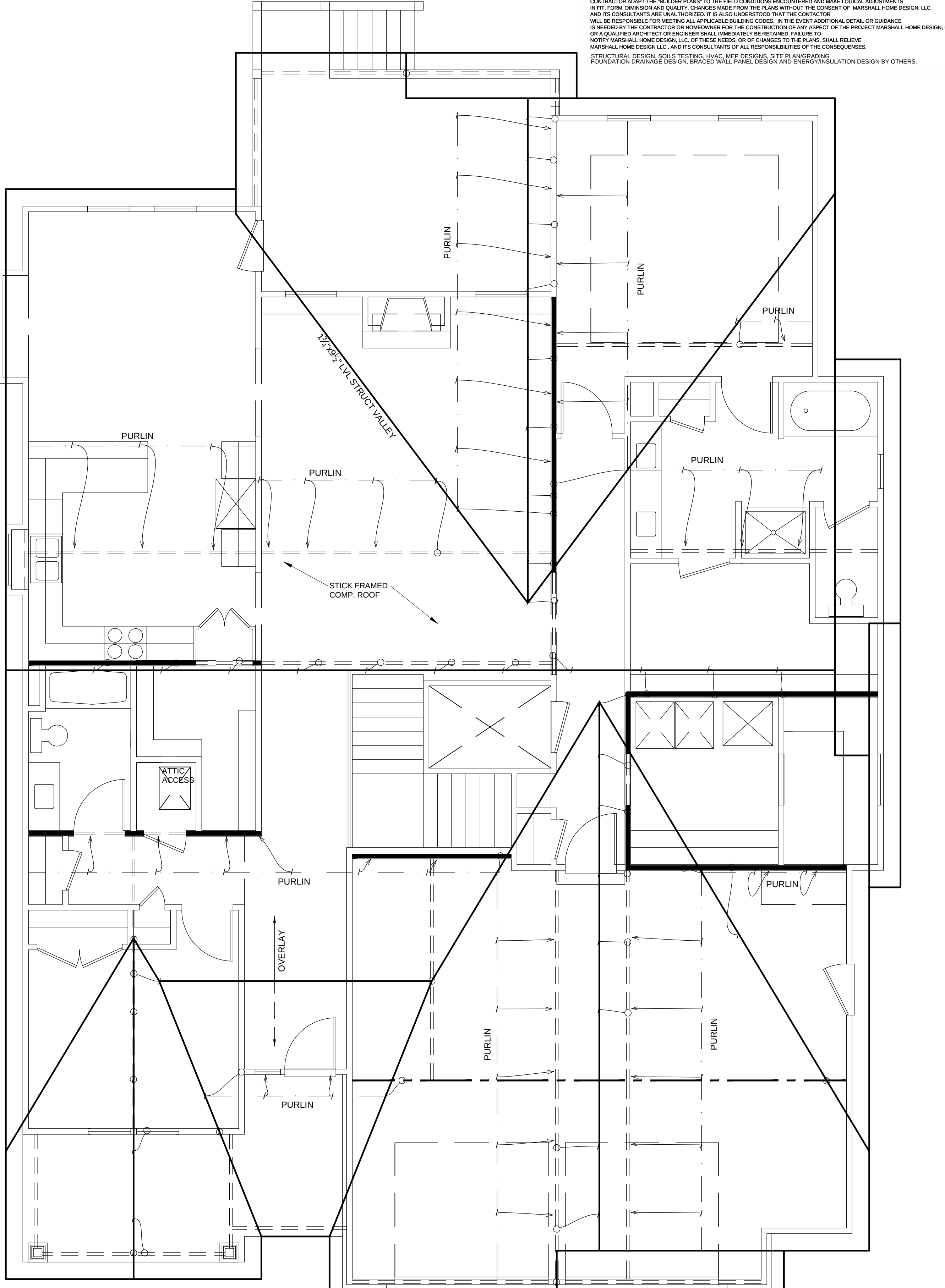




ROOF PLAN

SCALE 1/4"=1'-0"

MARSHALL HOME DESIGN:
BUILDERS PLAN DEFINITION
THE TERM "BUILDERS PLAN" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS, AS THE NAME IMPLIES. THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION. THE CONTRACTOR WARRANTS TO MARSHALL HOME DESIGN, LLC AND ANY ITS CONSULTANTS, THAT THEY POSSESS THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND ARCHITECTURAL DESIGN SERVICES, AND FOR THAT REASON THE CONTRACTOR OR HOME OWNER HAS RESTRICTED THE SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TERMED "BUILDERS PLAN" IN RECOGNITION OF THE CONTRACTORS RESPONSIBILITY. ALTHOUGH MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, WE CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO MARSHALL HOME DESIGN, LLC. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDERS PLAN" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUALITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF MARSHALL HOME DESIGN, LLC, AND ITS CONSULTANTS ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES. IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS REQUIRED BY THE CONTRACTOR OR HOMEOWNER FOR THE CONSTRUCTION OF ANY ASPECT OF THE PROJECT MARSHALL HOME DESIGN, LLC OR A QUALIFIED ARCHITECT OR ENGINEER SHALL IMMEDIATELY BE RETAINED. FAILURE TO NOTIFY MARSHALL HOME DESIGN, LLC OF THESE NEEDS, OR OF CHANGES TO THE PLANS, SHALL RELIEVE MARSHALL HOME DESIGN, LLC, AND ITS CONSULTANTS OF ALL RESPONSIBILITIES OF THE CONSEQUENCES. STRUCTURAL DESIGN, SOILS TESTING, HVAC, MEP DESIGNS, SITE PLANNING/GRADING, FOUNDATION DRAINAGE DESIGN, BRACED WALL PANEL DESIGN AND ENERGY INSULATION DESIGN BY OTHERS.

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)8d
OR (2)16d NAILS

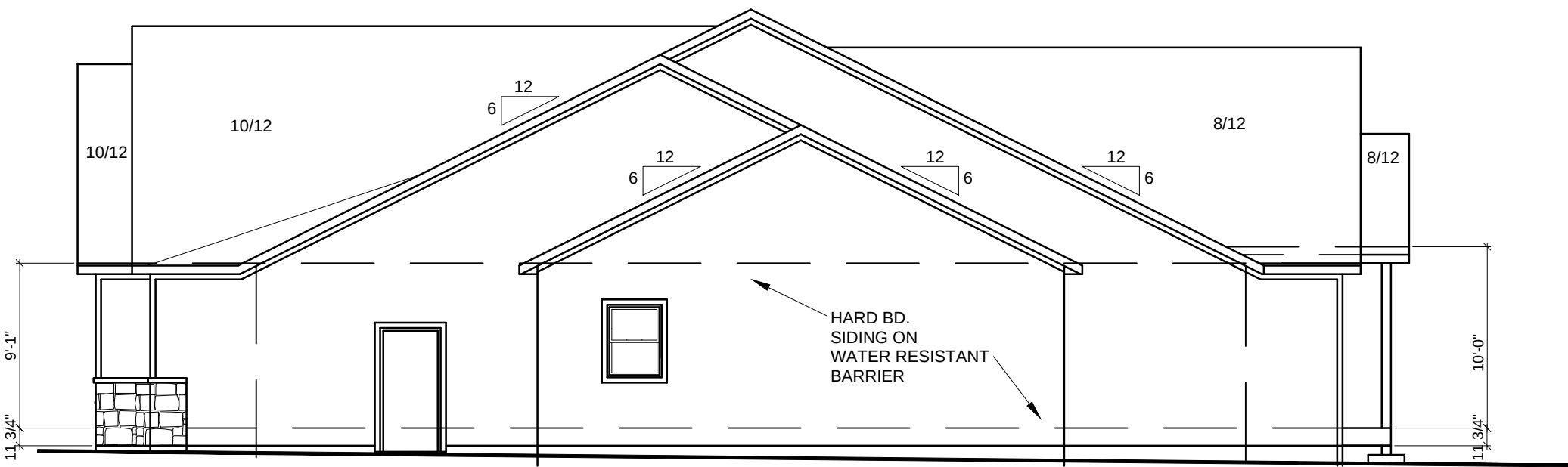
*RIDGE BRACERS ARE SAME AS PURLIN BRACES-SPACING,
SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN
BRACE NOTES ABOVE)

*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

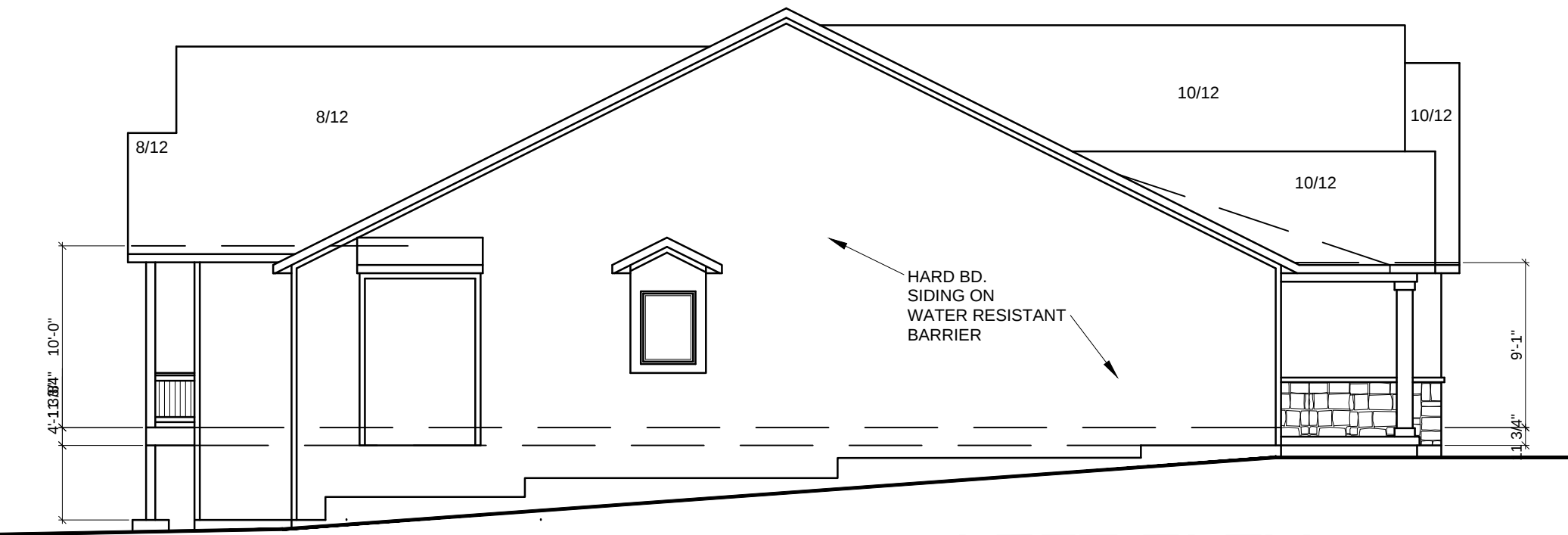
= PURLIN STRUTS AT 48" OC (PER CHART) U.N.O.
-SLASH IS TOP END OF BRACE
-ARROW IS BEARING LOCATION

— DENOTES BEARING WALL
- - - DENOTES PURLIN
= = = DENOTES BEARING STRUCTURE



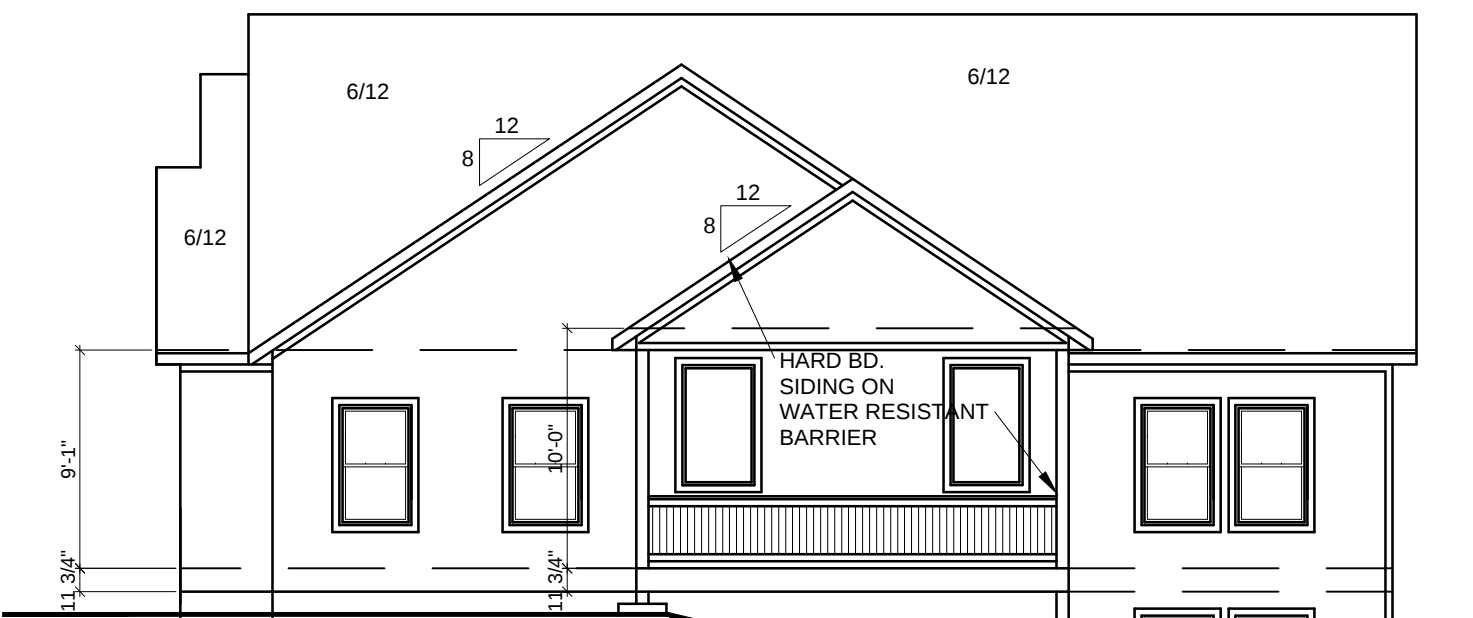
RIGHT ELEV.

SCALE 1/8"=1'-0"



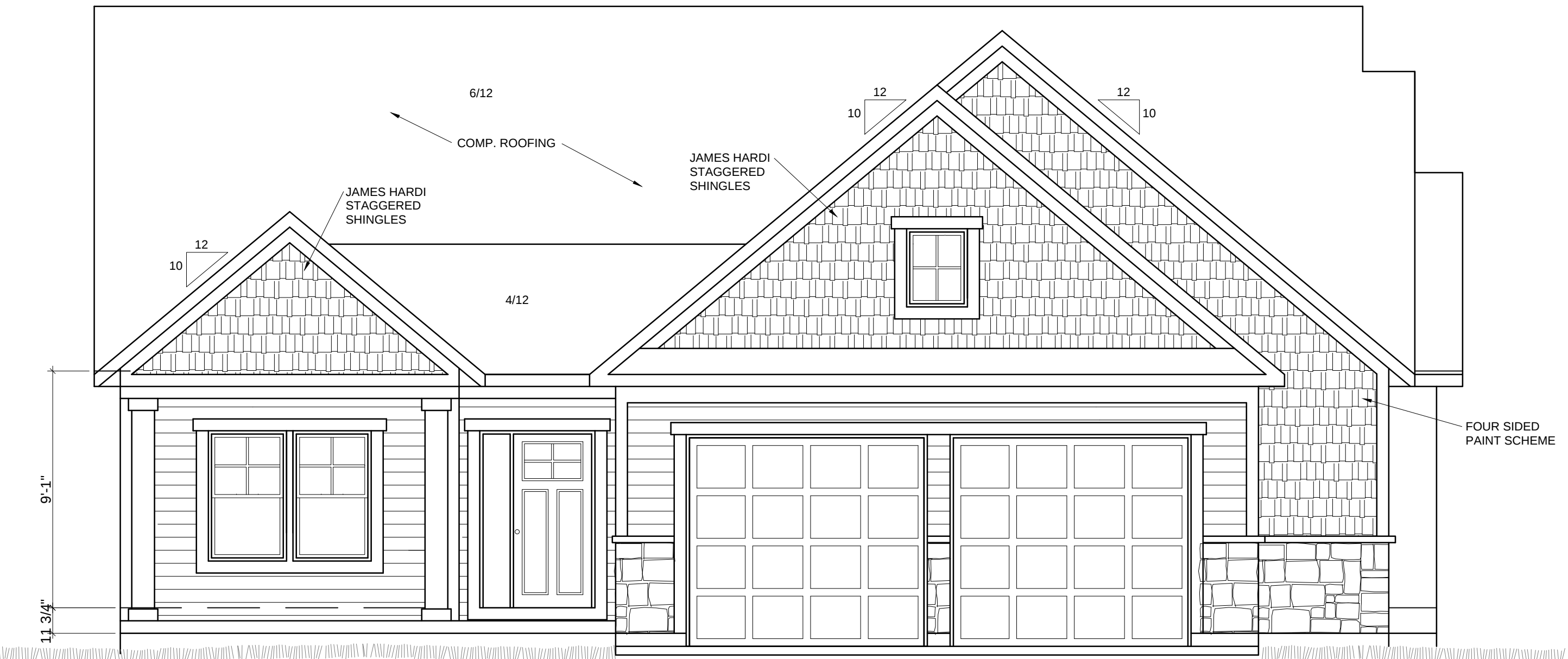
LEFT ELEV.

SCALE 1/8"=1'-0"



BACK ELEV.

SCALE 1/8"=1'-0"



FRONT ELEVATION

SCALE 1/4"=1'-0"

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO
CONSTRUCT THIS DWELLING IN COMPLIANCE WITH ALL
LOCAL BUILDING CODES AND REQUIREMENTS AS
ADOPTED BY THE CITY OF LEE'S SUMMIT, MO.

HOMEBUILDER:
GALE HOMES, INC.



APEX ENGINEERS, INC.
1625 LOCUST ST
KANSAS CITY, MO 64108
816.421.3232
STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: 892
MISSOURI ENGINEERING LICENSE: 20030473

PLAN NAME:
MURDOCK RESIDENCE
3041 N.W. THOREAU LANE, LEE'S SUMMIT, MO.
LOT 1479 WINTERSET VALLEY, LEE'S SUMMIT, MO.

MARSHALL HOME DESIGN, LLC.
1723 N.W. 57TH COURT, KANSAS CITY, MO. 64151

COPYRIGHT DATE:
MARSHALL HOME DESIGN
3-8-21
3-14-21 3-17-21 6-14-21
3-23-21 3-30-21 6-16-21
4-13-21 4-29-21
6-7-21 6-10-21 6-25-21
8-30-21 10-11-21

PLAN NO.:
2109

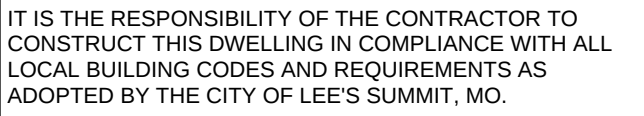
DRAWING NO.:

[illegible]

1. COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0", REQUIRES SEPARATE ENGR'D DESIGN IF GREATER THAN 10'-0" TALL.
2. COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 1,500PSF.

1. ALL PIERS TO BEAR ON ORIGINAL, UNDISTURBED SOIL OF 1,500 PSF BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.
2. PIERS SHALL EXTEND BELOW THE FROST LINE: MIN. DEPTH OF 36" BELOW GRADE.
3. POST SHALL BE TREATED OR CEDAR WITH SIMPSON ABU66 POST BASE

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 ALT.	APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS
X	COLUMN AND PIER PAD SCHEDULE (SHEET S2.0)



APEX ENGINEERS, INC.
1625 LOCUST ST
KANSAS CITY, MO 64108
816.421.3222

STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE:
992
MISSOURI ENGINEERING LICENSE
2003004673

MARSHALL HOME DESIGN, LLC.
1723 N.W. 57TH COURT, KANSAS CITY, MO. 64151

DRAWING NO.:

MARSHALL HOME DESIGN:
BUILDERS PLAN DEFINITION

THE TERM "BUILDERS PLAN" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS, AS THE NAME IMPLIES. THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION. THE CONTRACTOR WARRANTS TO MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS THAT THEY POSSESS THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND ARCHITECTURAL DESIGN SERVICES, AND/OR THAT REASON THE CONTRACTOR OR HOME OWNER HAS RESTRICTED THE SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TREATED BUILDERS PLANS IN RECOGNITION OF THE CONTRACTORS SOPHISTICATION, ALTHOUGH MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE. WE CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO MARSHALL HOME DESIGN, LLC. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDERS PLAN" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUALITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES. IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED BY THE CONTRACTOR OR HOMEOWNER FOR THE CONSTRUCTION OF ANY ASPECT OF THE PROJECT MARSHALL HOME DESIGN, LLC OR A QUALIFIED ARCHITECT OR ENGINEER SHALL IMMEDIATELY BE RETAINED. FAILURE TO NOTIFY MARSHALL HOME DESIGN, LLC OF THESE NEEDS, OR OF CHANGES TO THE PLANS, SHALL RELIEVE MARSHALL HOME DESIGN, LLC AND ITS CONSULTANTS OF ALL RESPONSIBILITIES OF THE CONSEQUENCES.

STRUCTURAL DESIGN, SOILS TESTING, HVAC, MEP DESIGN, SITE PLANNING/PAVING, FOUNDATION DRAINAGE DESIGN, BRACED WALL PANEL DESIGN AND ENERGY/INSULATION DESIGN BY OTHERS.

