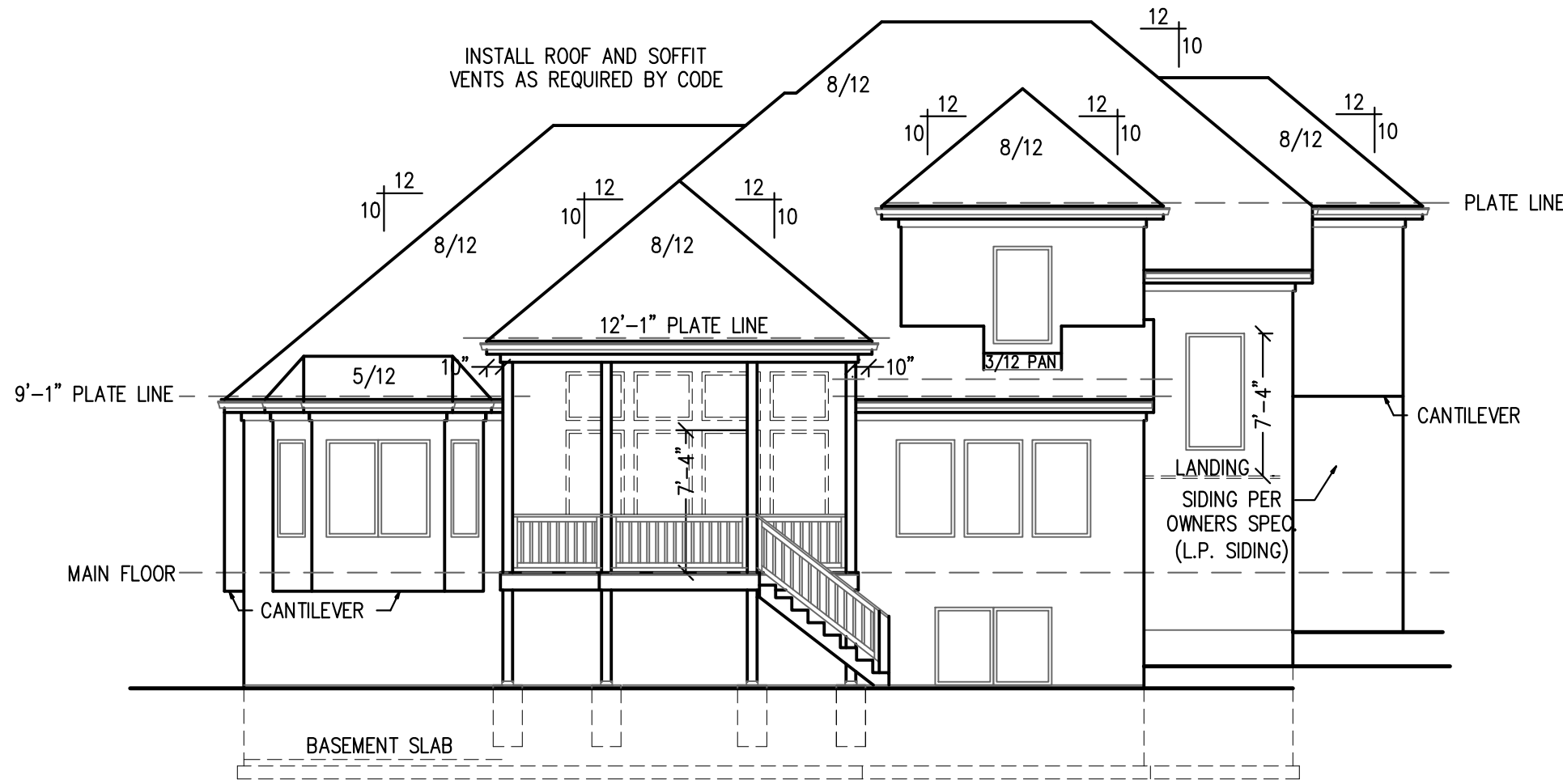
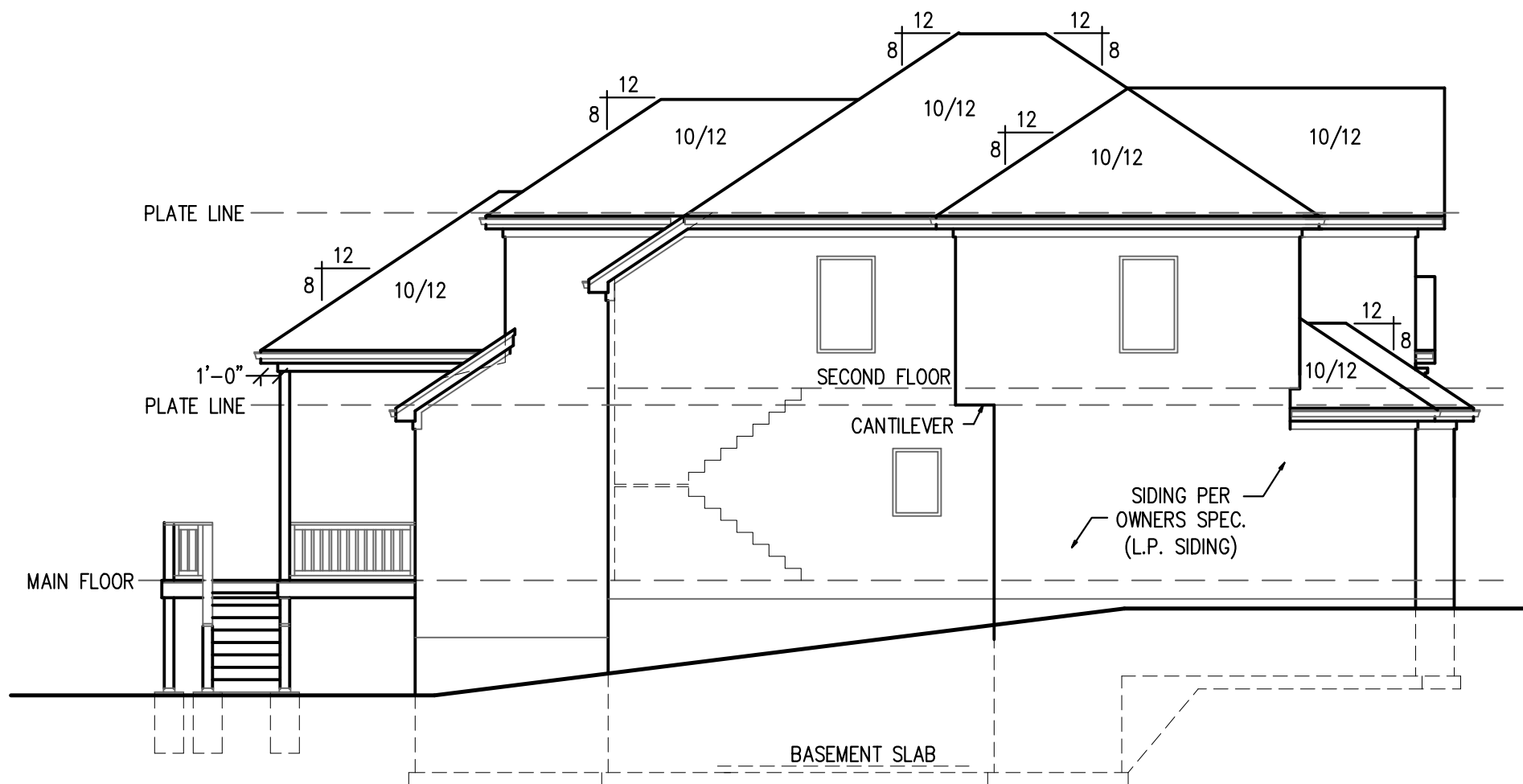


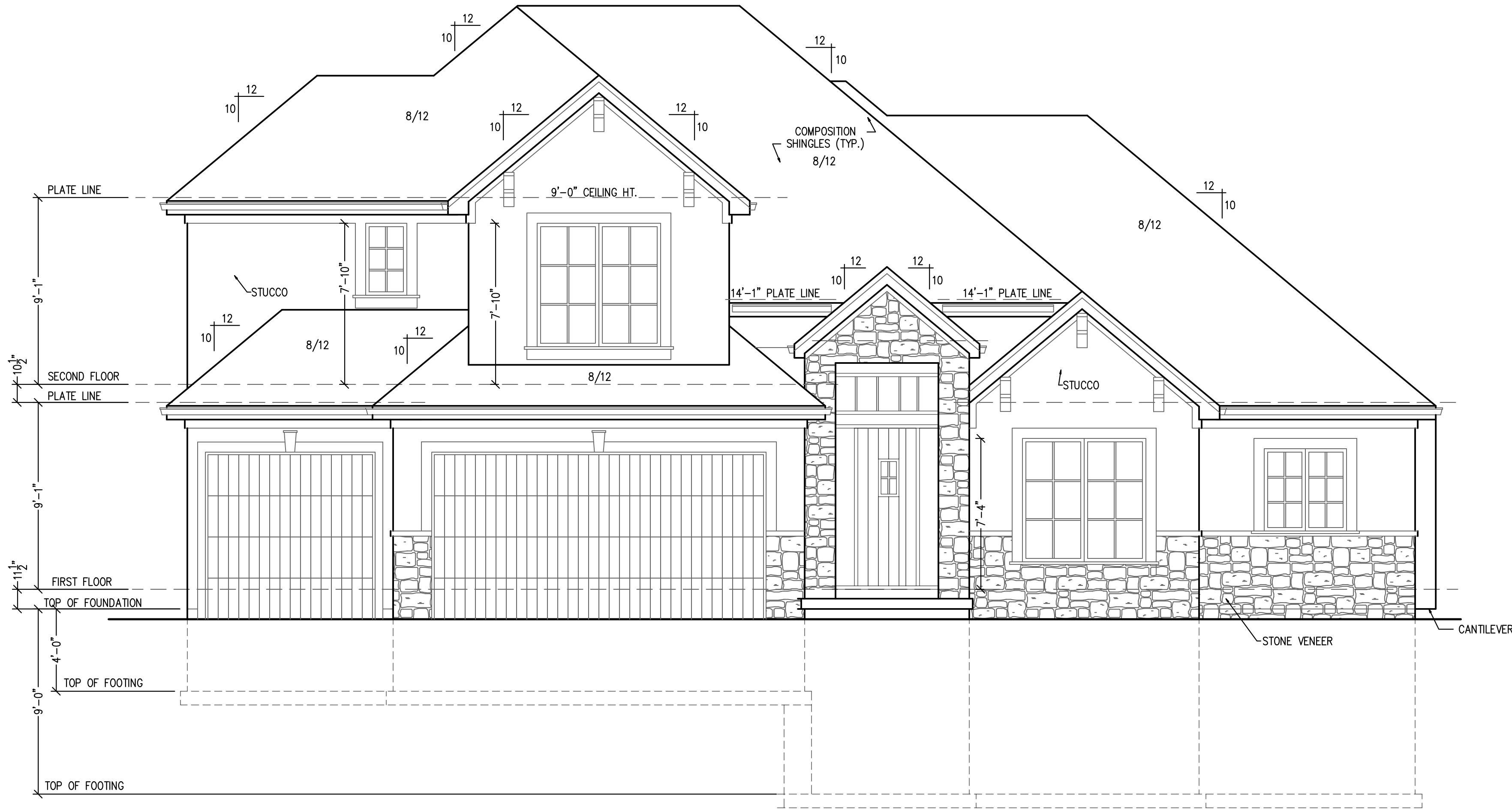
RIGHT ELEVATION
SCALE: 1/8" = 1'-0"



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



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



FRONT ELEVATION
SCALE: 1/4" = 1'-0"

RELEASE FOR CONSTRUCTION
AS NOTED FOR PLAN REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
01/16/2025

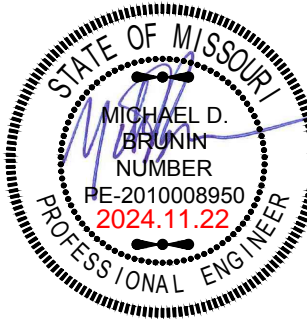
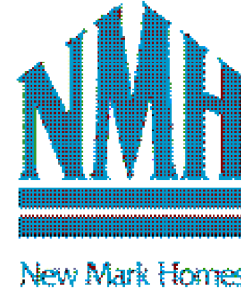
LOWER LEVEL -	25 SQ. FT.
MAIN FLOOR -	1,949 SQ. FT.
SECOND FLOOR -	984 SQ. FT.
TOTAL	2,938 SQ. FT.

DECK	264 SQ. FT.
GARAGE	650 SQ. FT.
UNFINISHED	1764 SQ. FT.

DISCLAIMER
ACTUAL PLANS AND ELEVATIONS MAY VARY
FROM ARCHITECTURAL DRAWINGS.
DUE TO TERRAIN/BACKFILL PROCESS.
FRONT ELEVATIONS ARE ARCHITECTURAL
DRAWINGS AND MAY VARY DUE TO
MATERIAL AVAILABILITY.

NOTE:
PLANS DESIGNED PER IRC AS
ADOPTED BY GOVERNING JURISDICTION

New Mark Homes
P.O. Box 12025
Parkville, Missouri 64152
Ph. (816) 969-9010



APEX ENGINEERS, INC.
1626 LOCUST ST
KANSAS CITY, MO 64108
816.421.3222
STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: 992
MISSOURI ENGINEERING LICENSE: 2003004673

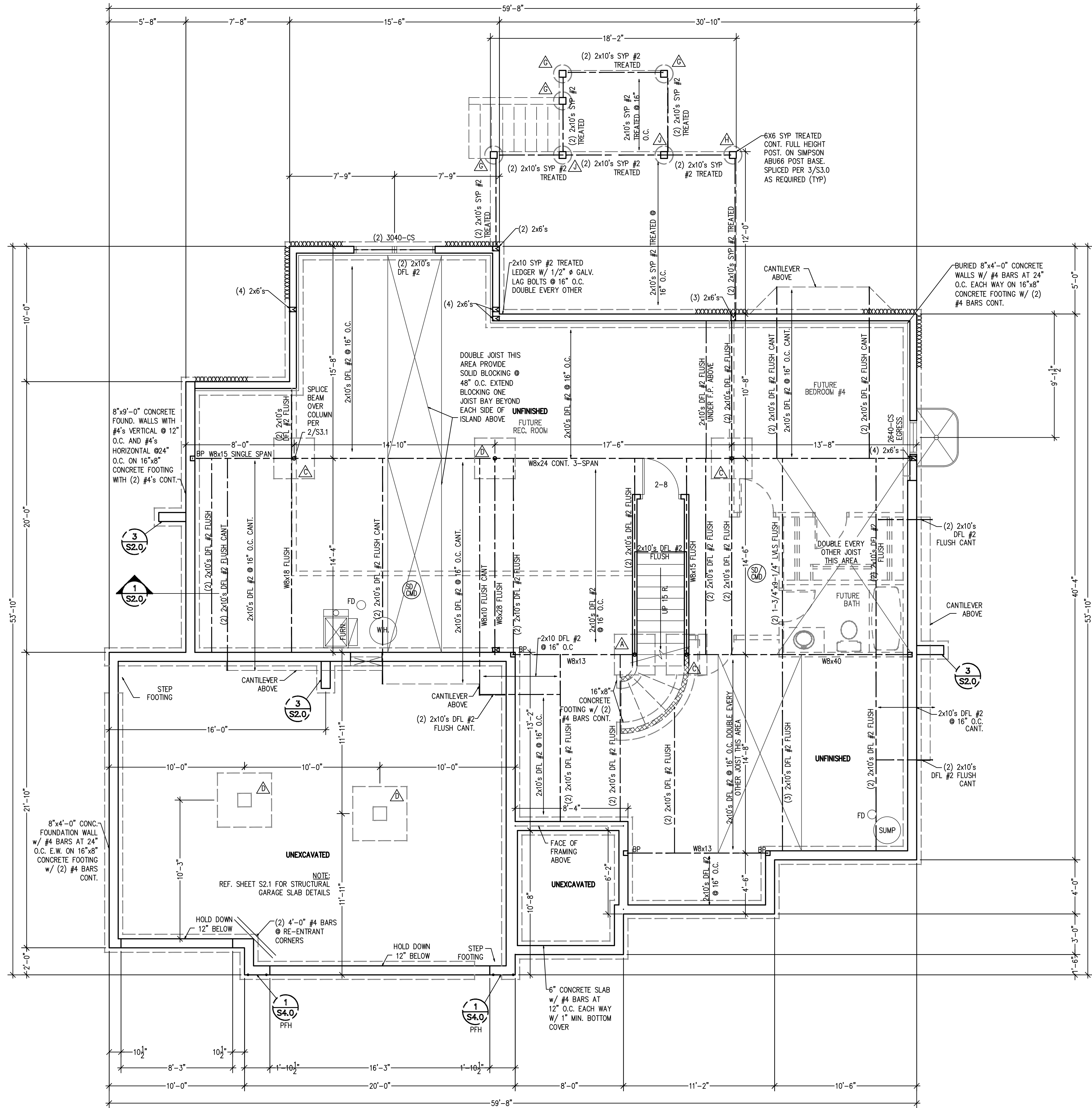
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A1

PROJ. 24-384



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

STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)
- BEARINGS WALL
- STRUCTURE NOTED AS FLUSH TO BE FLUSH WITH SUB-FLOOR ABOVE.
BRACED WALL METHODOLOGY
CONTINUOUS EXTERIOR SHEATHING 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 3/4" WITH MINIMUM SPAN RATING OF 24/0 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 24/6 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 No 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: 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.

COLUMN & PIER PAD SCHEDULE (REF. 5/S2.0)			
COLUMN MARK	PAD SIZE	REINFORCEMENT	COLUMN SIZE
△	30" x 30" x 12"	(4) #4 BAR E.W.	3" SCH 40 (3.5" OD)
△	36" x 36" x 12"	(4) #4 BAR E.W.	3" SCH 40 (3.5" OD)
△	42" x 42" x 12"	(5) #4 BAR E.W.	3" SCH 40 (3.5" OD)
△	48" x 48" x 12"	(6) #4 BAR E.W.	3 1/2" SCH 40 (4" OD)
△	54" x 54" x 16"	(8) #4 BAR E.W.	REF PLAN
△	60" x 60" x 16"	(10) #4 BAR E.W.	REF PLAN

- COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM ADJUSTABLE COLUMN HEIGHT OF 9'-1". REQUIRES SEPARATE ENGRD DESIGN IF GREATER THAN 9'-1" TALL. COLUMNS SIZED AS QWIK-ADJUST COLUMN, BY QUALITY WAY PRODUCTS, LLC. REFER TO SAFE LOADING CAPACITIES PER MANUF SPECS, OR SUBSTITUTION TO ANOTHER PRODUCT ONLY WITH PRIOR APPROVAL, BY APEX ENGINEERS.
- 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.
△	6x6	12"
△	6x6	16"
△	6x6	18"
△	6x6	24"
△	6x6	28"

- ALL PIERS TO BEAR ON ORIGINAL UNDISTURBED SOIL OF 2,000 PSF 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

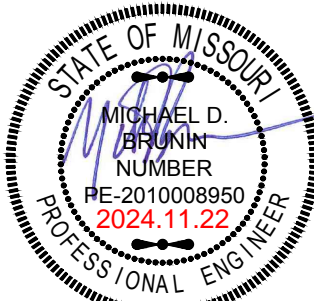
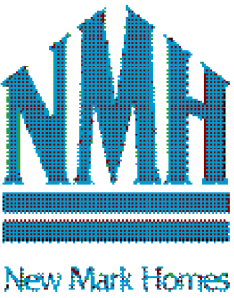
DETAIL REFERENCES

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

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.

ALL WINDOWS SIZES ARE EXPRESSED
IN FEET AND INCHES TO THE UNIT
SIZE.

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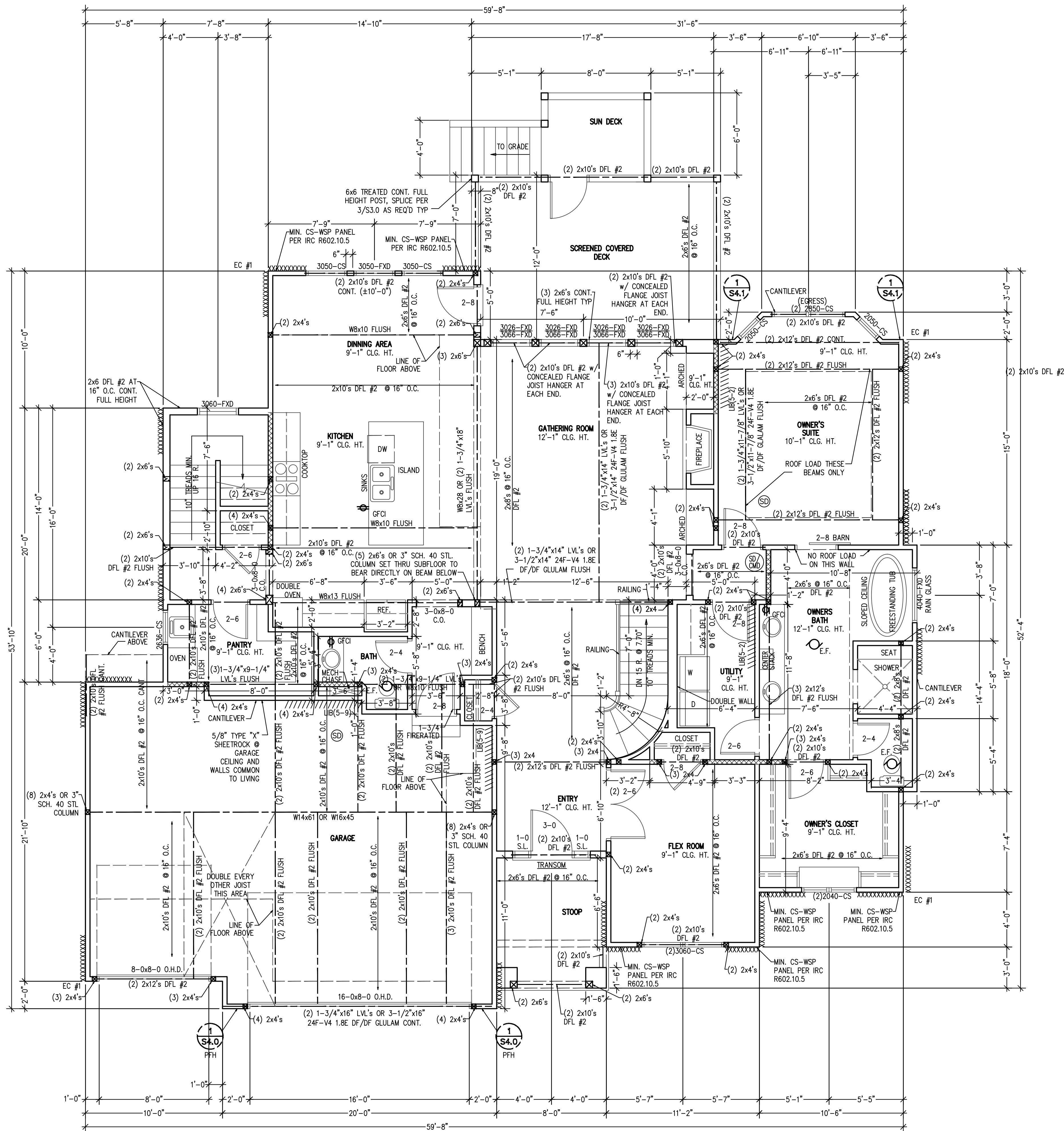
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KANSAS CITY, MO 64108
816.421.3222
STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: 992
MISSOURI ENGINEERING LICENSE: 2003004673

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PROJ. 24-050
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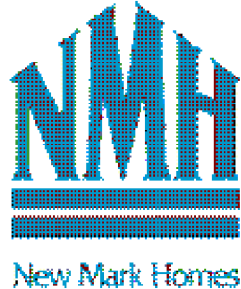


MAIN FLOOR PLAN
SCALE: 1/4" = 1'-0"

ALL WINDOWS SIZES ARE EXPRESSED
IN FEET AND INCHES TO THE UNIT
SIZE.

- STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)
- XXXXXX= BEARING WALL
- STRUCTURE NOTED AS FLUSH TO BE FLUSH WITH SUB-FLOOR ABOVE.
- BRACED WALL METHODOLOGY
CONTINUOUS EXTERIOR SHEATHING 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 3/4" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 1/2" WITH MINIMUM SPAN RATING OF 24/0 FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.
(NOTE: FRAMING MEMBERS 16" OC MAX, UNLOCKED, 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 No 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: 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.

