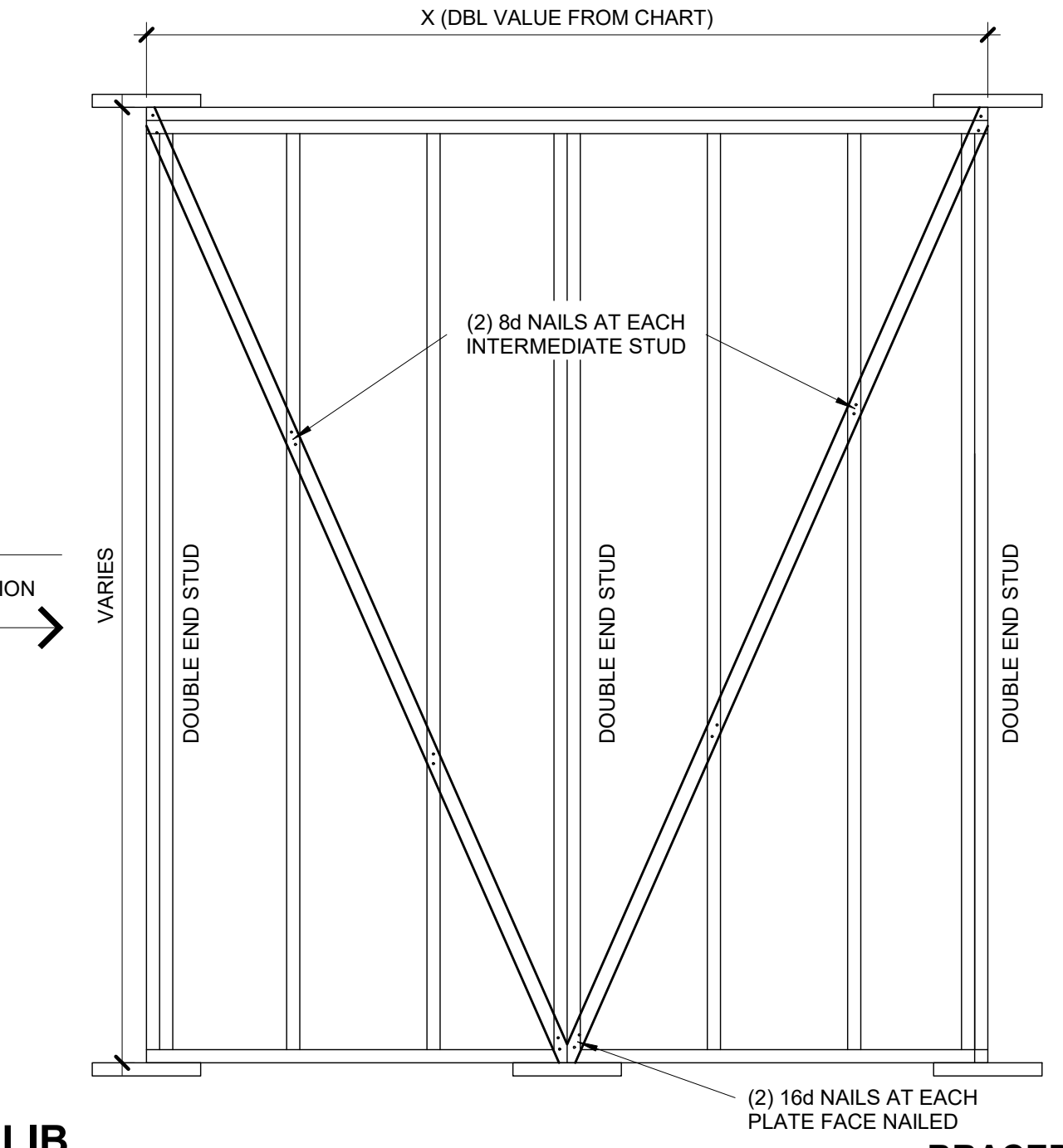