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 $\frac{3}{8}$ " 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 $\frac{1}{8}$ " WITH MINIMUM SPAN RATING OF $\frac{2}{8}$ g FOR 24" OC SPACING WITH 8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN FIELD.
(NOTE: FRAMING MEMBERS 12" OC MAX UNBLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

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

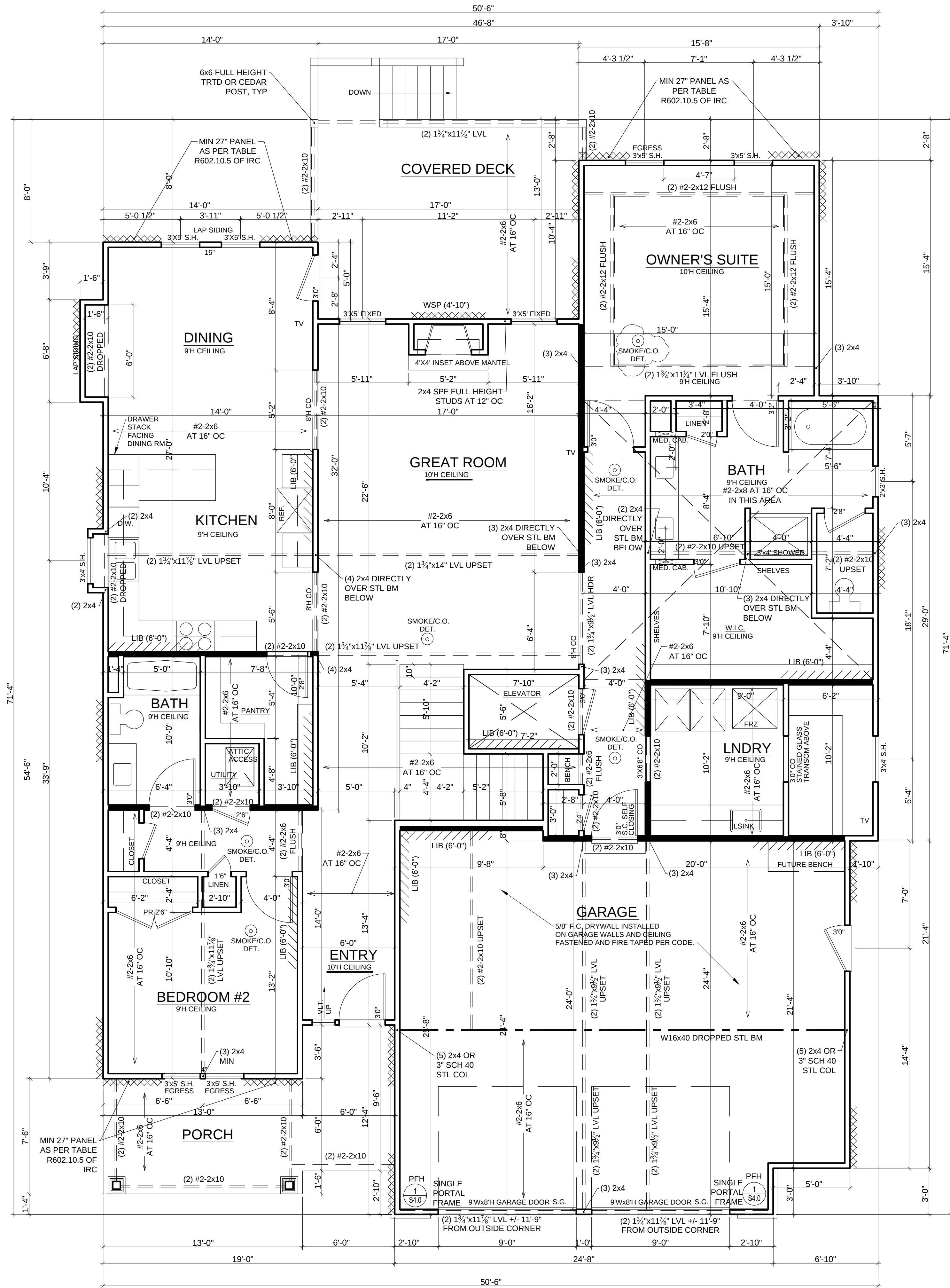
GB METHOD: $\frac{1}{2}$ " MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - $\frac{1}{4}$ " TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES)

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.

STRUCTURAL NOTES:

- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
-  = BEARING WALL
-  = 4'-0" LONG PANEL, UNO



FIRST FLOOR PLAN

SCALE 1/4"=1'-0"

2215 S.F FIRST FLOOR
973 S.F LOWER FLOOR
3188 S.F TOTAL AREA

155 S.F FRONT PORCH
244 S.F COVERED DECK
709 S.F GARAGE

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONSTRUCT THIS DWELLING IN COMPLIANCE WITH ALL LOCAL BUILDING CODES AND REQUIREMENTS AS ADOPTED BY THE CITY OF LEE'S SUMMIT, MO.

HOMEBUILDER:
GALE HOMES, INC.



APEX ENGINEERS, INC.
1628 LOCUST ST
KANSAS CITY, MO 64108
816.421.3232
STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE
692
MISSOURI ENGINEERING LICENSE
20030473

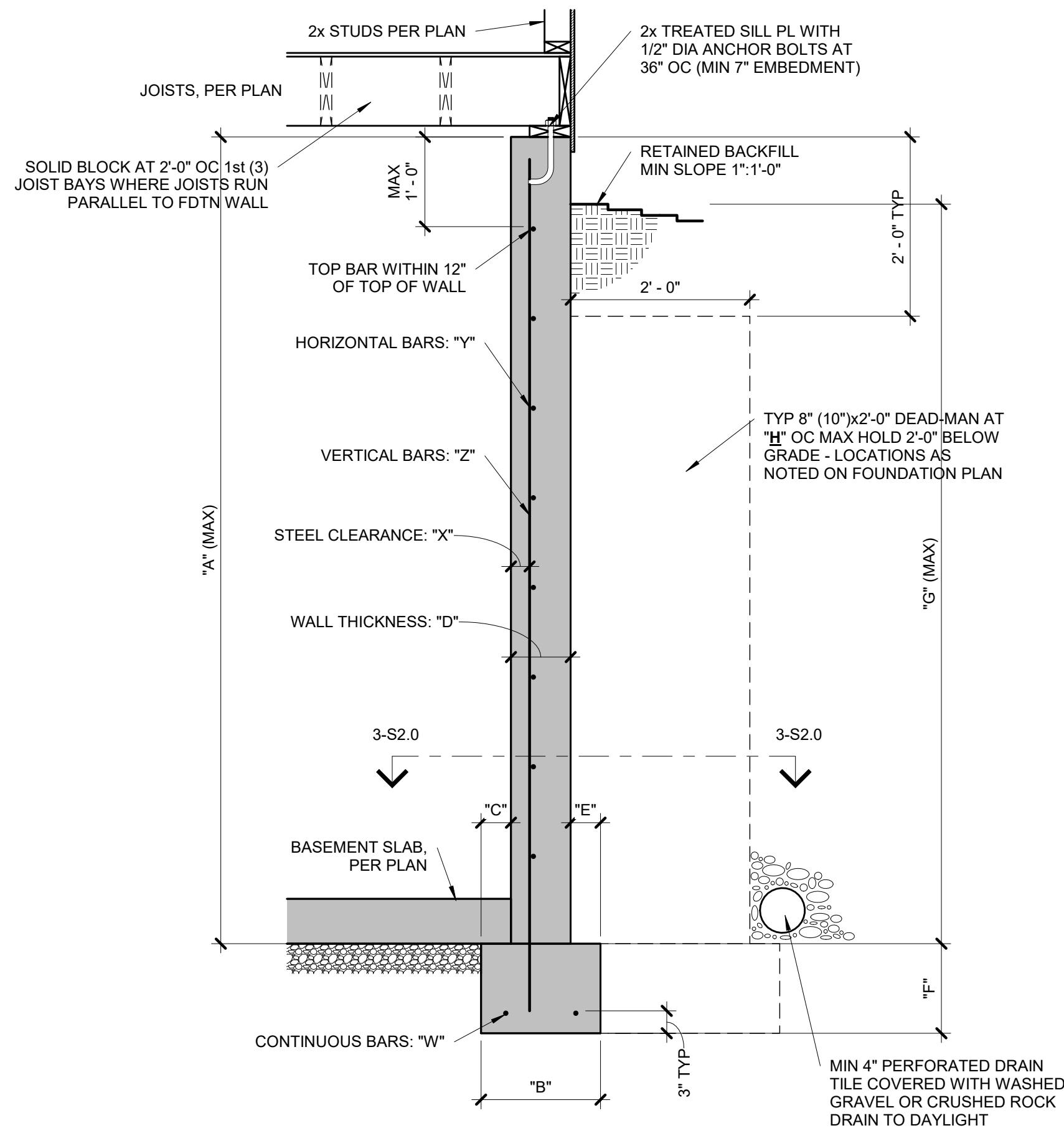
PLAN NAME:
MURDOCK RESIDENCE
3041 N.W. THOREAU LANE, LEE'S SUMMIT, MO.
LOT 1479 WINTERSET VALLEY, LEE'S SUMMIT, MO.

MARSHALL HOME DESIGN, LLC.
1723 N.W. 57TH COURT, KANSAS CITY, MO. 64151

COPYRIGHT DATE:
MARSHALL HOME DESIGN
3-8-21
3-14-21 3-17-21 6-14-21
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4-13-21 4-29-21
6-7-21 6-10-21 6-25-21
8-30-21 10-11-21

PLAN NO.:
2109

DRAWING NO.:



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:
- 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.
 - VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.
 - 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.
 - WALL WILL NOT ACHIEVE FULL STRENGTH UNTIL FIRST FLOOR DECK AND BASEMENT SLAB HAVE BEEN PLACED.

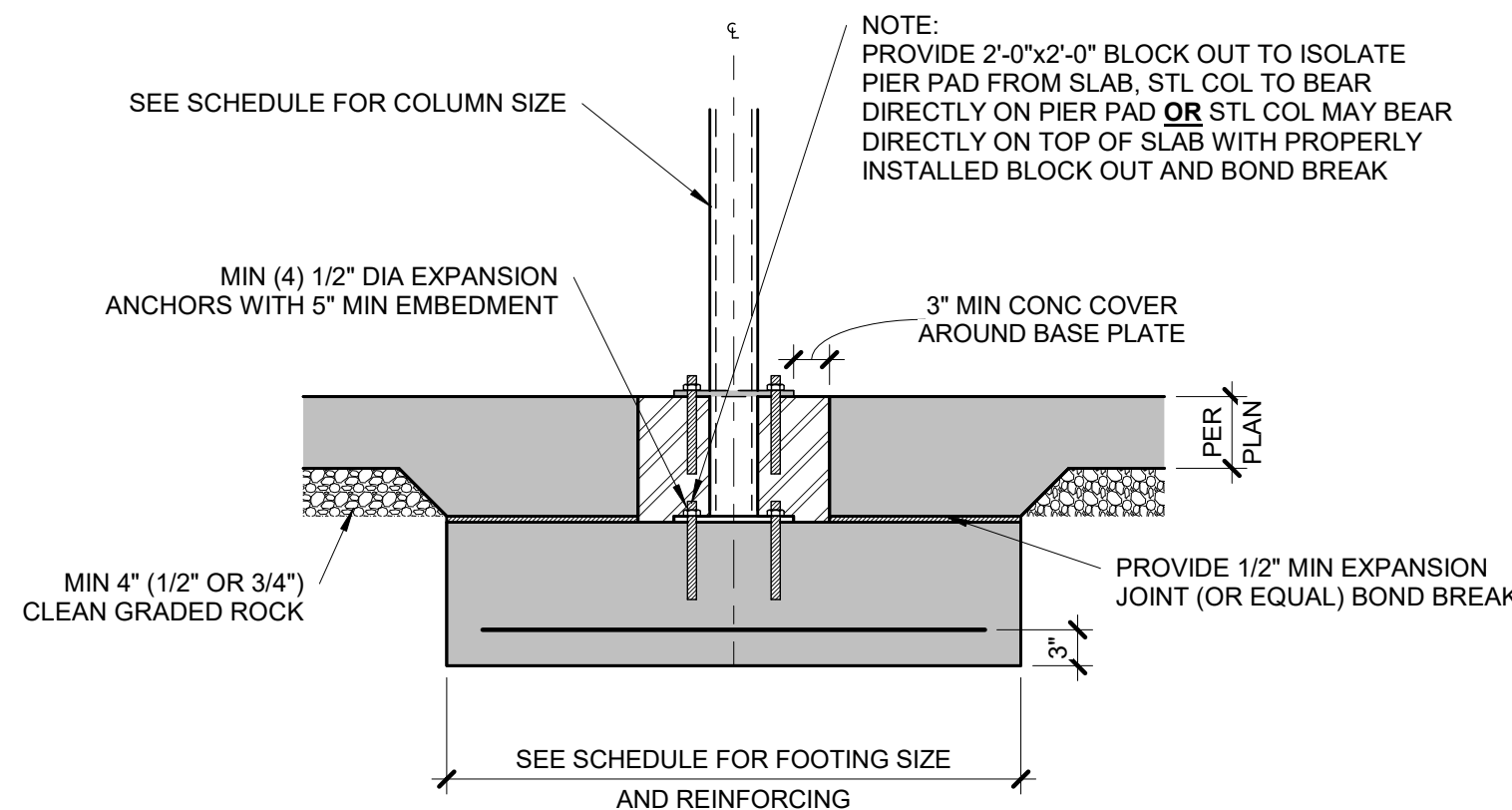
1 TYPICAL FOUNDATION WALL DETAIL

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

COLUMN AND PIER PAD SCHEDULE

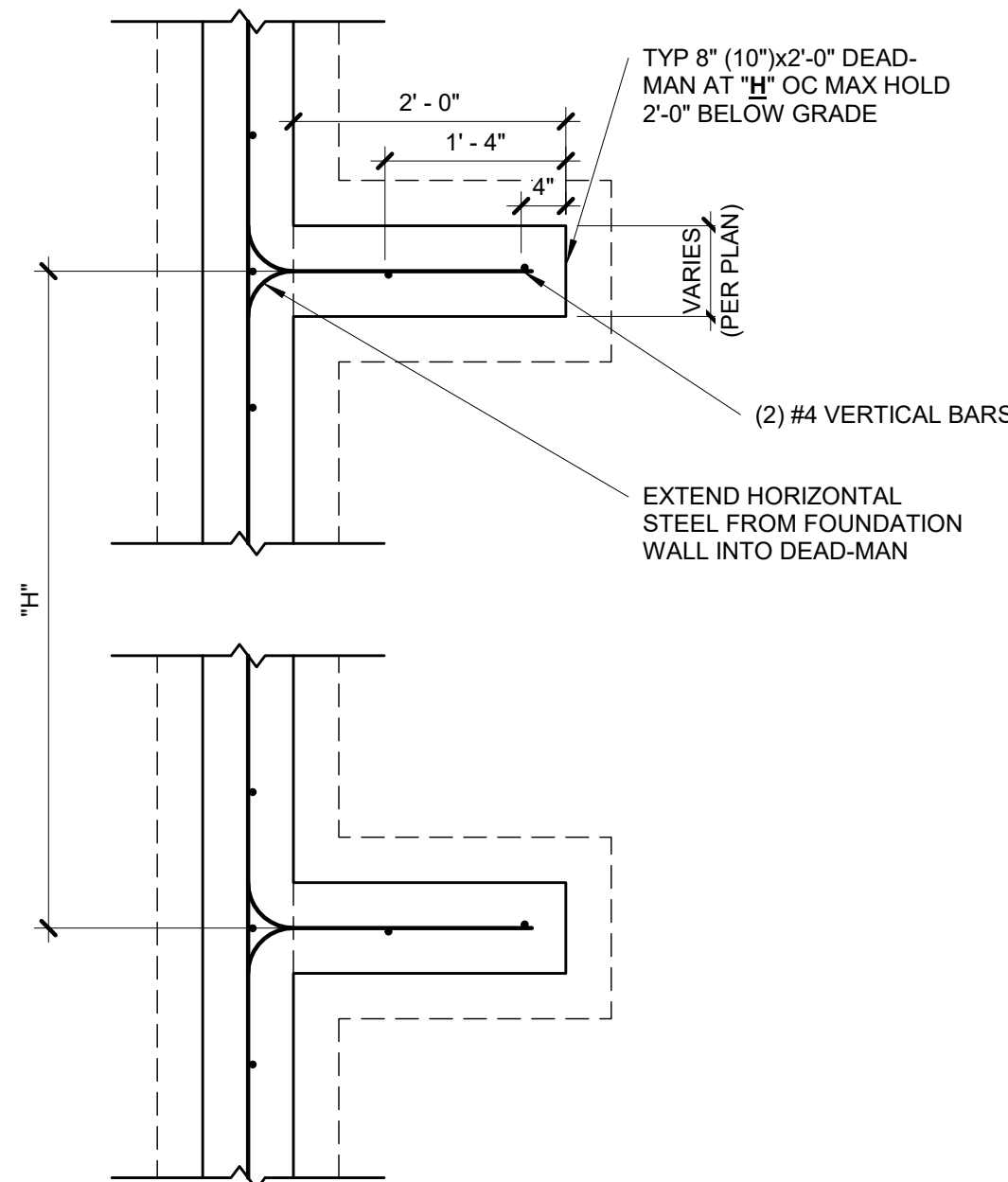
COLUMN MARK	PAD SIZE	REINFORCING	COL SIZE	COL TYPE
A	30"x30"x12"	(4) #4 BARS E-W	3" NOMINAL	SCHEDULE 40 STEEL COLUMN (FY = 58 ksi MIN)
B	36"x36"x12"	(4) #4 BARS E-W	3" NOMINAL	
C	42"x42"x12"	(5) #4 BARS E-W	3" NOMINAL	
D	48"x48"x12"	(6) #4 BARS E-W	3" NOMINAL	
E	54"x54"x16"	(8) #4 BARS E-W	3 1/2" NOMINAL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

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



5 COLUMN PAD DETAIL

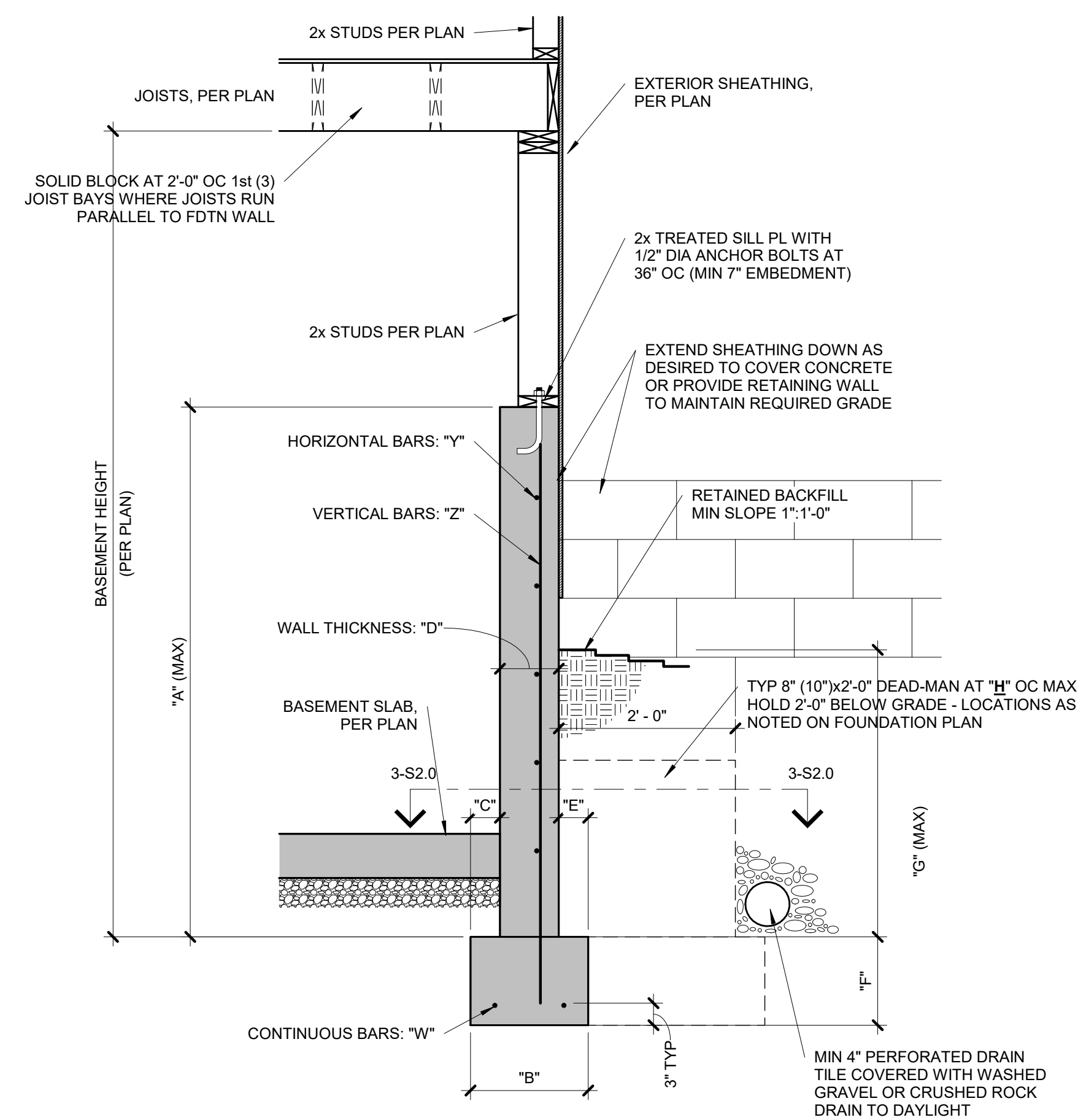
S2.0 3/4" = 1'-0"



- NOTES:
- MIN 3000 PSI FOOTING COMPRESSIVE CONCRETE STRENGTH.
 - MIN 3000 PSI WALL COMPRESSIVE CONCRETE STRENGTH.
 - AIR ENTRAINED BETWEEN 5% & 7% OF CONCRETE VOLUME.
 - GRADE 40 REINFORCING STEEL UNLESS OTHERWISE NOTED.
 - LAP SPLICES 24" MIN.
 - 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.
 - 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"