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Ph. (816) 969-9010



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KANSAS CITY, MO 64108
816.421.3222

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Lee's Summit, Missouri

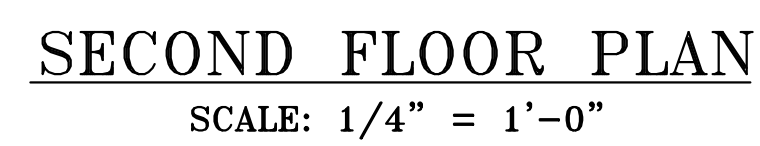
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11/16/2025

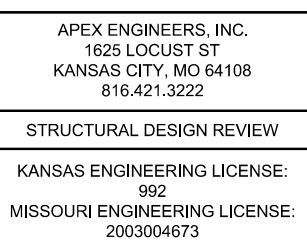
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LEE'S SUMMIT, MISSOURI

NOTE:
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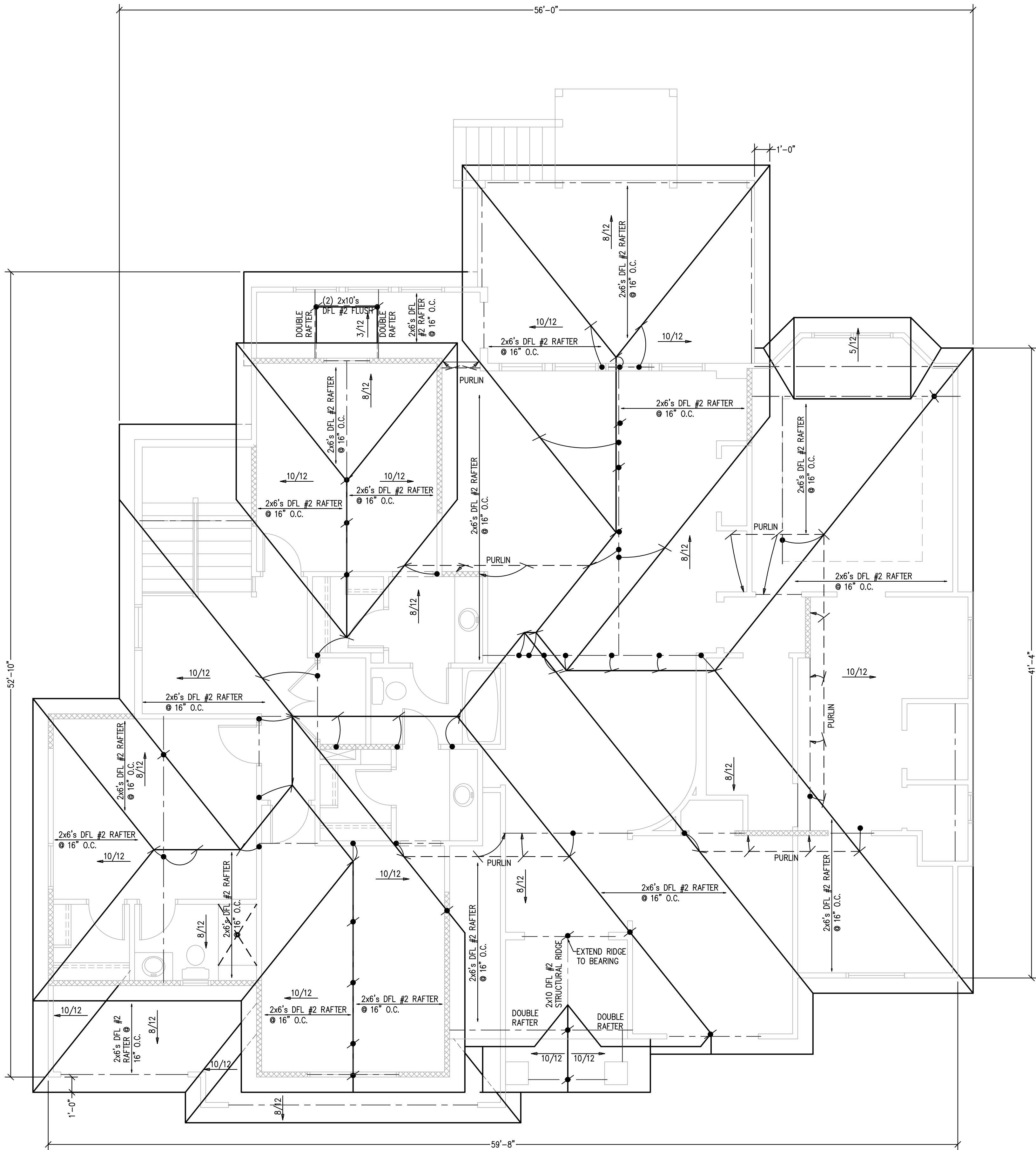


ALL WINDOWS SIZES ARE EXPRESSED
IN FEET AND INCHES TO THE UNIT
SIZE.

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DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
PROJ. 24-384
01/16/2025



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

STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DFL (OR EQ.)
- XXXXX = BEARING WALL
- STRUCTURE NOTED AS FLUSH TO BE FLUSH WITH SUB-FLOOR ABOVE.

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 HIPS AND VALLEYS ARE (UNLESS OTHERWISE NOTED)

#2-2x10 UP TO 9:12 PITCH

#2-2x12 OVER 9:12 PITCH

#2-2x10 HIP/VALLEY, MAX CLEAR SPAN: 11'-11"

#2-2x12 HIP VALLEY, MAX HORIZ. CLEAR SPAN: 12'-11"

*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)#4
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

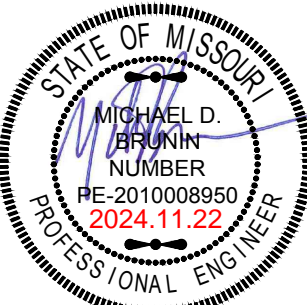
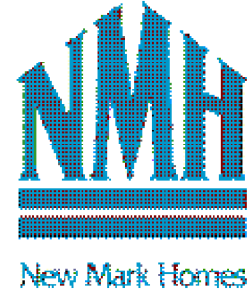
= PURLIN STRUTS AT 48" OC (PER CHART) U.N.O.
-SLASH IS TOP END OF BRACE
-ARROW IS BEARING LOCATION

XXXXXX DENOTES BEARING WALL
--- DENOTES PURLIN
--- DENOTES BEARING STRUCTURE

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

NOTE:
PLANS DESIGNED PER IRC AS
ADOPTED BY GOVERNING JURISDICTION

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Parkville, Missouri 64152
Ph. (816) 969-9010



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1626 LOCUST ST
KANSAS CITY, MO 64108
816.421.3222

STRUCTURAL DESIGN REVIEW

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MISSOURI ENGINEERING LICENSE: 2003004673

Watson Residence
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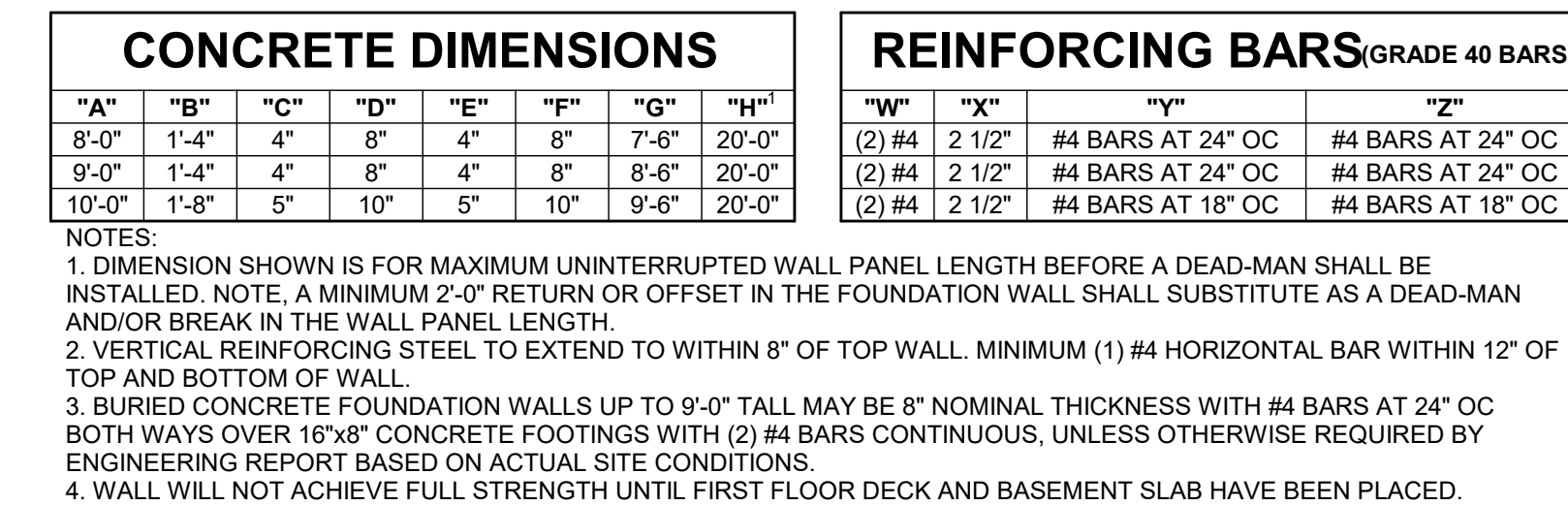
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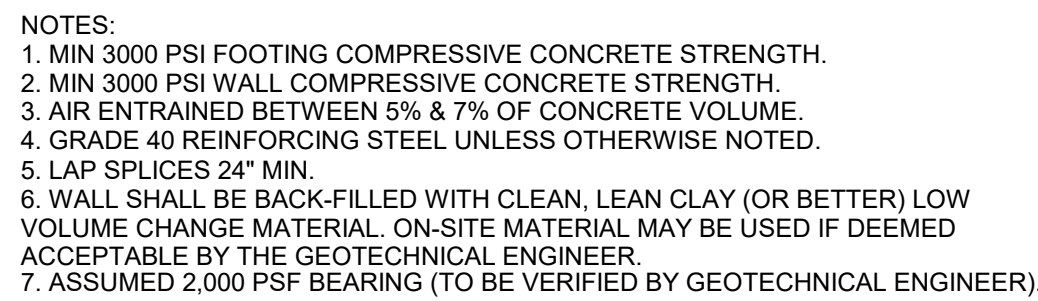
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DATE: 11/22/2024

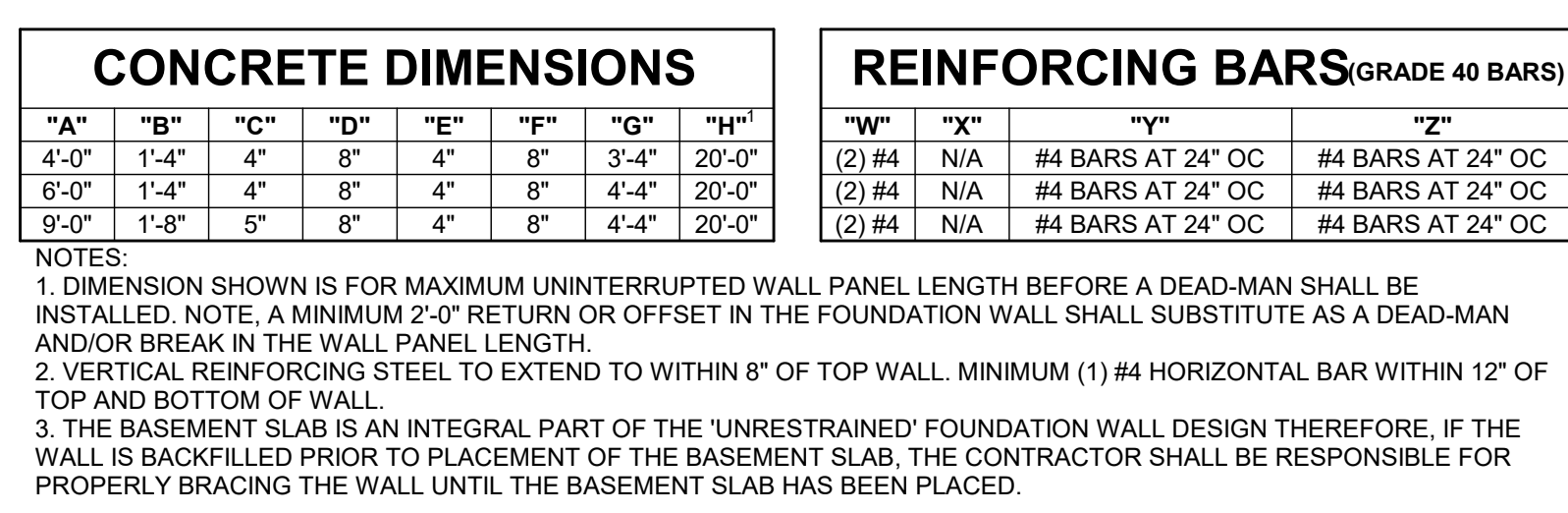
A5
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DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
PROJ. 011716/2025



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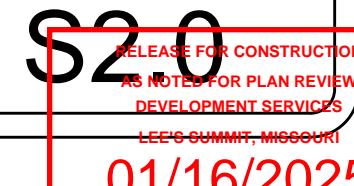
S2.0	$3/4" = 1'-0"$
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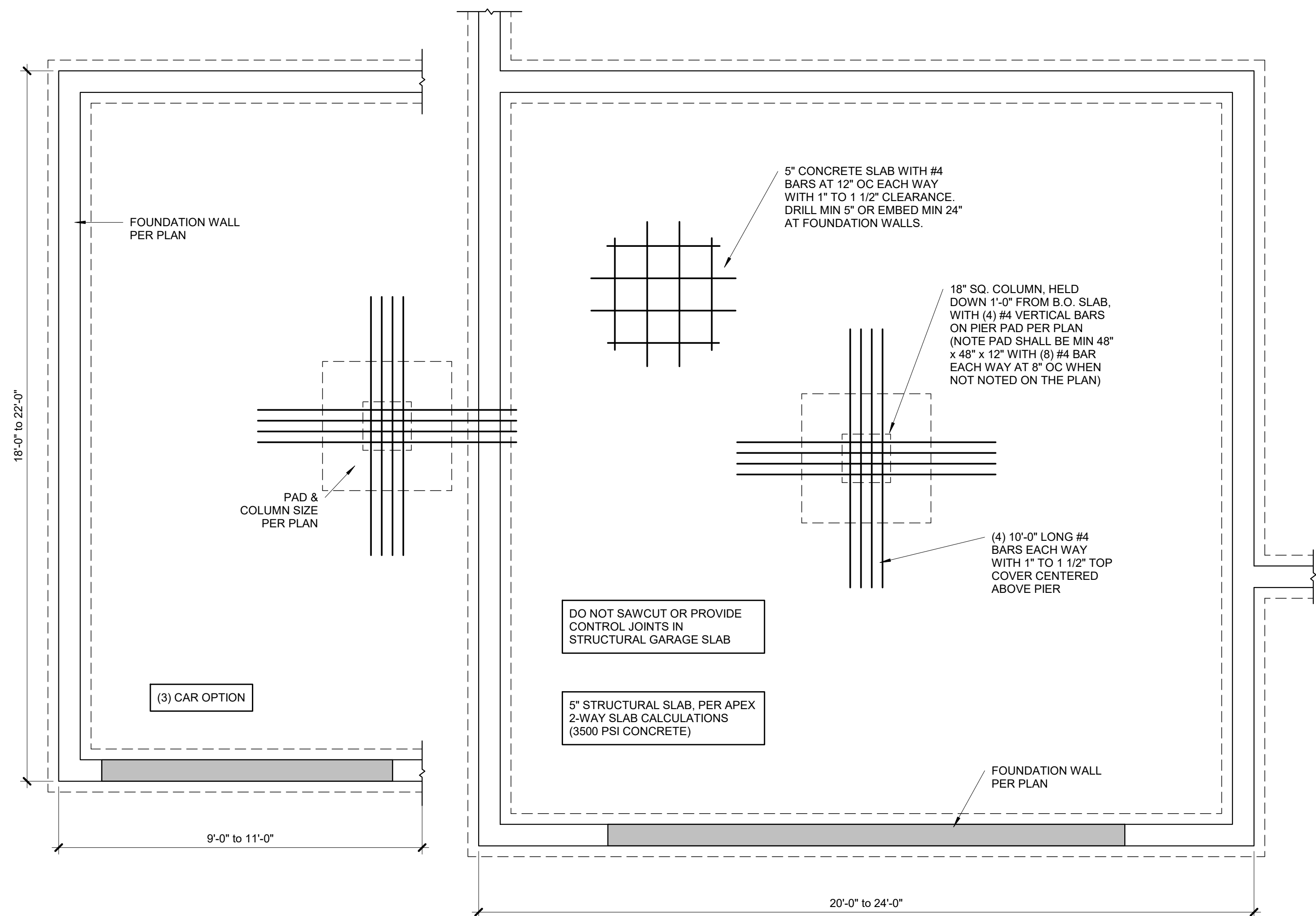


S2.0	$3/4" = 1'-0"$
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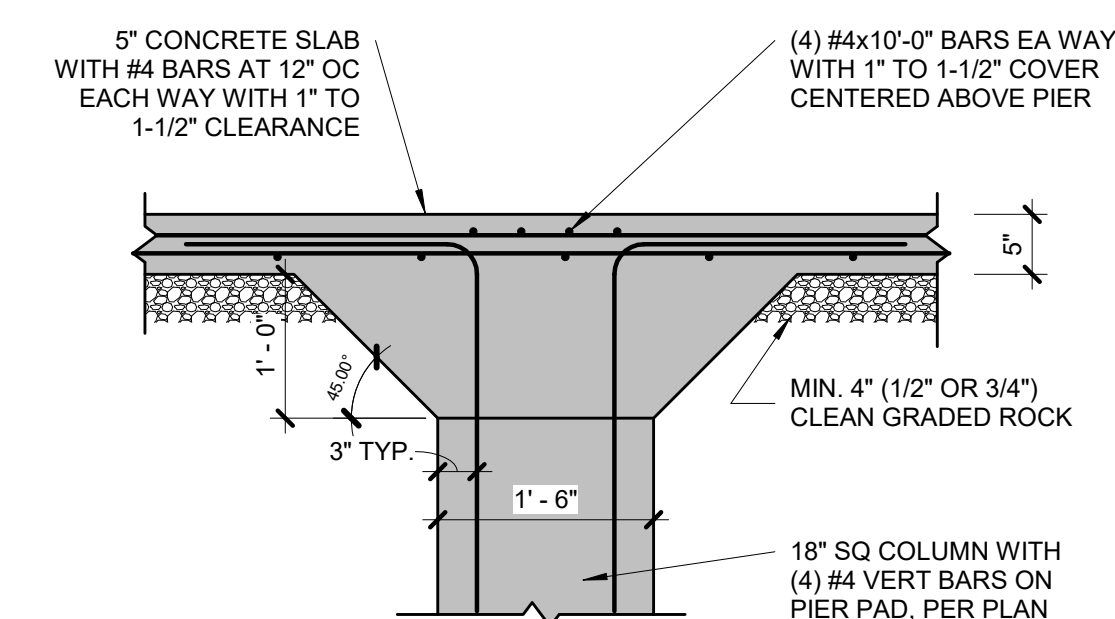
S2.0	$3/4" = 1'-0"$
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S2.0	1/2" = 1'-0'
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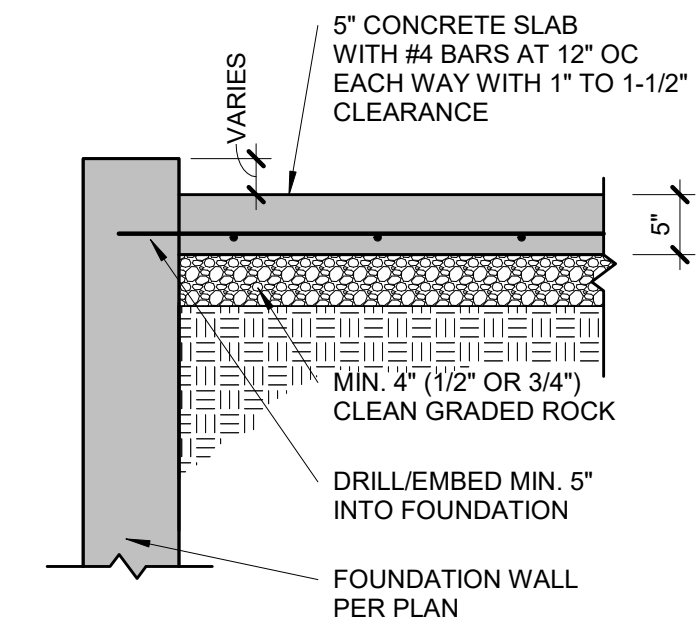




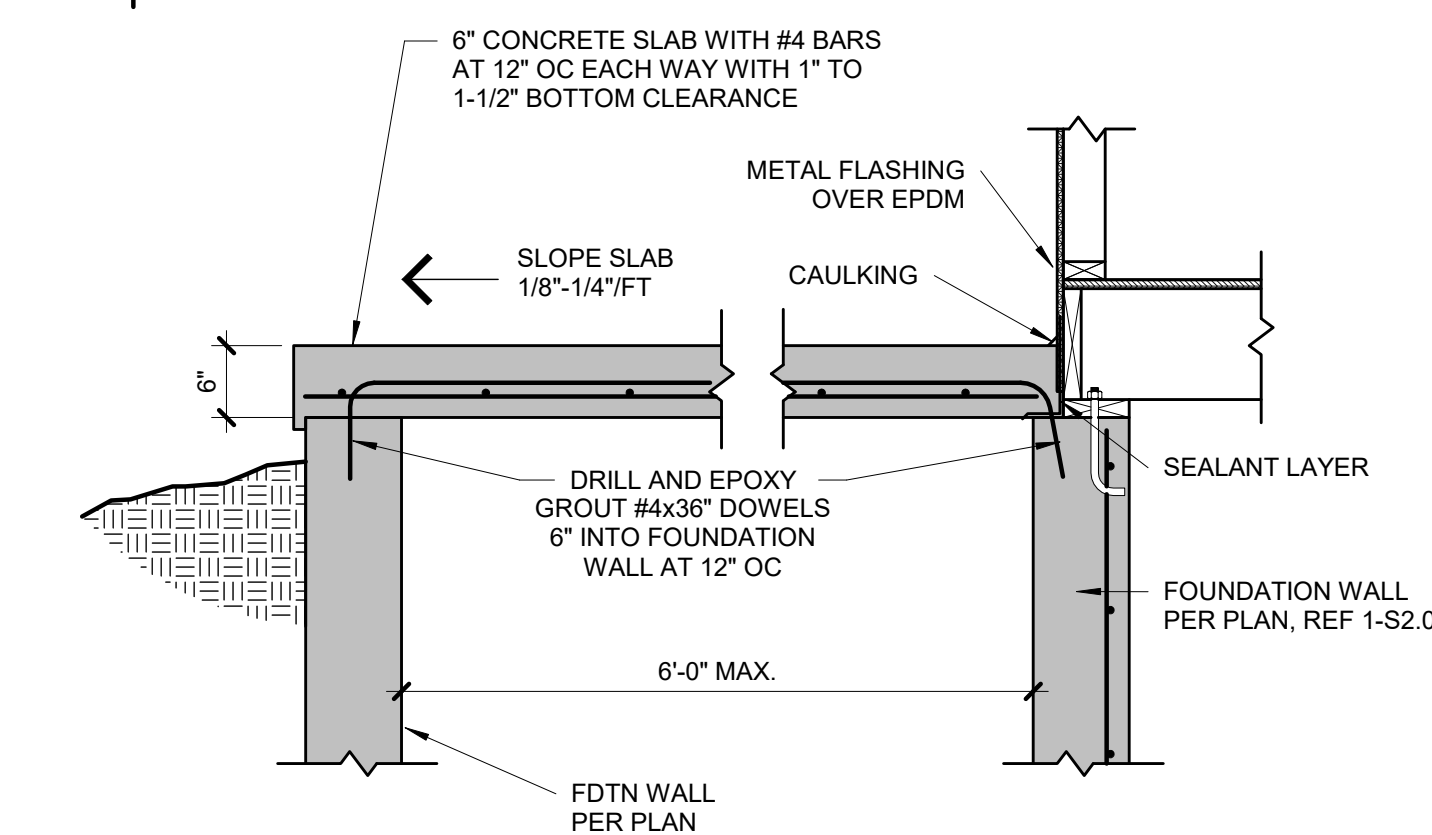
1 TYPICAL STRUCTURAL GARAGE SLAB PLAN
S2.1 3/4" = 1'-0"



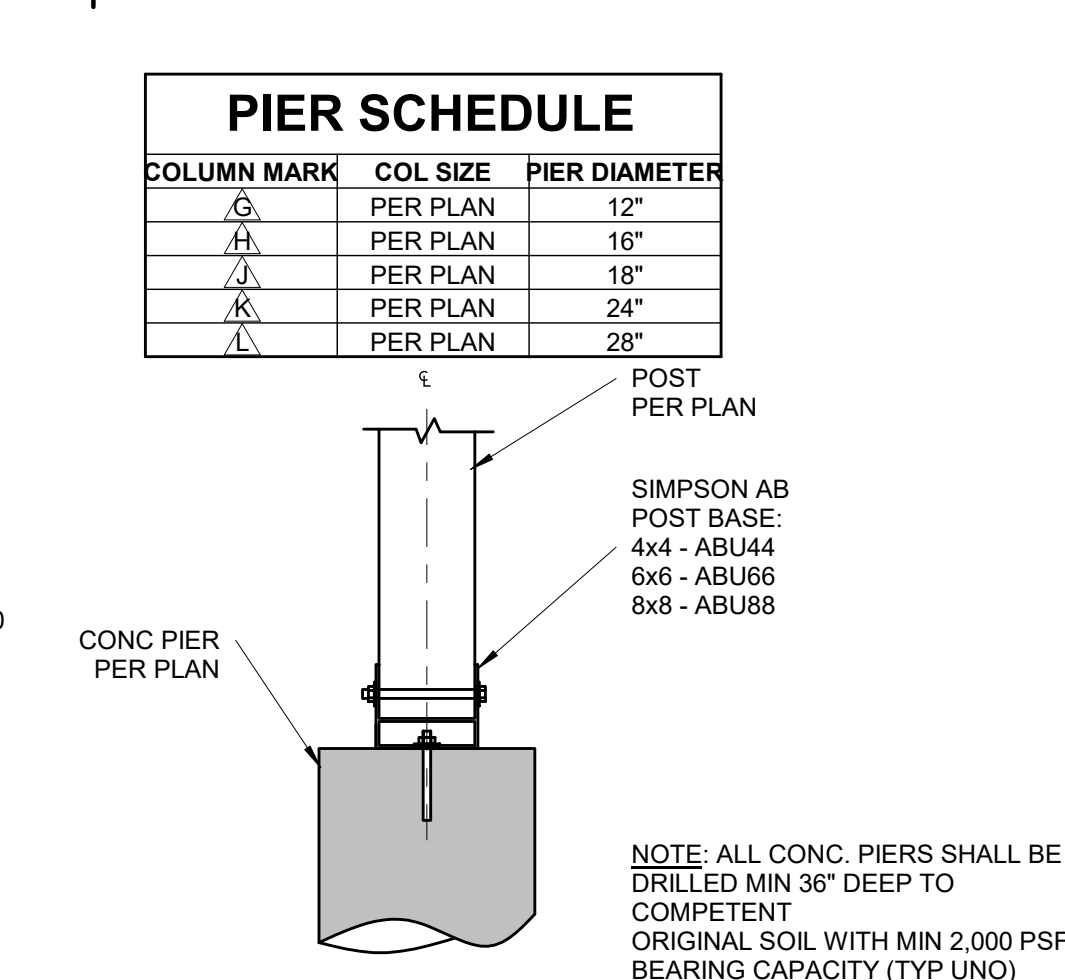
2 STRUCTURAL GARAGE SLAB PIER PAD DETAIL
S2.1 3/4" = 1'-0"