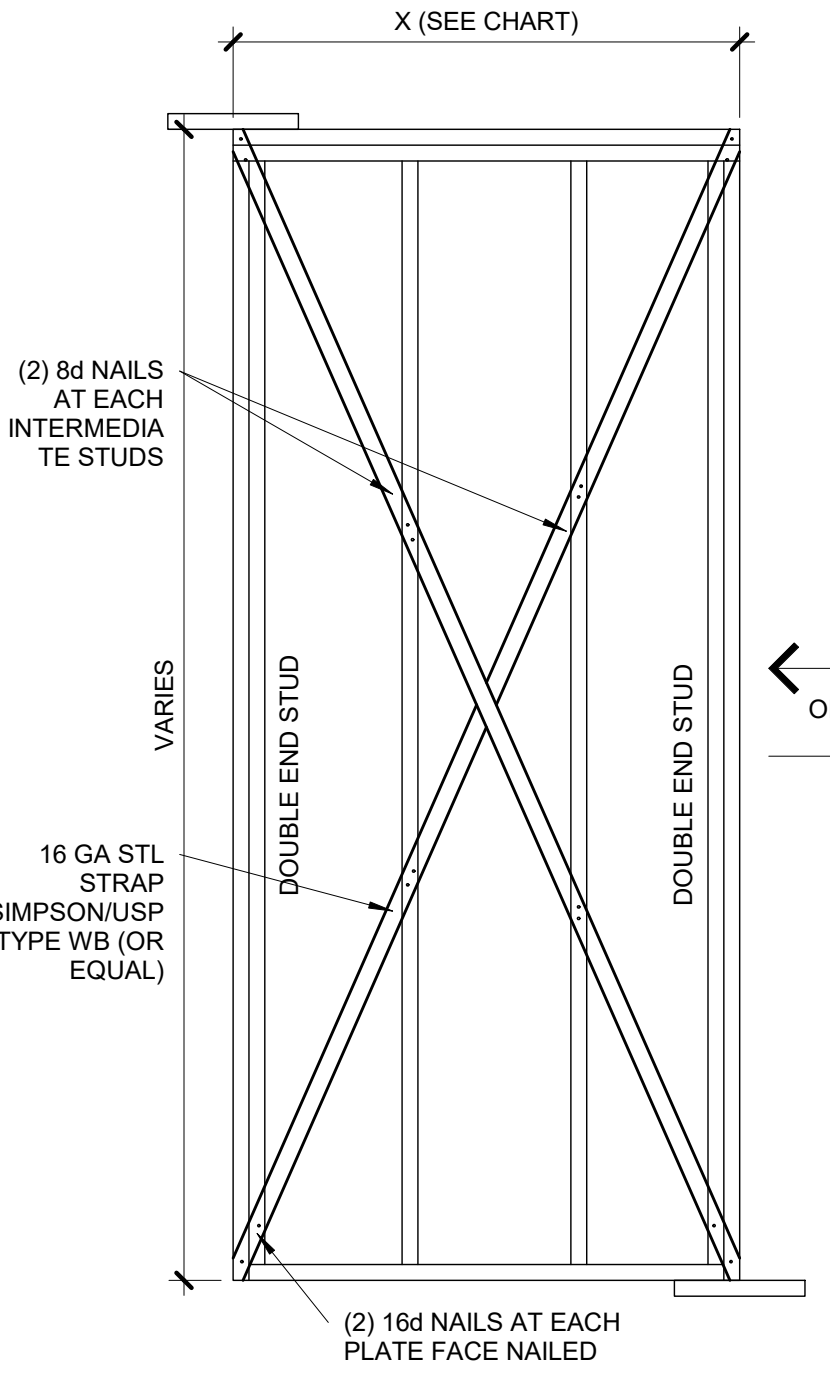
**TABLE R602.10.5 (PARTIAL)**