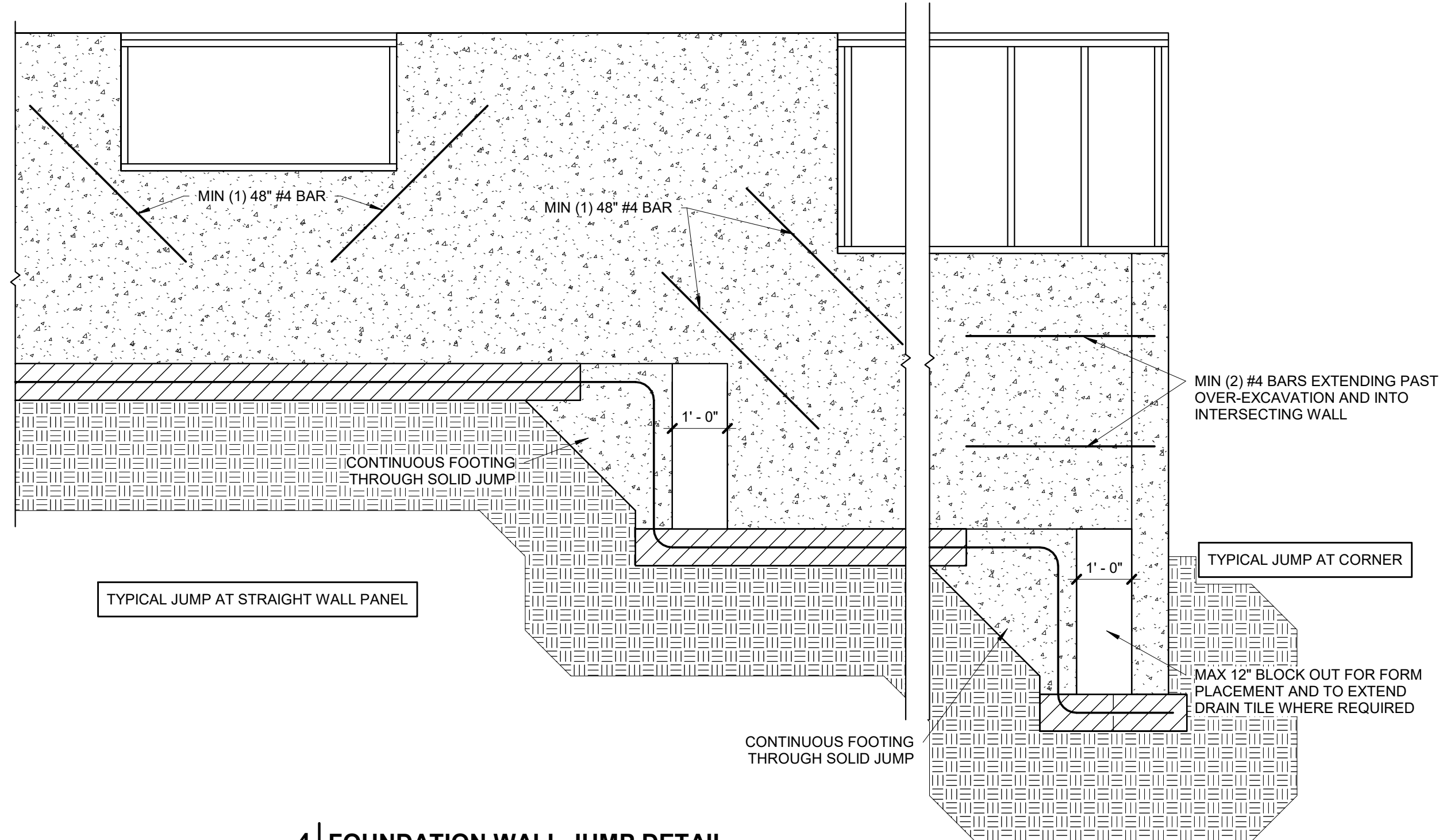
REINFORCING BARS(GRADE 40 BARS)

"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:
- 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.
 - VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.
 - 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.

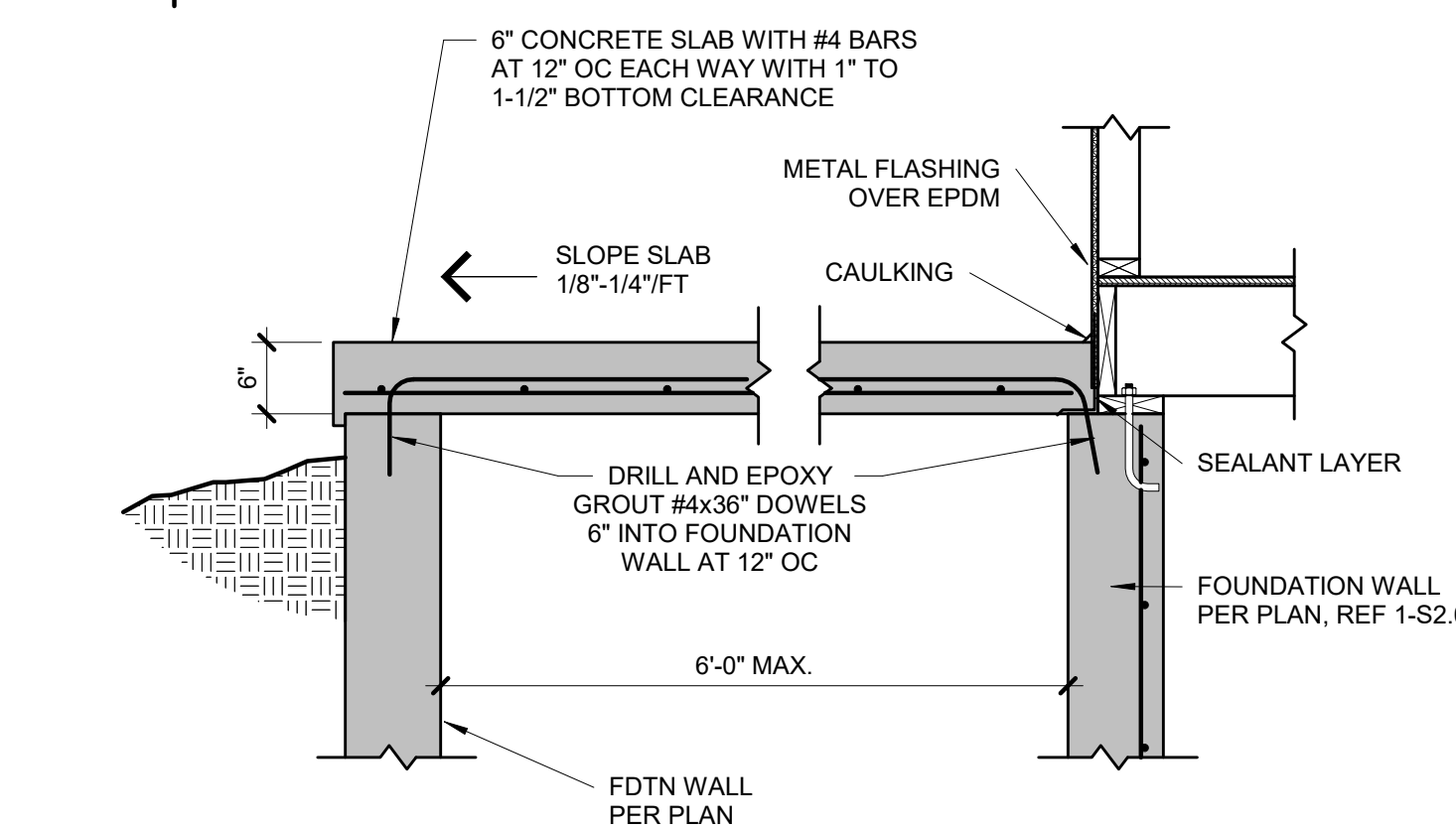
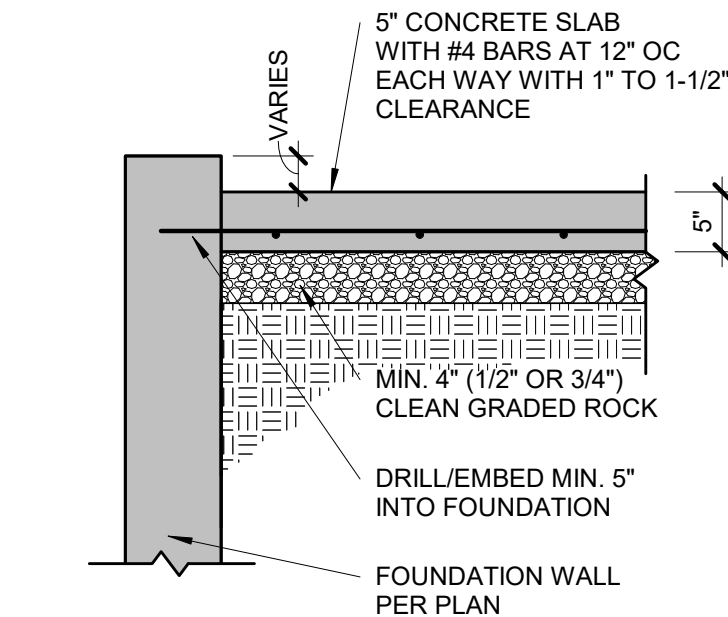
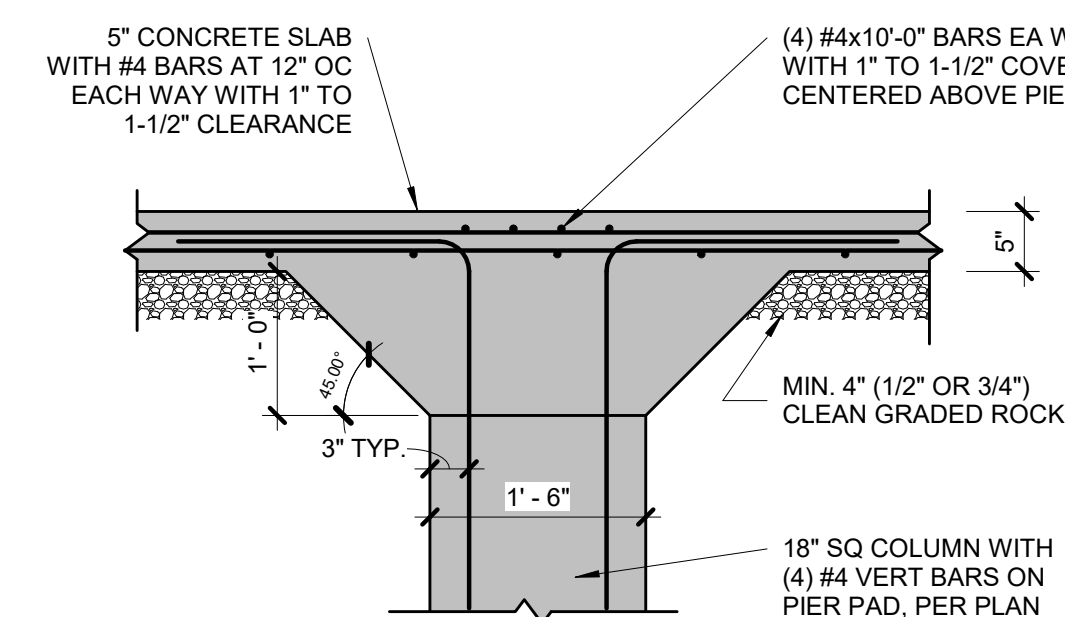
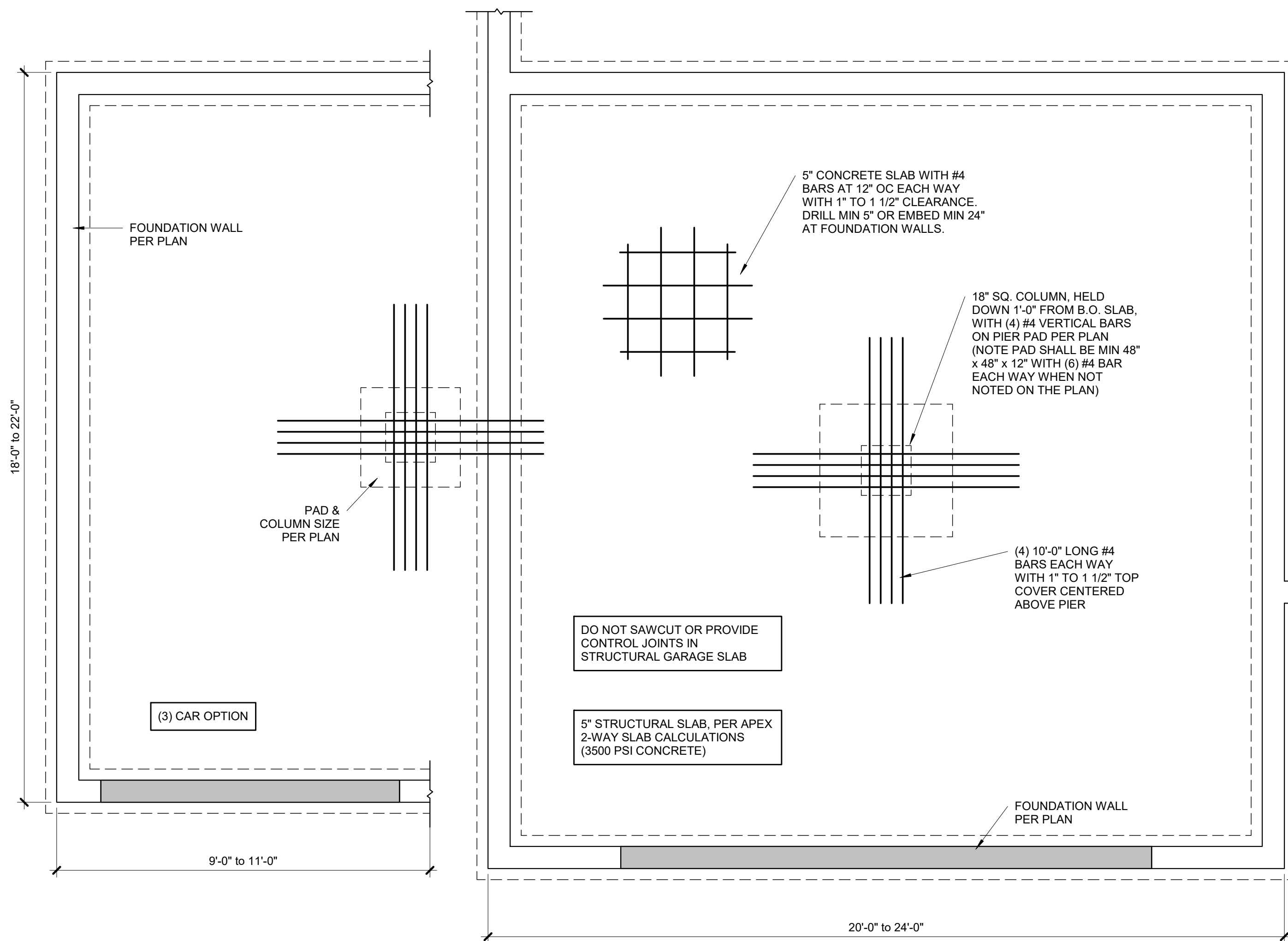
2 TYPICAL 'UNRESTRAINED' FOUNDATION WALL DETAIL