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

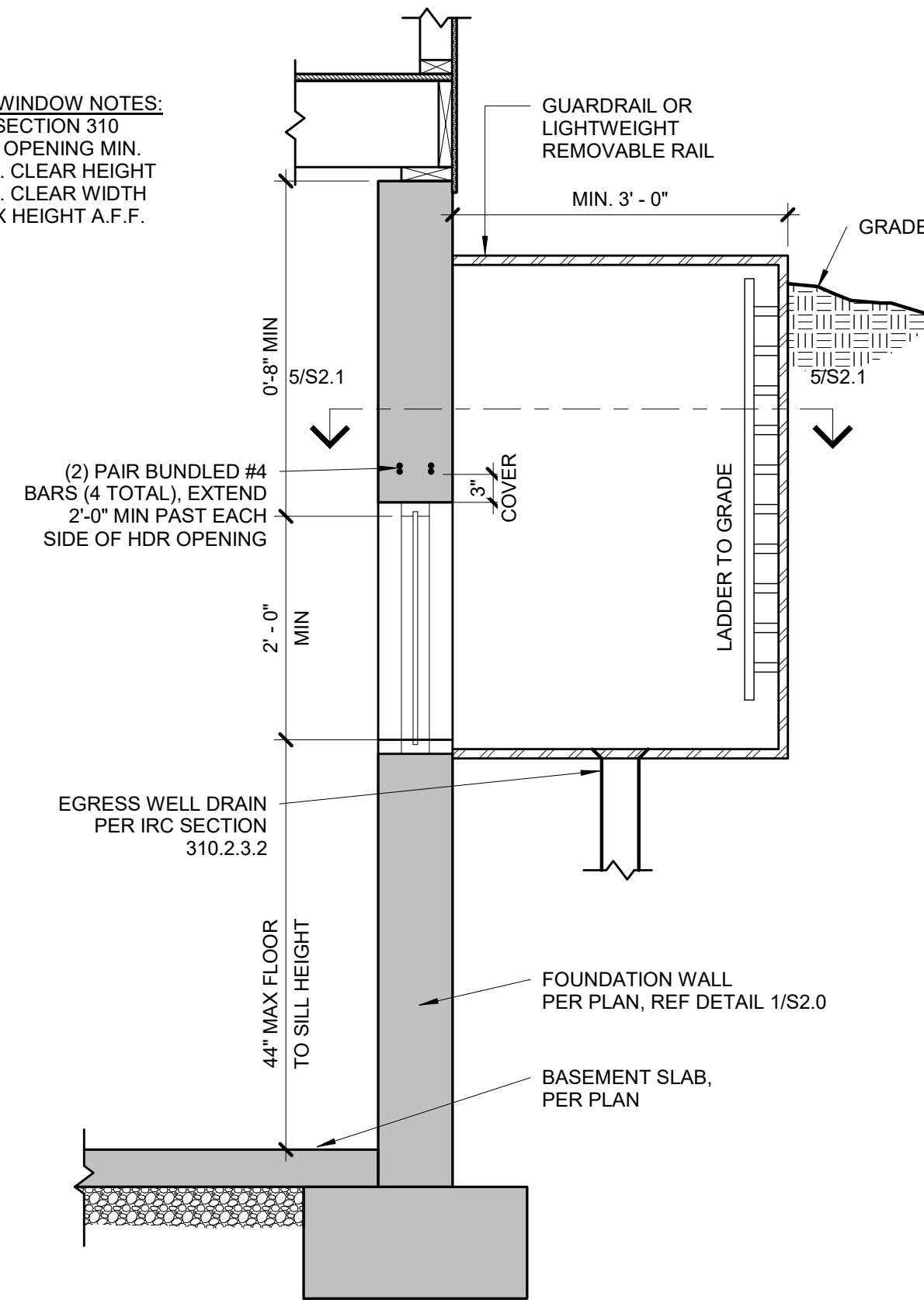


7 SUSPENDED PORCH STOOP DETAIL
S2.1 3/4" = 1'-0"

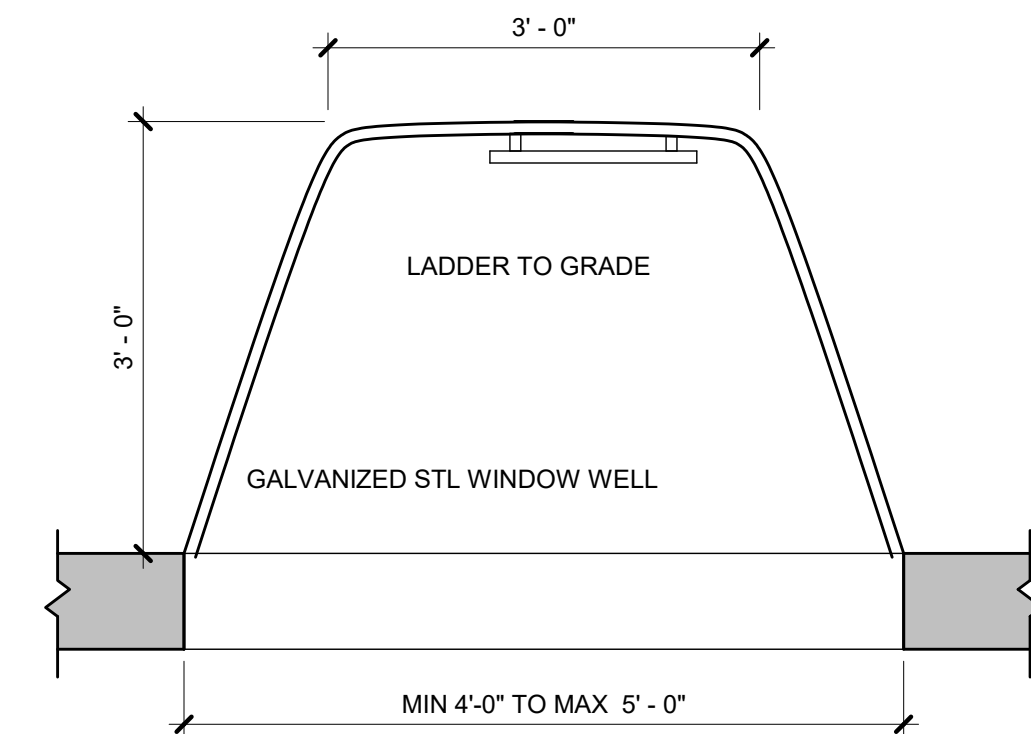


8 POST BASE DETAIL
S2.1 3/4" = 1'-0"

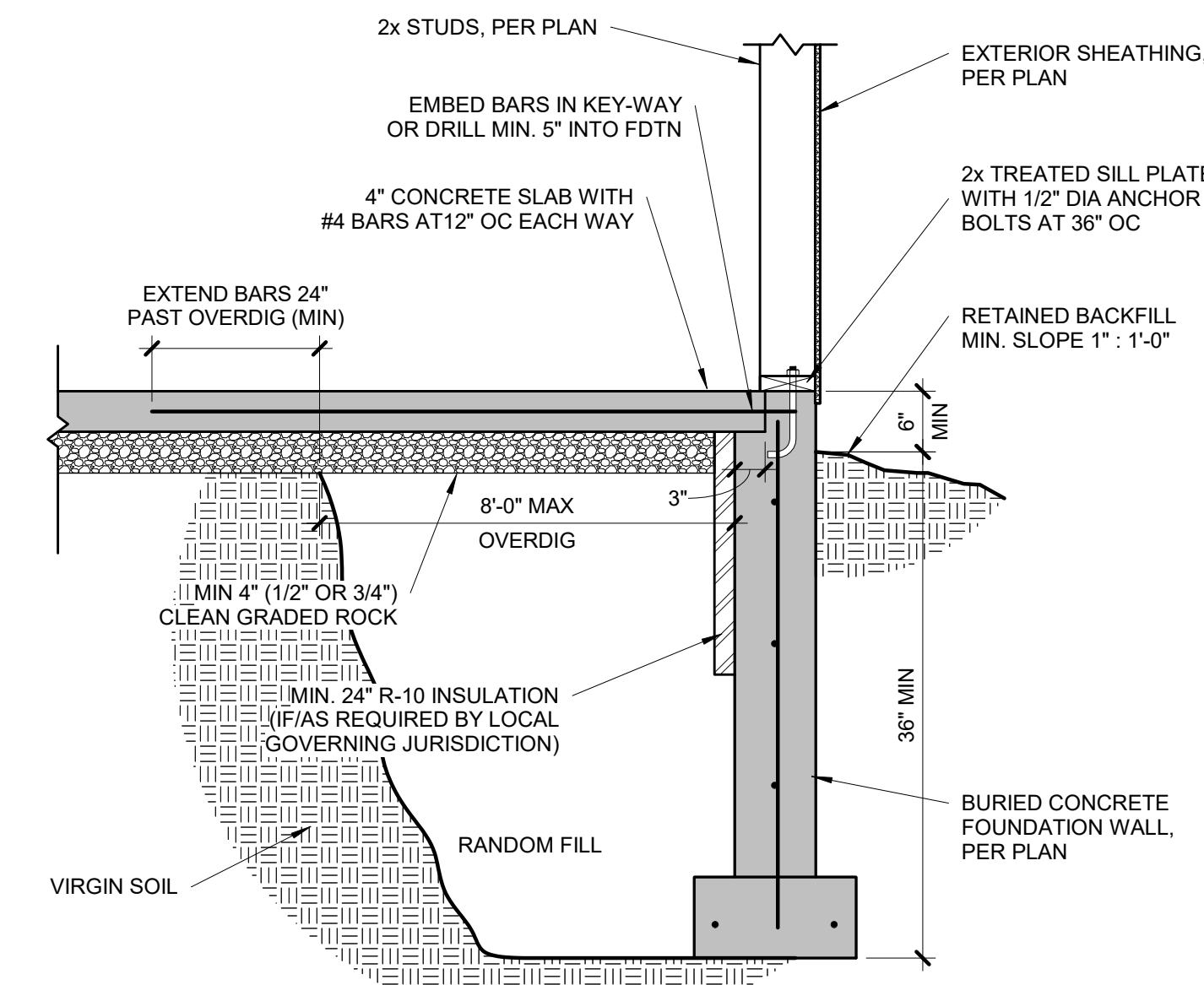
EGRESS WINDOW NOTES:
PER IRC SECTION 310
1. 5.7 S.F. OPENING MIN.
2. 24" MIN. CLEAR HEIGHT
3. 20" MIN. CLEAR WIDTH
4. 44" MAX HEIGHT A.F.F.



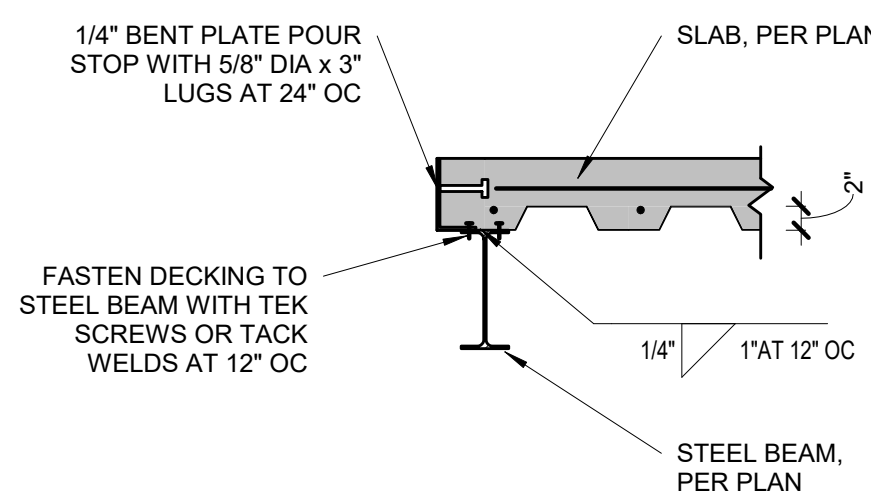
4 TYPICAL EGRESS WINDOW SECTION DETAIL
S2.1 3/4" = 1'-0"



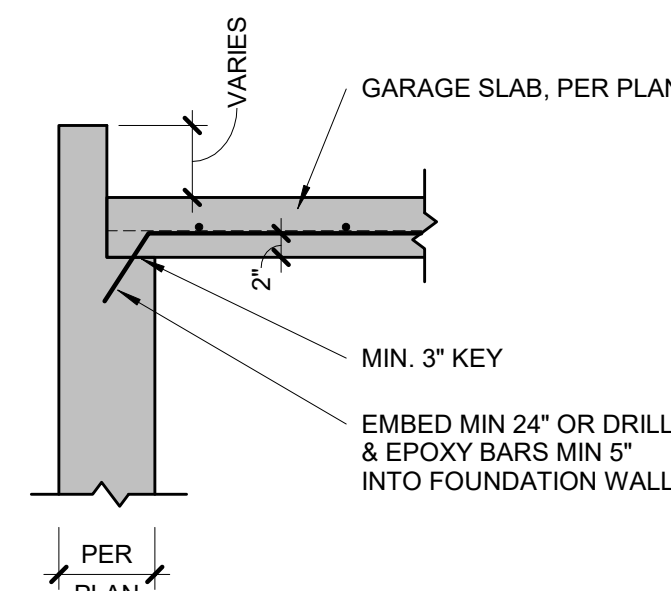
5 TYPICAL EGRESS WINDOW PLAN
S2.1 3/4" = 1'-0"



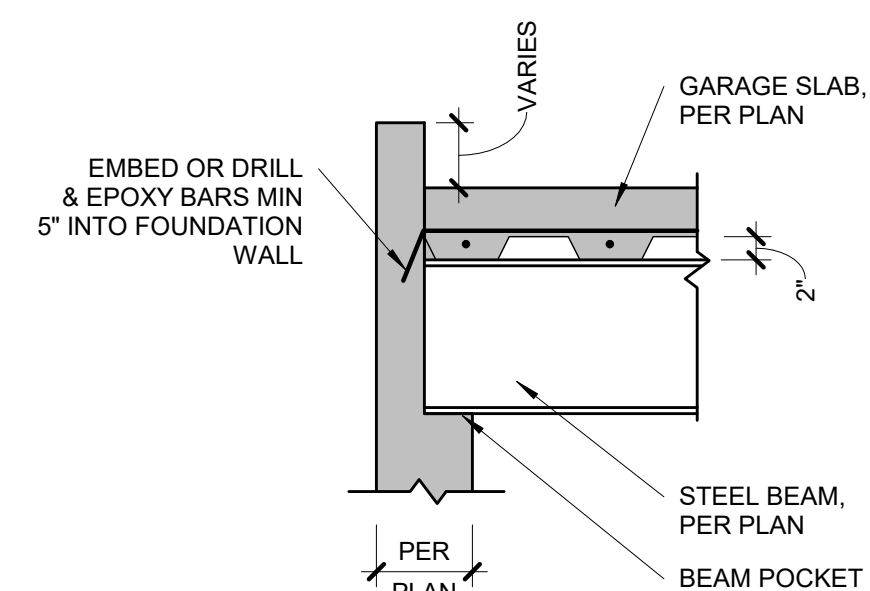
6 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB
S2.1 3/4" = 1'-0"



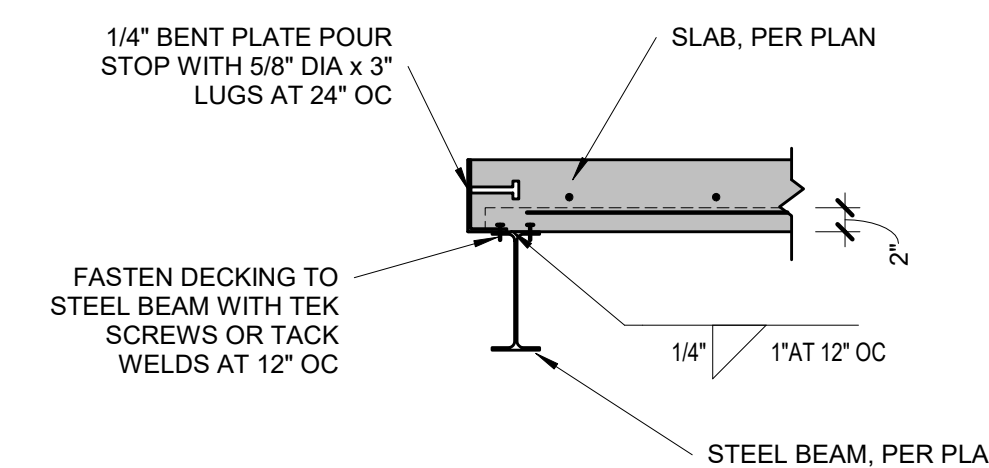
9 POUR STOP DETAIL
S2.1 3/4" = 1'-0"



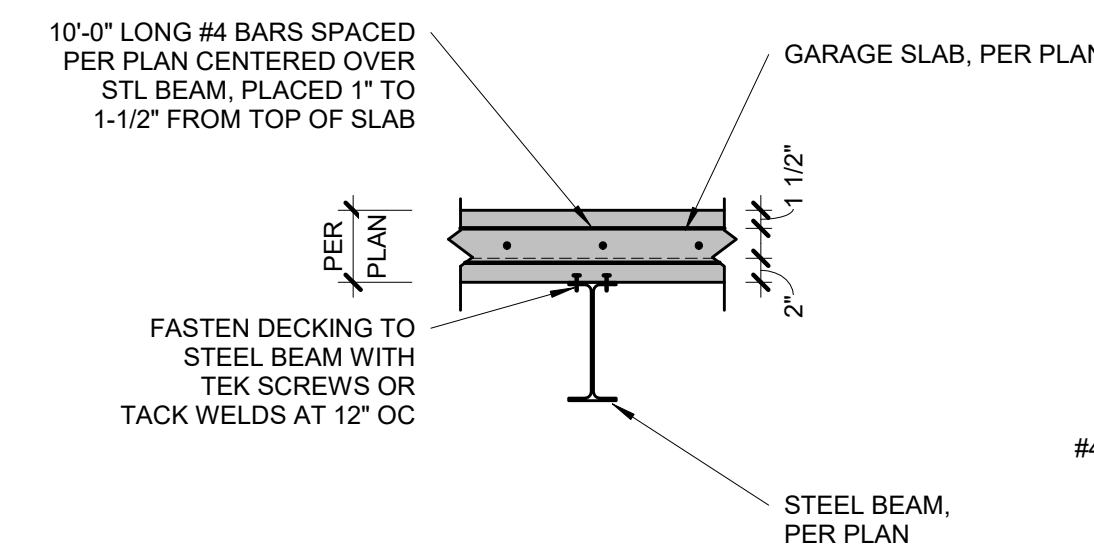
10 GARAGE SLAB BEARING
S2.1 3/4" = 1'-0"



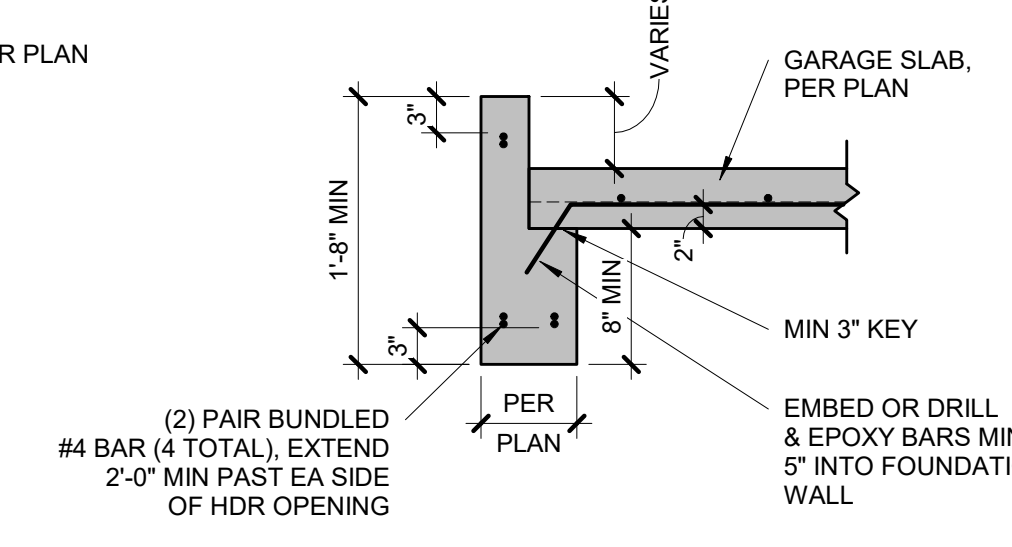
11 GARAGE SLAB BEAM BEARING
S2.1 3/4" = 1'-0"



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



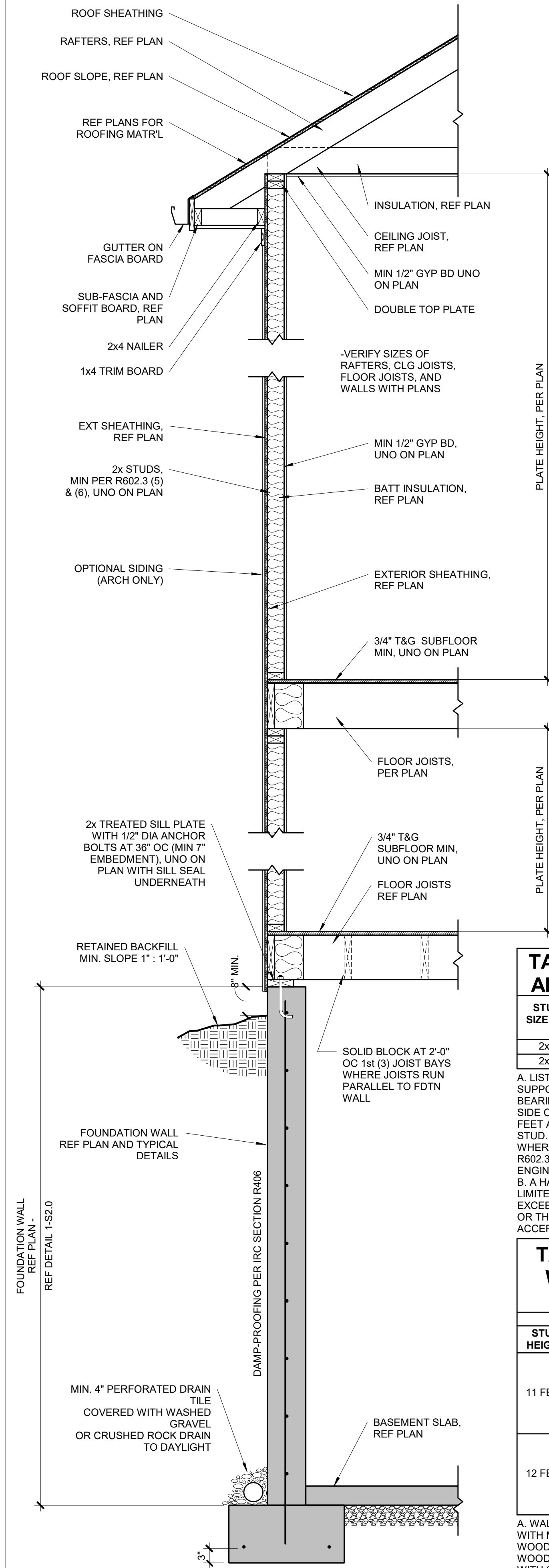
13 GARAGE SLAB BEAM BEARING
S2.1 3/4" = 1'-0"



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

TYPICAL SUSPENDED SLAB DETAIL

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



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

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	

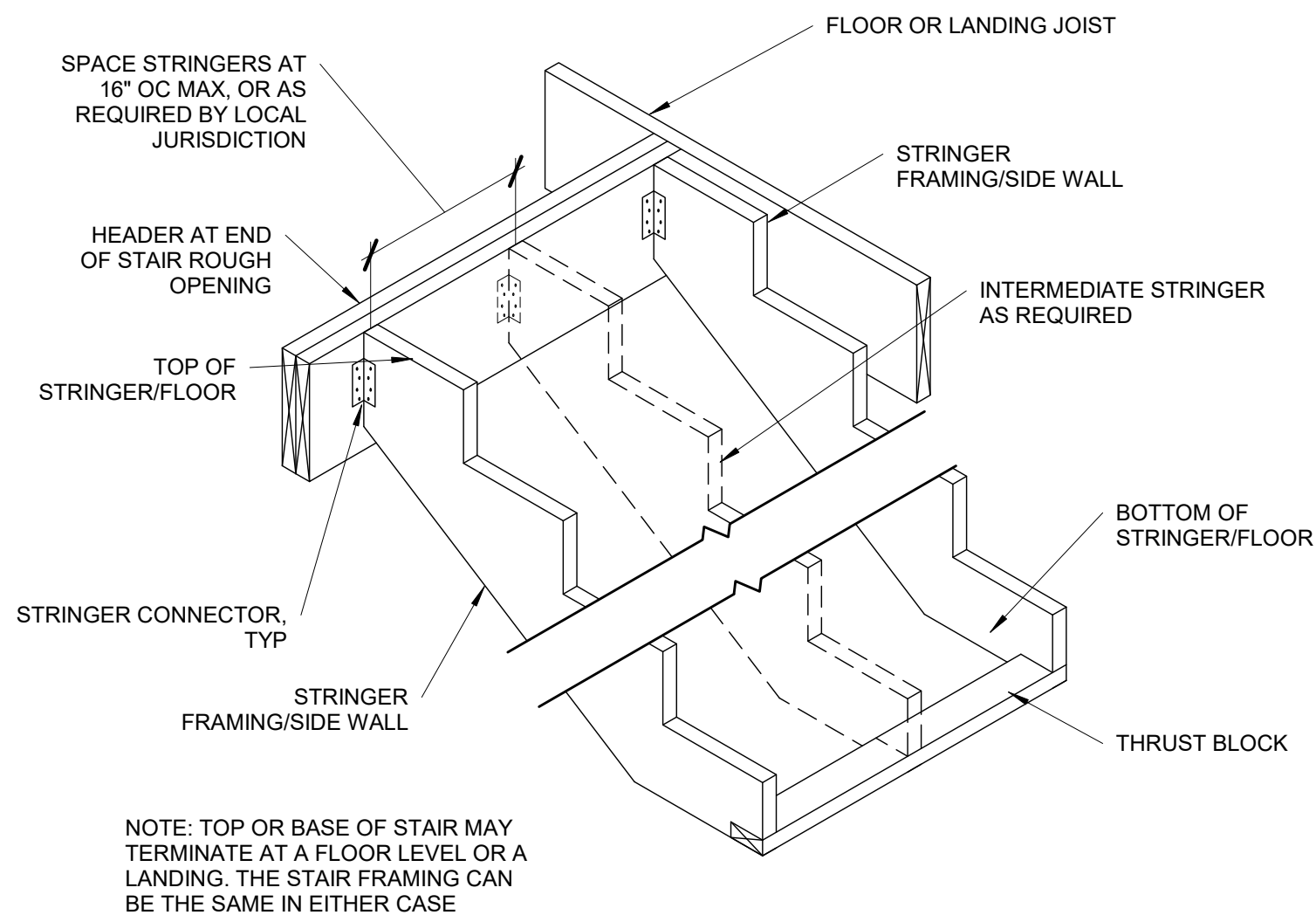
A. LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD. INCREASES IN UNSUPPORTED 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.