METHOD	MINIMUM LENGTH OF BRACED WALL PANELS				
	MIN LENGTH (INCHES)				
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET
SUPPORTING ROOF ONLY	16	16	16	16	16
ONE STORY AND ROOF	24	24	24	24	24
PFG	24	27	30	30	30

NOTE: MAX HEADER HEIGHT IS 10'-0", BUT WALL HEIGHT SHALL BE PERMITTED TO BE INCREASED TO 12'-0" WITH PONY WALL.

**TABLE R602.10.6.4**

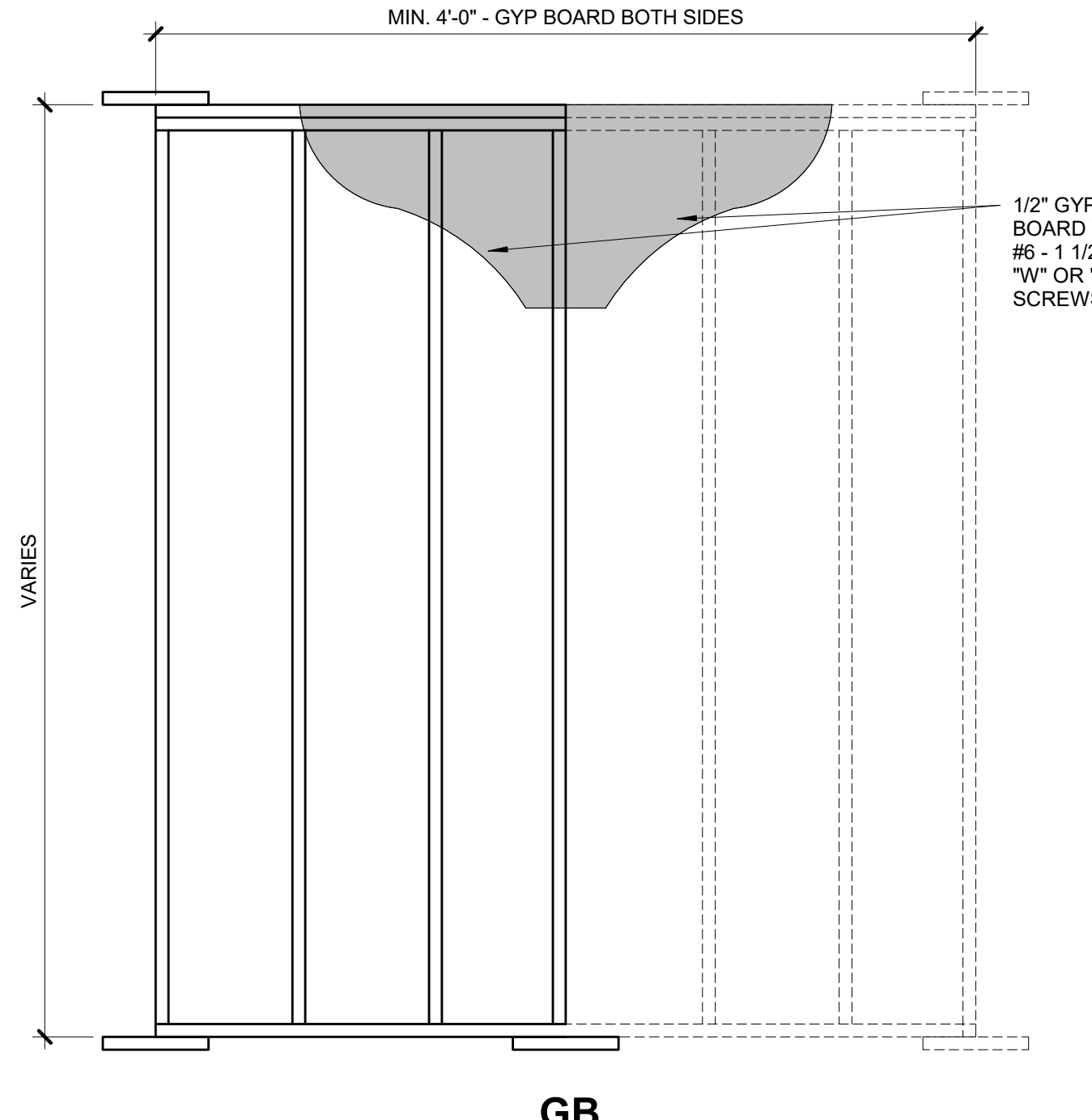
MIN WALL STUD FRAMING NOMINAL SIZE AND GRADE	MAX PONY WALL HEIGHT (FEET)	MAX TOTAL WALL HEIGHT (FEET)	MAX OPENING WIDTH (FEET)	TENSION CAPACITY STRAP TABLE	
				TENSION STRAP CAPACITY REQ (LBS)	115 MPH, EXP B
2x4 #2 GRADE	0	10	18	1,000	1,000
				1,025	1,275
	1	10	18	1,000	1,500
				2,175	2,500
	2	12	16	3,375	3,975
				2,750	3,775
2x6 STUD GRADE	2	12	16	1,000	2,150
				2,550	1,750
	4	12	16	2,400	3,800
				3,800	