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

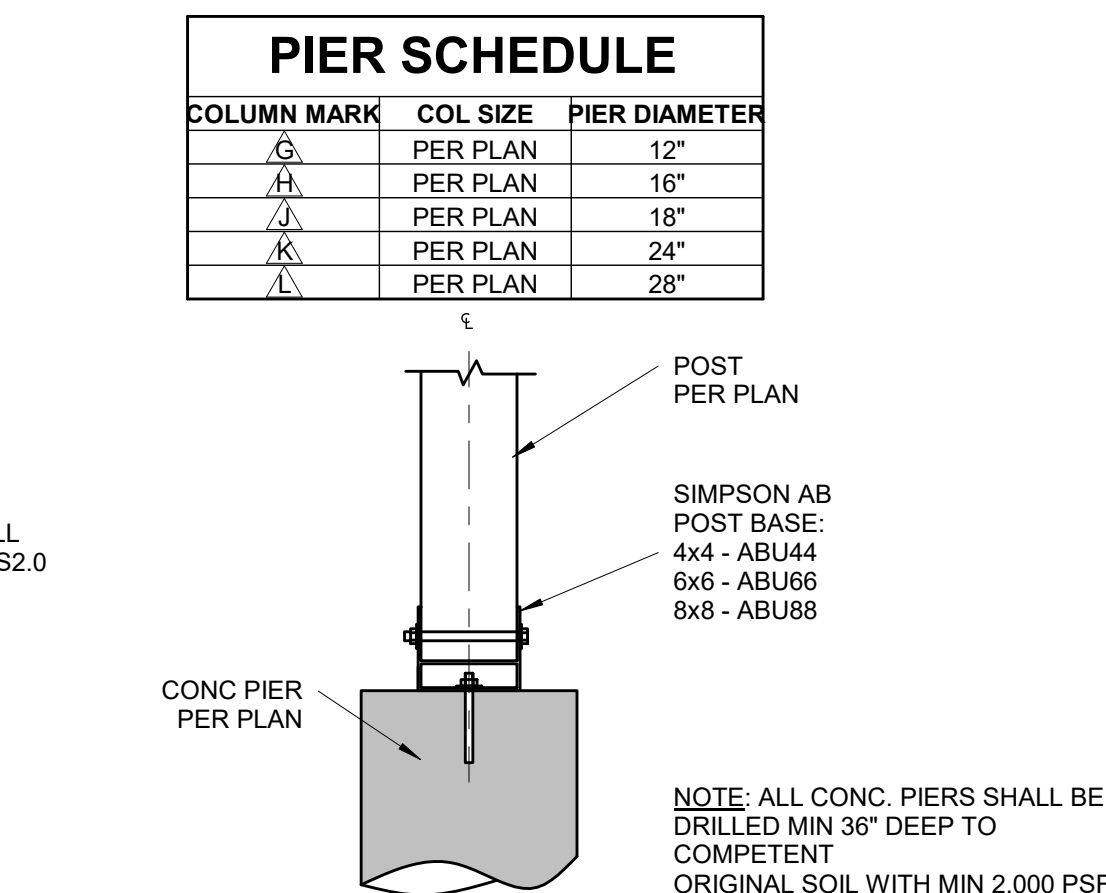


4 FOUNDATION WALL JUMP DETAIL

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

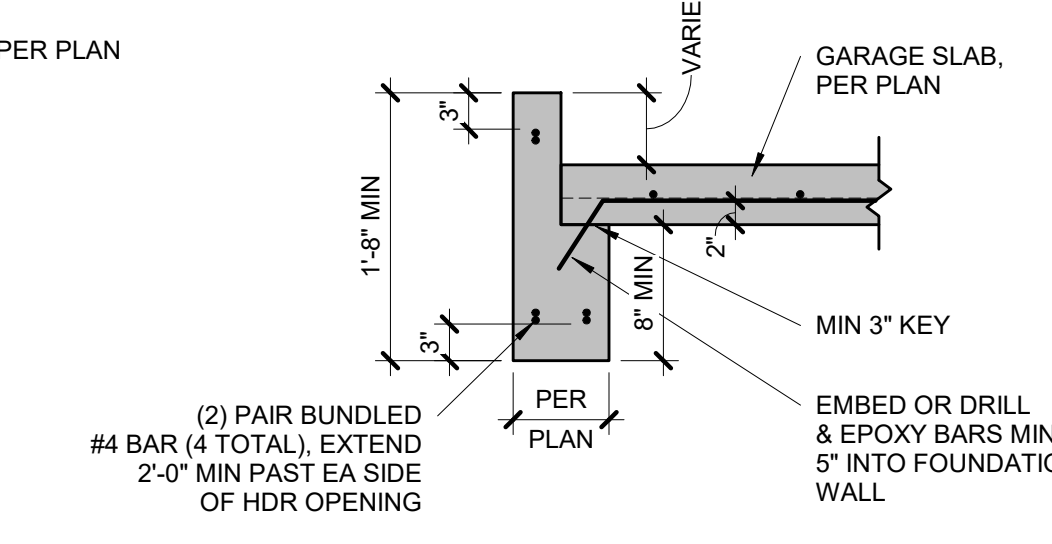
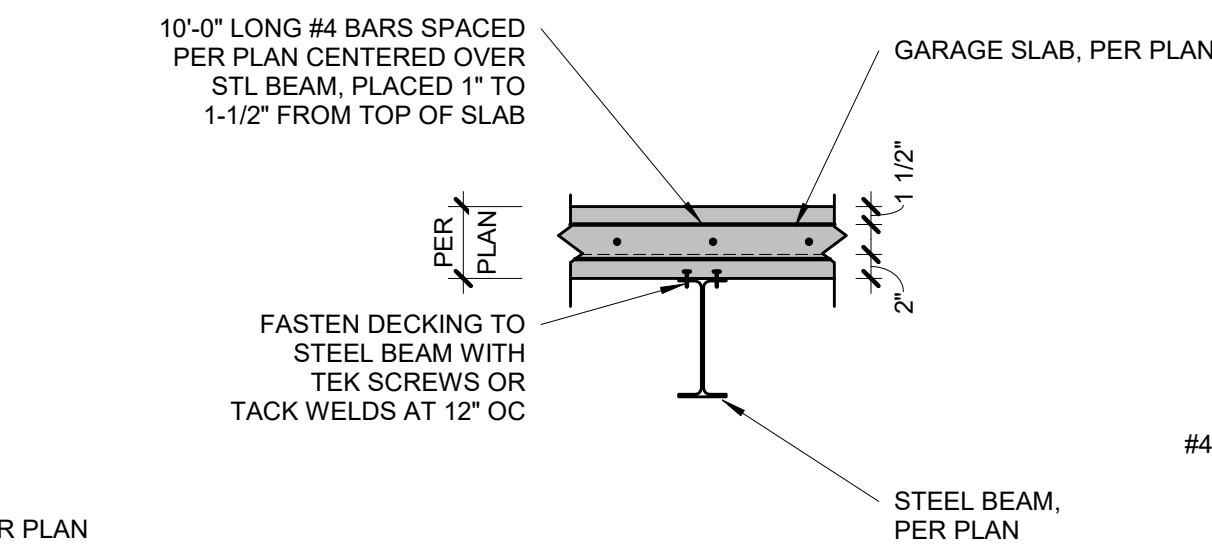
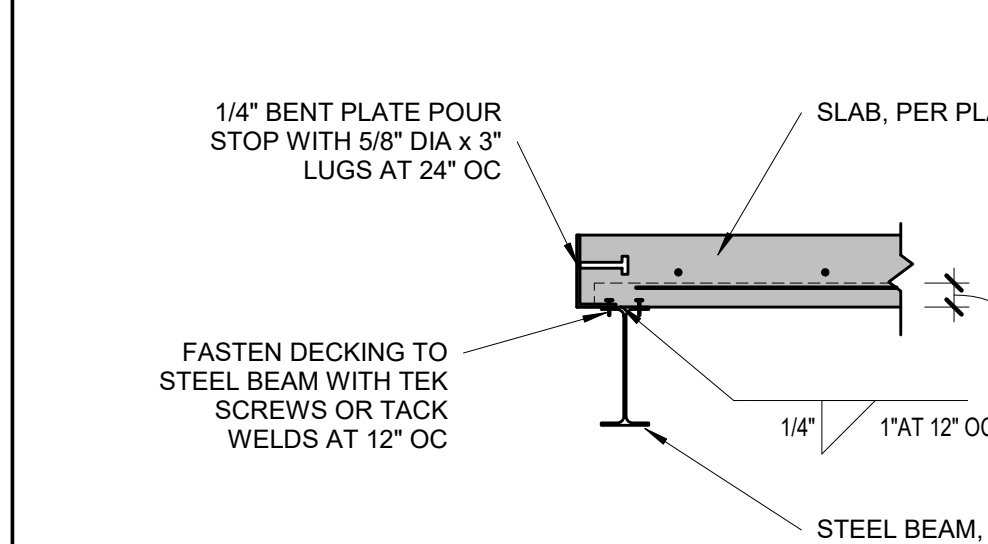
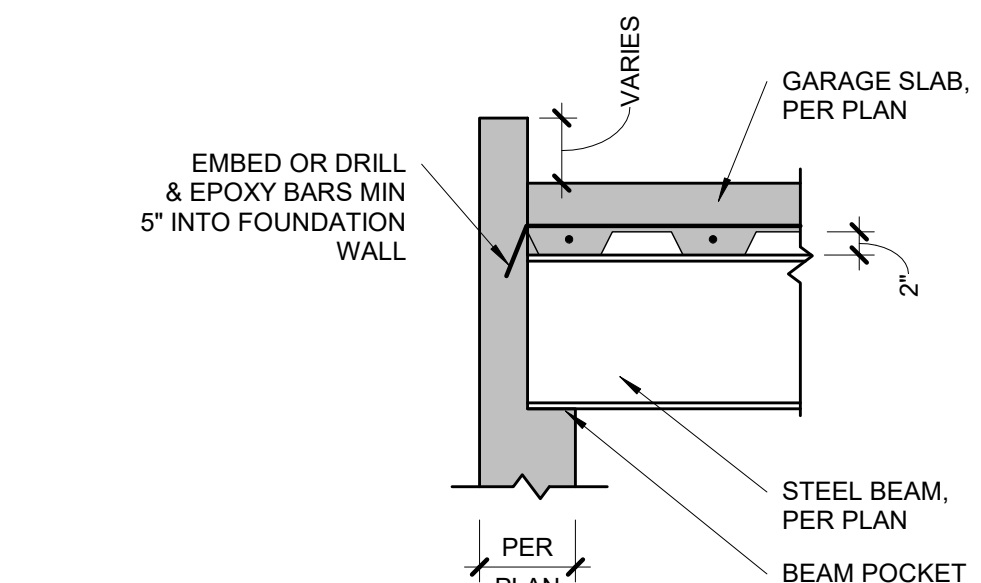
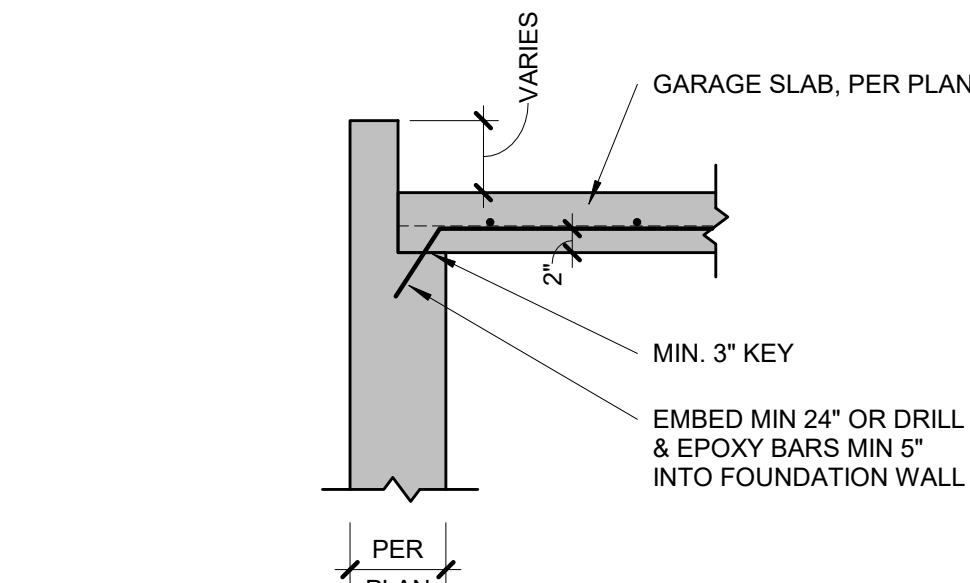
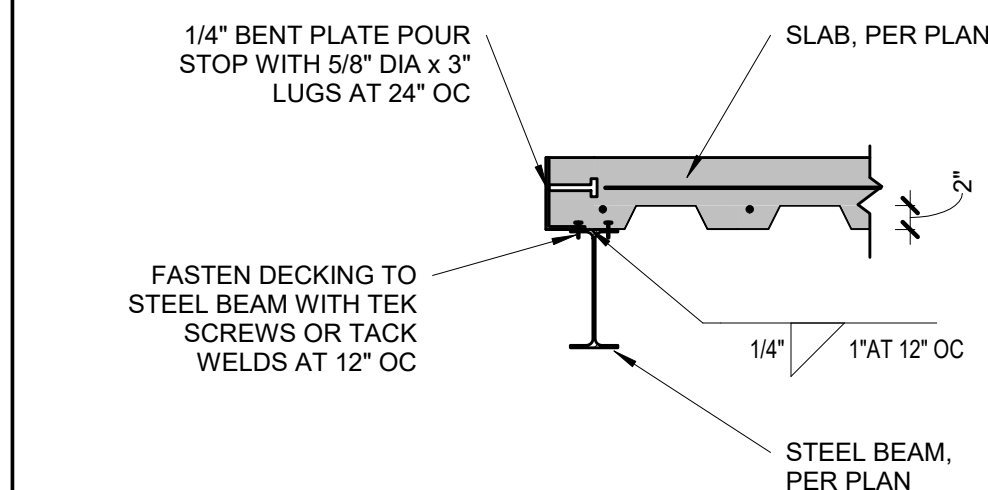
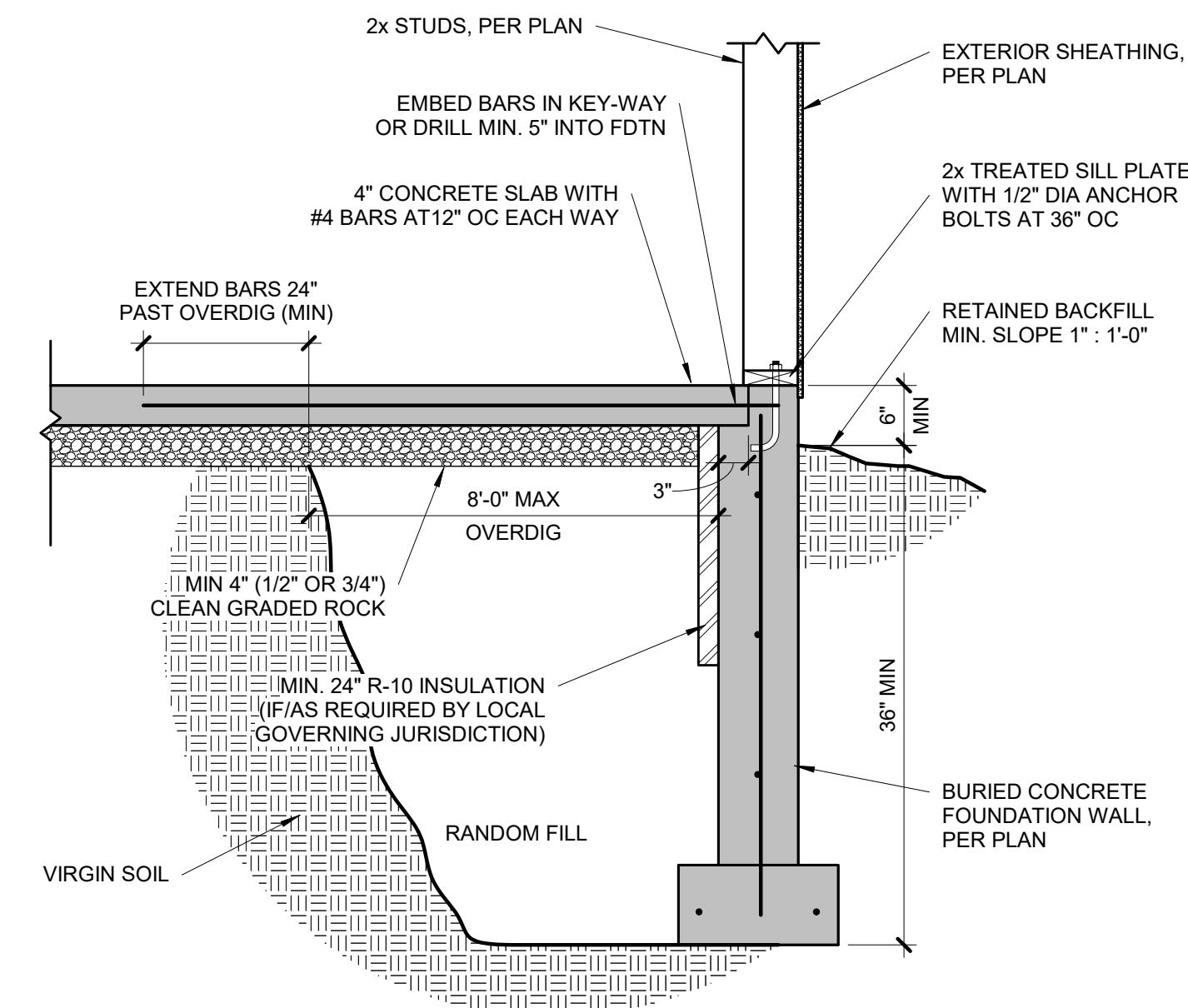
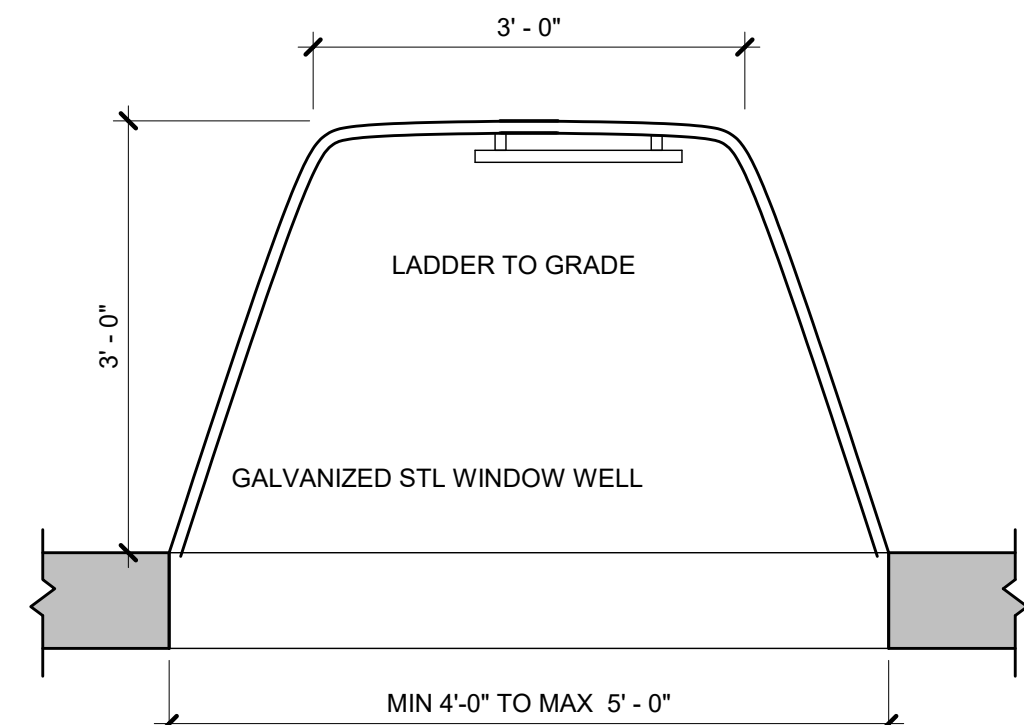
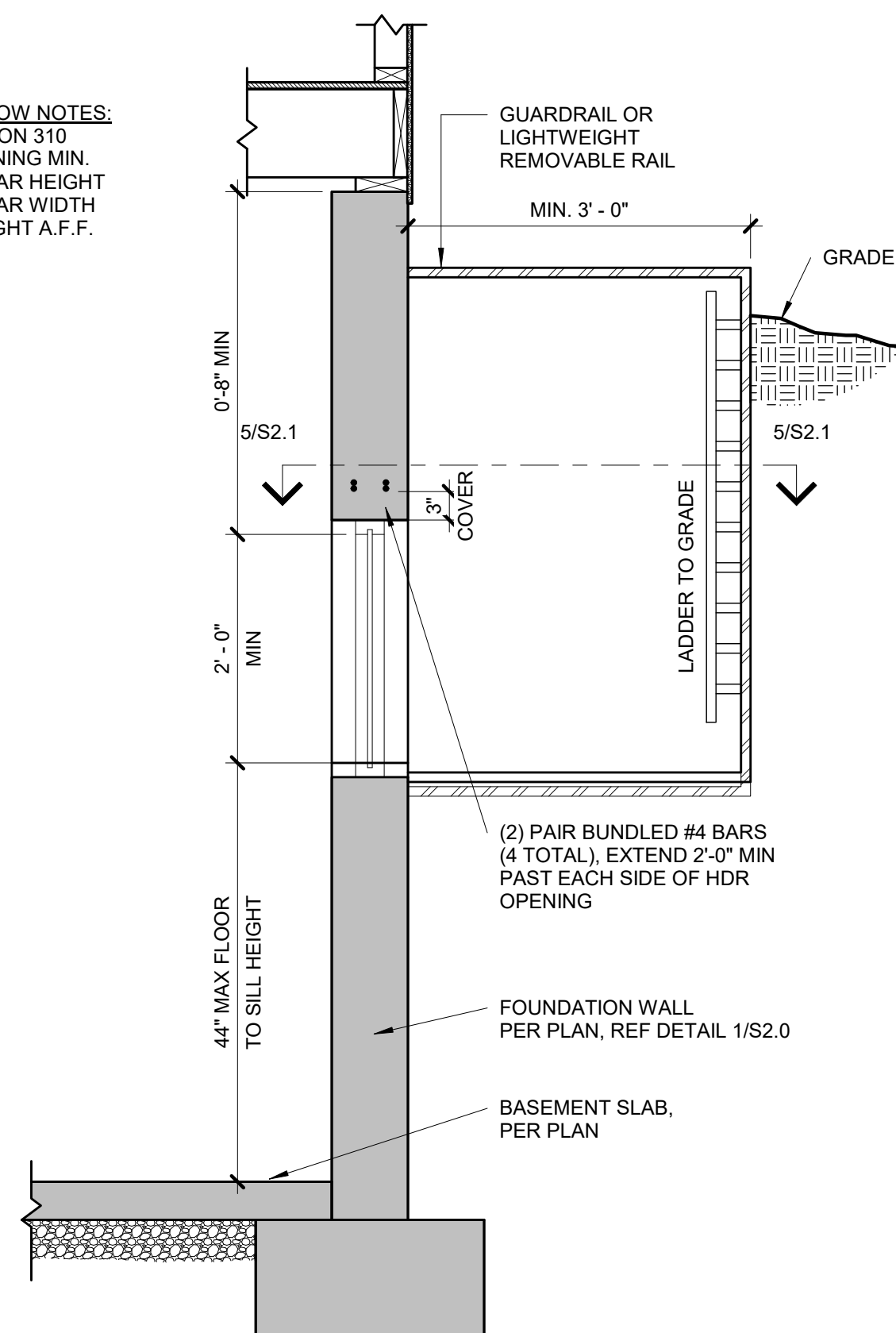


FORMWORK OPTIONS:
1. PROVIDE VULCRAFT 2VLI (OR EQUAL) CORRUGATED DECKING (SHORE AT MID-SPAN DURING CONSTRUCTION).
OR
2. PLYWOOD FORMS WITH EXPANDABLE BAR JOISTS OR TEMPORARY FRAMED WALLS BY CONTRACTOR.



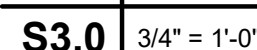
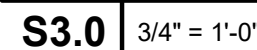
PIER SCHEDULE		
COLUMN MARK	COL SIZE	PIER DIAMETER
G	PER PLAN	12"
H	PER PLAN	16"
J	PER PLAN	18"
K	PER PLAN	24"
L	PER PLAN	28"

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.



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

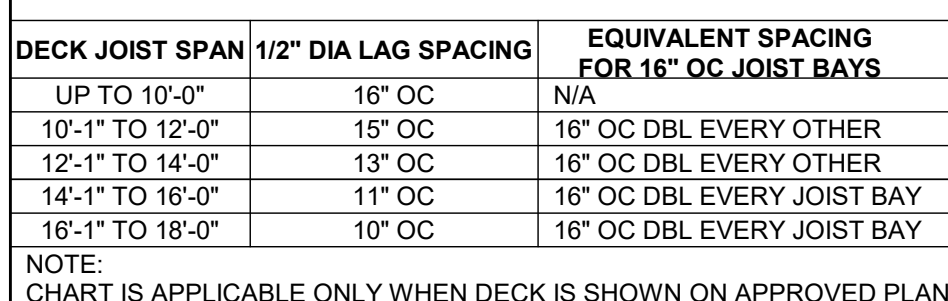
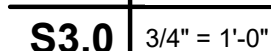
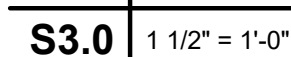


A. LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD. DECREASED UNUSUAL HEIGHTS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

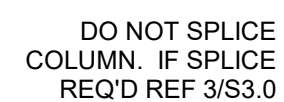
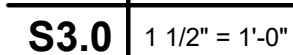
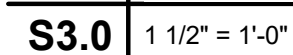
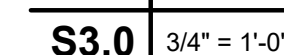
A. WALL STUDS NOT EXCEEDING 16" OC SHALL BE SHEATHED WITH MINIMUM 1/2" GYPSUM BOARD ON THE INTERIOR AND 3/8" WOOD STRUCTURAL PANEL SHEATHING ON THE EXTERIOR. WOOD STRUCTURAL PANEL SHEATHING SHALL BE ATTACHED WITH 8d (2.5" x 0.131") NAILS NOT GREATER THAN 6" OC ALONG PANEL EDGES AND 12" OC AT INTERMEDIATE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

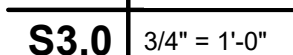


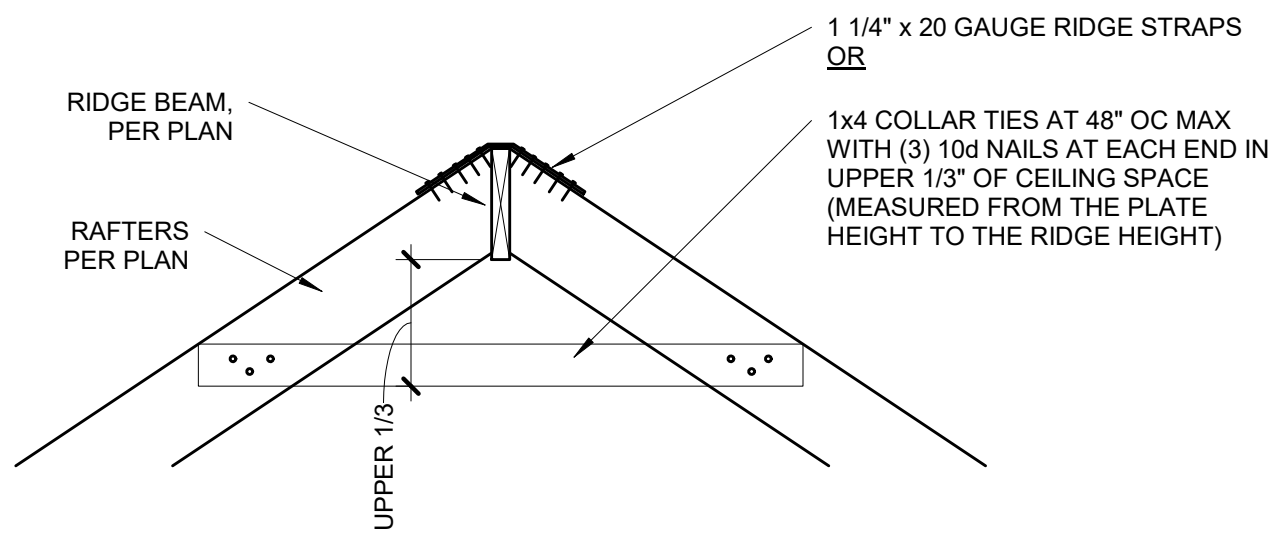
S3.0	3/4" = 1'-0"
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*DISTANCE SHALL BE PERMITTED TO BE REDUCED TO 4 1/2" IF LAG SCREWS ARE USED OR BOLT SPACING IS REDUCED TO THAT OF LAG SCREWS TO ATTACH 2x8 LEDGERS TO 2x8 BAND JOISTS