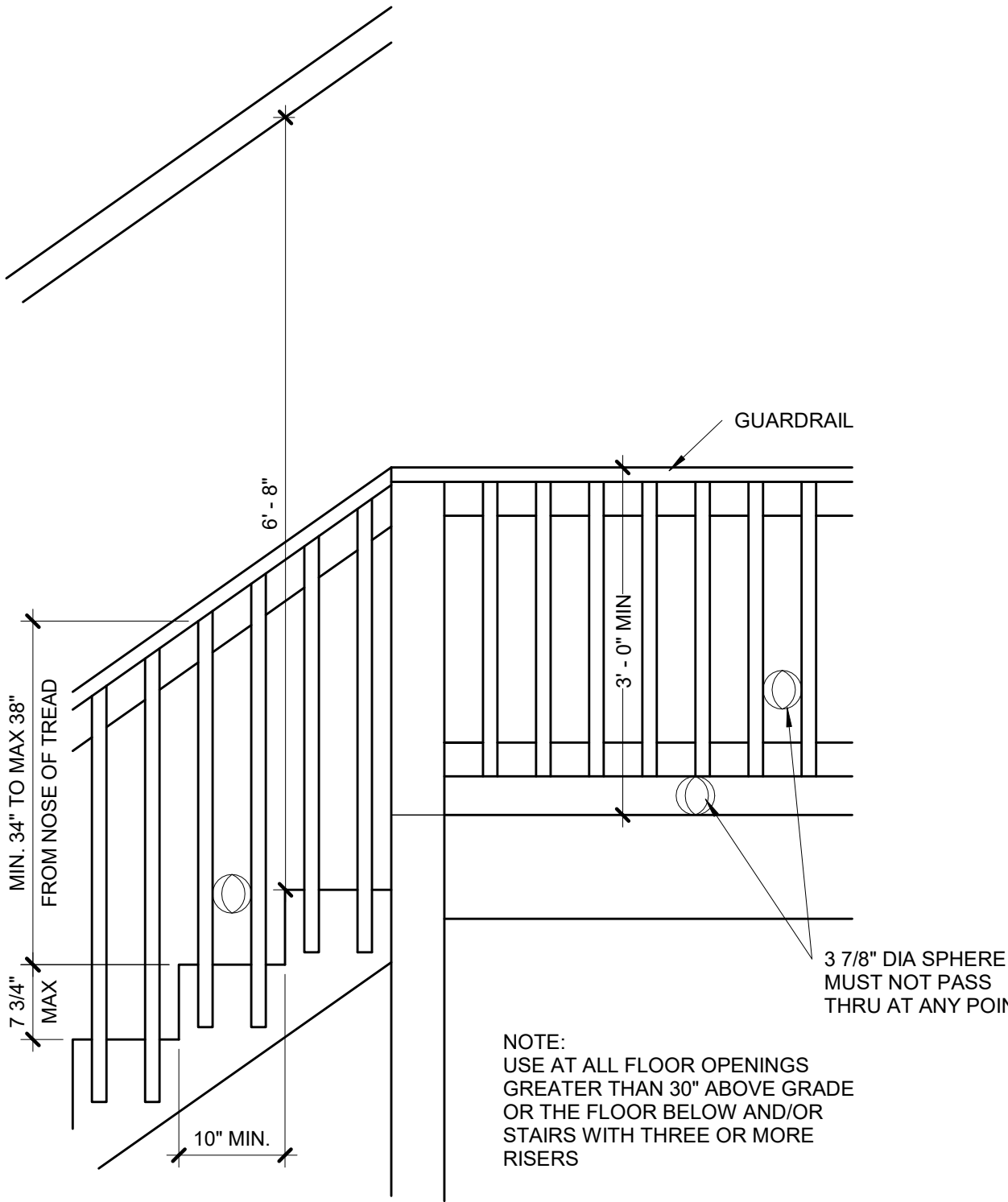
TABLE R602.3 (6) - ALTERNATE WOOD BEARING WALL STUD SIZE, HEIGHT AND SPACING					
ULTIMATE DESIGN WIND SPEED = 115 MPH					
STUD HEIGHT	SUPPORTING	STUD SPACING,	MAX ROOF/FLOOR SPAN,		
			12 FEET	24 FEET	
11 FEET	ROOF ONLY	12 IN	2x4	2x4	
		16 IN	2x4	2x4	
	ROOF AND ONE FLOOR	24 IN	2x6	2x6	
		12 IN	2x4	2x6	
12 FEET	ROOF ONLY	12 IN	2x4	2x4	
		16 IN	2x4	2x6	
	ROOF AND ONE FLOOR	24 IN	2x6	2x6	
		12 IN	2x4	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.

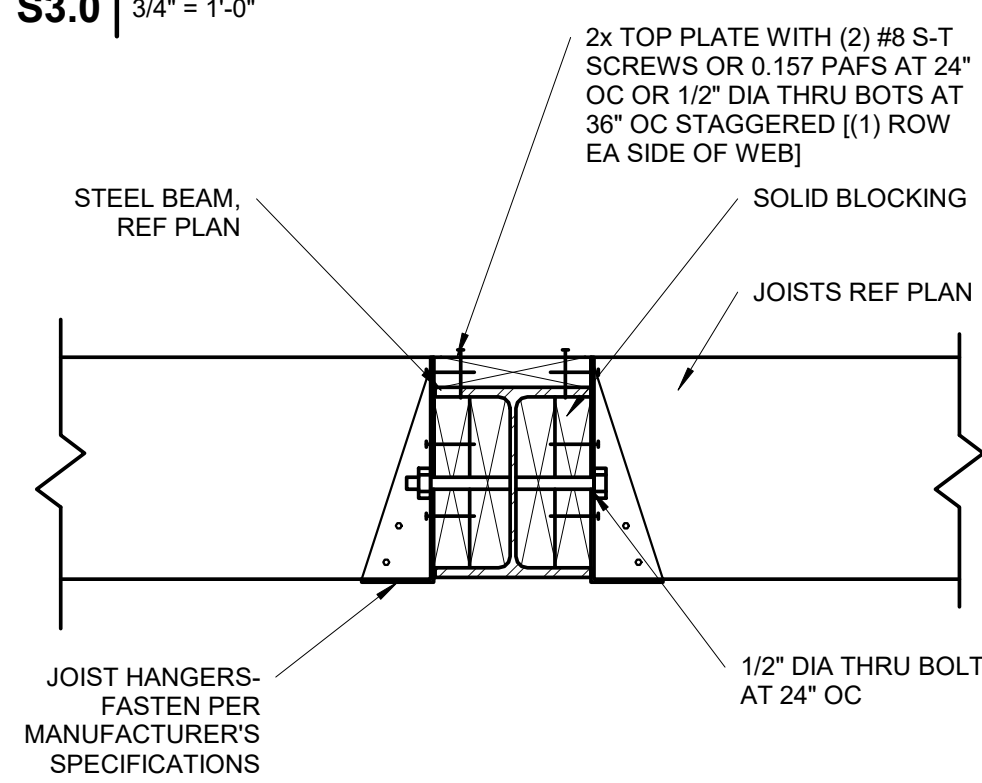
B. THE MAXIMUM SPAN IS APPLICABLE TO BOTH SINGLE AND MULTIPLE SPAN ROOF AND FLOOR CONDITIONS. THE ROOF ASSEMBLY SHALL NOT CONTAIN A HABITABLE ATTIC.



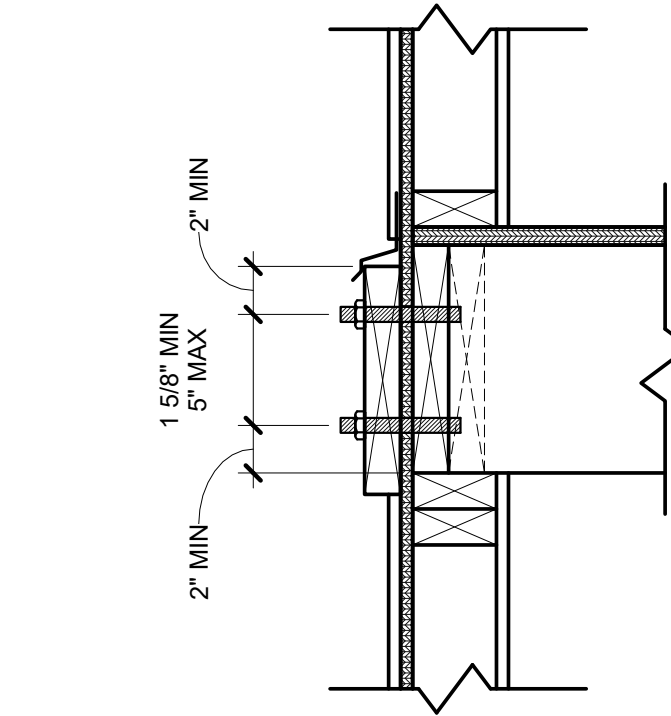
11 | TYPICAL STRINGER DETAIL
S3.0 3/4" = 1'-0"



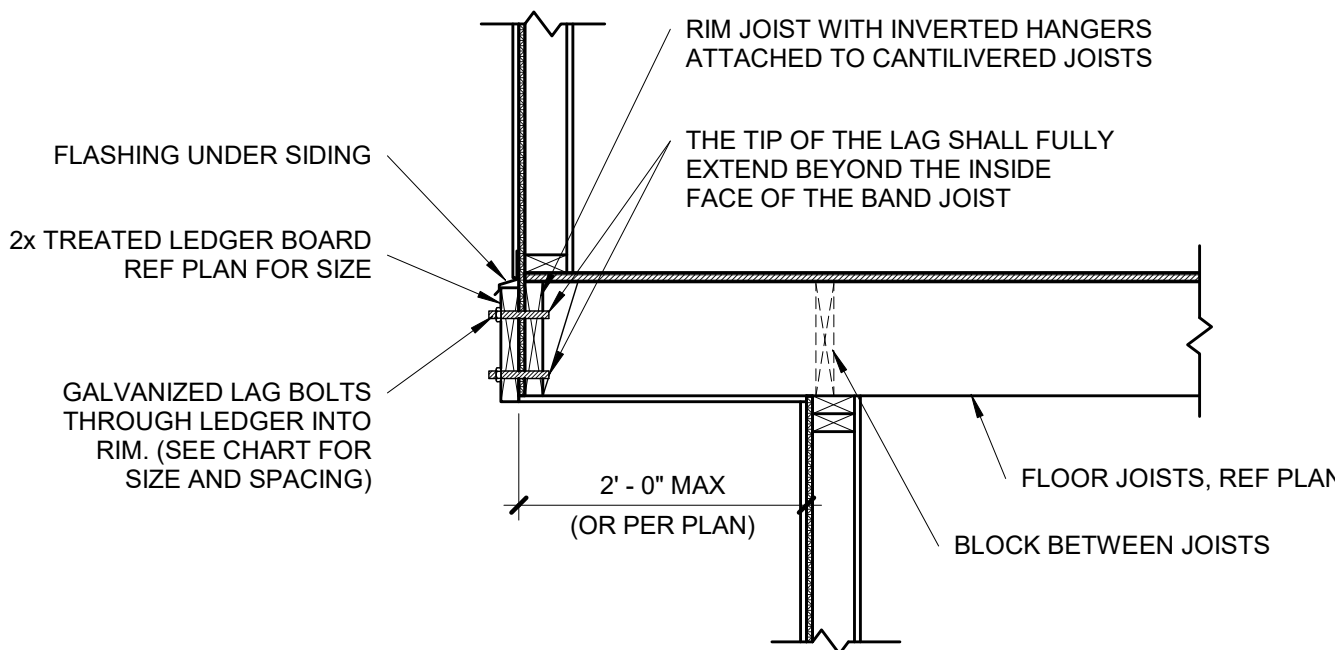
10 | TYPICAL STAIR/RAIL DETAIL
S3.0 3/4" = 1'-0"



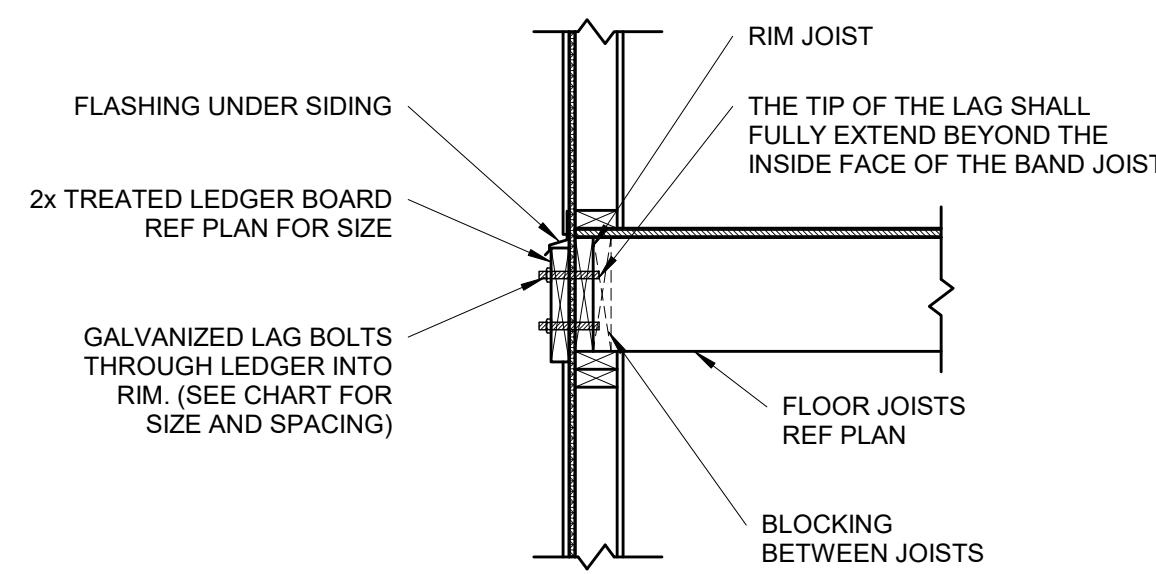
9 | UPSET STEEL BEAM/JOIST CONNECTION
S3.0 1 1/2" = 1'-0"



8 | LEDGER FASTENER PLACEMENT
S3.0 1 1/2" = 1'-0"



7 | TYPICAL CANTILEVER FRAMING WITH DECK ATTACHMENT
S3.0 3/4" = 1'-0"

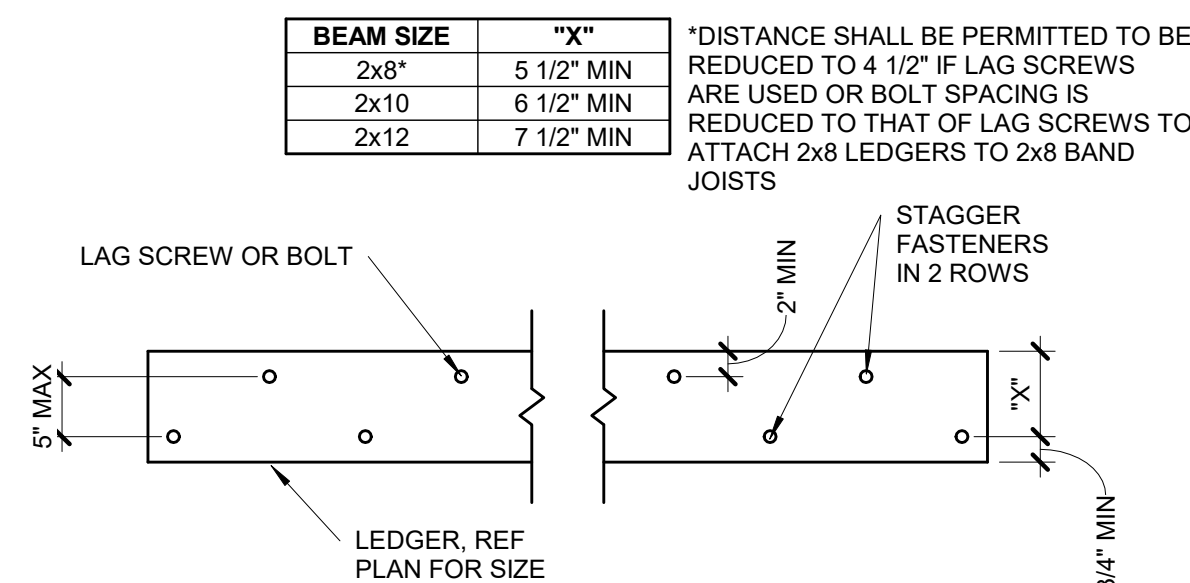


DECK LEDGER ATTACHMENT CHART

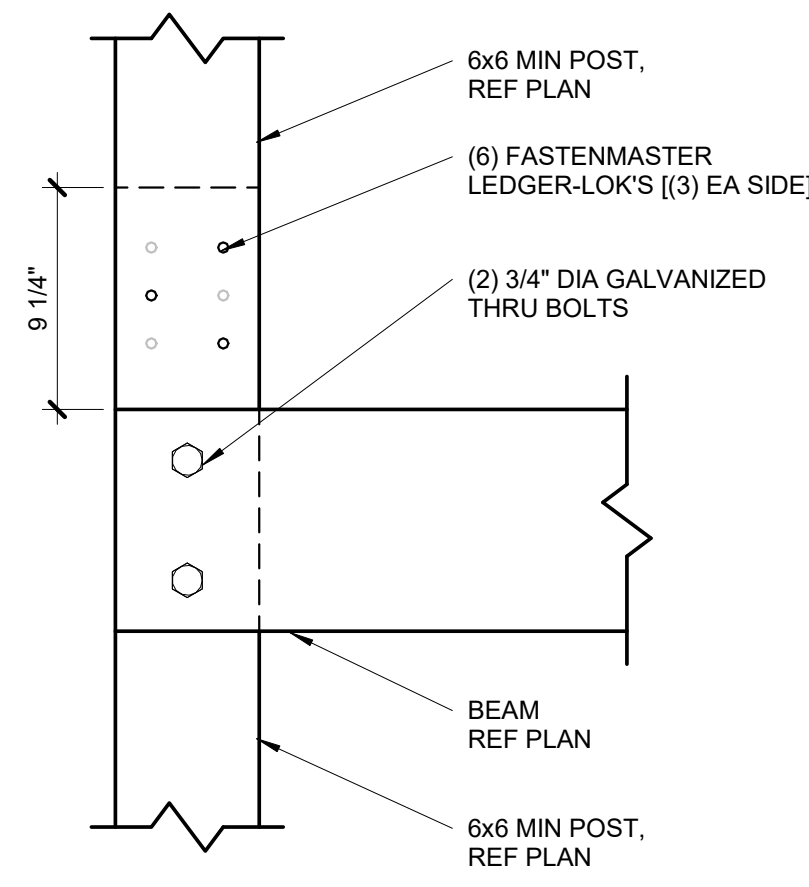
DECK JOIST SPAN	1/2" DIA LAG SPACING	EQUIVALENT SPACING FOR 16" OC JOIST BAYS
UP TO 10'-0"	16" OC	N/A
10'-1" TO 12'-0"	15" OC	16" OC DBL EVERY OTHER
12'-1" TO 14'-0"	13" OC	16" OC DBL EVERY OTHER
14'-1" TO 16'-0"	11" OC	16" OC DBL EVERY JOIST BAY
16'-1" TO 18'-0"	10" OC	16" OC DBL EVERY JOIST BAY

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

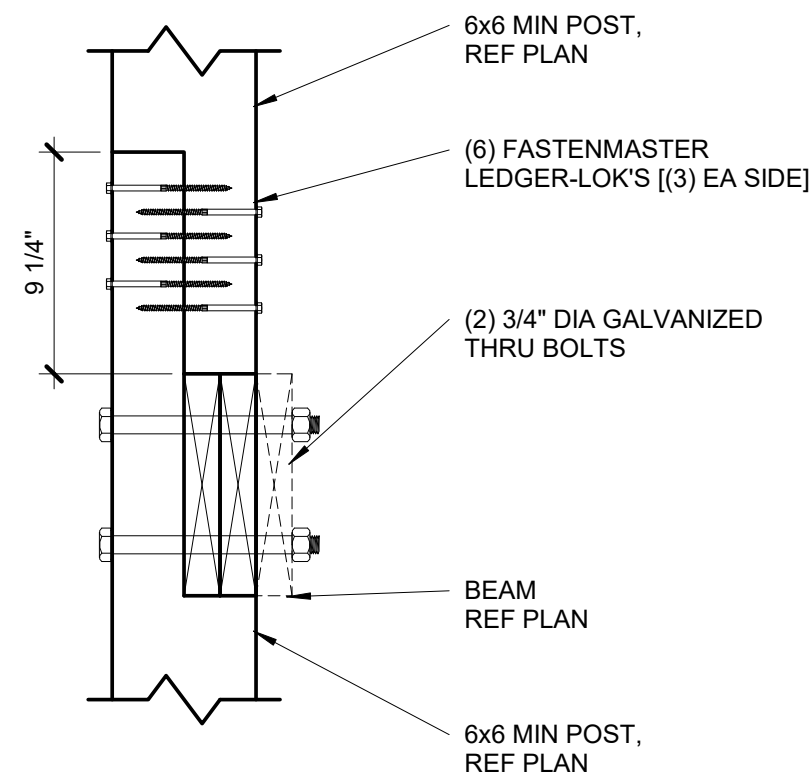
6 | TYPICAL LEDGER ATTACHMENT
S3.0 3/4" = 1'-0"



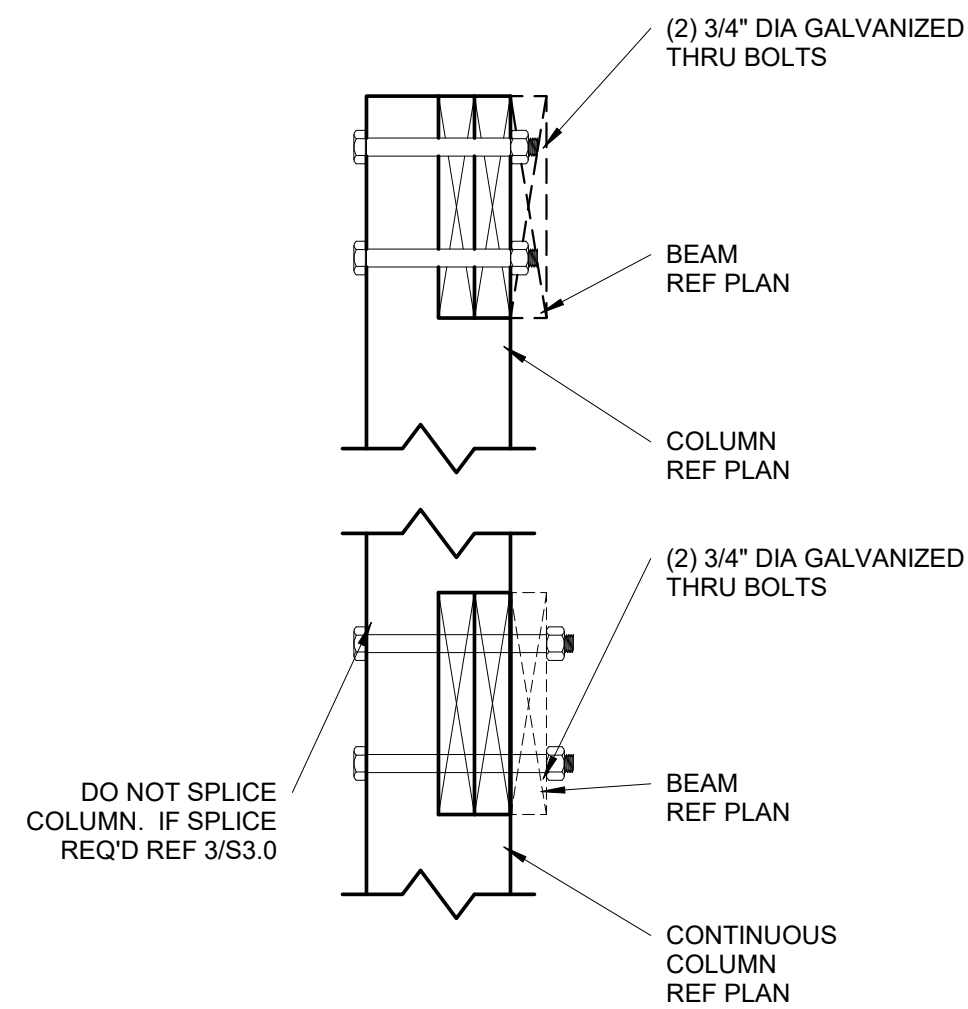
5 | TYPICAL LEDGER BOLT SPACING
S3.0 3/4" = 1'-0"



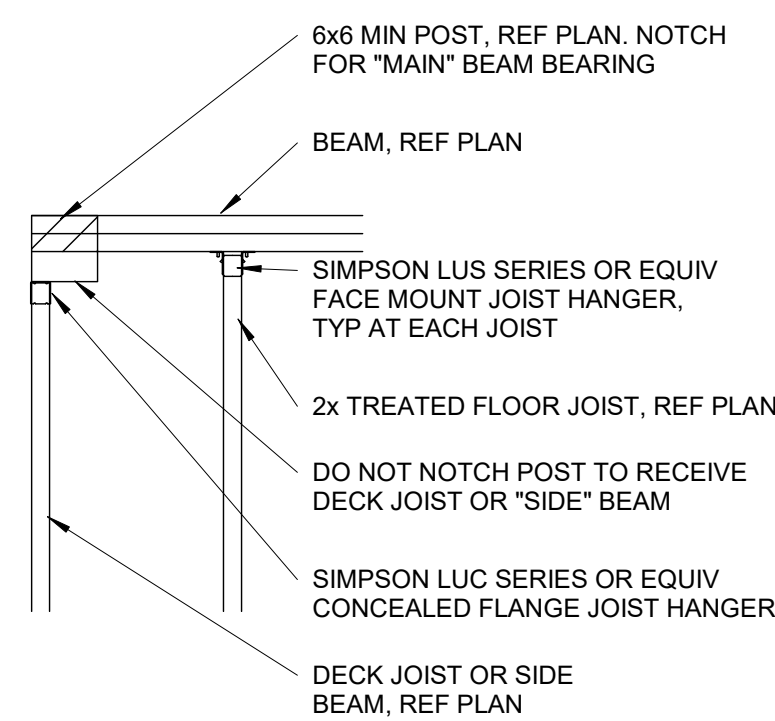
4 | SPLICED DECK COLUMN CONNECTION
S3.0 1 1/2" = 1'-0"