**BRACED WALL PANEL SCHEDULE**

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	-

NOTE: BRACED WALL PANEL LENGTHS BASED ON WALL HEIGHT FOR IRC, LIB



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

**XXXX EXTERIOR BRACED WALLS:**  
WSP METHOD:  
WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 240 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.  
(NOTE: FRAMING MEMBERS 16" OC MAX UNBLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

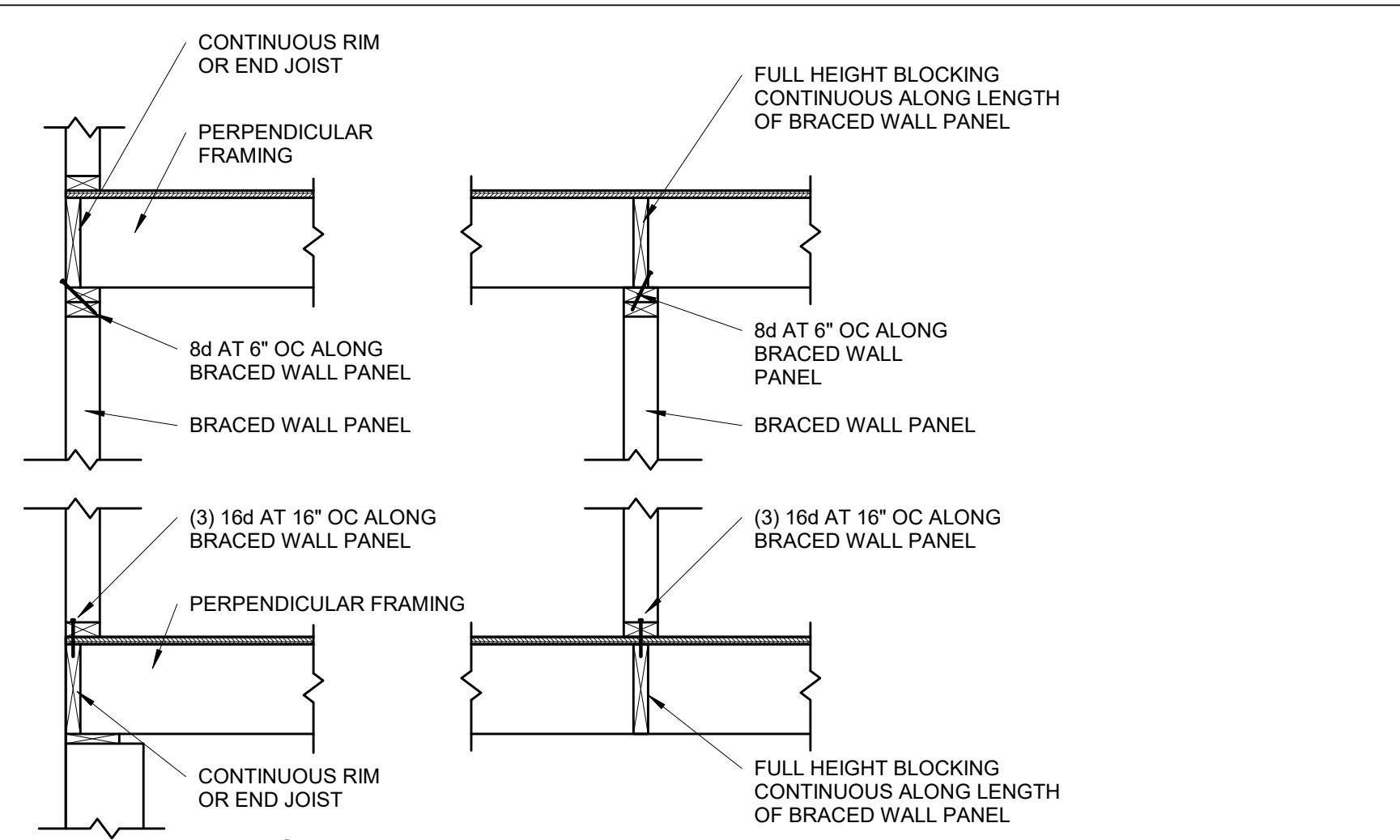
**///// INTERIOR BRACED WALLS (REF 2/S4.0):**  
GB METHOD:  
1/2" MIN GYPSUM BOARD OVER STUDS SPACED 24" MAX FASTENED WITH #6 - 1 1/2" TYPE "W" OR "S" DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES).  
OR  
LIB METHOD:  
1/4" WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" OC STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