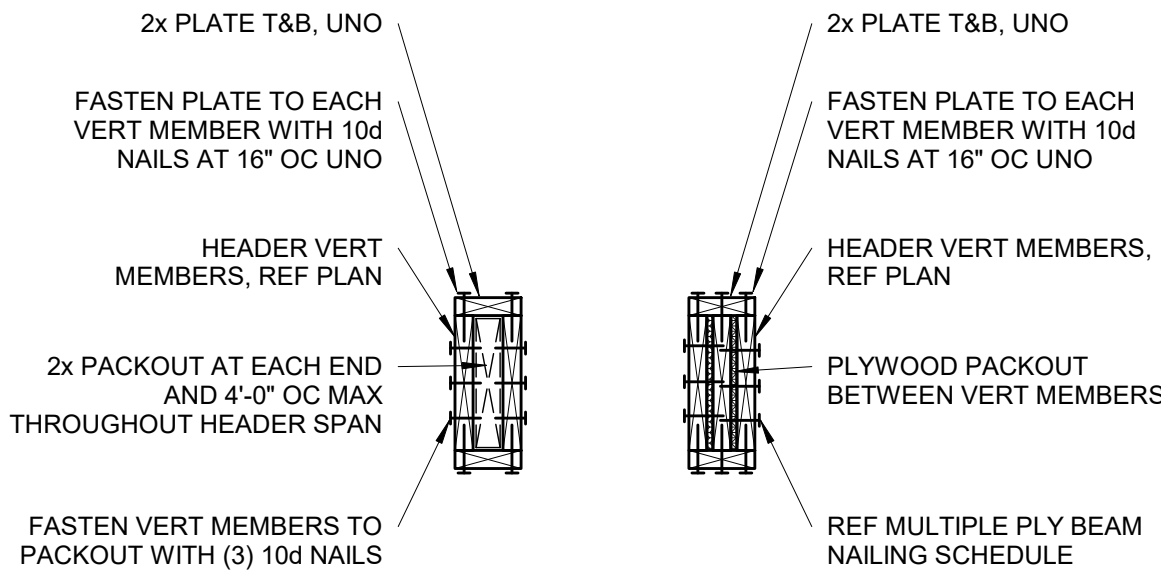


S3.0	1 1/2" = 1'-0"
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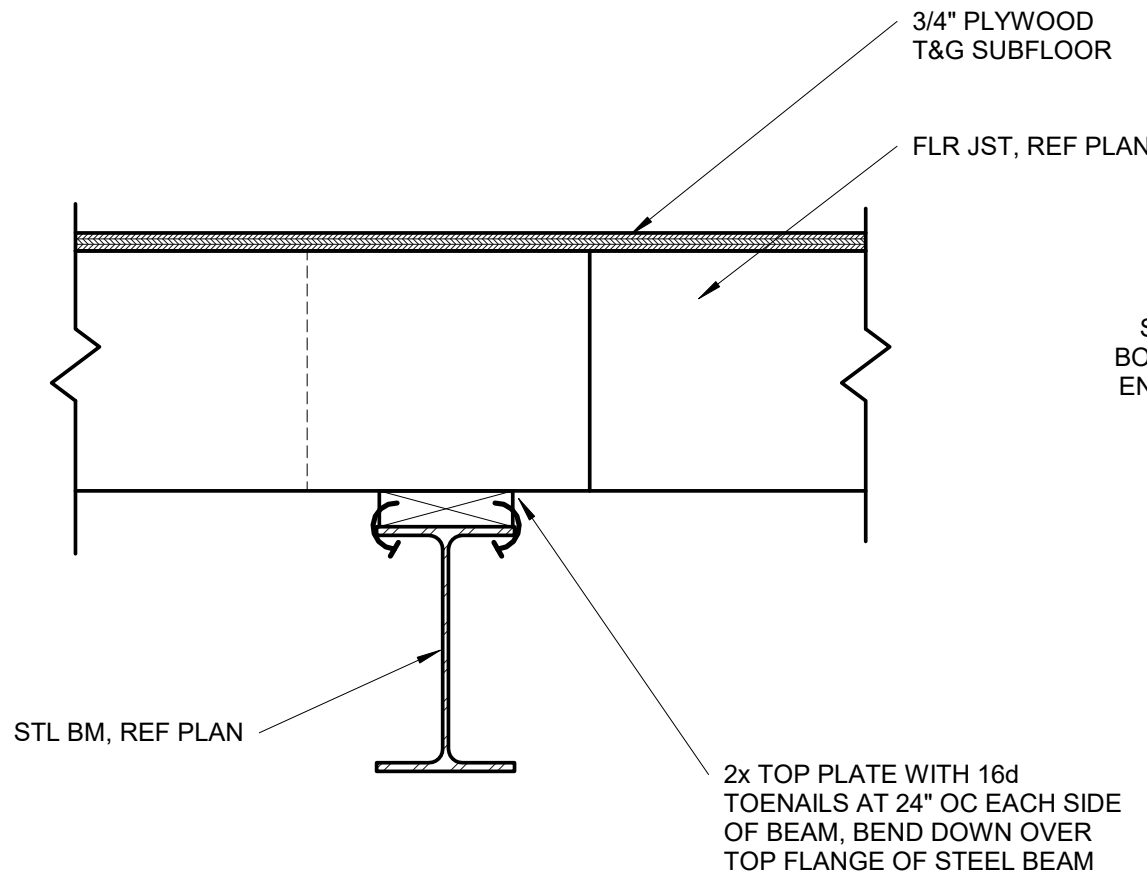
12 | RIDGE BEAM DETAIL
S3.1 | 3/4" = 1'-0"



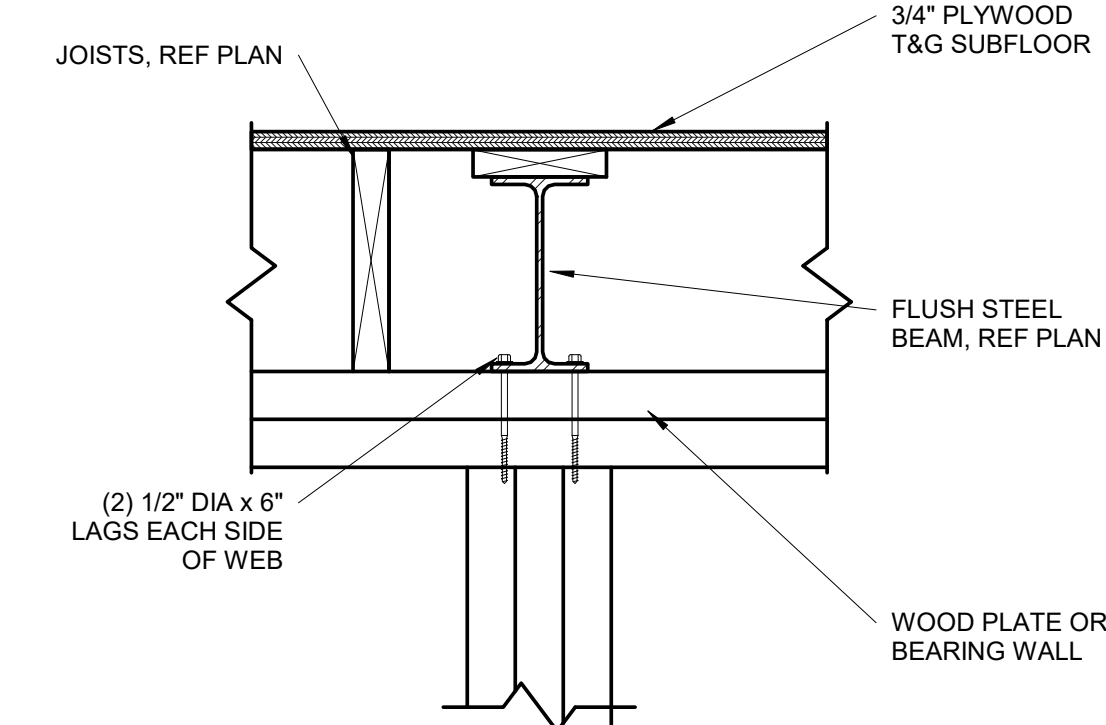
11 | TYPICAL WOOD HEADER DETAIL
S3.1 | NOT TO SCALE

2 - PLY	3 - PLY	4 - PLY
NOTES: 1. NAILING SHOWN APPLIES UNLESS SPECIFICALLY NOTED IN DETAILS. 2. SPACE NAILS EVENLY THROUGHOUT DEPTH OF BEAM.		

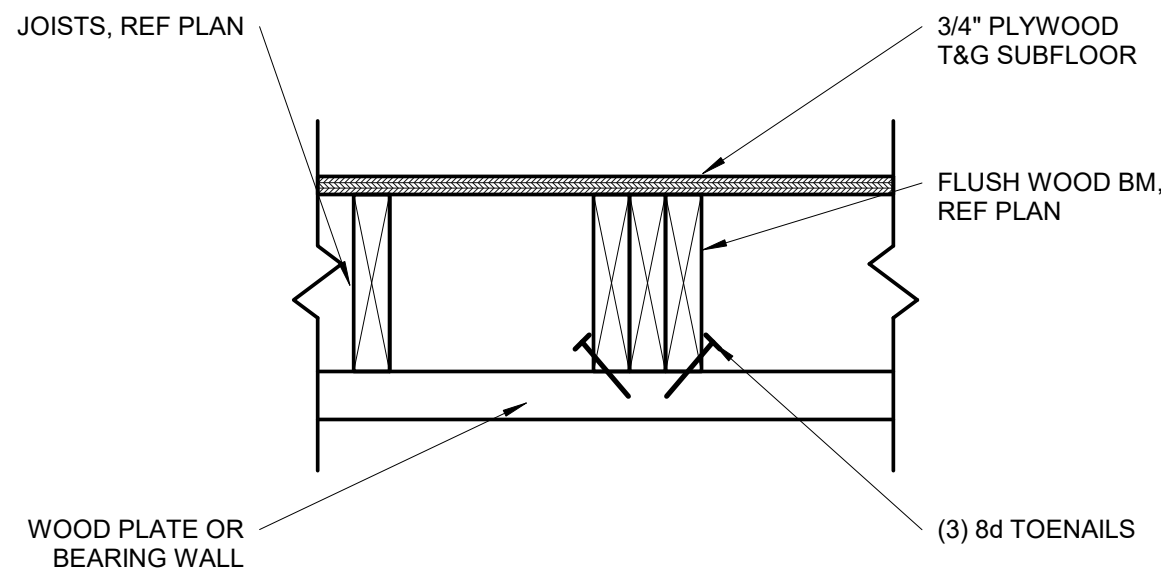
MULTIPLE PLY BEAM NAILING
10 | SCHEDULE
S3.1 | NOT TO SCALE



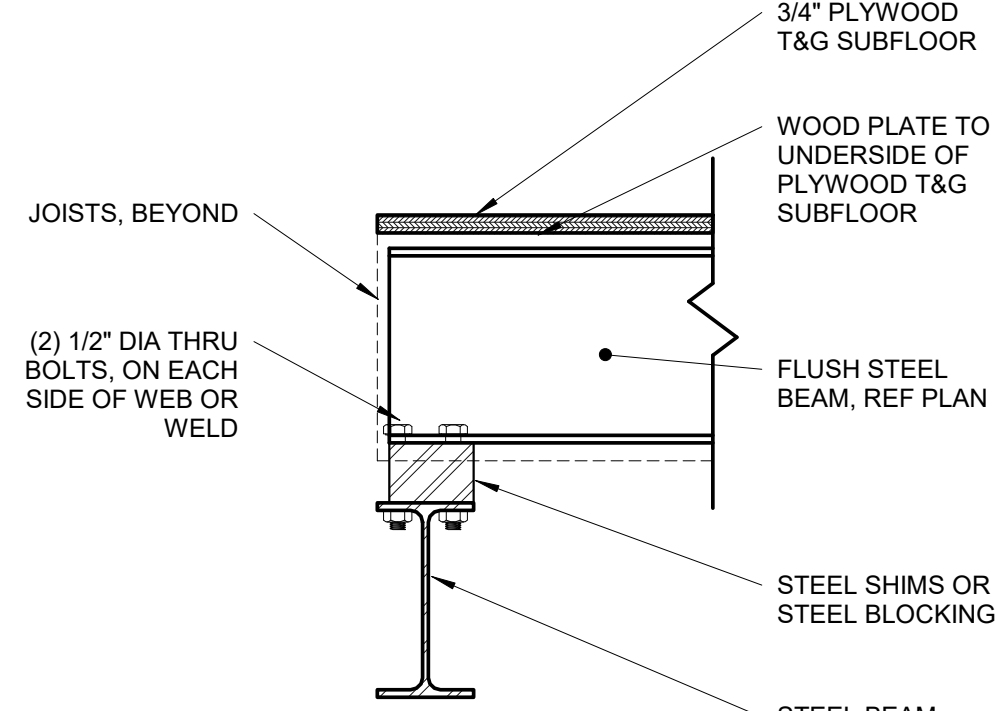
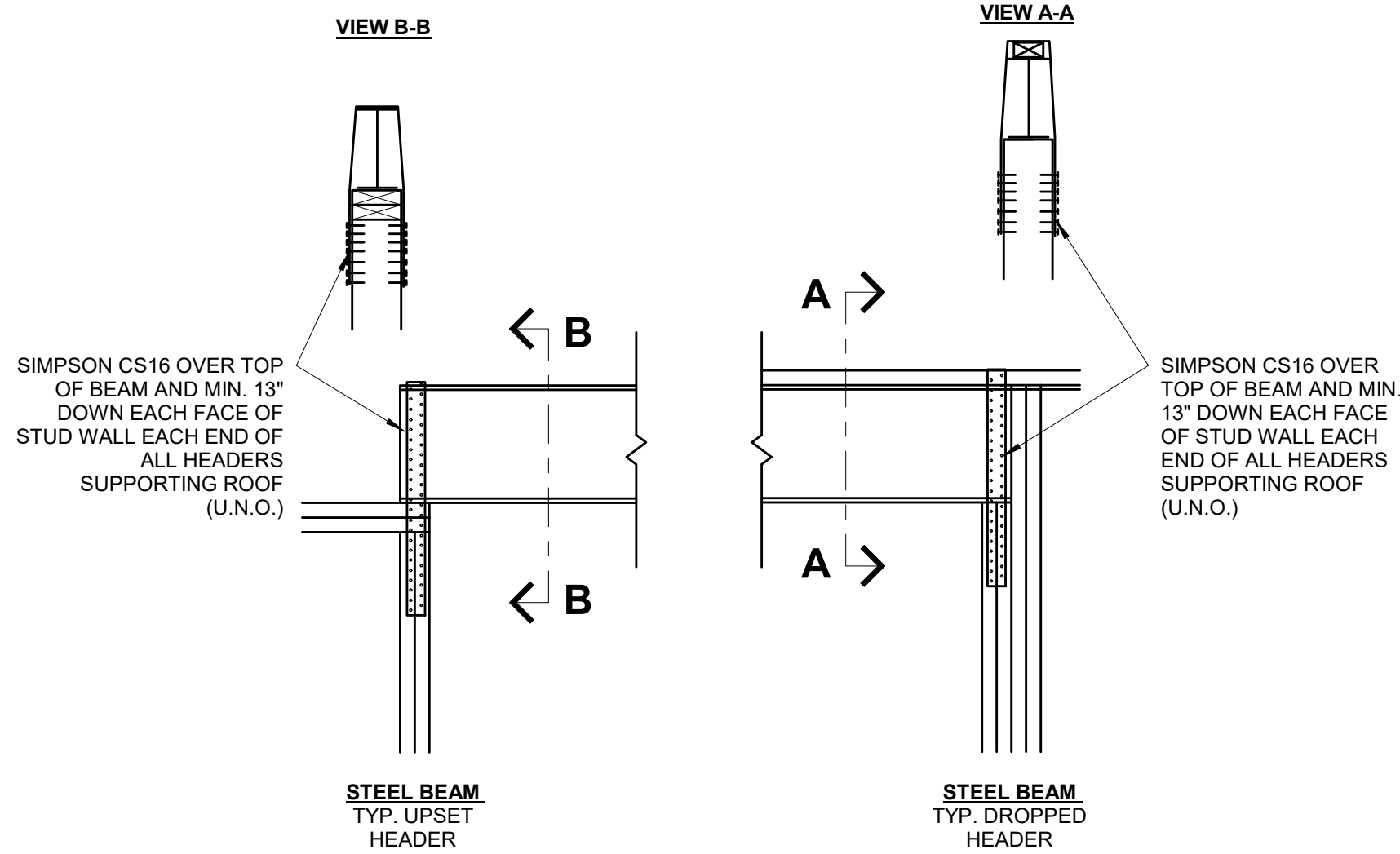
9 | WOOD PLATE TO STEEL BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0"



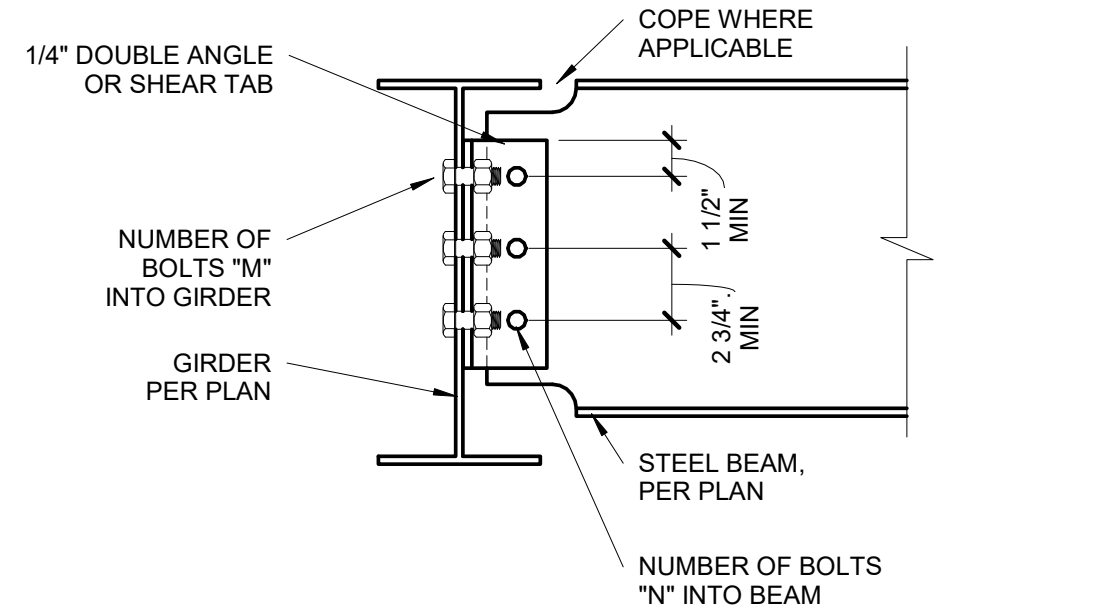
8 | FLUSH STEEL BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0"



7 | FLUSH WOOD BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0"



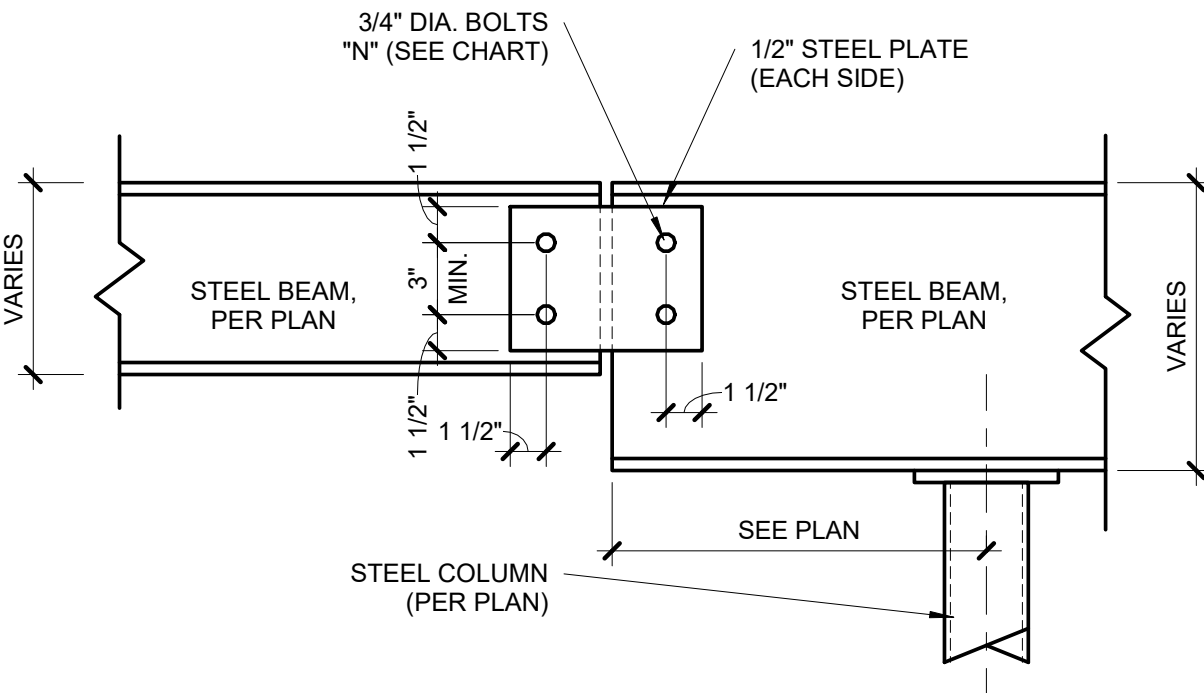
4 | FLUSH STEEL BEAM TO STEEL BEAM
S3.1 | 1 1/2" = 1'-0"



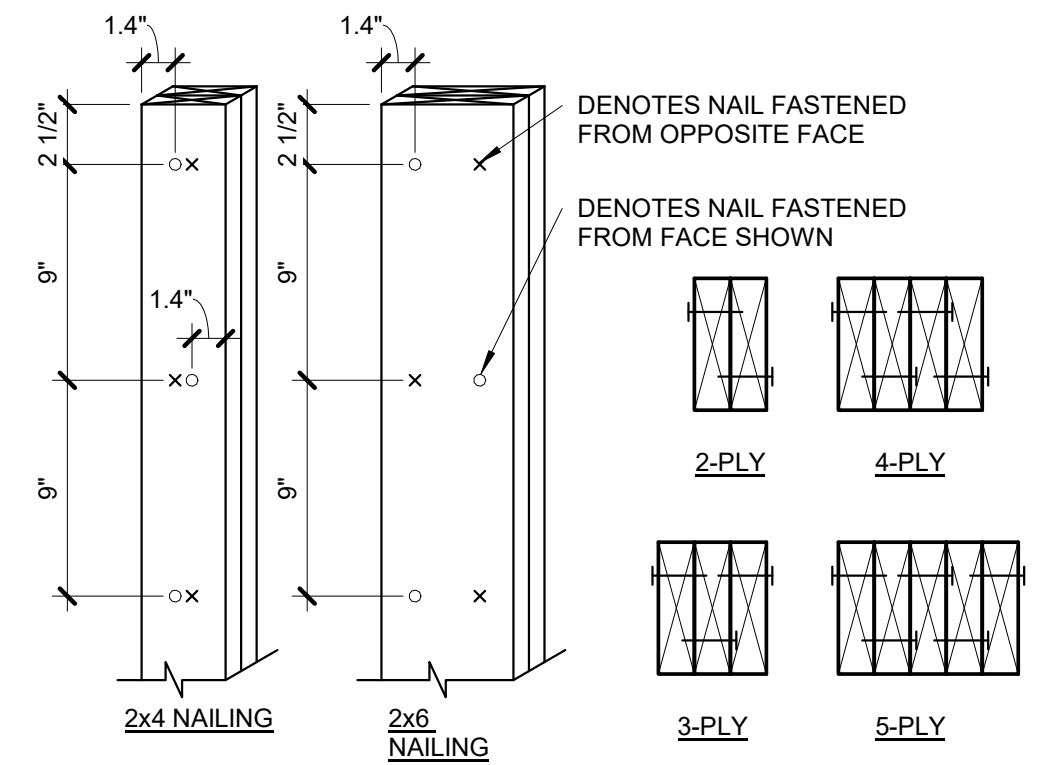
3 | BEAM TO GIRDER CONNECTION
S3.1 | 1 1/2" = 1'-0"

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.