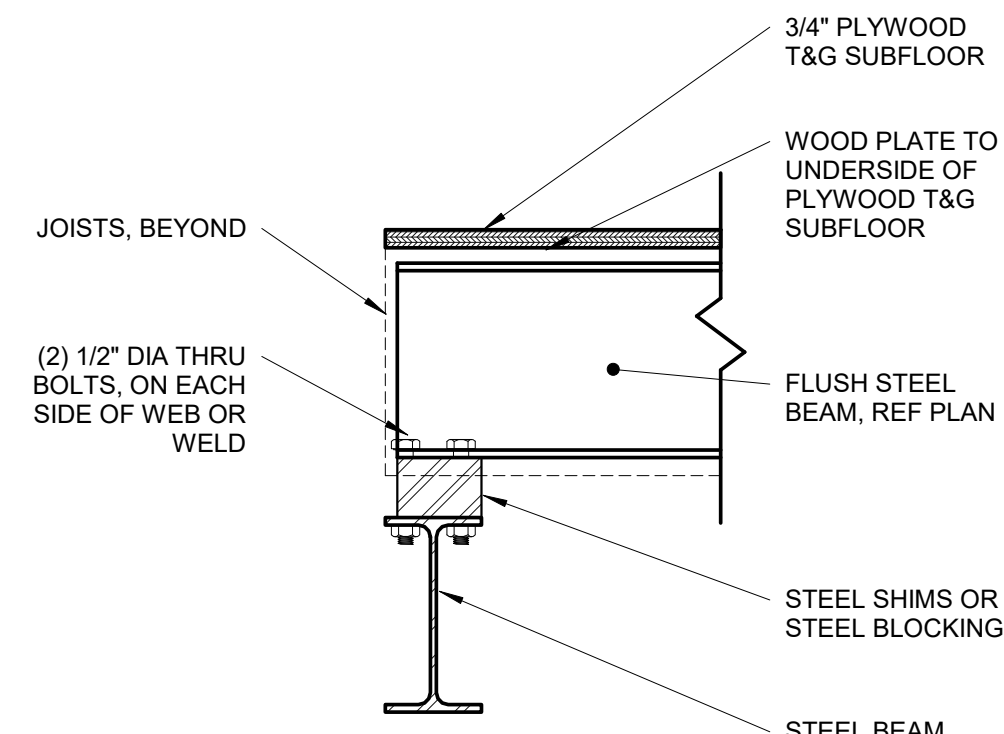
3 | SPLICED DECK COLUMN CONNECTION
S3.0 1 1/2" = 1'-0"



2 | DECK BEAM/COLUMN CONNECTION
S3.0 1 1/2" = 1'-0"

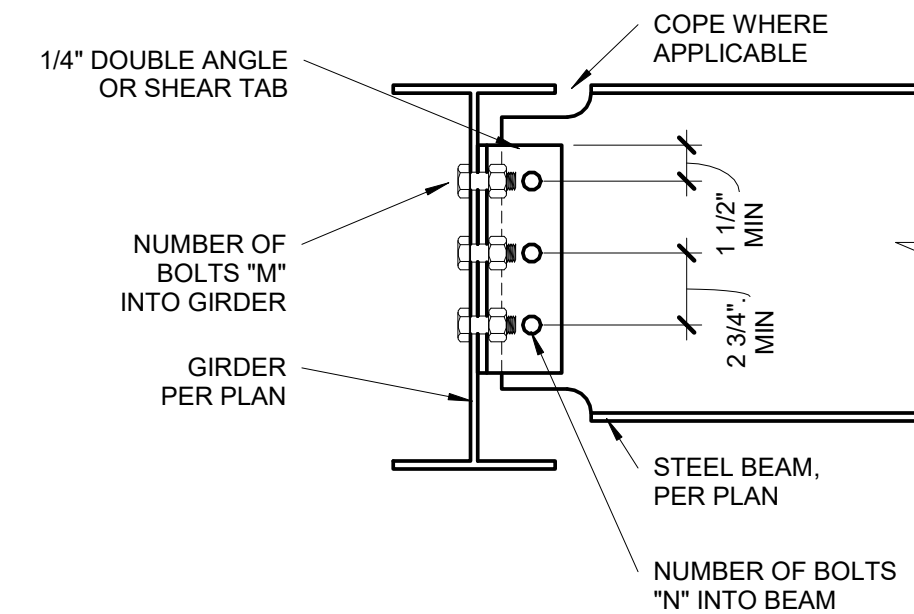


1 | DECK BEAM/COLUMN CORNER CONDITION
S3.0 3/4" = 1'-0"



4 FLUSH STEEL BEAM TO STEEL BEAM

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



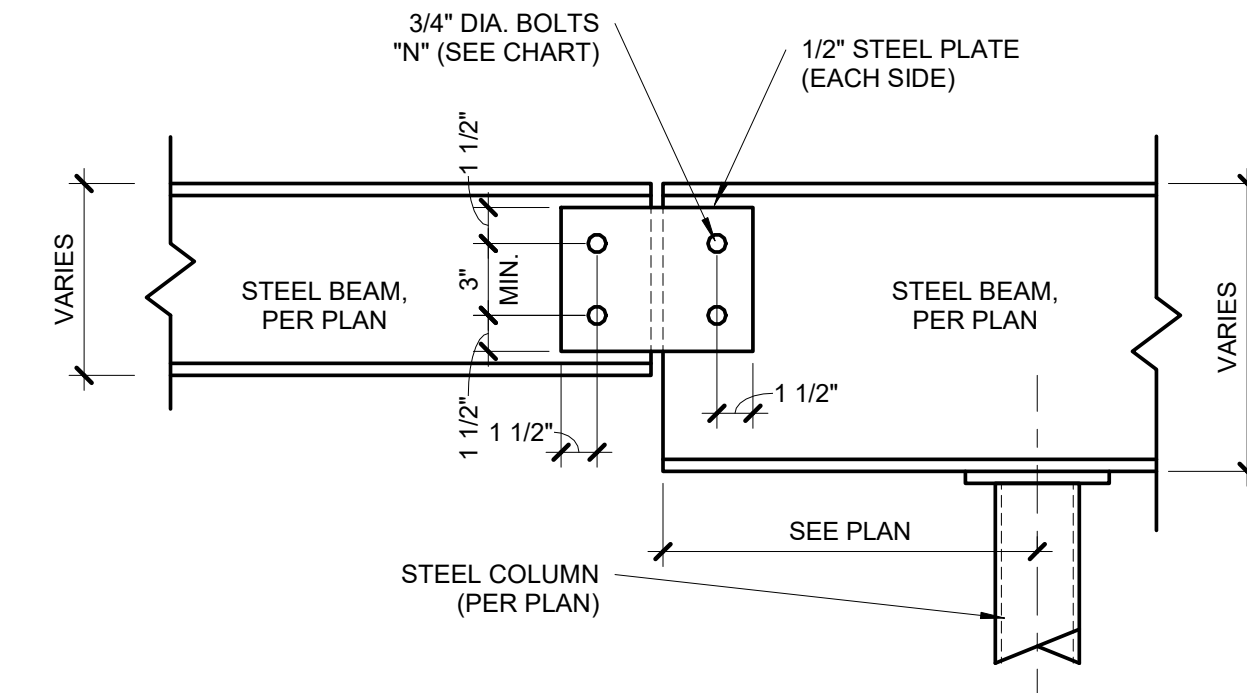
3 BEAM TO GIRDER CONNECTION

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

BEAM CONNECTION SCHEDULE

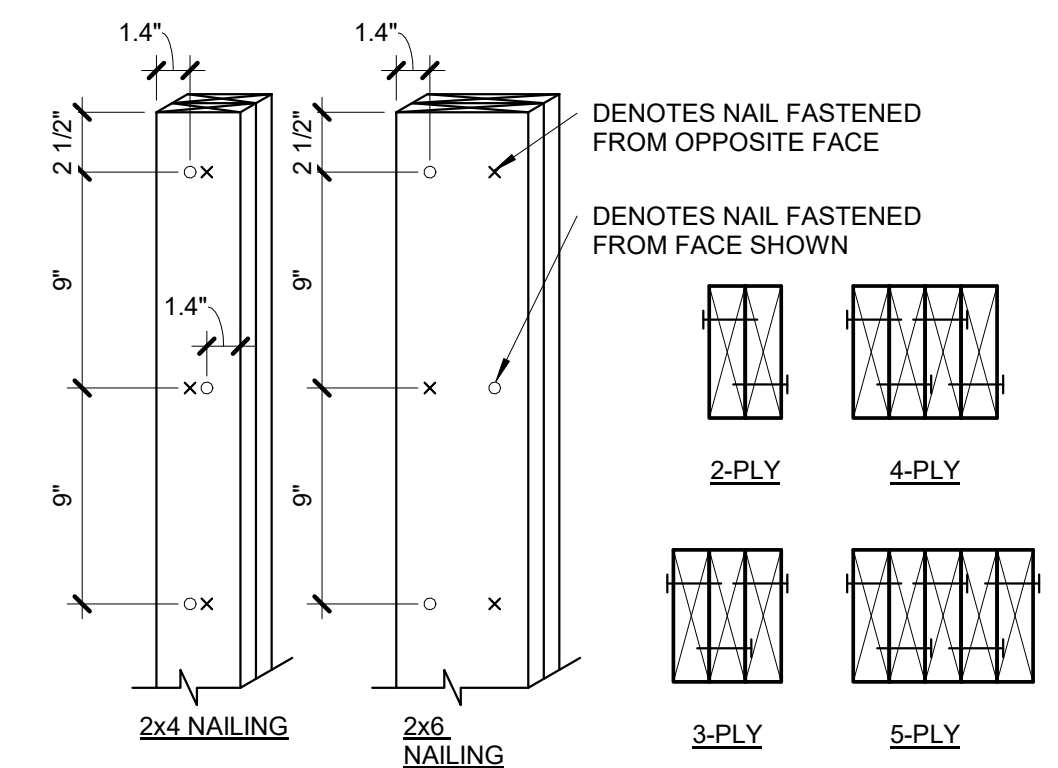
BEAM SIZE	# OF BOLTS "N"	# OF BOLTS "M"
W8, W10	2	4
W12, W14	3	6
W16, W18	4	8

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

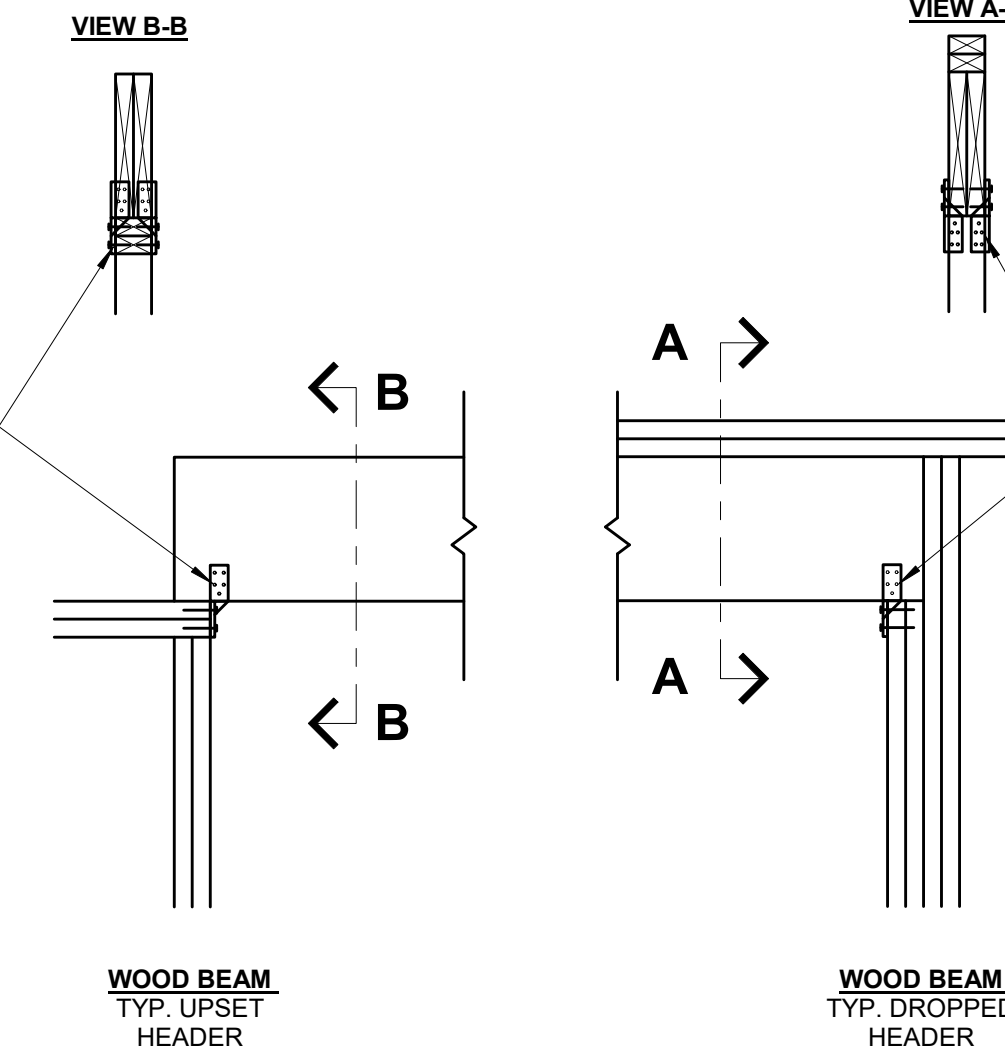
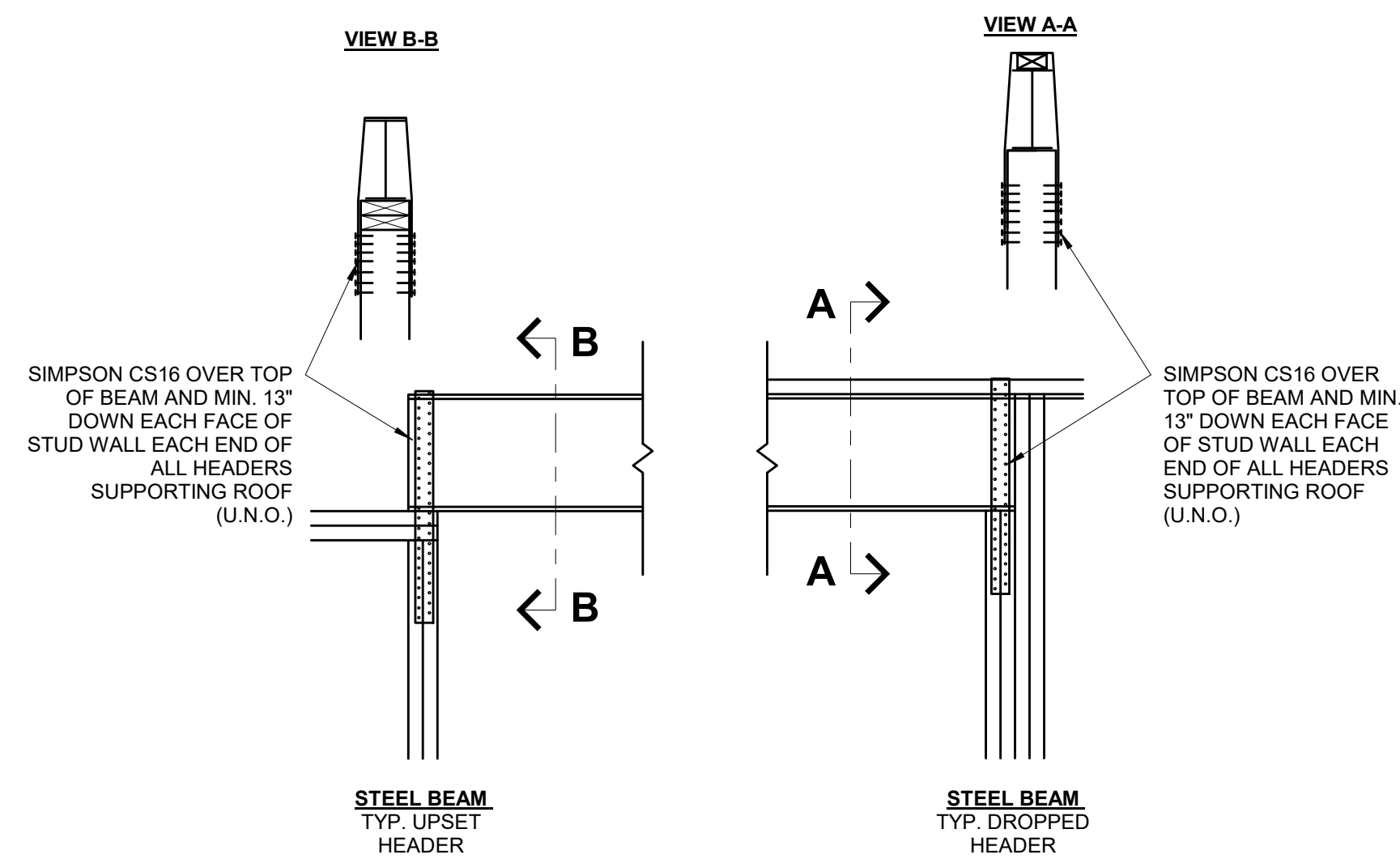
S3.1 1 1/2" = 1'-0"



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.

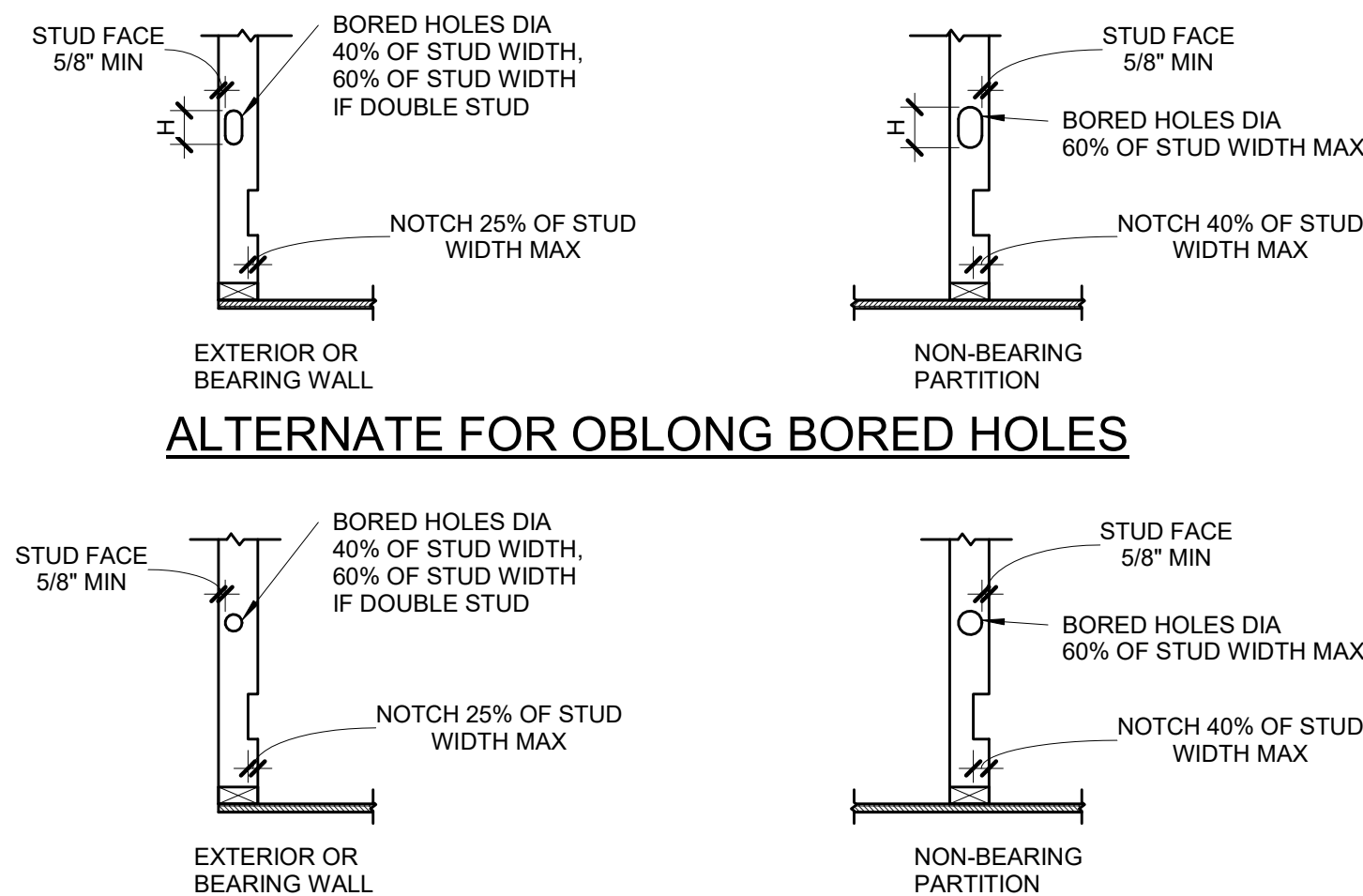
1 BUILT-UP STUD COLUMN

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



6 ROOF SUPPORTING BEAM HOLD DOWN

S3.1 3/4" = 1'-0" (COMPLIANCE WITH IRC R802.11)



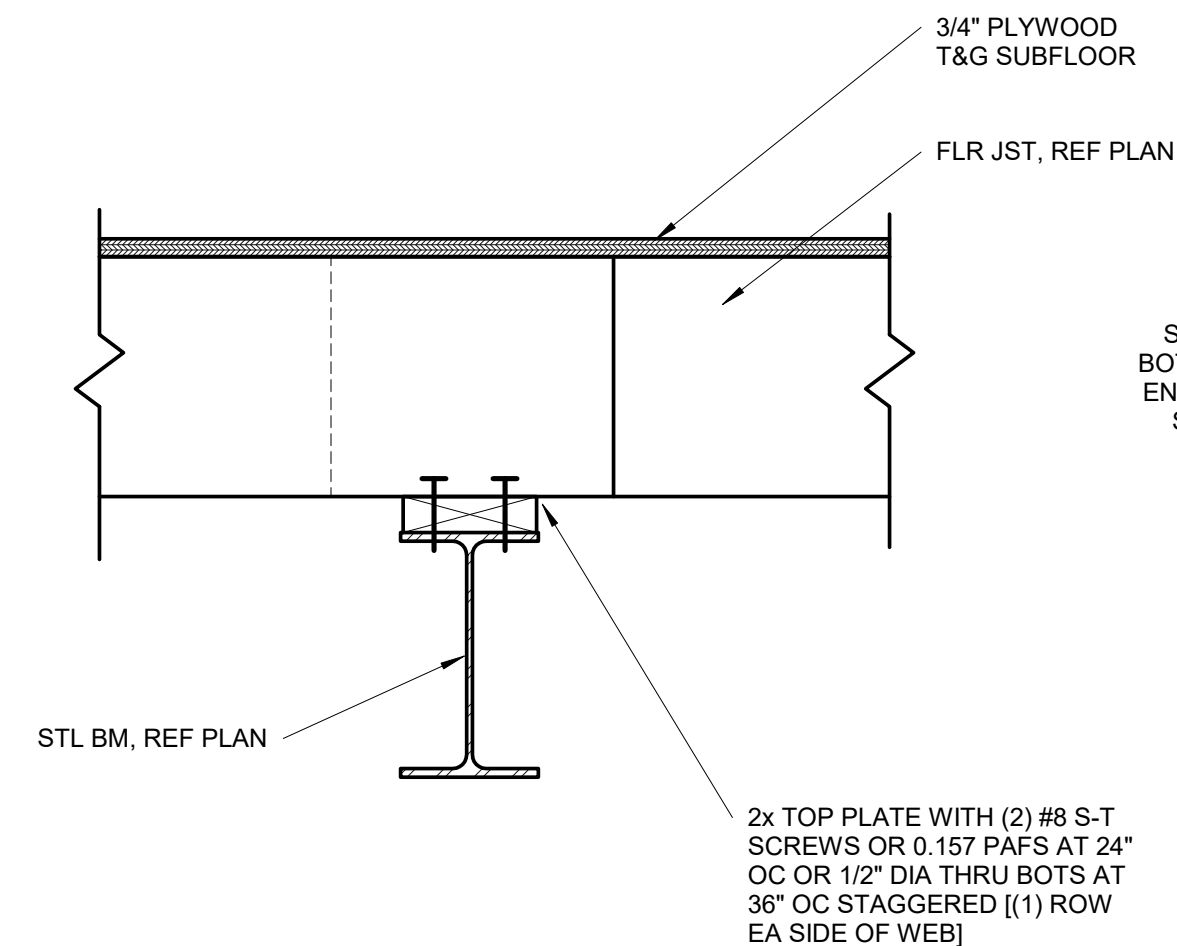
WALL SIZE	BORED HOLE SIZE			WALL NOTCH	
	STUDS LOAD BEARING OR EXTERIOR WALL	NON LOAD BEARING WALL	LOAD BEARING WALL	NON LOAD BEARING WALL	
2x4	1 3/8"	2 1/8"	7/8"	1 3/8"	
(2) 2x4	-	2 1/8"	7/8"	1 3/8"	
2x6	2 1/4"	-	1 3/8"	2 1/4"	
(2) 2x6	-	3 5/16"	1 3/8"	2 1/4"	
2x8	2 7/8"	-	1 13/16"	2 7/8"	
(2) 2x8	-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

PLATES:
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).