**1 PORTAL FRAME WITH HOLD DOWNS (METHOD PFF)**  
S4.0 3/4" = 1'-0" (PER IRC R602.10.6.2)

**PLAN VIEW - ALTERNATE BRACED WALL PANEL DRILL AND EPOXY OPTION**

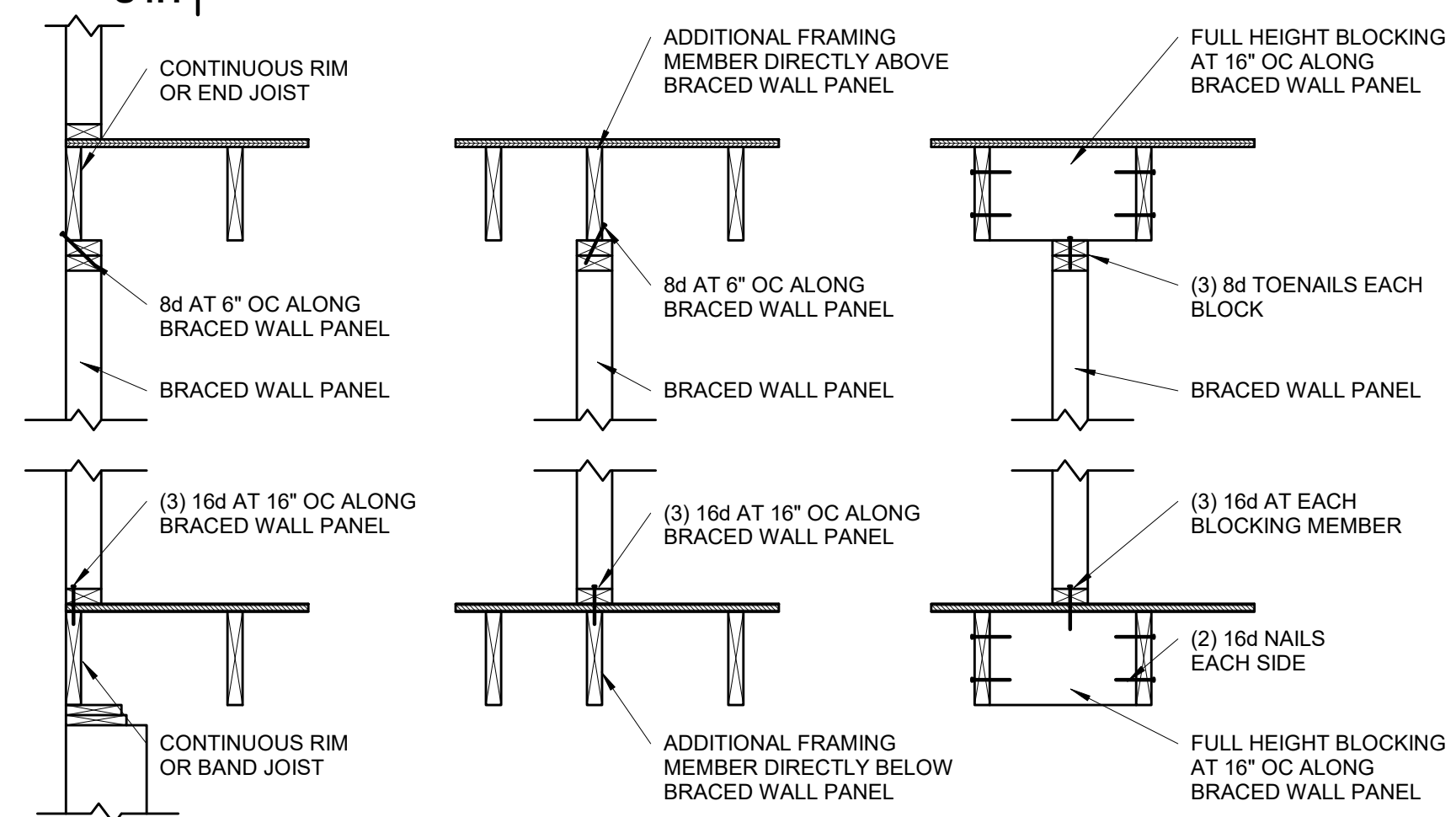
**2 BRACED WALL PANEL-IRC METHODS LIB AND GB**  
S4.0 3/4" = 1'-0"