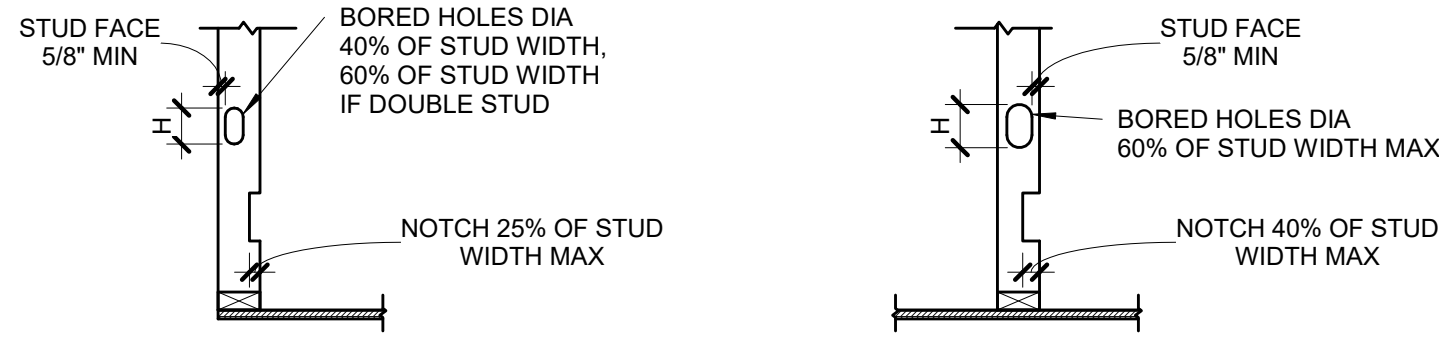
2 | BEAM SPLICE DETAIL
S3.1 | 1 1/2" = 1'-0"



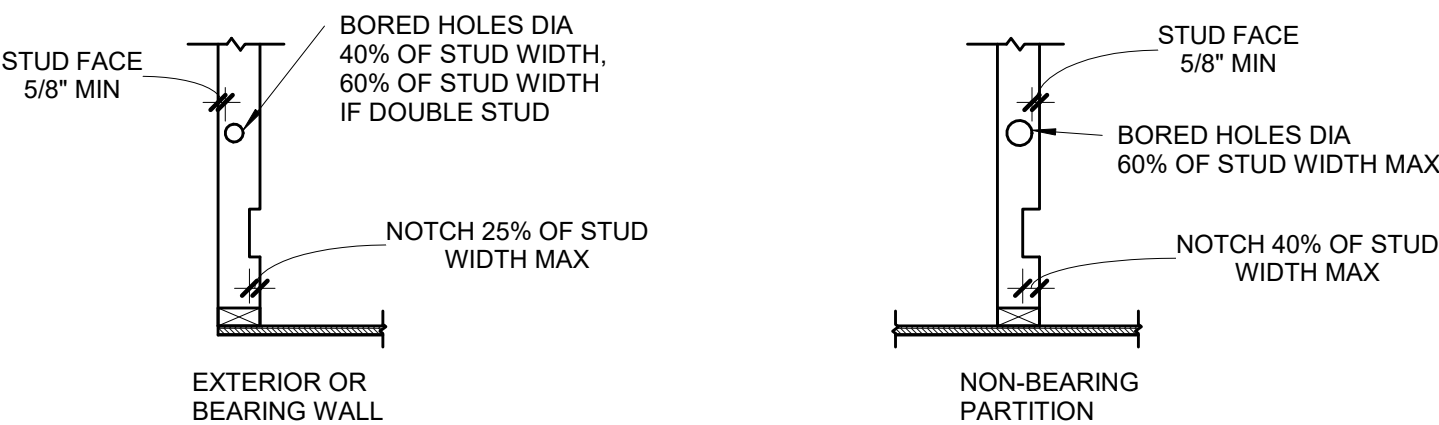
- NOTES:
1. EACH 2x PLY SHALL BE FASTENED WITH (1) ROW OF 10d NAILS AT 9" OC, ALTERNATING SIDE TO SIDE.
2. 1.4" MIN EDGE DISTANCE, AND STARTING 2 1/2" FROM EACH END. EXTEND FULL AREA OF COLUMN AS SOLID BLOCKING THROUGH JOIST BAYS AND WALLS TO LOAD-BEARING BEAM/WALL BELOW.

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)



ALTERNATE FOR OBLONG BORED HOLES



PENETRATIONS THRU STUDS					
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"	3 5/16"	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"	

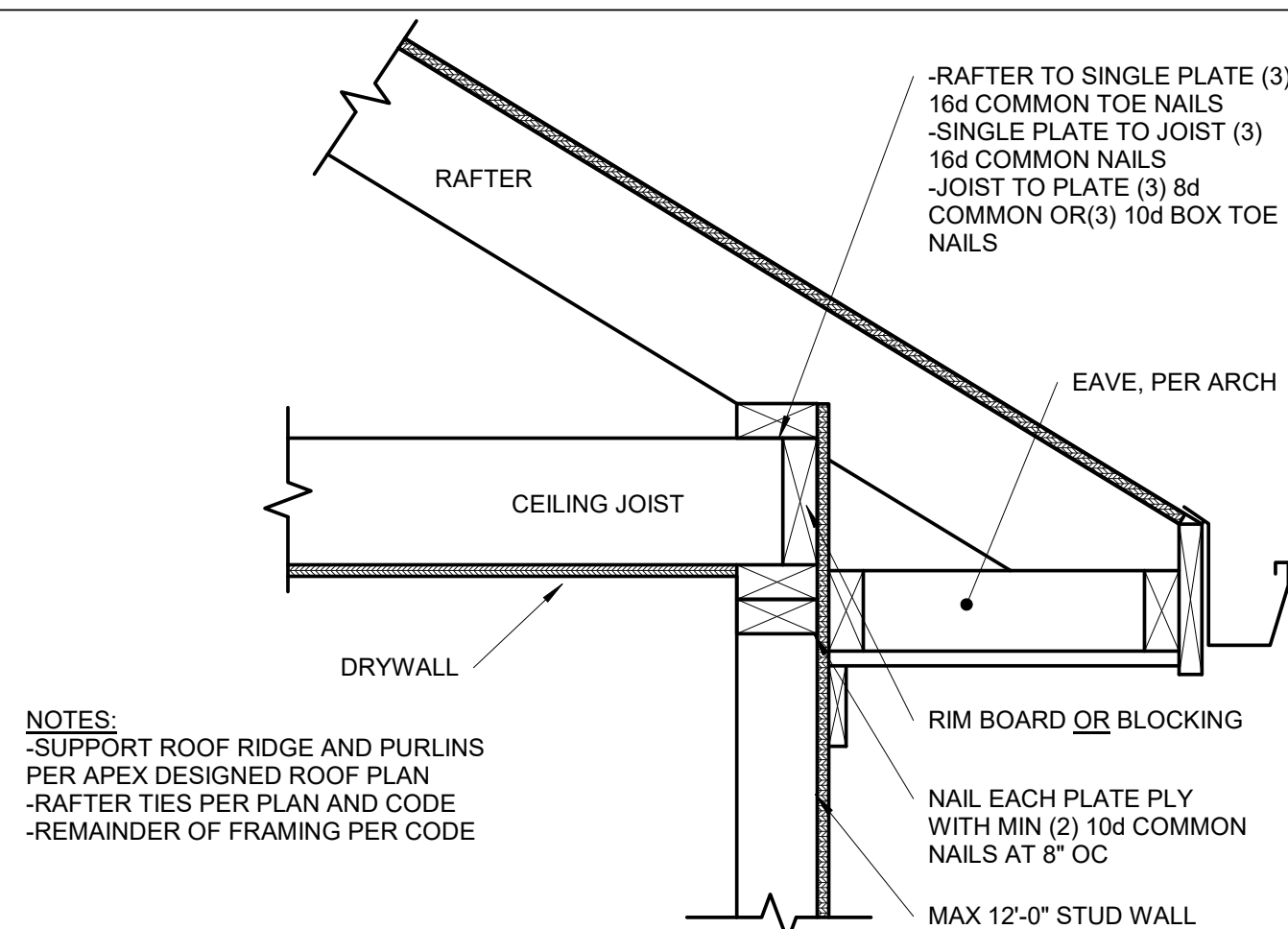
PLATES:
TOP AND BOTTOM PLATE HOLE, CUT OR NOTCH THAT IS 50% MORE OF WIDTH MUST BE REPAIRED USING 16 GA (MIN) METAL TIE THAT IS AT LEAST 1-1/2" WIDE IF WALL IS A SHEAR WALL IT MUST BE REPAIRED USING HARDY FRAME SADDLE (HFS).

WALL SIZE	HOLE SIZE
2x4	1 3/4"
2x6	2 3/4"
2x8	3 5/8"

VERTICAL HOLE SIZE (H)
D+1/2" AT Lvl 1&2
D+1" AT Lvl 3
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

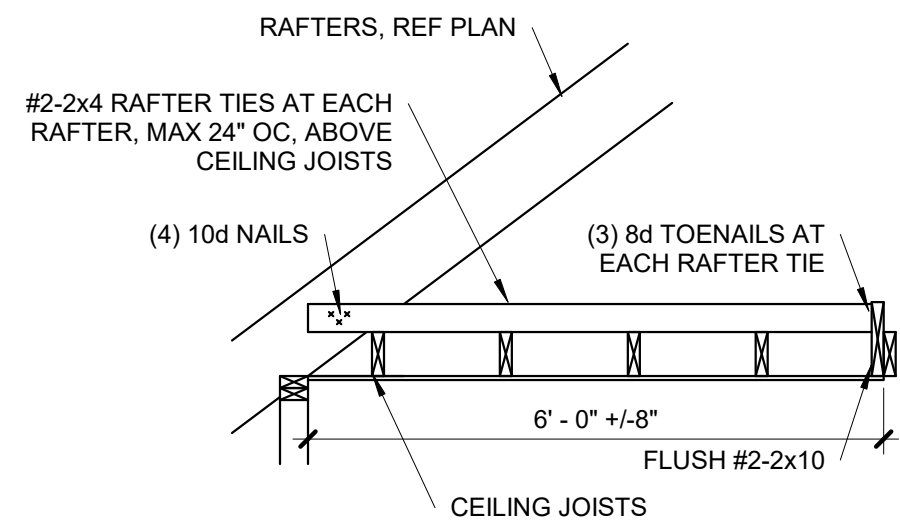
5 | DRILLING & NOTCHING DETAIL
S3.1 | 3/4" = 1'-0"



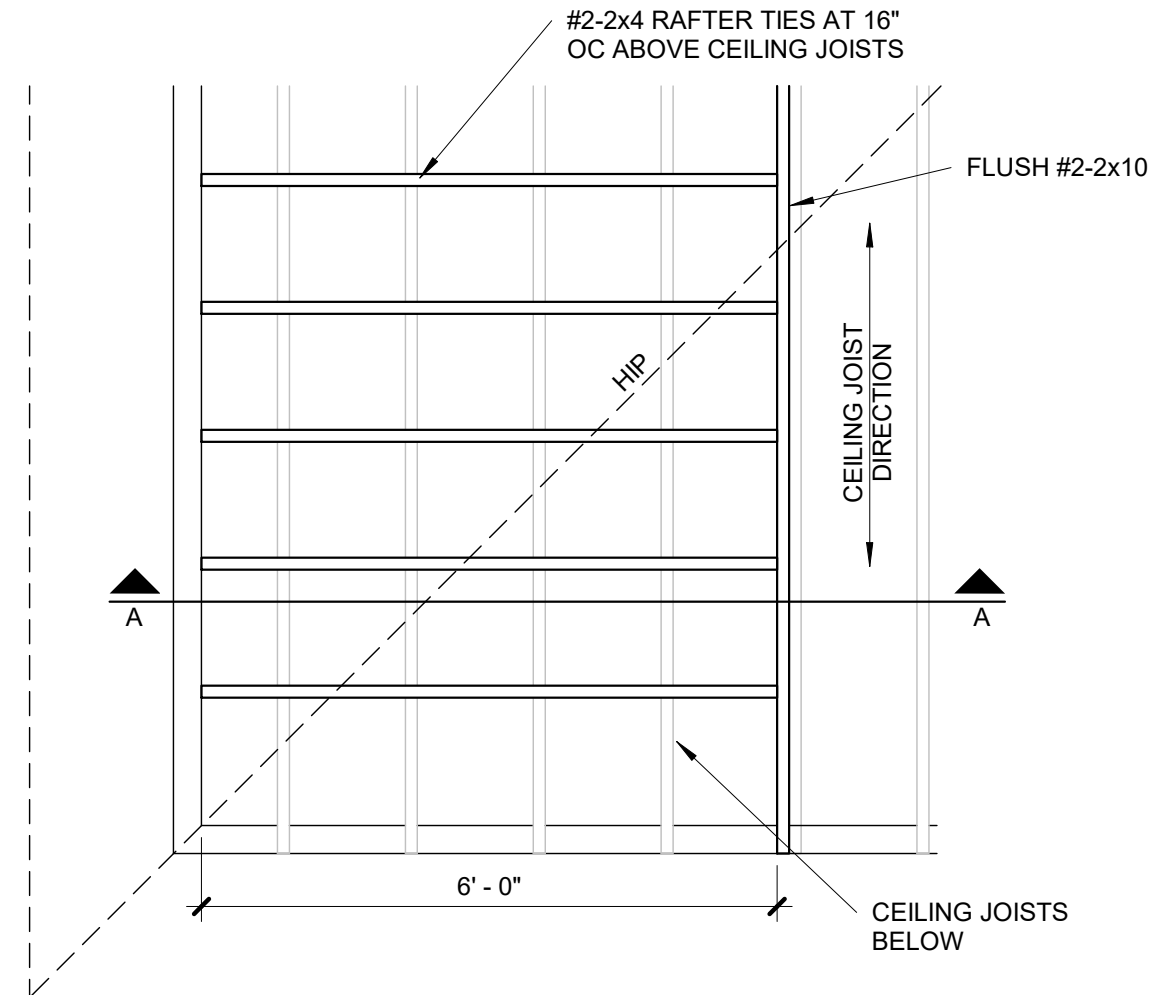
UPLIFT CONNECTION SCHEDULE			
OVERHANG SPAN: 1'-1" TO 1'-3"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
16" OC	SIMPSON H2.5A	(1) AT 32" OC	(1) AT 16" OC
24" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
OVERHANG SPAN: 1'-10" TO 2'-5"			
RAFTER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

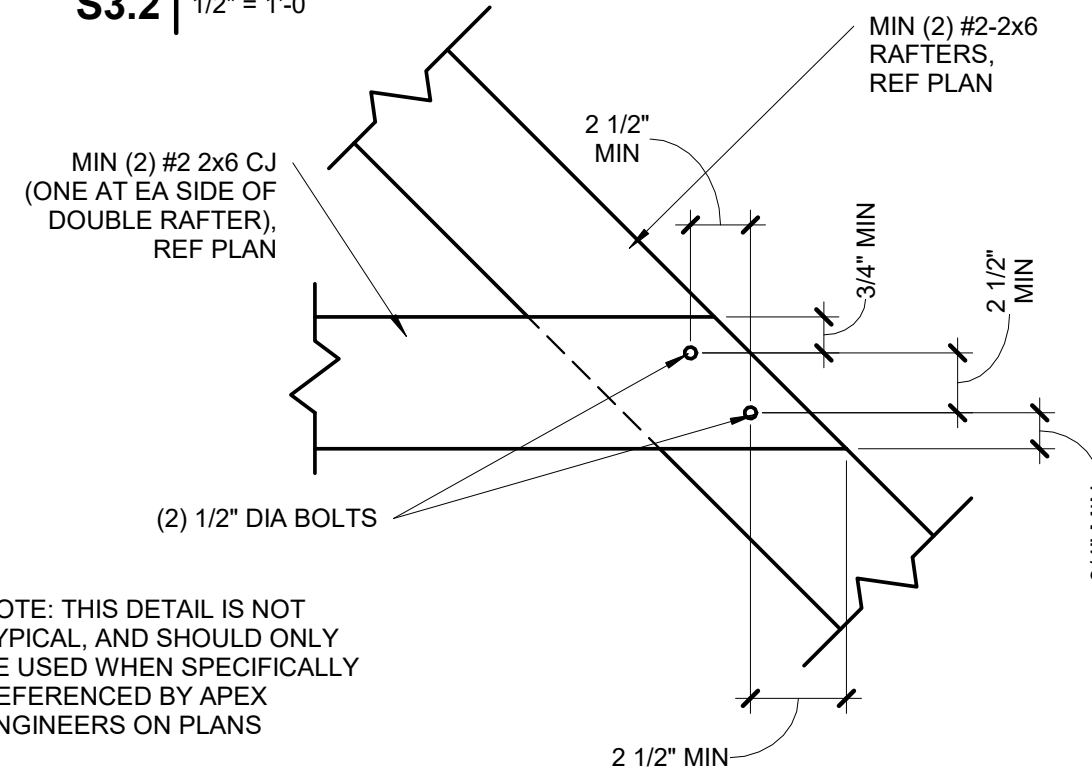


A-A SECTION



3 | ROOF WITH PERP CEILING JOISTS

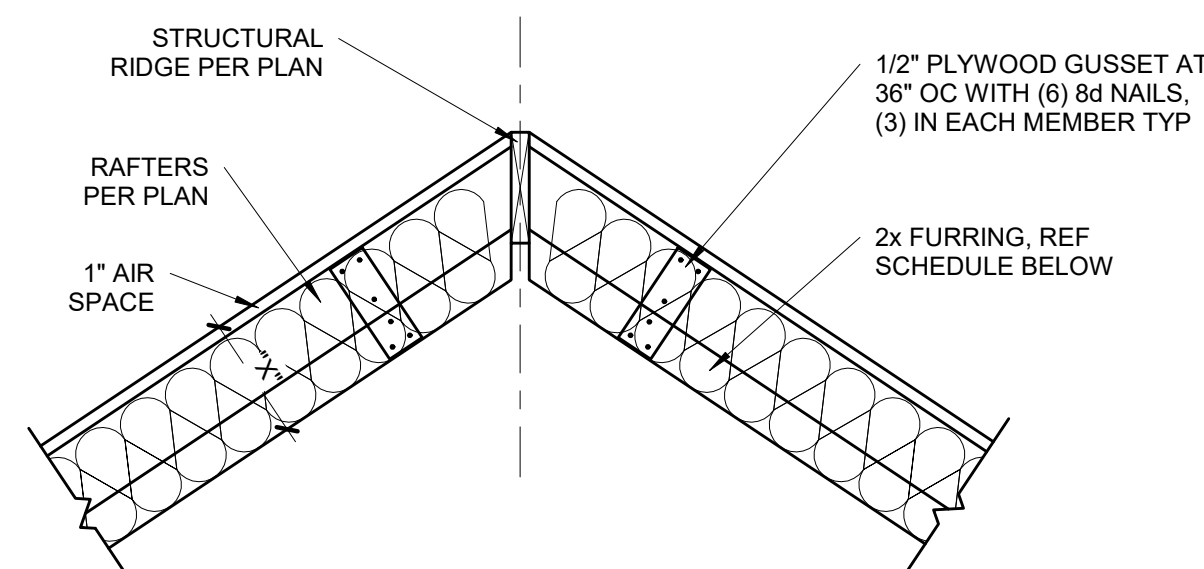
S3.2	$1/2'' = 1'-0$
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NOTE: THIS DETAIL IS NOT
TYPICAL, AND SHOULD ONLY
BE USED WHEN SPECIFICALLY
REFERENCED BY APEX
ENGINEERS ON PLANS

2 | BOLTED RAFTER HIP CONNECTION

S3.2	$1\frac{1}{2}'' = 1'-0''$
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FURR OUT SCHEDULE