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

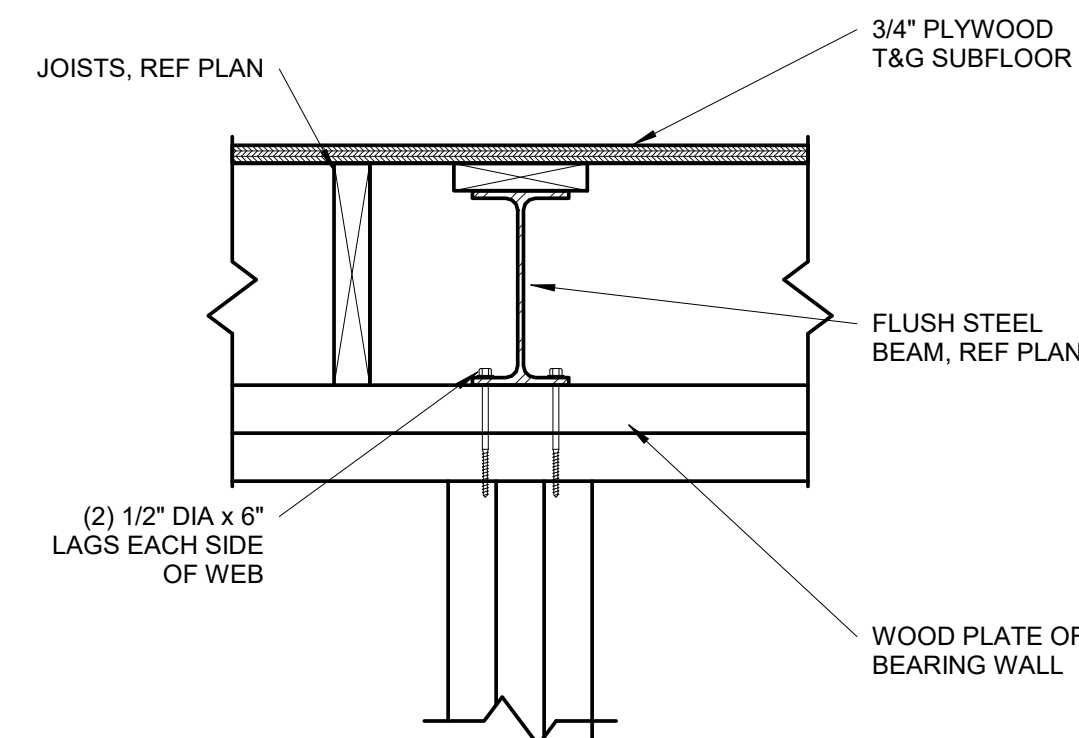
5 DRILLING & NOTCHING DETAIL

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



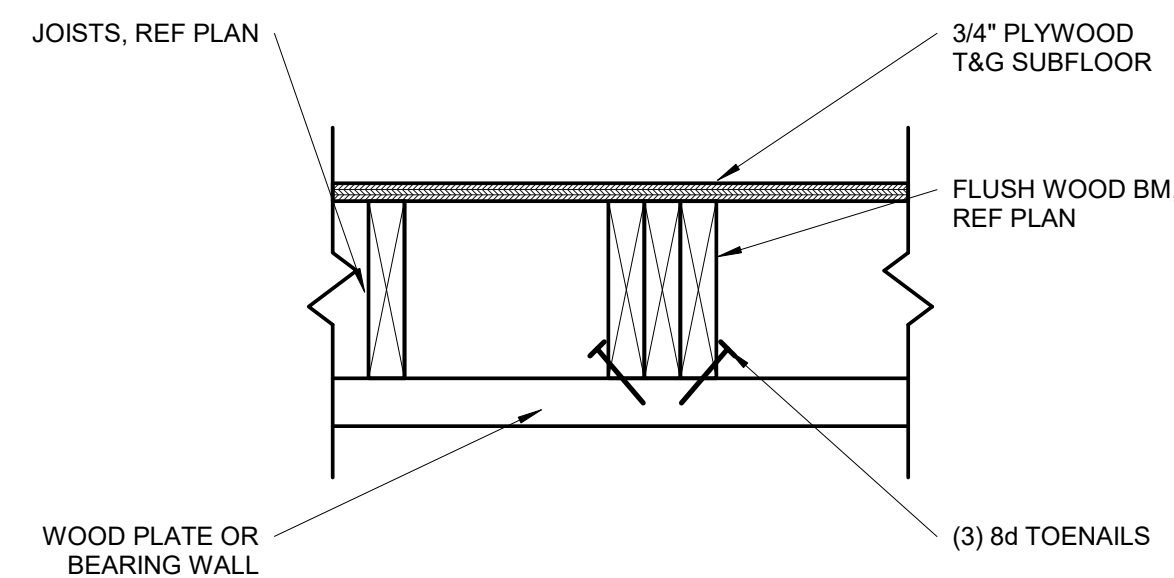
9 WOOD PLATE TO STEEL BEAM CONNECTION

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



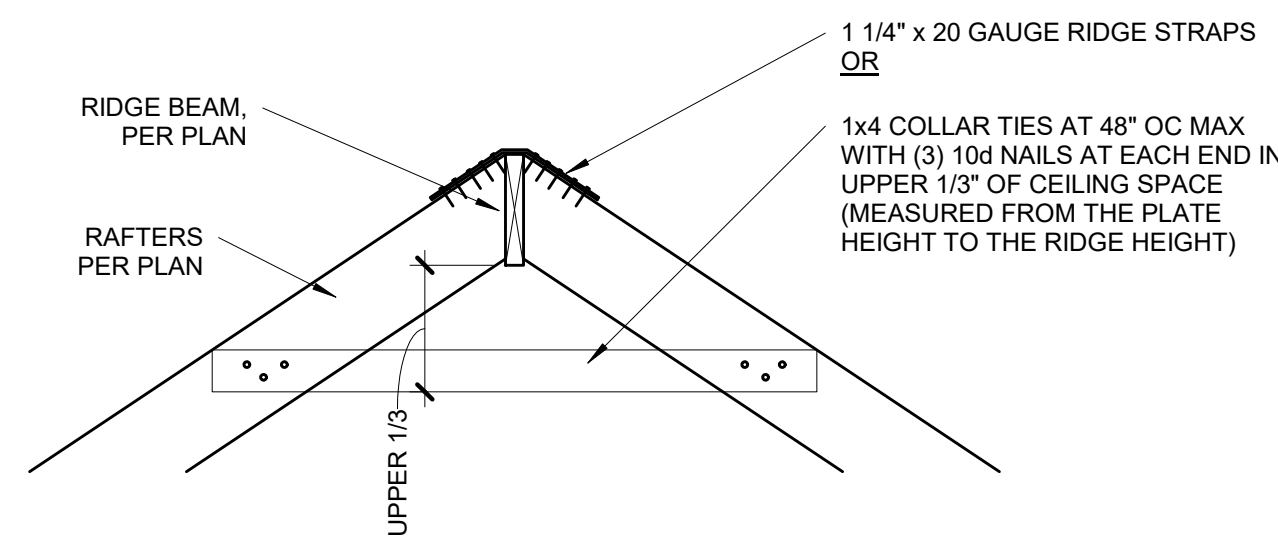
8 FLUSH STEEL BEAM CONNECTION

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



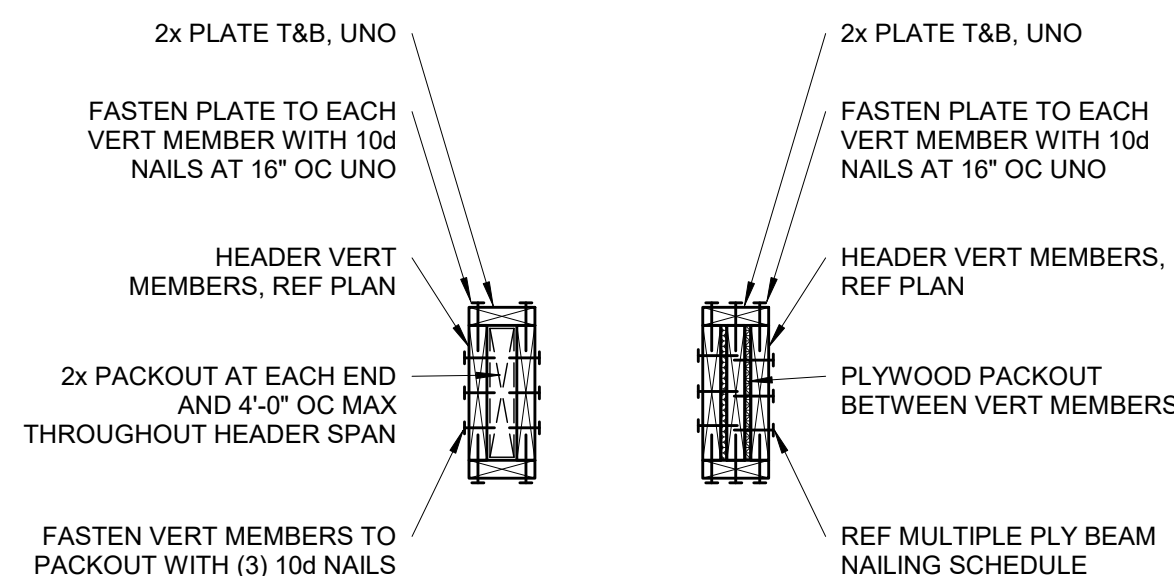
7 FLUSH WOOD BEAM CONNECTION

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



12 RIDGE BEAM DETAIL

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



HEADERS WITH GREATER THAN 1" GAP BETWEEN VERT MEMBERS

HEADERS WITH 1" AND LESS GAP BETWEEN VERT MEMBERS

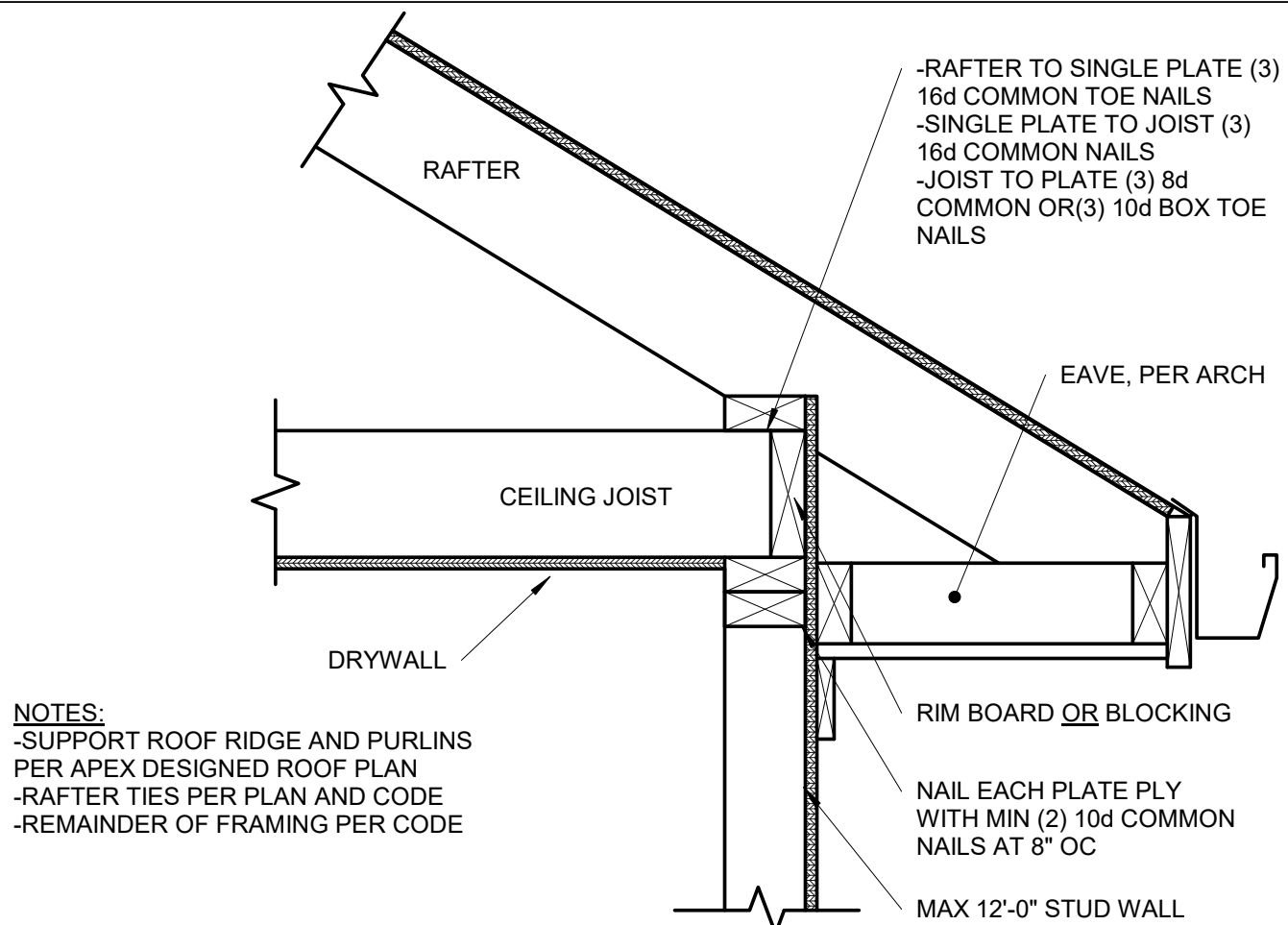
11 TYPICAL WOOD HEADER DETAIL

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.		

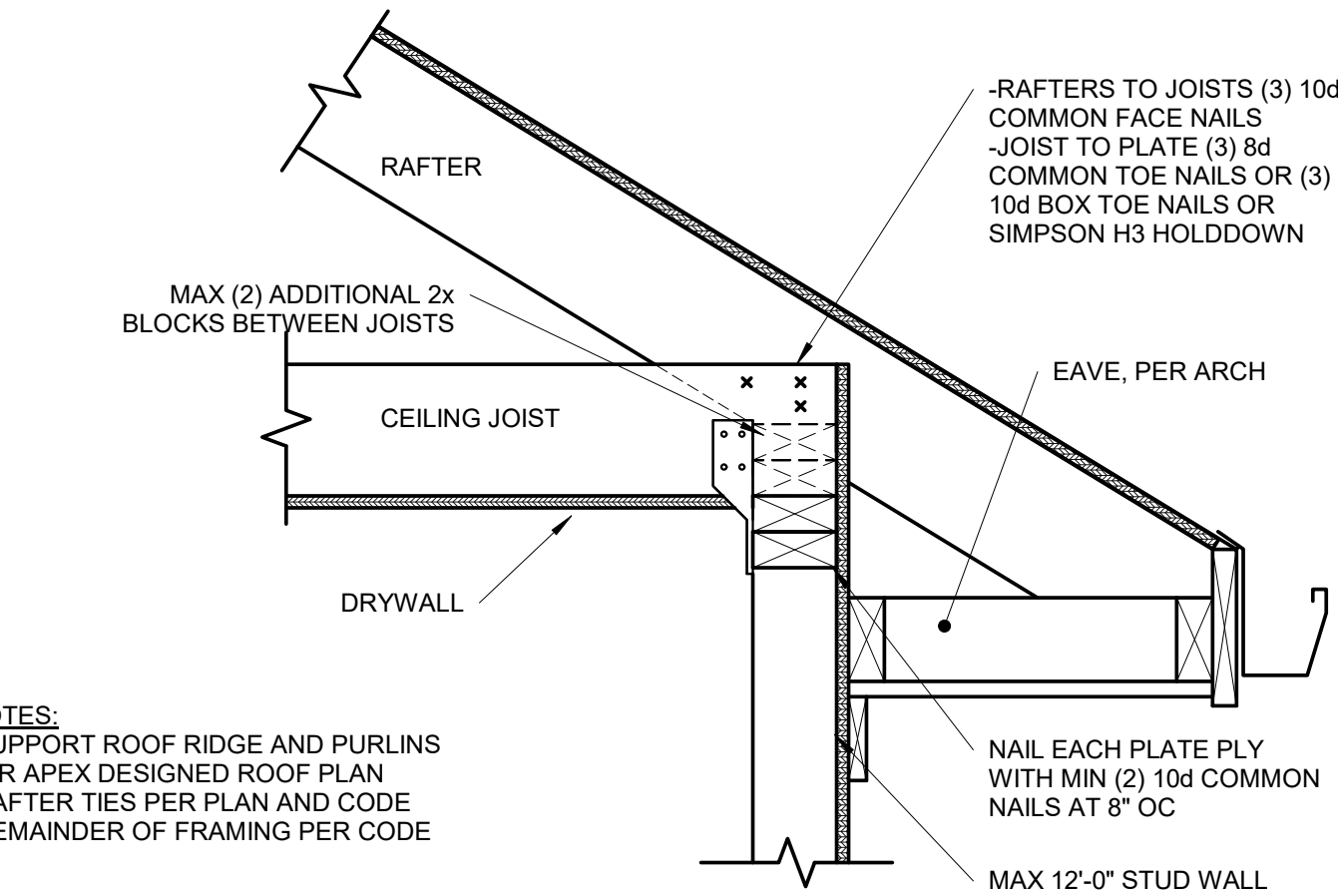
10 MULTIPLE PLY BEAM NAILING SCHEDULE

S3.1 NOT TO SCALE



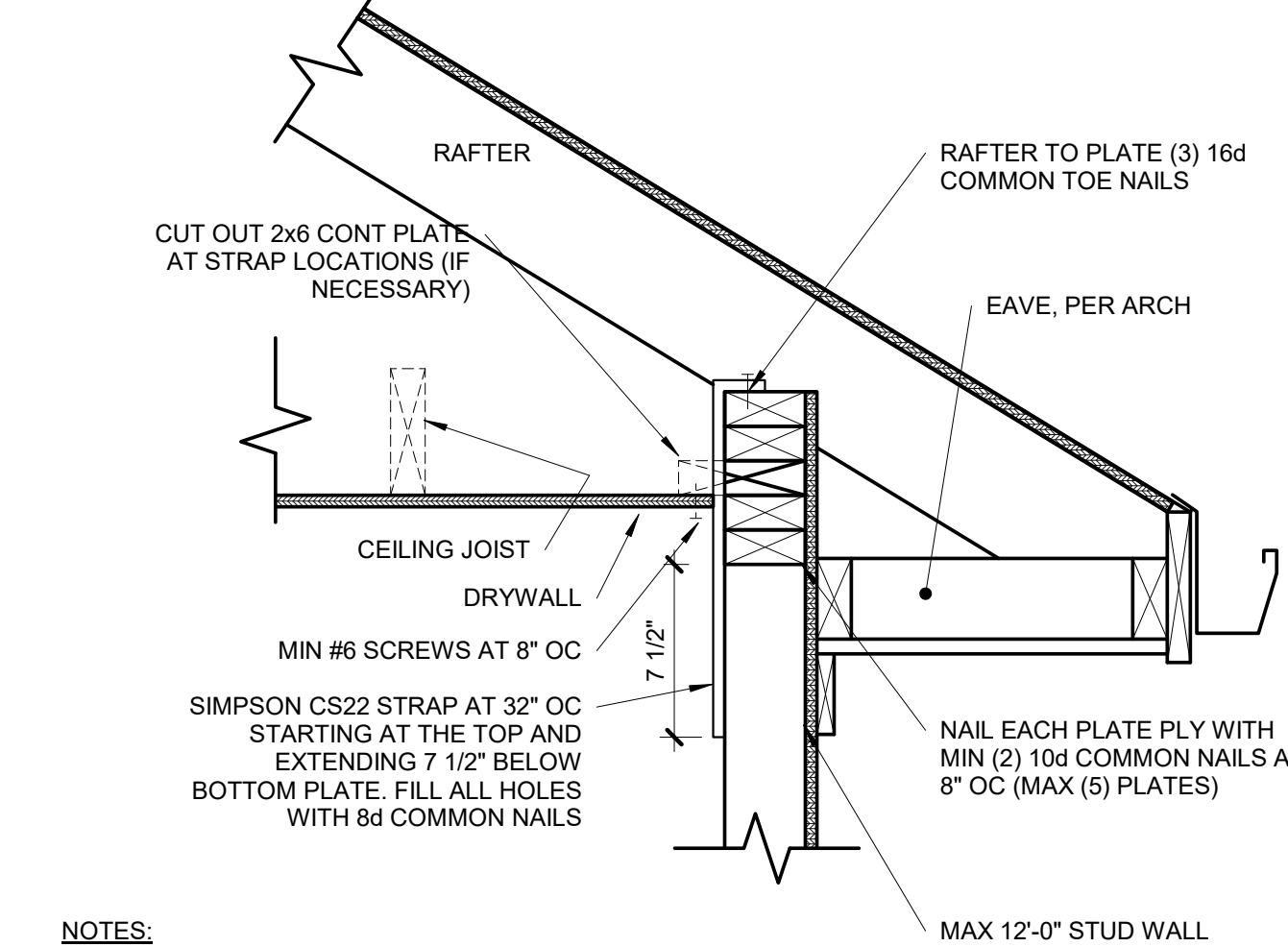
9 | OPTIONAL RAFTER BEARING

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



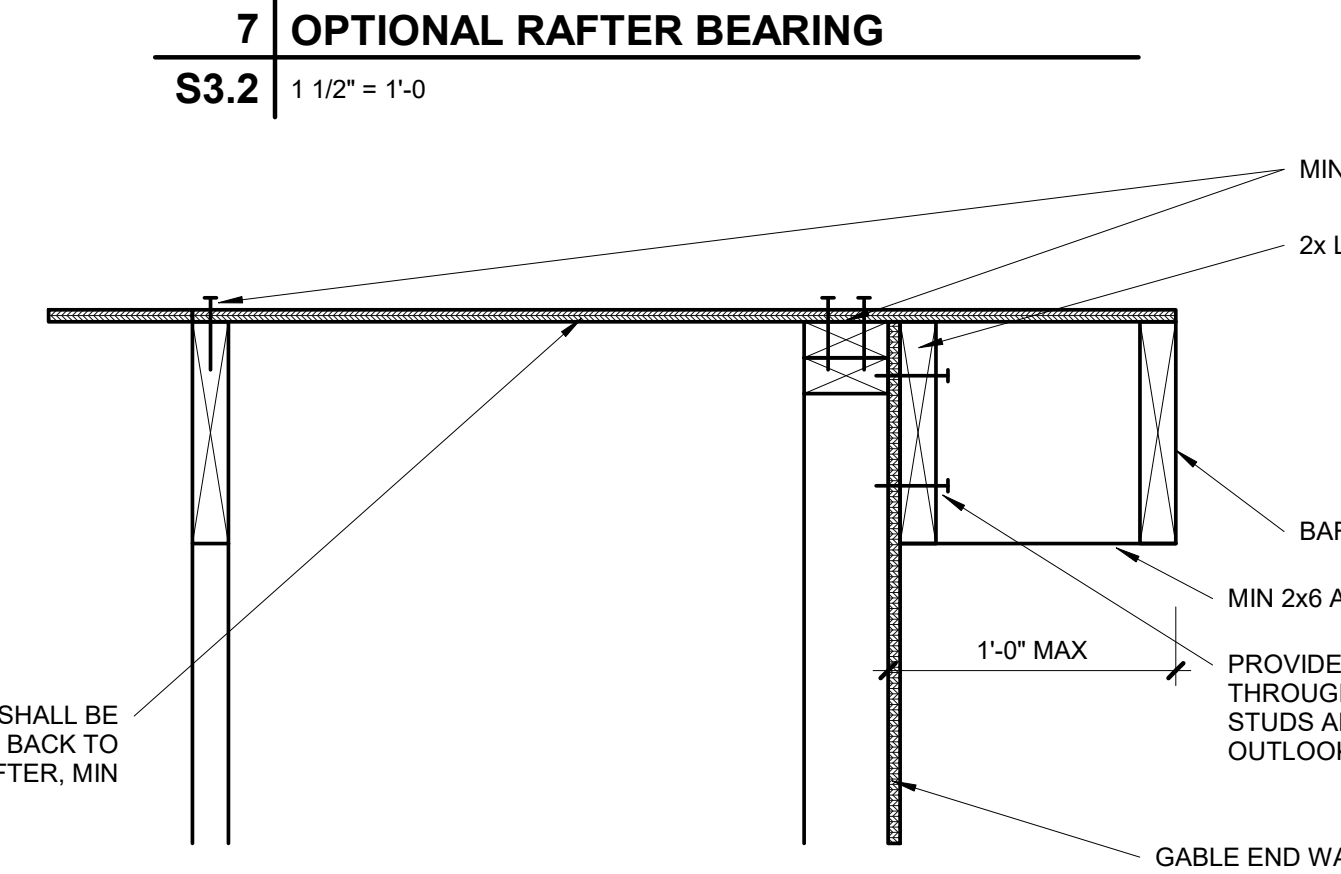
8 | OPTIONAL RAFTER BEARING

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



7 | OPTIONAL RAFTER BEARING

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

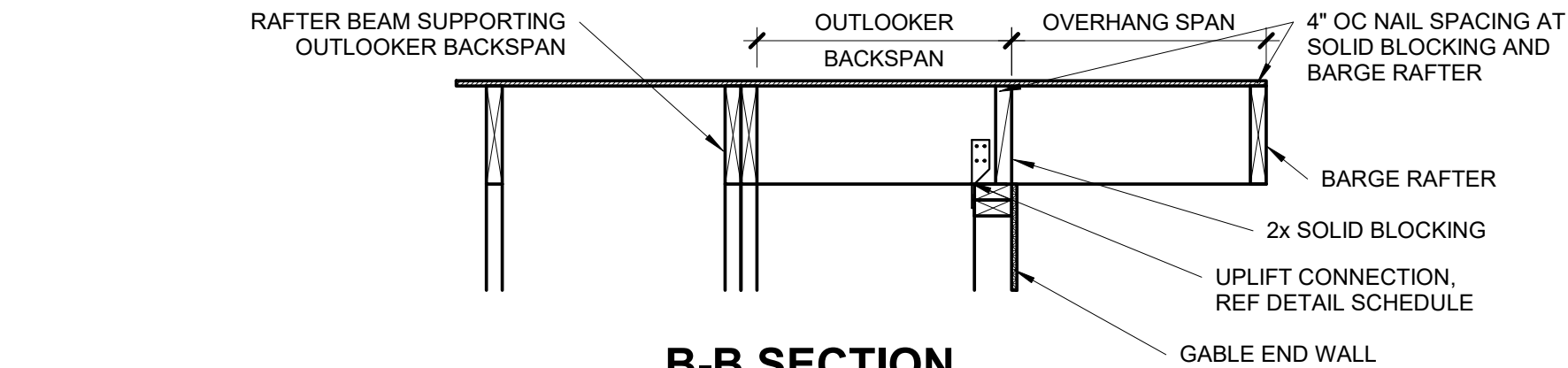


6 | OPTIONAL OVERHANG 1'-0" OR LESS

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

UPLIFT CONNECTION SCHEDULE

OVERHANG SPAN: 1'-1" TO 1'-8"			
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