DATE	COMMENTS



**BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING**

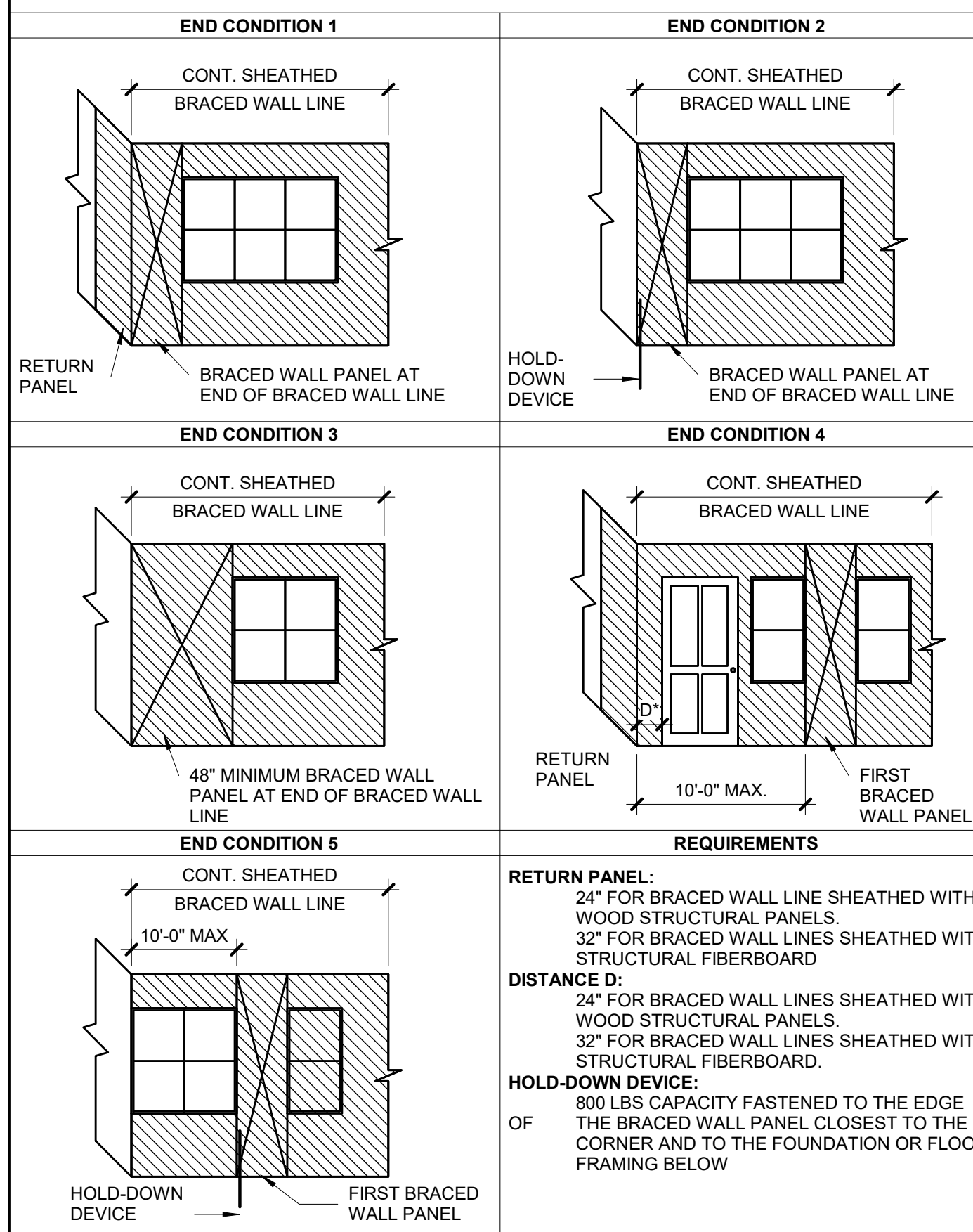
S4.1 3/4" = 1'-0"



**BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING**

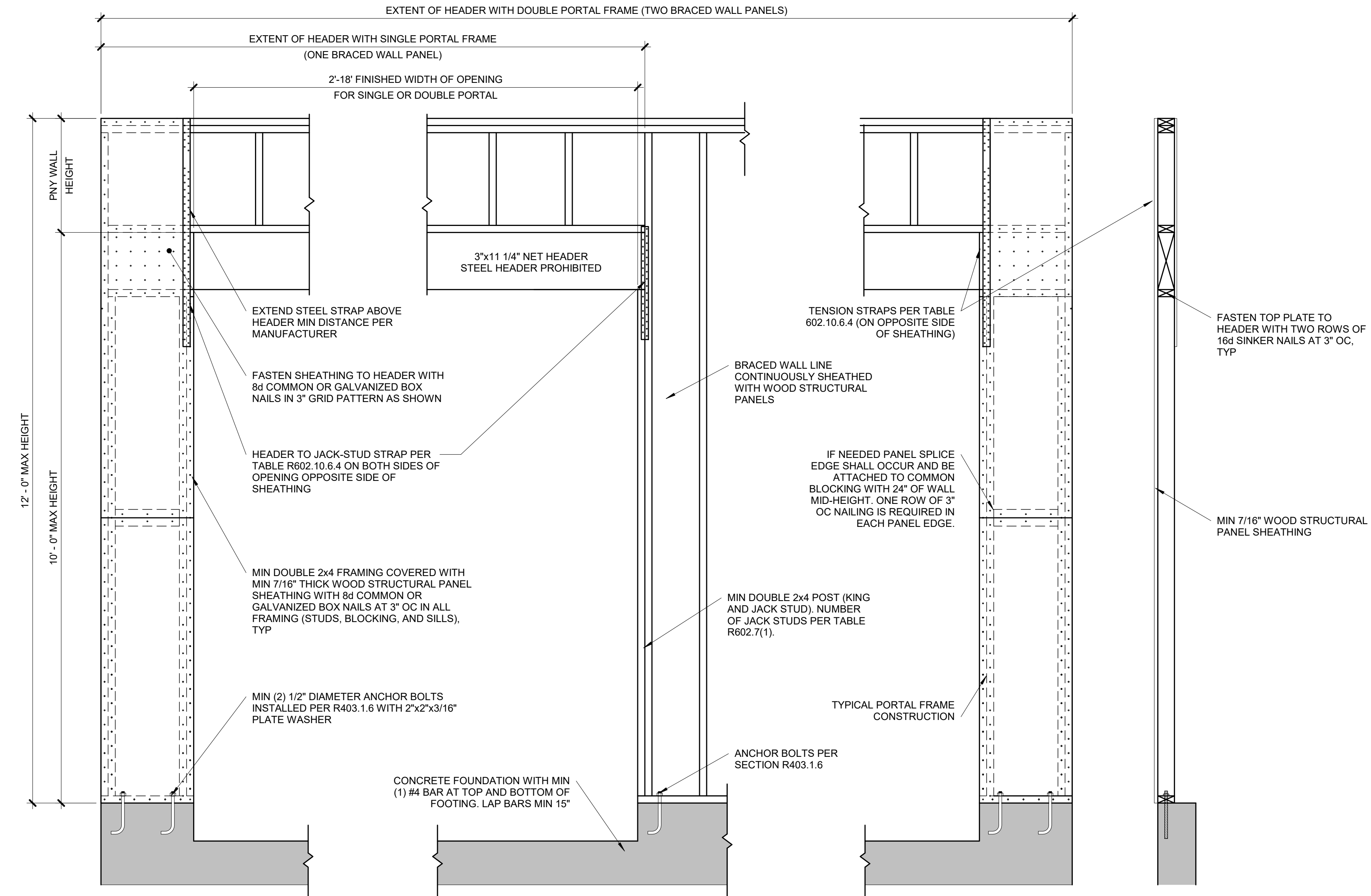
S4.1 3/4" = 1'-0"