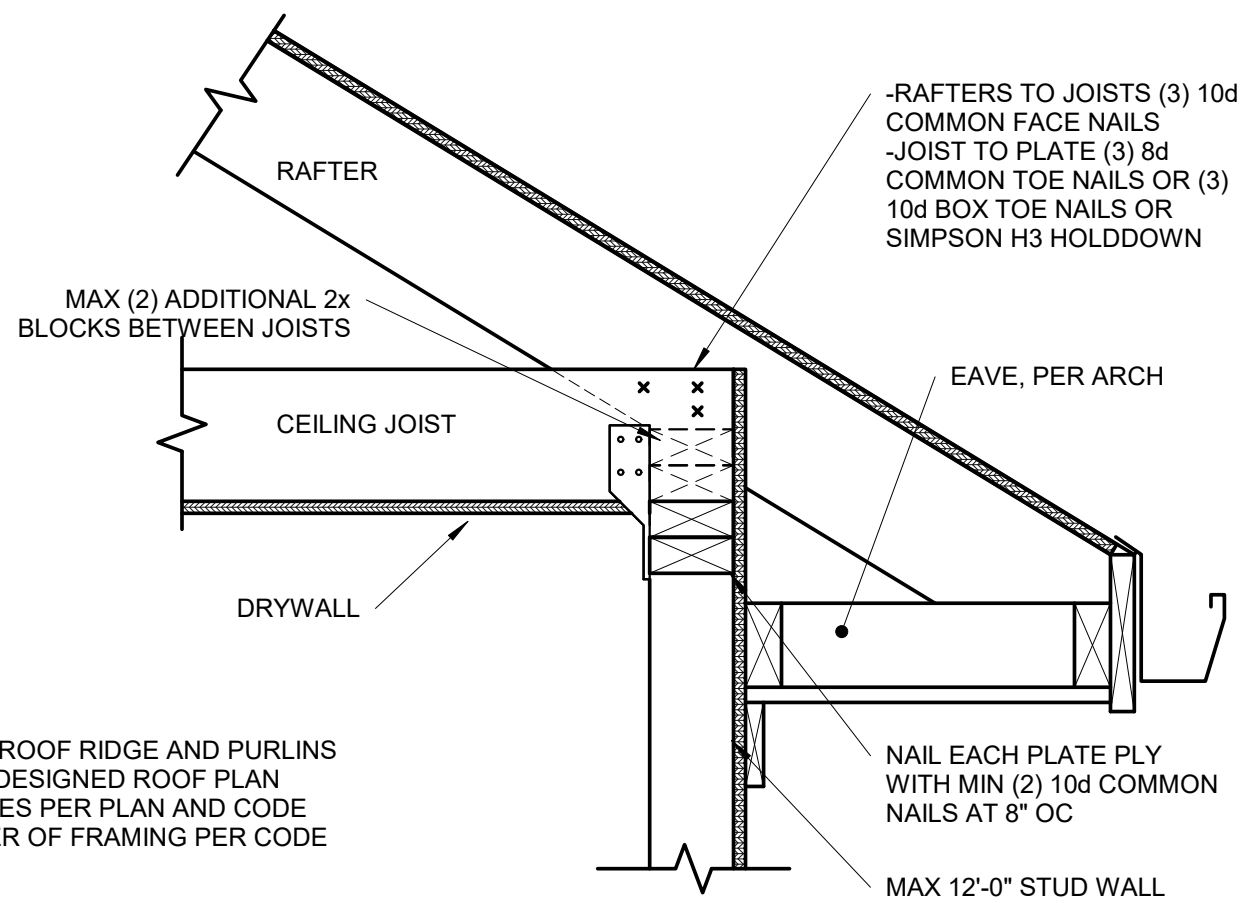
RAFTER SIZE	R-30C INSULATION (X= 9 1/4")	R-38C INSULATION (X=11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	REQUIRED

NOTES:

1. ALL VAULTED RAFTERS SHALL BE #2-2x6 D-F-L, MINIMUM, AT 16" OC, PER SPAN CHART, UNLESS NOTED OTHERWISE.
2. ALL VAULTS SHALL BE FURRED DOWN WITH 2x4 FRAMING TO THE REQUIRED DEPTH TO PROVIDE A MINIMUM OF 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 NOT TO VAULT TO A HEIGHT THAT IS LESS THAN 50 SQUARE FEET OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA, WHICHEVER IS LESS, (PER N1102.2.2)

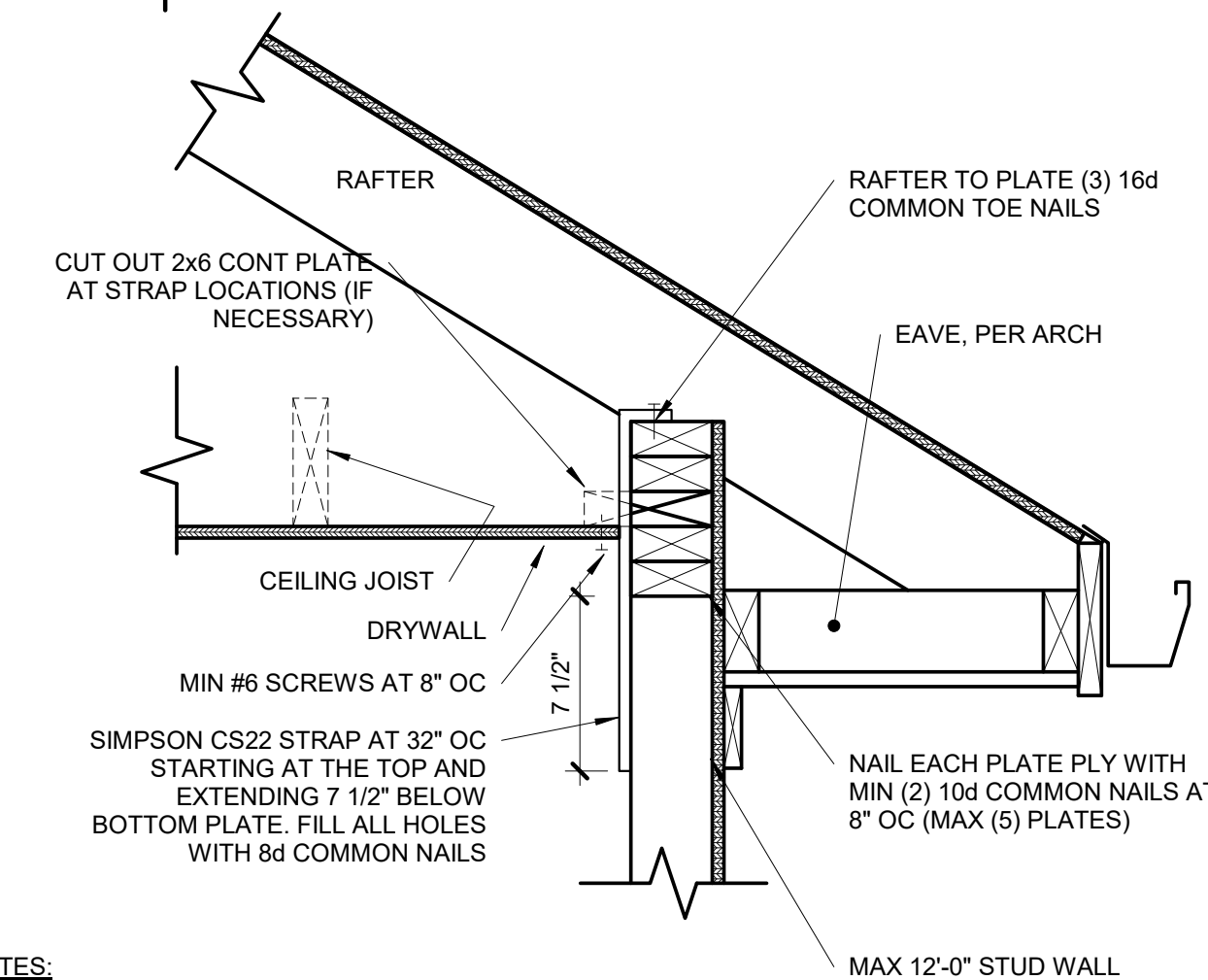
VAULTED RAFTER INSULATION

1 | FURR OUT



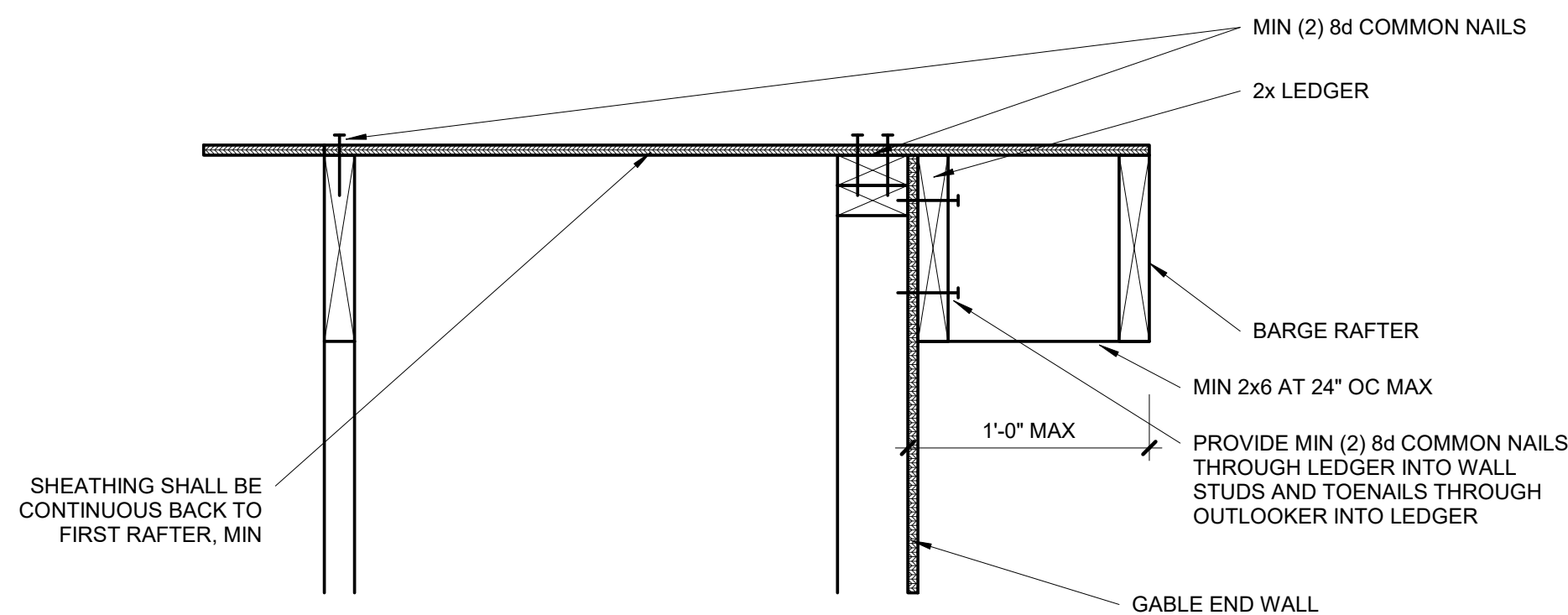
8 | OPTIONAL RAFTER BEARING

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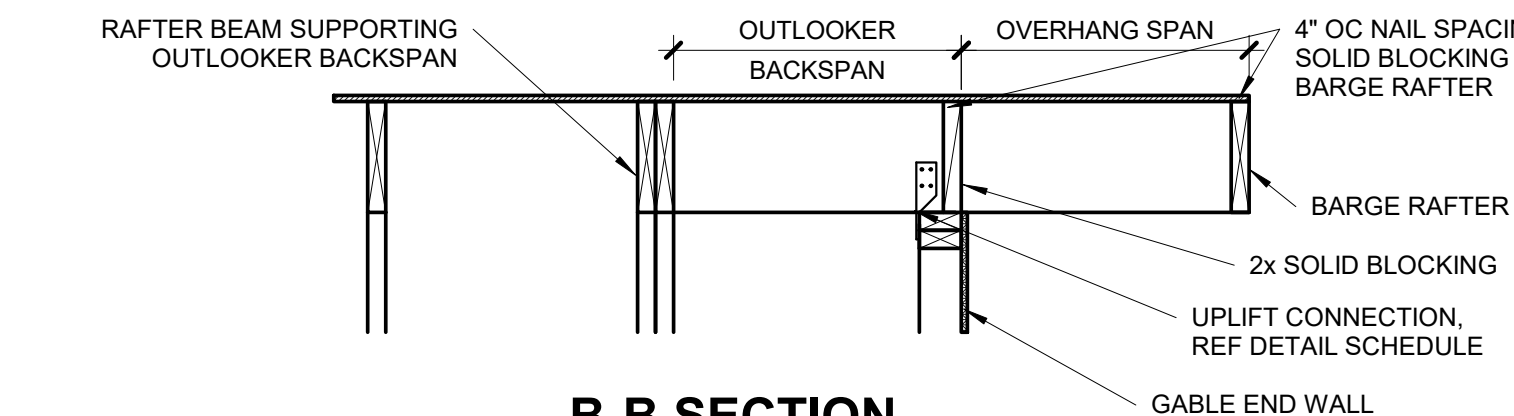
7 | OPTIONAL RAFTER BEARING

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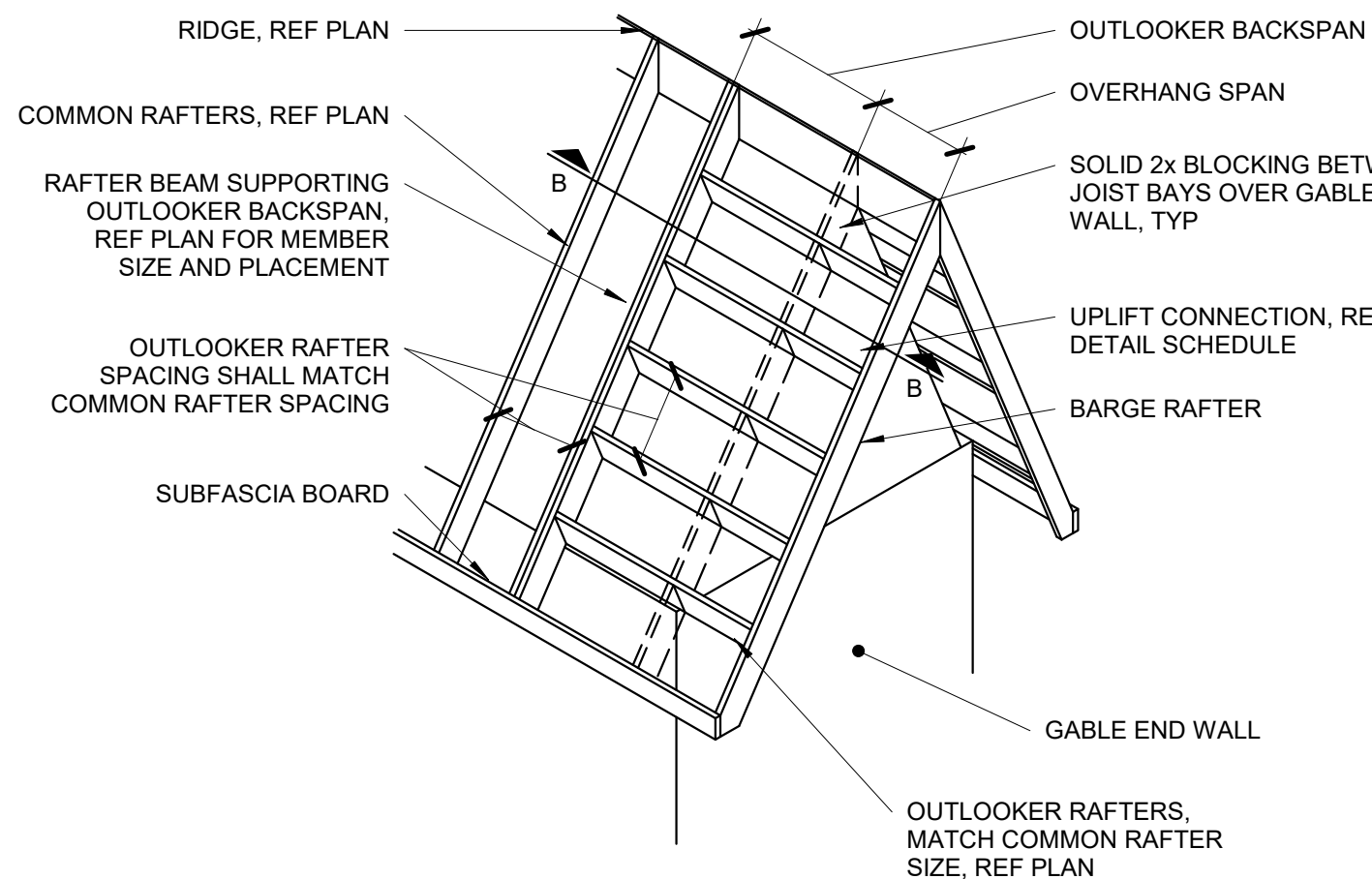


6 | **OPTIONAL OVERHANG 1'-0" OR LESS**

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



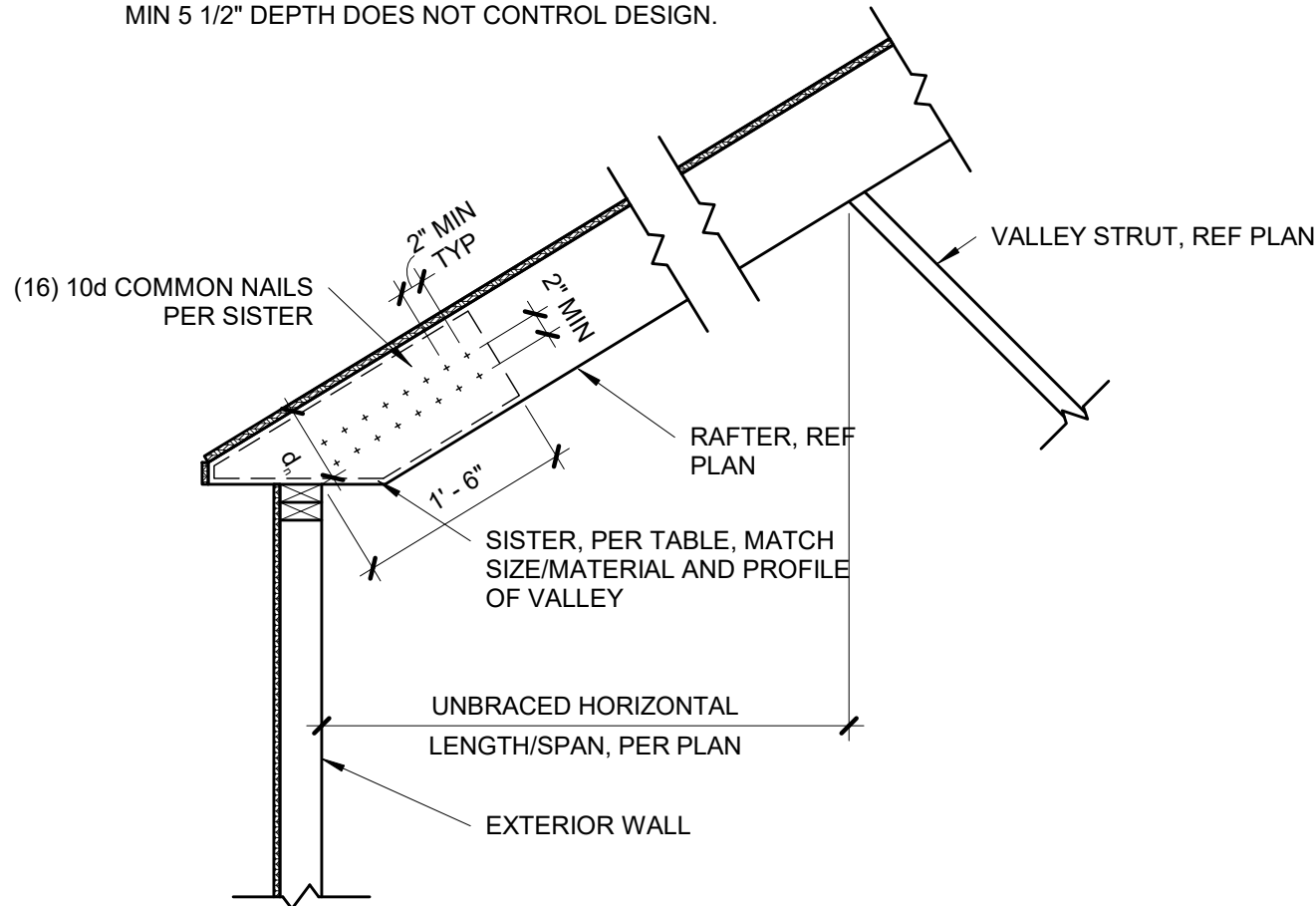
OUTLOOKER RAFTERS ROOF

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			
	2x6	2x8	2x10			2x6	2x8	2x10	
0	4'-8"	6'-2"	7'-11"		0	8'-8"	11'-5"	14'-7"	
1	9'-5"	*	*		1	*	*	*	
2	*	N/A	N/A		2	N/A	N/A	N/A	
HEAVY ROOF									
2x VALLEY					LVL VALLEY				
# OF SISTER PLIES	RAFTER SIZE				# OF SISTER PLIES	RAFTER SIZE			
	2x6	2x8	2x10			2x6	2x8	2x10	
0	3'-6"	4'-7"	5'-11"		0	6'-6"	8'-7"	10'-11"	
1	7'-1"	9'-3"	*		1	13'-1"	*	*	
2	*	*	N/A		2	*	N/A	N/A	

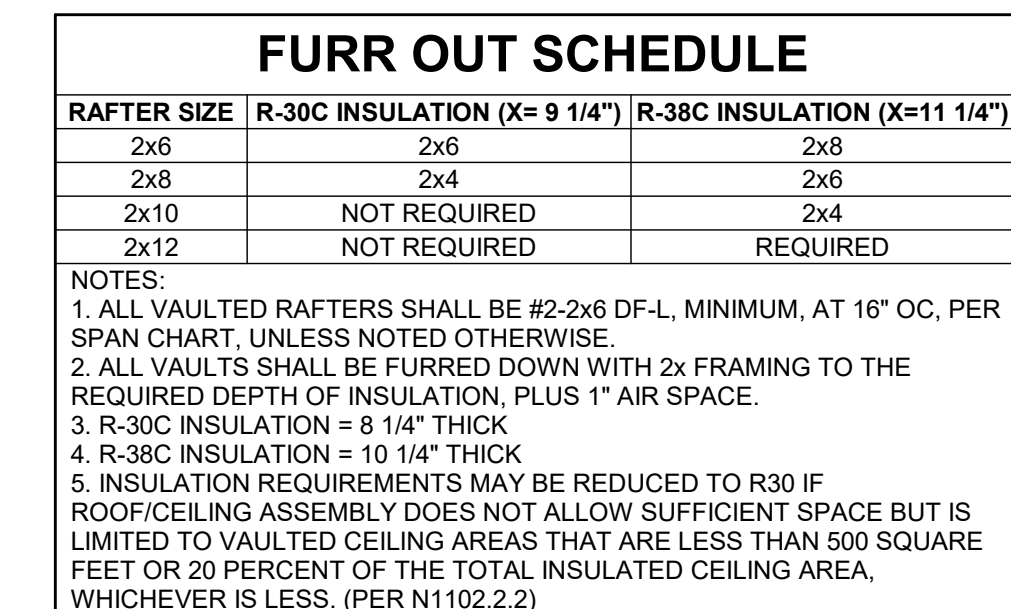
*VALLEYS OF A LENGTH GREATER THAN THAT FOUND IN THE CELL ABOVE ARE CONTROLLED BY BENDING. APPLY THE NUMBER OF SISTER PLIES CORRESPONDING TO THIS ROW.