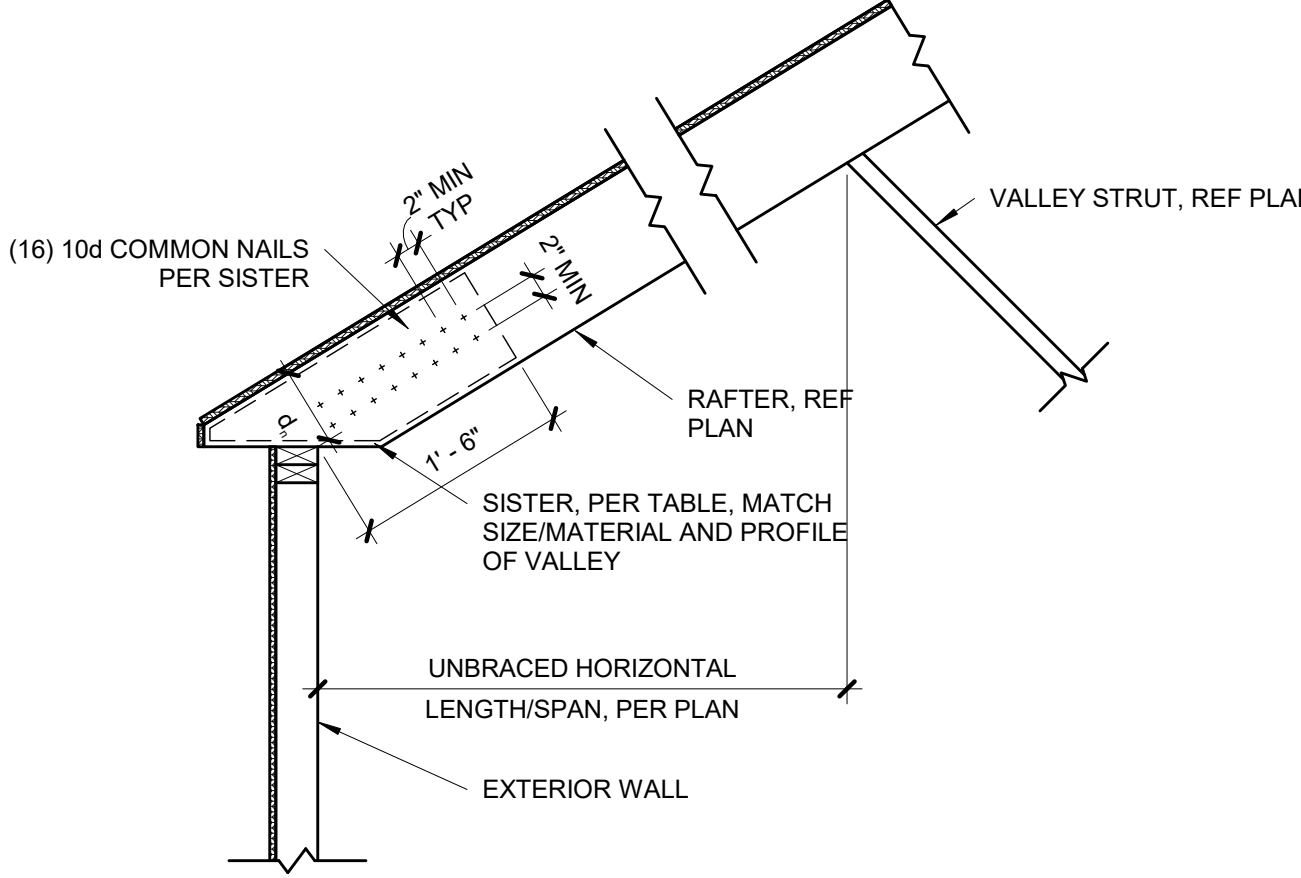
5 | FRAMING

S3.2 NOT TO SCALE

REQUIRED NUMBER OF SISTER PLIES

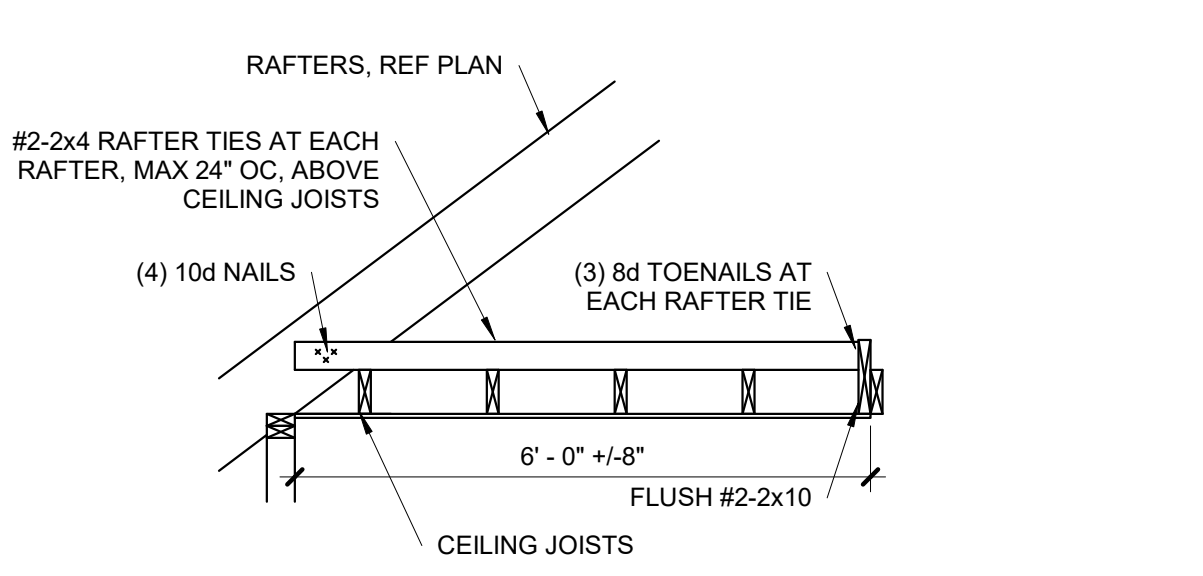
LIGHT ROOF			
2x VALLEY		LVL VALLEY	
# OF SISTER PLIES	RAFTER SIZE	# OF SISTER PLIES	RAFTER SIZE
0	2x6 2x8 2x10	0	2x6 2x8 2x10
1	4'-8" 6'-2" 7'-11"	1	8'-8" 11'-5" 14'-7"
2	9'-5" * N/A N/A	2	* * N/A N/A
HEAVY ROOF			
2x VALLEY		LVL VALLEY	
# OF SISTER PLIES	RAFTER SIZE	# OF SISTER PLIES	RAFTER SIZE
0	2x6 2x8 2x10	0	2x6 2x8 2x10
1	3'-6" 4'-7" 5'-11"	1	6'-6" 8'-7" 10'-11"
2	7'-1" 9'-3" * N/A	2	13'-1" * N/A 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.
- 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.
 - TABLE VALUES ARE BASED ON A DEPTH OF MEMBER REMAINING, d_v , EQUAL TO THE DEPTH OF THE RAFTERS. IF d_v IS OBSERVED TO BE LESS THAN THE DEPTH OF THE RAFTER, THE VALLEY WILL NEED TO BE EITHER REPLACED OR ANALYZED BY APEX.
 - TABLE VALUES ARE VALID FOR TAPERED CUTS ONLY. REF DETAIL 4/S3.2.
 - IF MULTI-PLY VALLEY IS SPECIFIED ON PLAN TREAT EACH ADDITIONAL PLY AS A SISTER PLY WHEN LOOKING UP MAX SPAN.
 - MAX 14'-0" HORIZONTAL RAFTER SPAN IN BOTH DIRECTIONS FROM VALLEY.
 - ALL HIPS ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN.

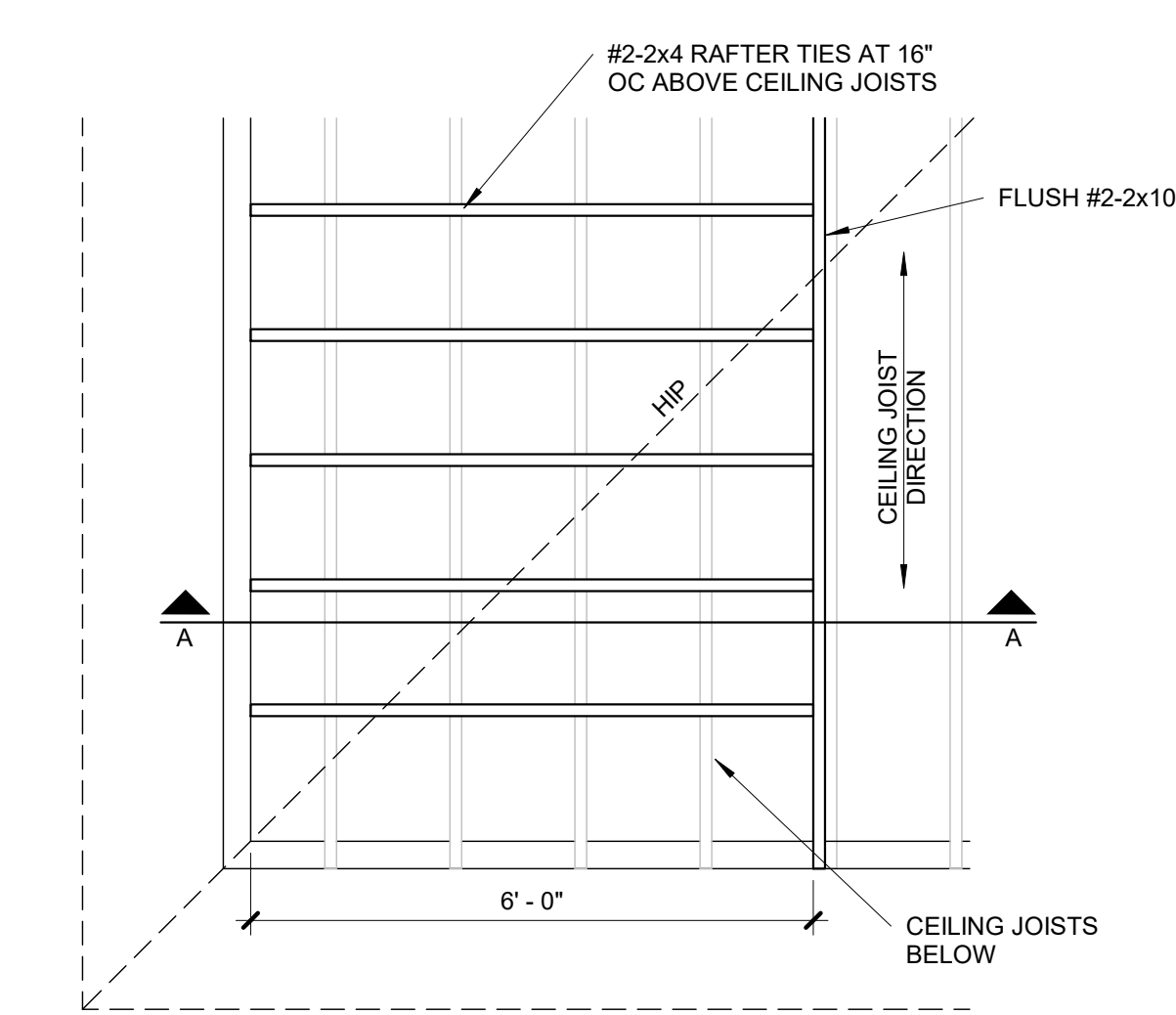


4 | TAPERED VALLEY

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

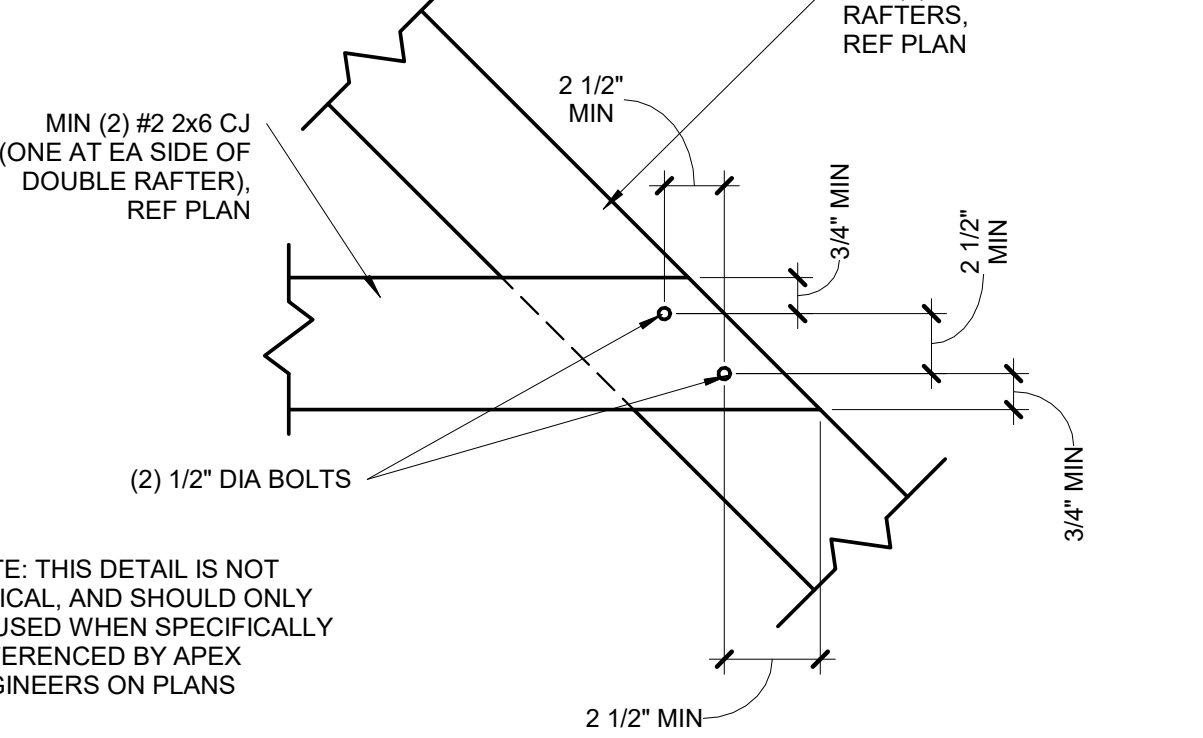


A-A SECTION



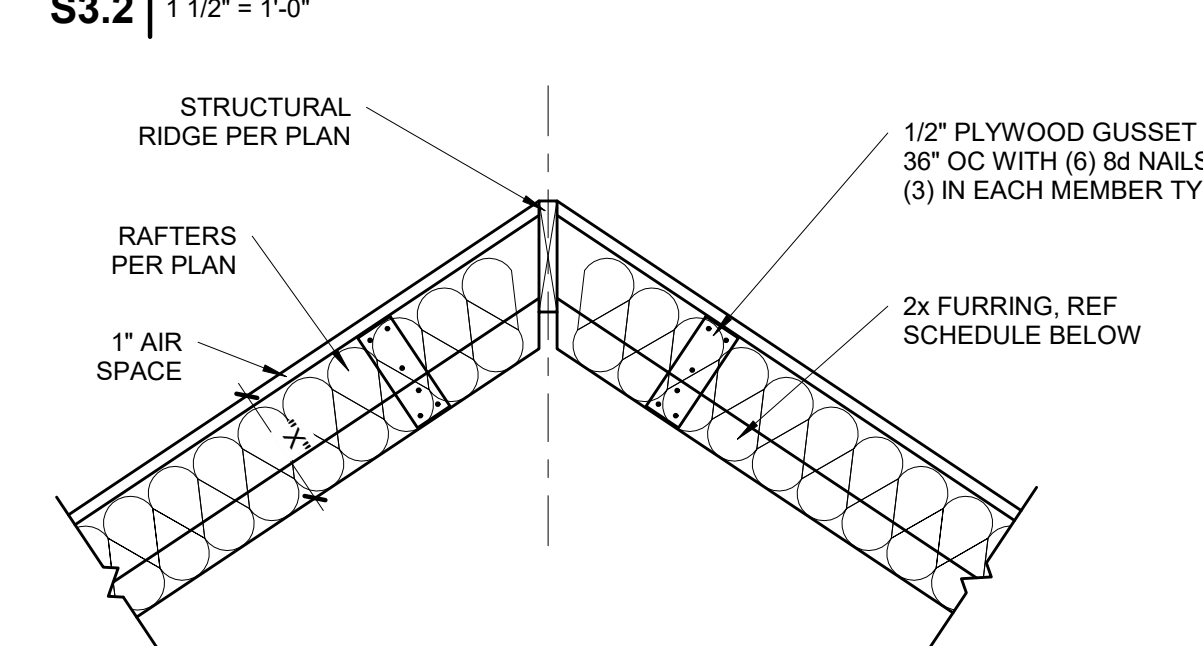
3 | ROOF WITH PERP CEILING JOISTS

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



2 | BOLTED RAFTER HIP CONNECTION

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



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

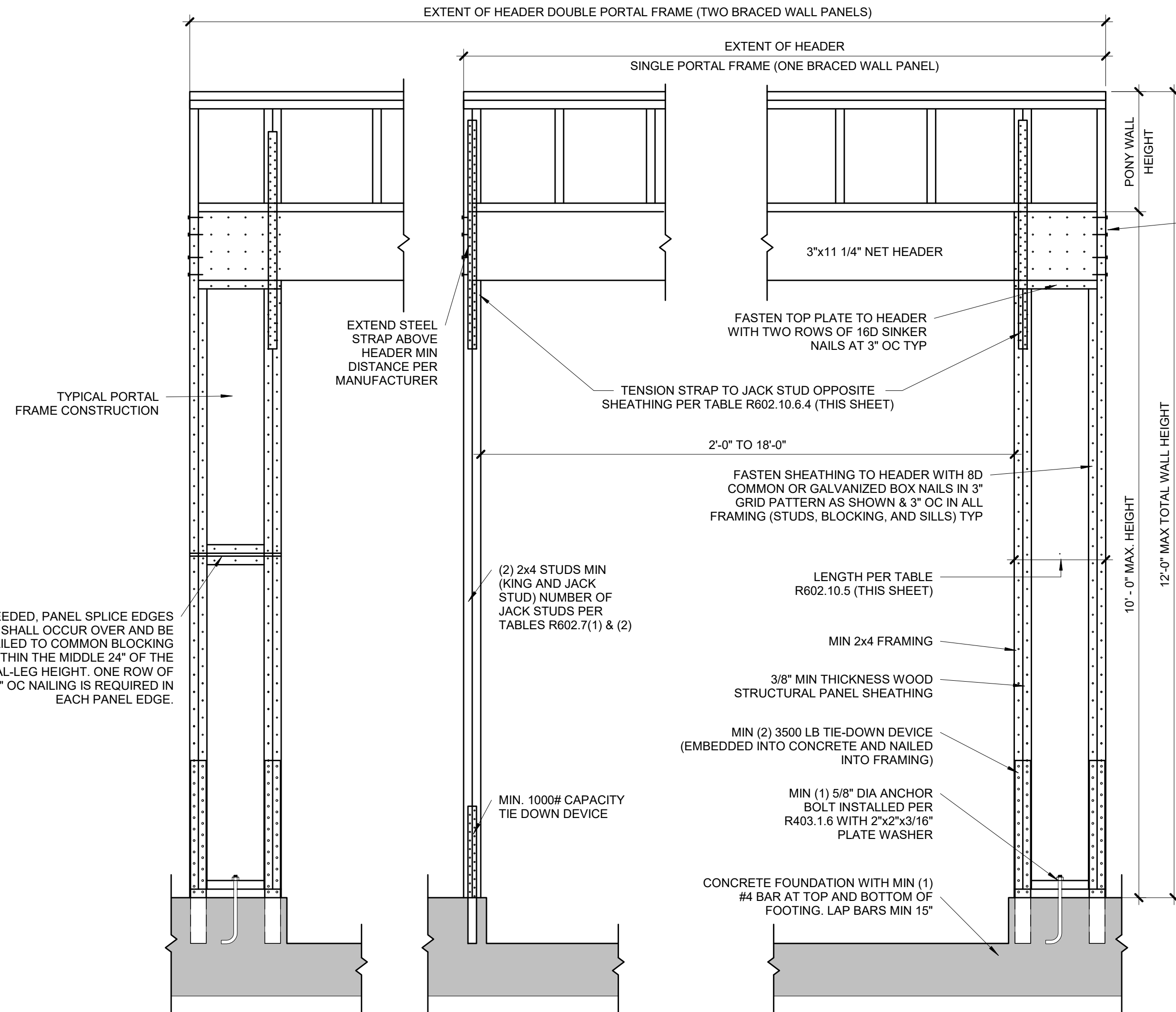
- NOTES:
- ALL VAULTED RAFTERS SHALL BE #2-2x6 DF-L, MINIMUM, AT 16" OC, PER SPAN CHART, UNLESS NOTED OTHERWISE.
 - ALL VAULTS SHALL BE FURRED DOWN WITH 2x FURRING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.
 - R-30C INSULATION = 8 1/4" THICK
 - R-38C INSULATION = 10 1/4" THICK
 - INSULATION 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 | VAULTED RAFTER INSULATION FURR OUT

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

S3.2

01/16/2025



SECTION

FASTEN KING STUD TO HEADER WITH (8) 16d SINKER NAILS

FASTEN TOP PLATE TO HEADER WITH TWO ROWS OF 16d SINKER NAILS AT 3" OC, TYP

MIN 7/16" WOOD STRUCTURAL PANEL SHEATHING

IF NEEDED, PANEL SPLICE EDGES SHALL OCCUR OVER AND BE NAILED TO COMMON BLOCKING WITHIN THE MIDDLE 24" OF THE PORTAL-LEG HEIGHT. ONE ROW OF 3" OC NAILING IS REQUIRED IN EACH PANEL EDGE.

TYPICAL PORTAL FRAME CONSTRUCTION

(2) 2x4 STUDS MIN

TYPICAL BRACED WALL SEGMENT

TOP PLATE CONTINUITY REQUIRED

TENSION STRAP OPPOSITE SHEATHING, PER TABLE R602.10.6.4 (THIS SHEET)

2'-0" TO 18'-0"

FASTEN SHEATHING TO HEADER WITH 8d COMMON OR GALVANIZED BOX NAILS IN 3" GRID PATTERN AS SHOWN AND 3" OC IN ALL FRAMING (STUDS, BLOCKING, AND SILLS) TYP

LENGTH PER TABLE R602.10.5 (THIS SHEET)

MIN 2x4 FRAMING

7/16" MIN THICKNESS WOOD STRUCTURAL PANEL SHEATHING

1/2" DIA. ANCHOR BOLT WITH 2"x2"x3/16" PLATE WASHER 7" MIN EMBEDMENT, TYP.

CONCRETE FOUNDATION WITH MIN (1) #4 BAR AT TOP AND BOTTOM OF FOOTING. LAP BARS MIN 15"

10'-0" MAX. HEIGHT

12'-0" MAX TOTAL WALL HEIGHT

3"x11 1/4" NET HEADER

FASTEN TOP PLATE TO HEADER WITH TWO ROWS OF 16d SINKER NAILS AT 3" OC, TYP

FASTEN KING STUD TO HEADER WITH (8) 16d SINKER NAILS

MIN 7/16" WOOD STRUCTURAL PANEL SHEATHING

IF NEEDED, PANEL SPLICE EDGES SHALL OCCUR OVER AND BE NAILED TO COMMON BLOCKING WITHIN THE MIDDLE 24" OF THE PORTAL-LEG HEIGHT. ONE ROW OF 3" OC NAILING IS REQUIRED IN EACH PANEL EDGE.

PORTAL FRAME AT GARAGE DOOR WITHOUT HOLD DOWNS (METHOD PFG)

1
\$4.0 ALT 3/4" = 1'-0" (ALT ALLOWED AT GARAGE DOOR ONLY) (PER IRC R602.10.6.3)

TABLE R602.10.5 (PARTIAL)					
MINIMUM LENGTH OF BRACED WALL PANELS					
METHOD	MIN LENGTH (INCHES)				
	WALL HEIGHT				
	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

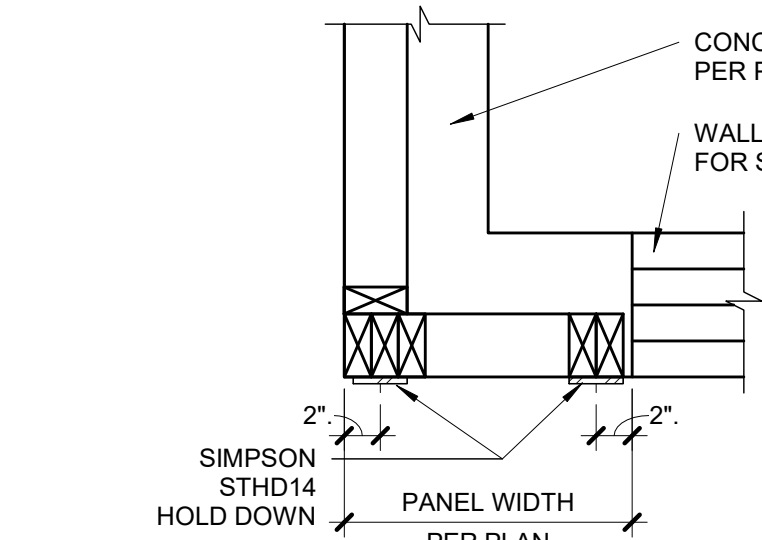
TENSION CAPACITY STRAP TABLE				
MIN WALL STUD FRAMING NOMINAL SIZE AND GRADE	MAX PONY WALL HEIGHT (FEET)	MAX TOTAL WALL HEIGHT (FEET)	MAX OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQ (LBS)
115 MPH, EXP B				
2x4 #2 GRADE	0	10	18	1,000
			9	1,000
			16	1,025
			18	1,275
	1	10	9	1,000
			16	2,175
			18	2,500
			9	1,500
	2	12	16	3,375
			18	3,975
			9	2,750
			12	3,775
2x6 STUD GRADE	2	12	9	1,000
			16	2,150
			18	2,550
			9	1,750
	4	12	16	2,400
			18	3,800

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

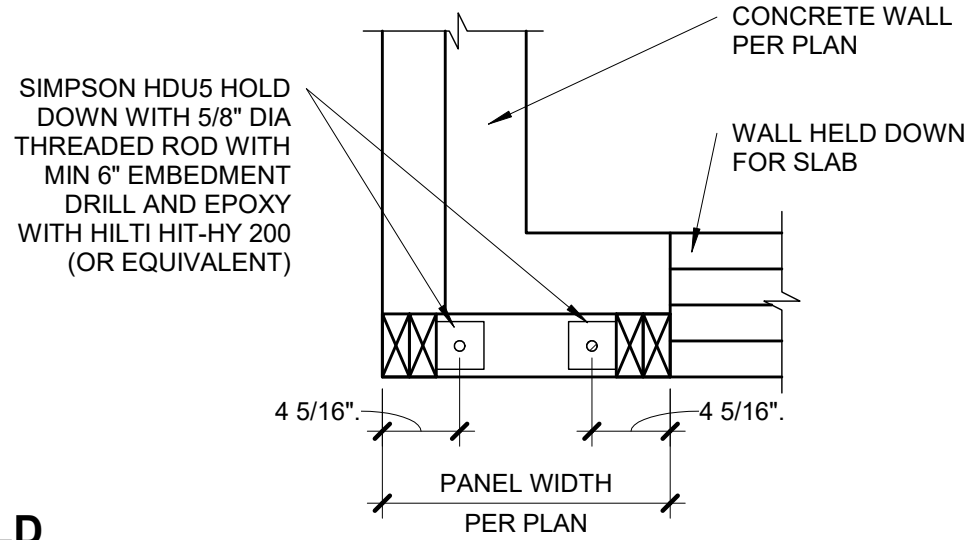
XXXX EXTERIOR BRACED WALLS:
WSP METHOD:
WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 2400 FOR 16" OC STUD. SPACING WITH 6d COMMON NAILS AT 6" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" 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/\$4.0):
GB METHOD:
1/2" MIN GYPSUM BOARD OVER STUDS SPACED 24" MAX FASTENED WITH #6 - 1 1/4" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)

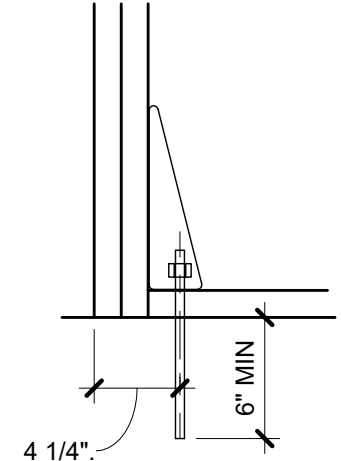
LIB METHOD:
1x4 WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" OC STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.