**CONT. SHEATHED BRACED WALL END CONDITIONS**

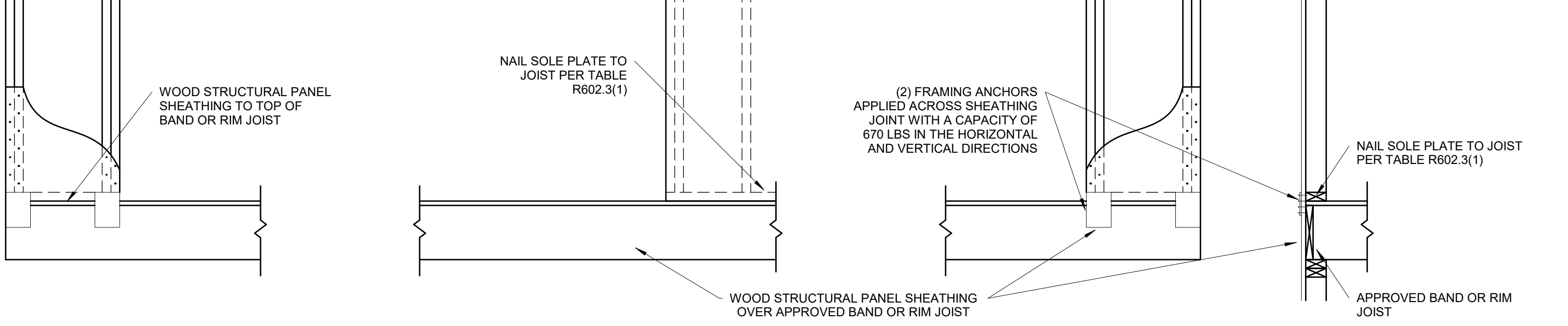


**CONTINUOUS SHEATHED BRACED WALL END CONDITIONS**

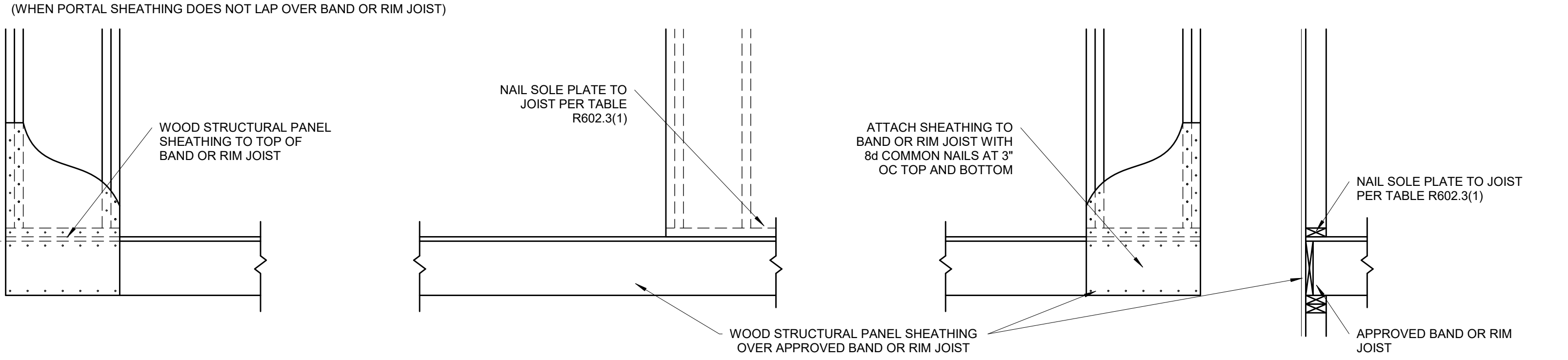
S4.1 NOT TO SCALE (COMPLIANCE WITH IRC R602.10.7)



**OVER CONCRETE OR MASONRY BLOCK FOUNDATION**



**OVER RAISE WOOD FLOOR - FRAMING ANCHOR OPTION**



**OVER RAISE WOOD FLOOR - OVERLAP OPTION**

**BRACED WALL PANEL-IRC METHOD CS-PF CONTINUOUSLY SHEATHED PORTAL FRAME**

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

(PER IRC R602.10.6.4)