1. THIS TABLE IS INTENDED TO BE USED IN CONJUNCTION WITH THE STAMPED,
ENGINEERING 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 VALID FOR A DEPTH OF MEMBER REMAINING, d , EQUAL TO THE
DEPTH OF THE RAFTERS. IF d 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 4/53.2.
IF MULTI-PLY VALLEY IS SPECIFIED ON PLAN TREAT EACH ADDITIONAL PLY AS A SISTER
PLY WHEN LOOKING UP MAX SPAN.
3. MAX 12" CONTROL SPAN IN RAFTER SPAN IN BOTH DIRECTIONS FROM VALLEY.
4. ALL HIPPS ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH
MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN.



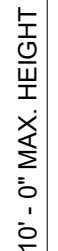
4 | TAPERED VALLEY

S3.2	$3/4" = 1'-0"$
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VAULTED RAFTER INSULATION

1 | FURR OUT



S4.0

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

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
2x4 #2 GRADE	0	10	18	1,000
			9	1,000
	1	10	18	1,025
			18	1,275
			9	1,000
	2	10	16	2,175
			18	2,500
			9	1,500
	2	12	16	3,375
			18	3,975
			9	2,750
	2x6 STUD GRADE	4	12	12
9				1,000
18				2,150
2		12	18	2,550
			9	1,750
			16	2,400
			18	3,800



NOTE: BRACED WALL PANEL LENGTHS BASED ON WALL HEIGHT FOR IRC 11B

S4.0	3/4" = 1'-0"
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BRACED WALL METHODOLOGY
CONTINUOUS EXTERIOR SHEATHING (CS-WSP) PER WSP METHOD (BELOW)
UNLESS OTHERWISE NOTED ON THE PLAN

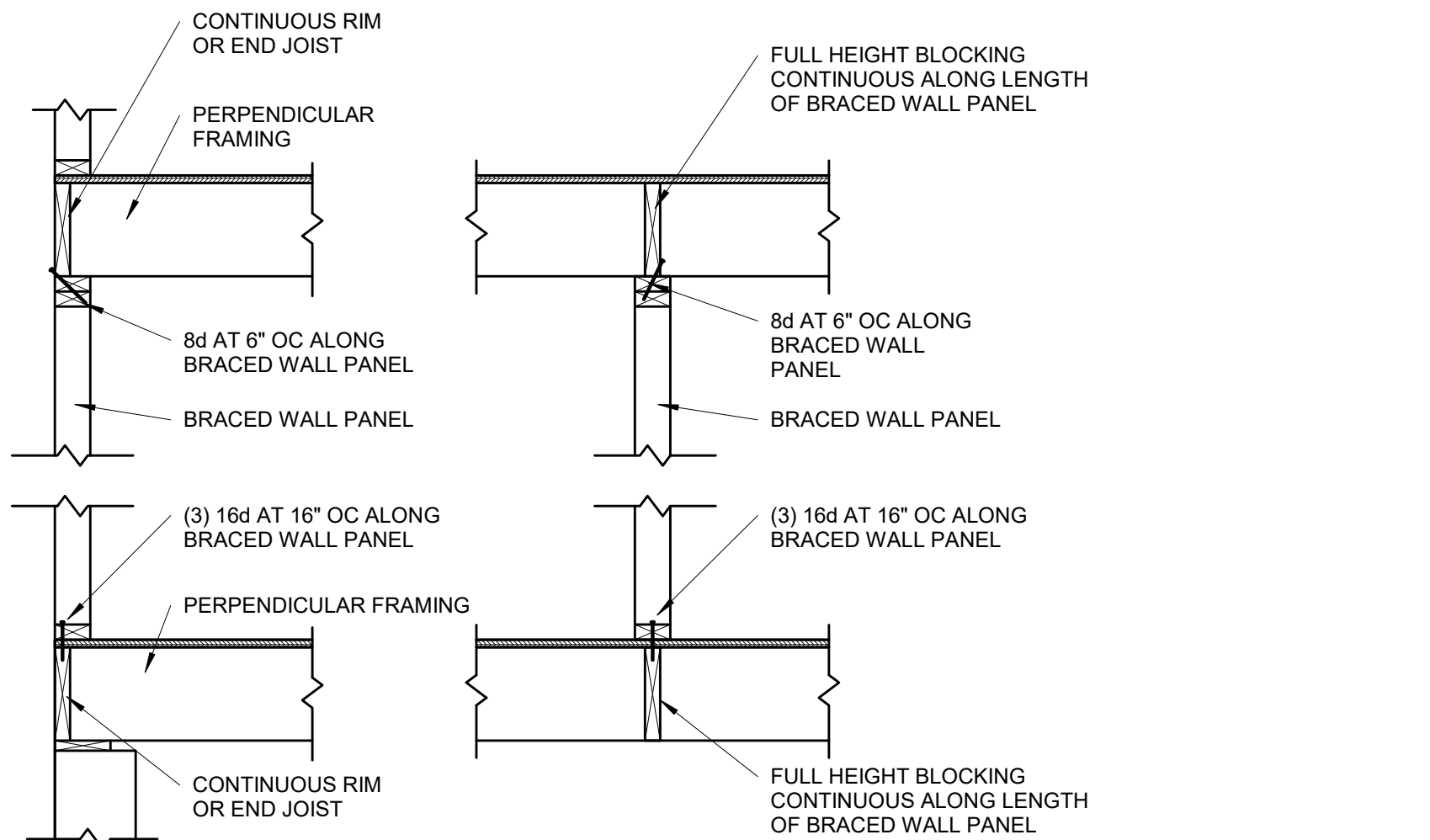
XXXX EXTERIOR BRACED WALLS:

WSP METHOD:

WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 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 24/16 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)

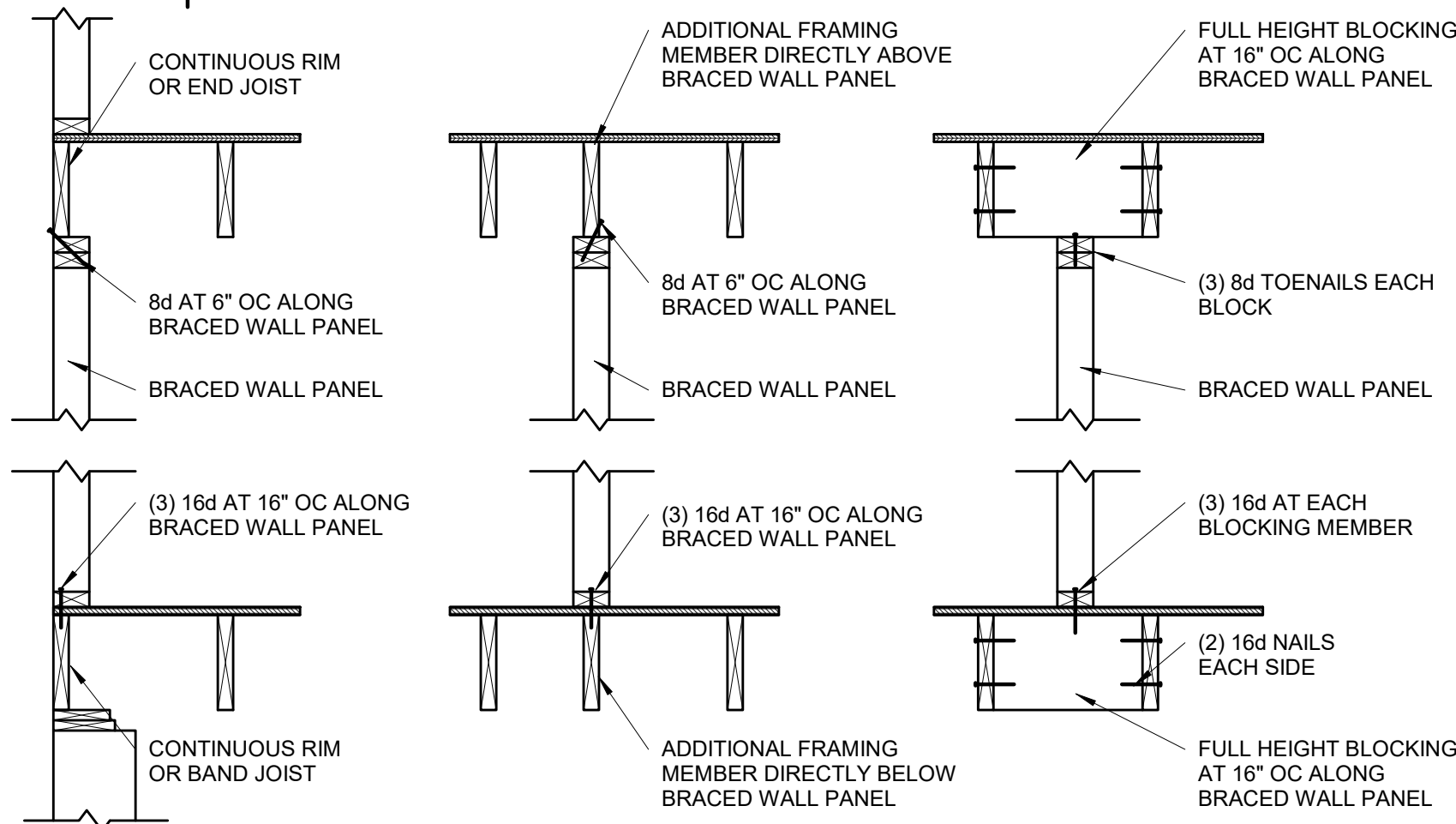
111111 INTERIOR BRACED WALLS (REF 2/S4.0):
GB METHOD:
1/2" MIN GYPSUM BOARD OVER STUDS SPACED 24" MAX FASTENED WITH #6 - 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES.)
OR
LIB METHOD:
1x4 WOOD FASTENED WITH (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" OC STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.



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

S4.1

3/4" = 1'-0"

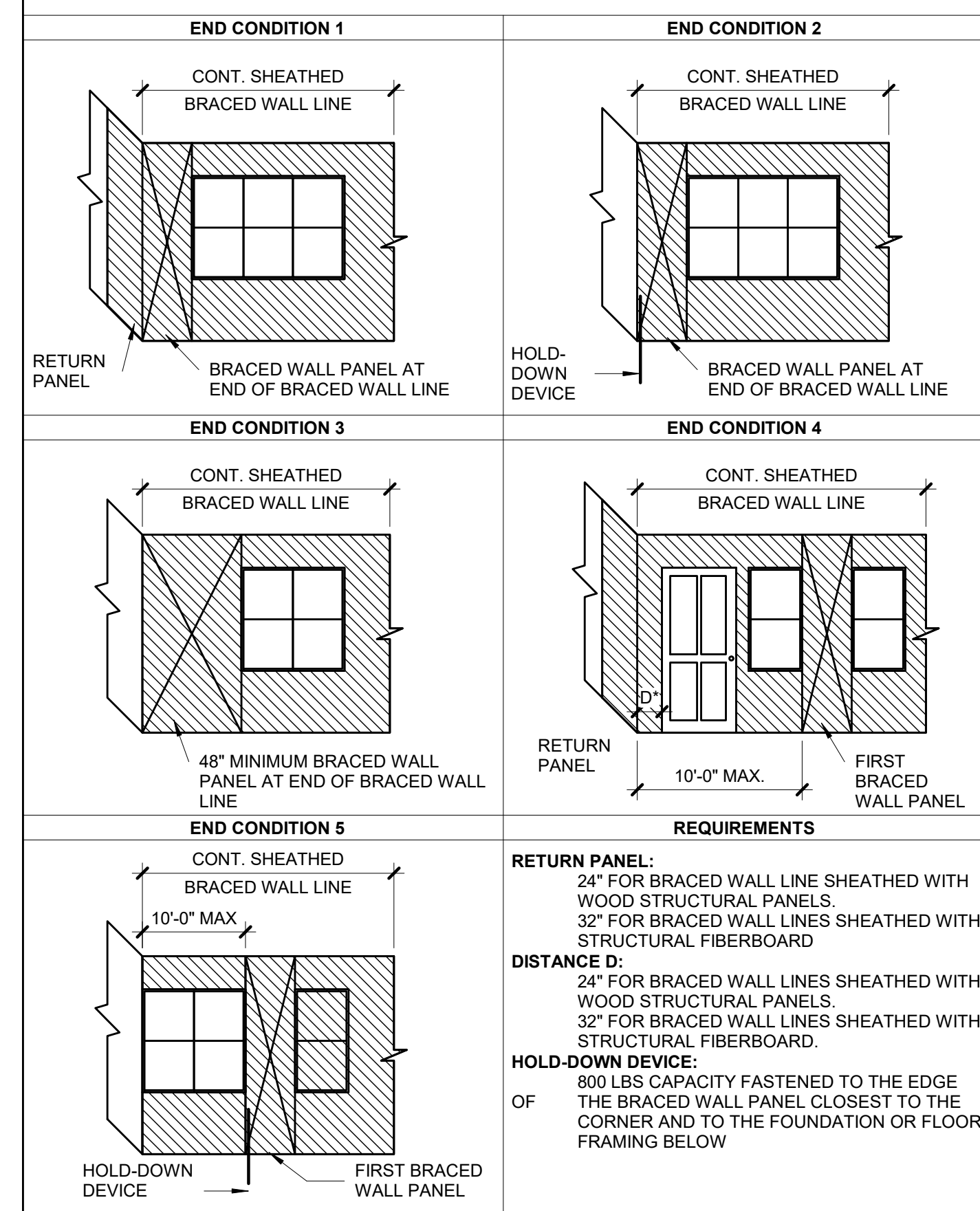


**BRACED WALL PANEL
CONNECTION WHEN PARALLEL
TO FLOOR/CEILING FRAMING**

S4.1

3/4" = 1'-0"

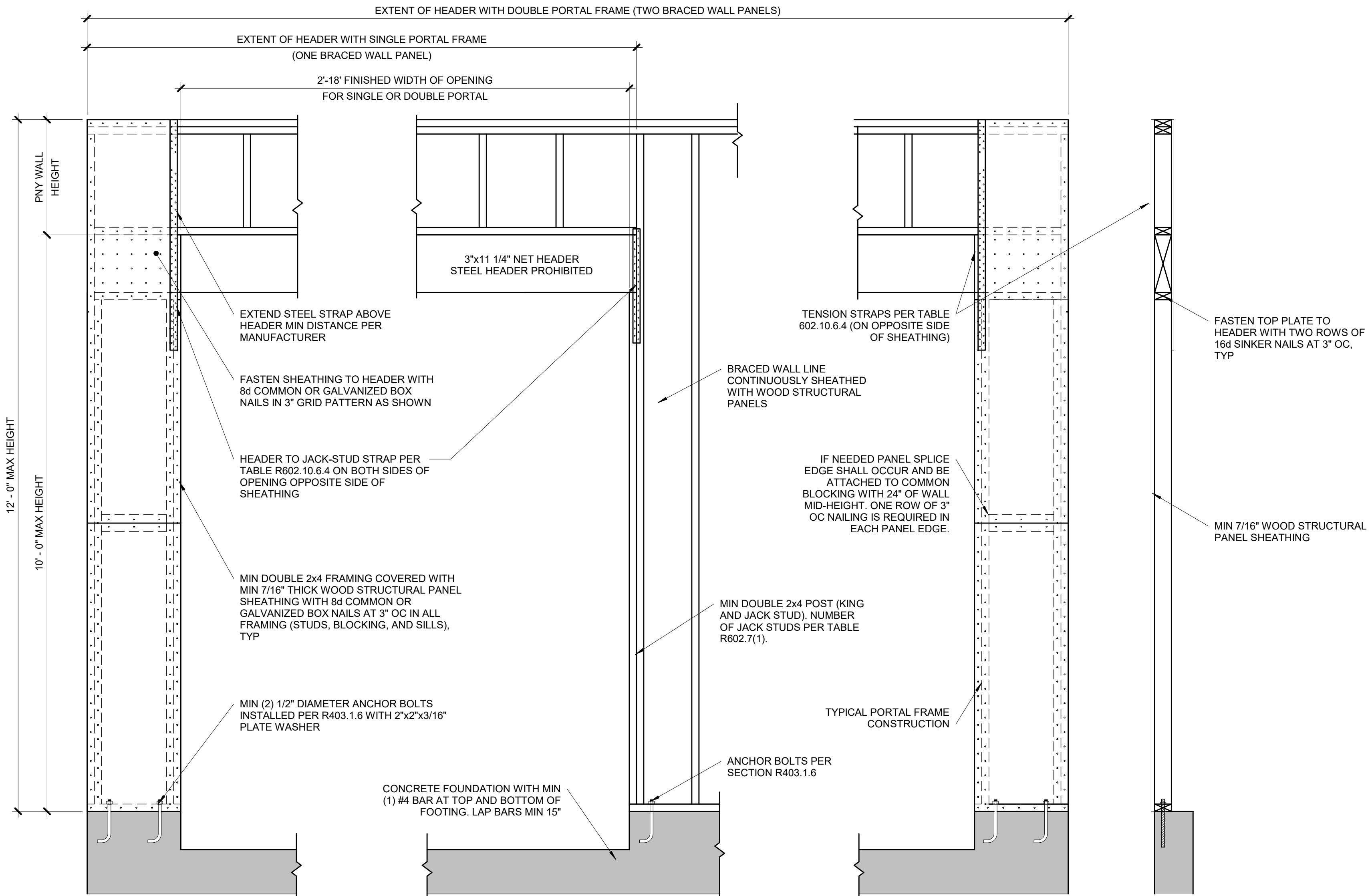
CONT. SHEATHED BRACED WALL END CONDITIONS



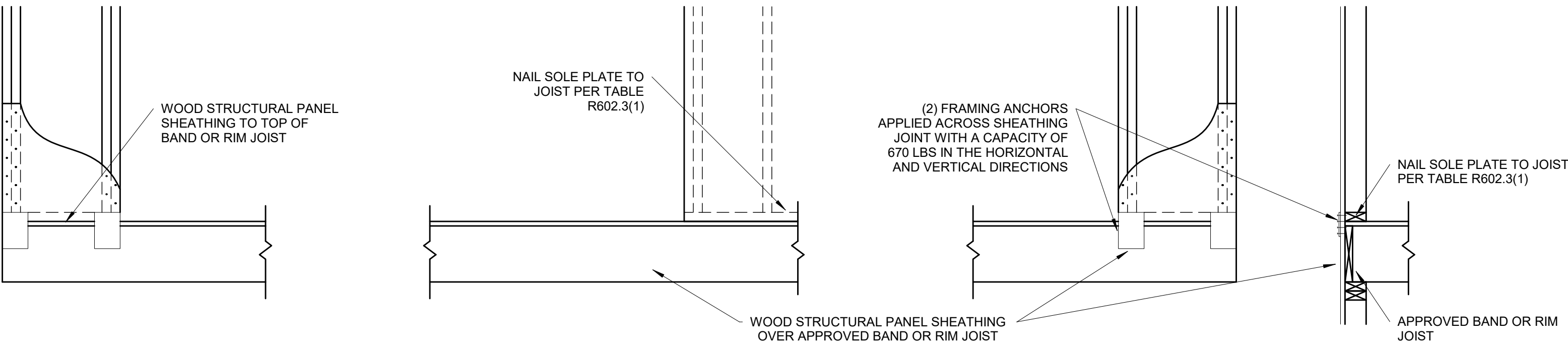
**CONTINUOUS SHEATHED BRACED
WALL END CONDITIONS**

S4.1

NOT TO SCALE (COMPLIANCE WITH IRC R602.10.7)

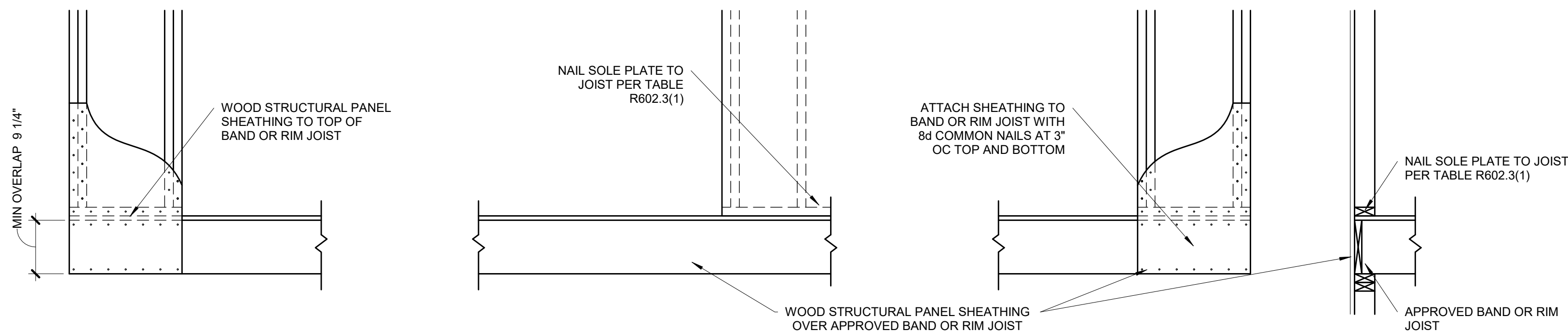


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISE WOOD FLOOR - FRAMING ANCHOR OPTION

(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
PANEL CONSTRUCTION**

S4.1

3/4" = 1'-0"

(PER IRC R602.10.6.4)