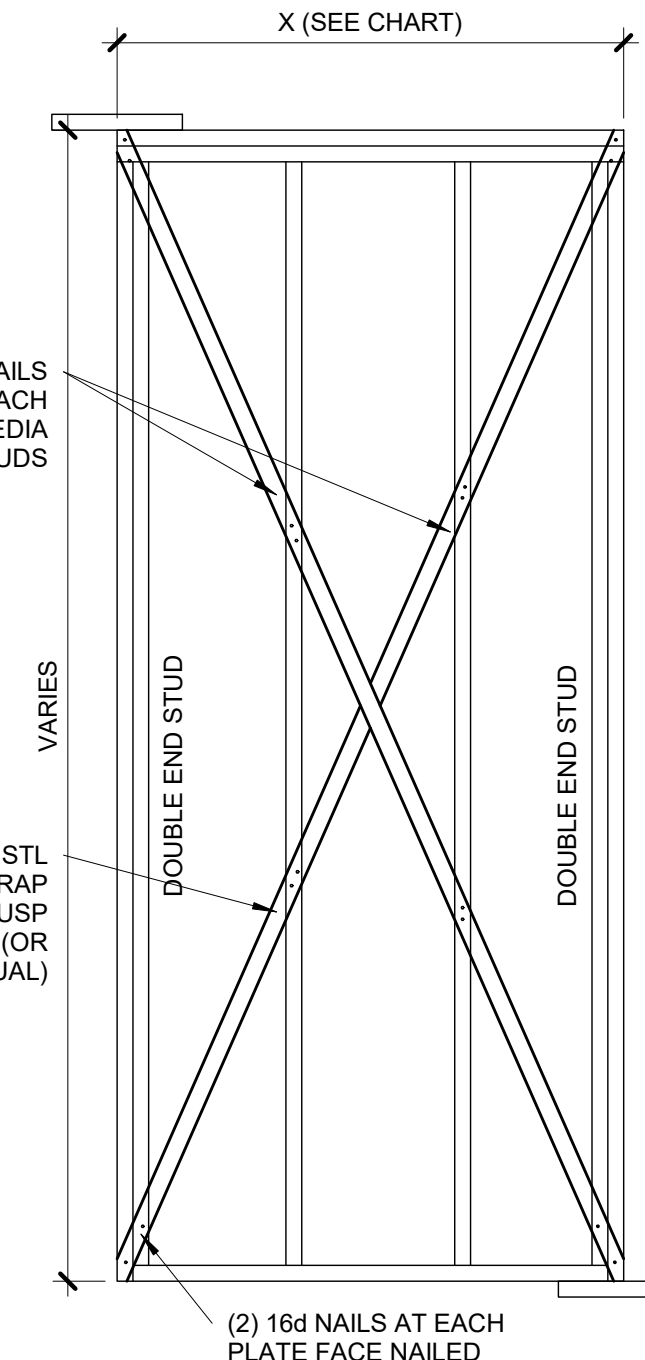
PLAN VIEW - ALTERNATE BRACED WALL PANEL



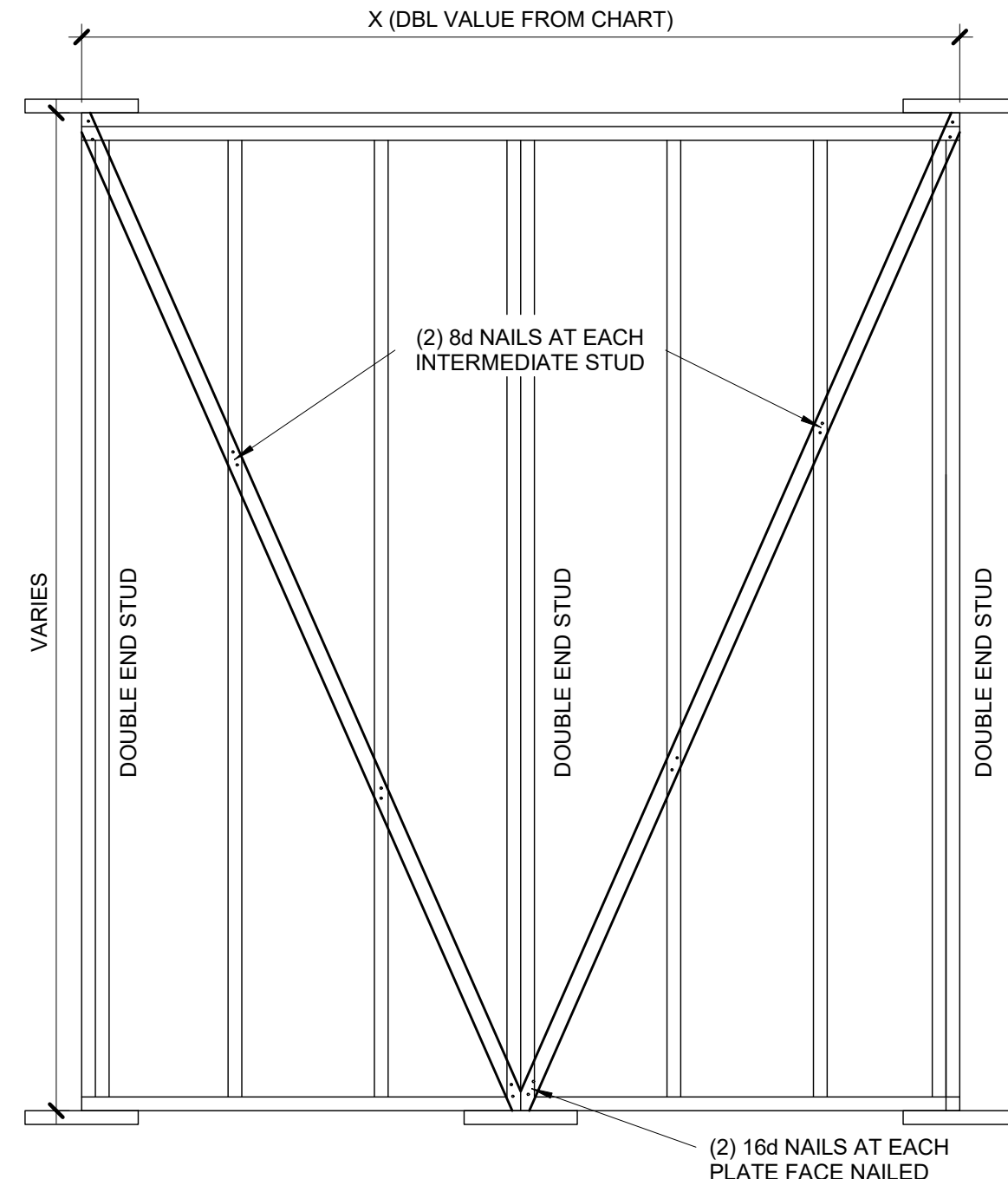
PLAN VIEW - ALTERNATE BRACED WALL PANEL DRILL AND EPOXY OPTION



PLAN VIEW - APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS



LIB

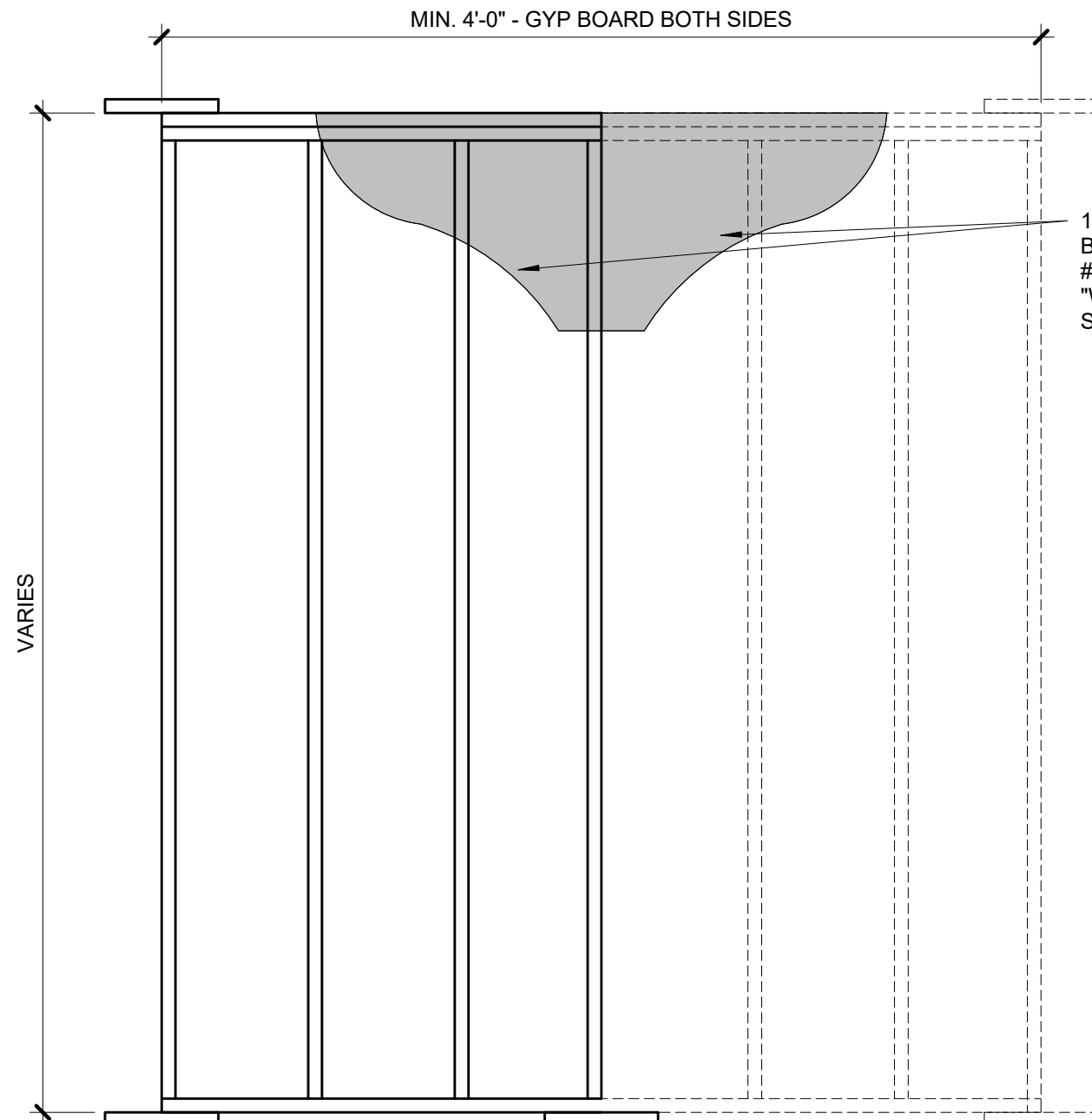


BRACED WALL PANEL-IRC METHODS LIB AND GB

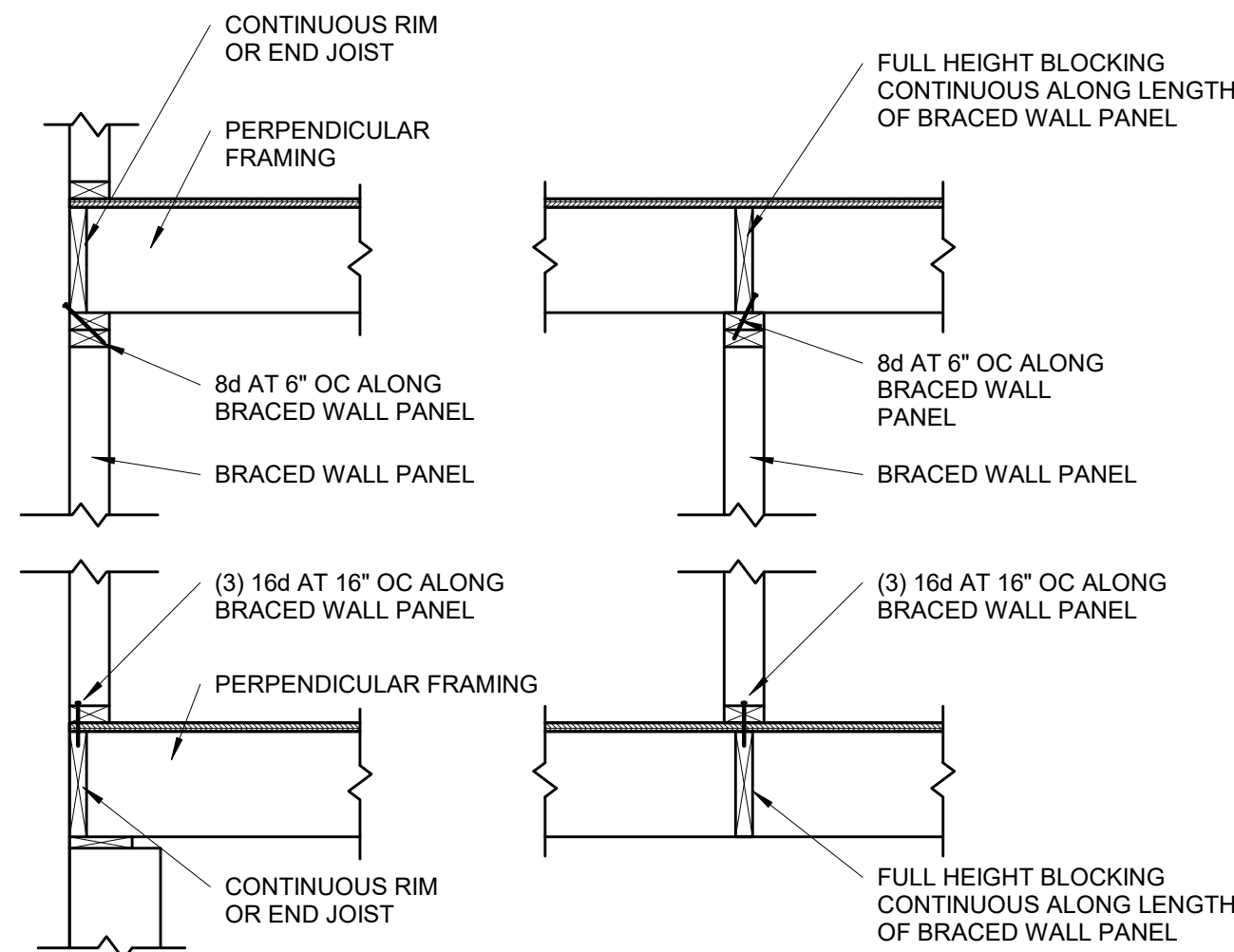
2
\$4.0 3/4" = 1'-0"

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



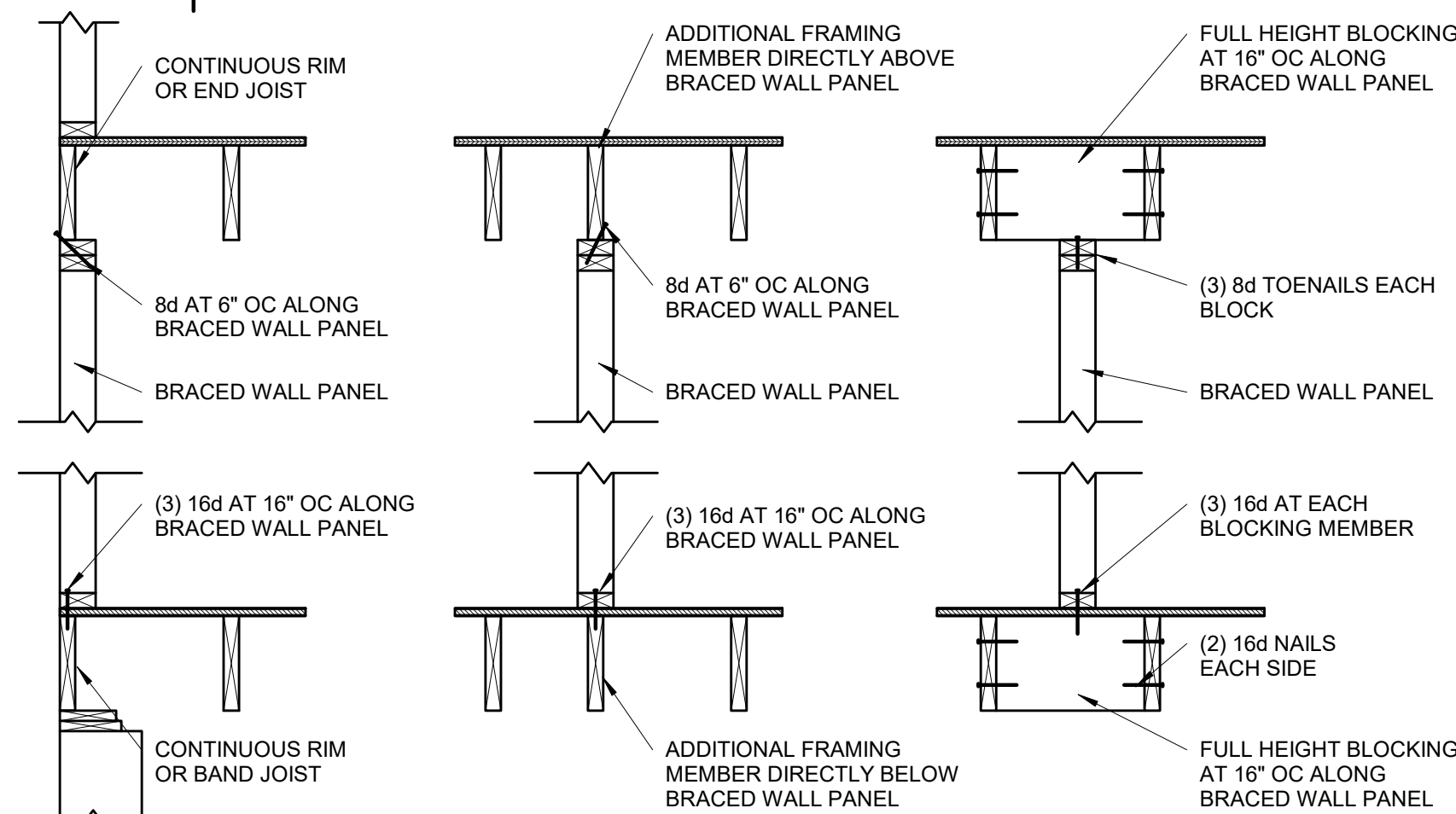
GB



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

S4.1

3/4\"/>



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

S4.1

3/4\"/>

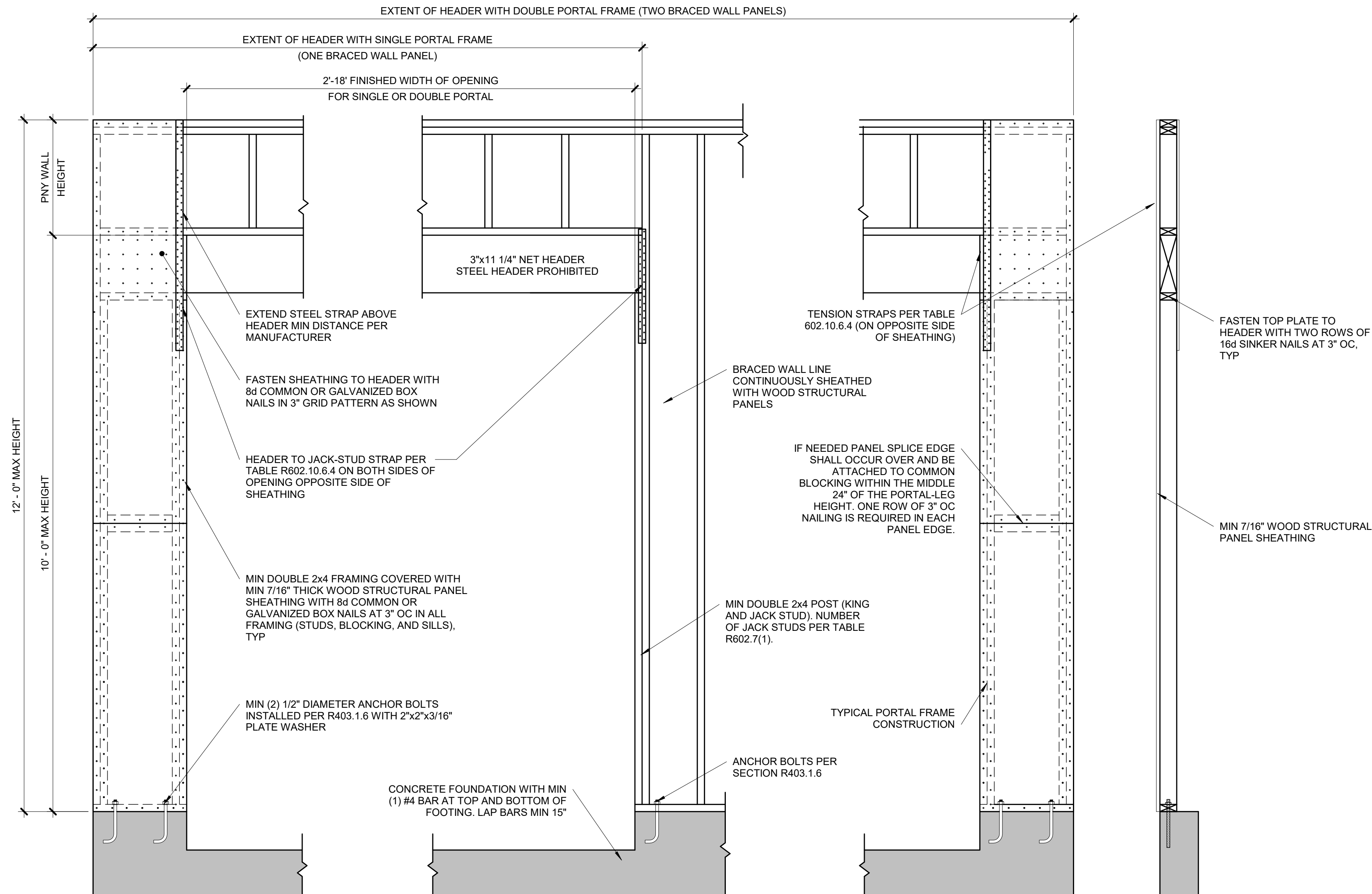
CONT. SHEATHED BRACED WALL END CONDITIONS

END CONDITION 1	END CONDITION 2
END CONDITION 3	END CONDITION 4
END CONDITION 5	REQUIREMENTS
	<p>RETURN PANEL: 24\"/></p> <p>DISTANCE D: 24\"/></p> <p>HOLD-DOWN DEVICE: 800 LBS CAPACITY FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FLOOR FRAMING BELOW</p>

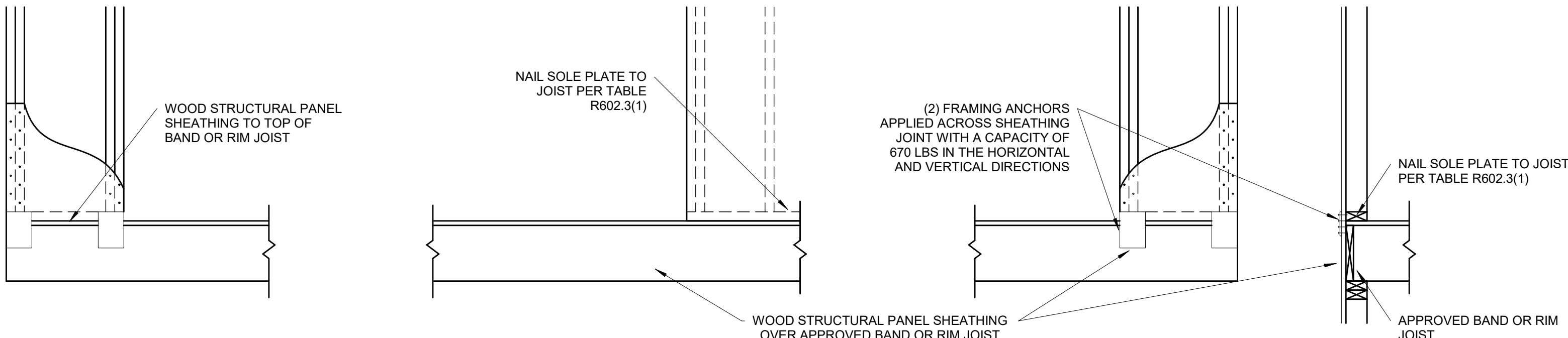
**CONTINUOUS SHEATHED BRACED
WALL END CONDITIONS**

S4.1

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

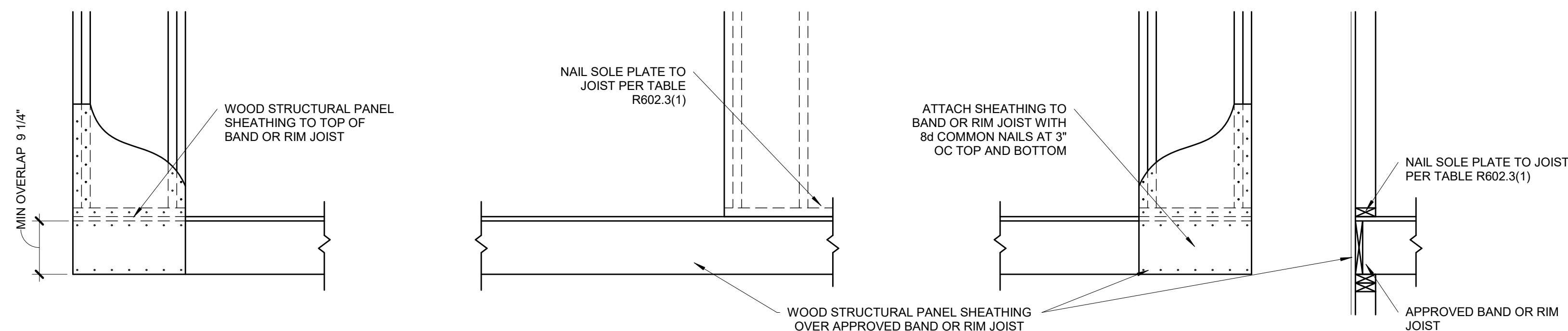


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISE WOOD FLOOR - FRAMING ANCHOR OPTION

(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISE WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIMBOARD)

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

S4.1

3/4\"/>

(PER IRC R602.10.6.4)