

# MARSHALL HOME DESIGN

## "BUILDERS PLANS 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 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 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 "BUILDER PLANS" 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, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.



STRUCTURAL REVIEW  
HD#: 39698

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HD ENGINEERING & DESIGN, INC

11656 W. 75TH STREET  
SHAWNEE, KS 66214  
WWW.HDENGINEERS.COM  
913.631.2222  
SERVICE@HDENGINEERS.COM



# BIRCH

WALK-OUT  
ADDRESS  
CITY  
LOT #

BIRCH GL WO  
2341 SW OLD PORT ROAD, LEE'S SUMMIT, MO

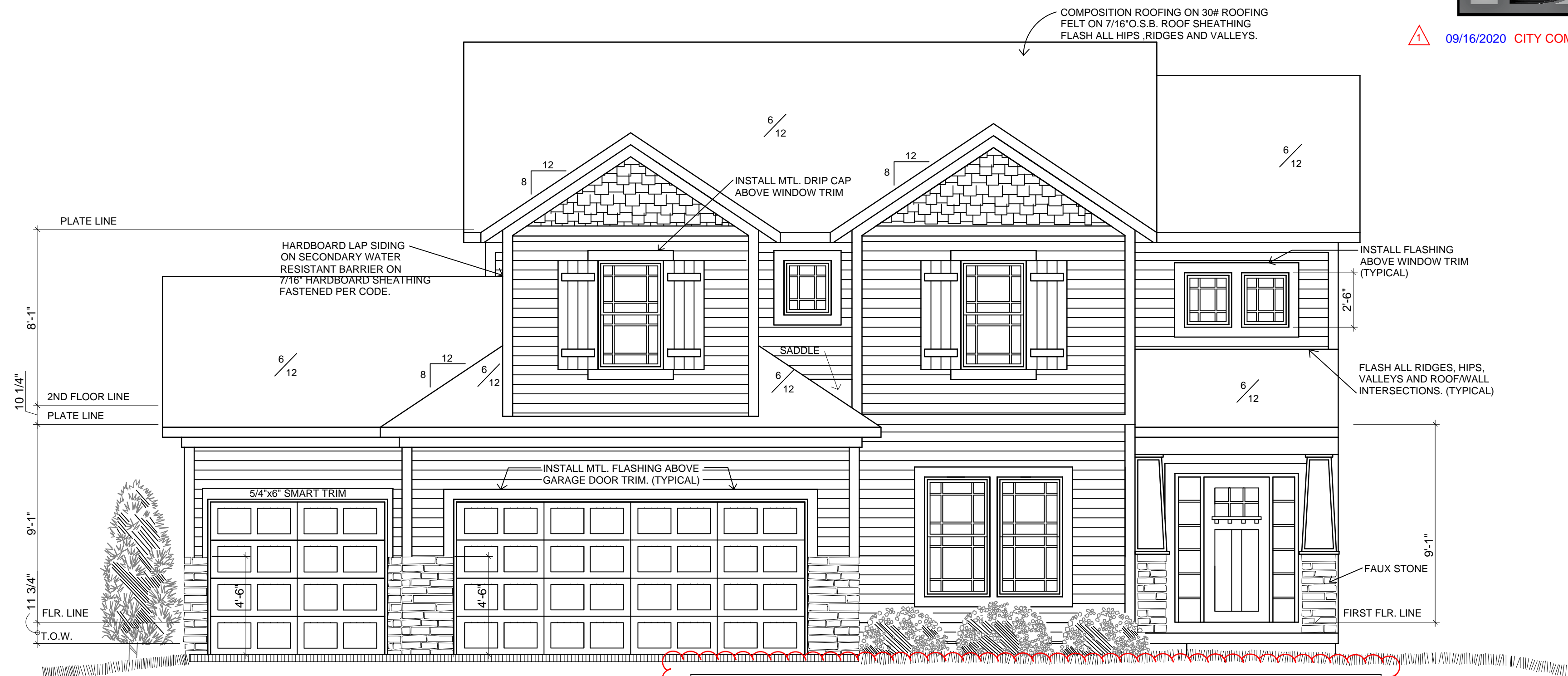
HOME BUILDER:  
**ASPEN HOMES**

6618 ROYAL ST., PLEASANT VALLEY, MO. 64068

RESIDENTIAL DESIGN BY:

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

09/16/2020 CITY COMMENTS



## FRONT ELEVATION

SCALE 1/4"=1'-0"

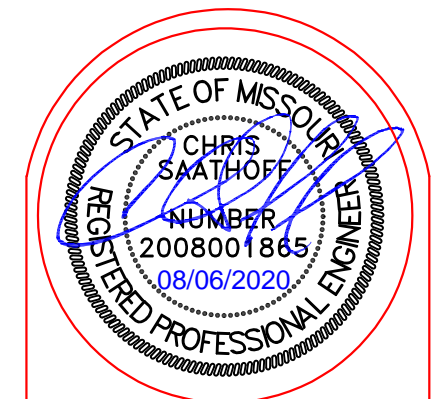
FRONT DOOR AND GARAGE DOOR STYLE MAY BE DIFFERENT THAN WHAT IS SHOWN ON PLANS. VERIFY STYLE WITH BUILDER.

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**HD ENGINEERING & DESIGN**  
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 V: 913-631-2222 F: 800-780-8608  
 SERVICE@HDEngineers.COM  
 HD: 39698 DATE: 08/06/2020

# BIRCH

WALK-OUT  
 ADDRESS  
 CITY  
 LOT #

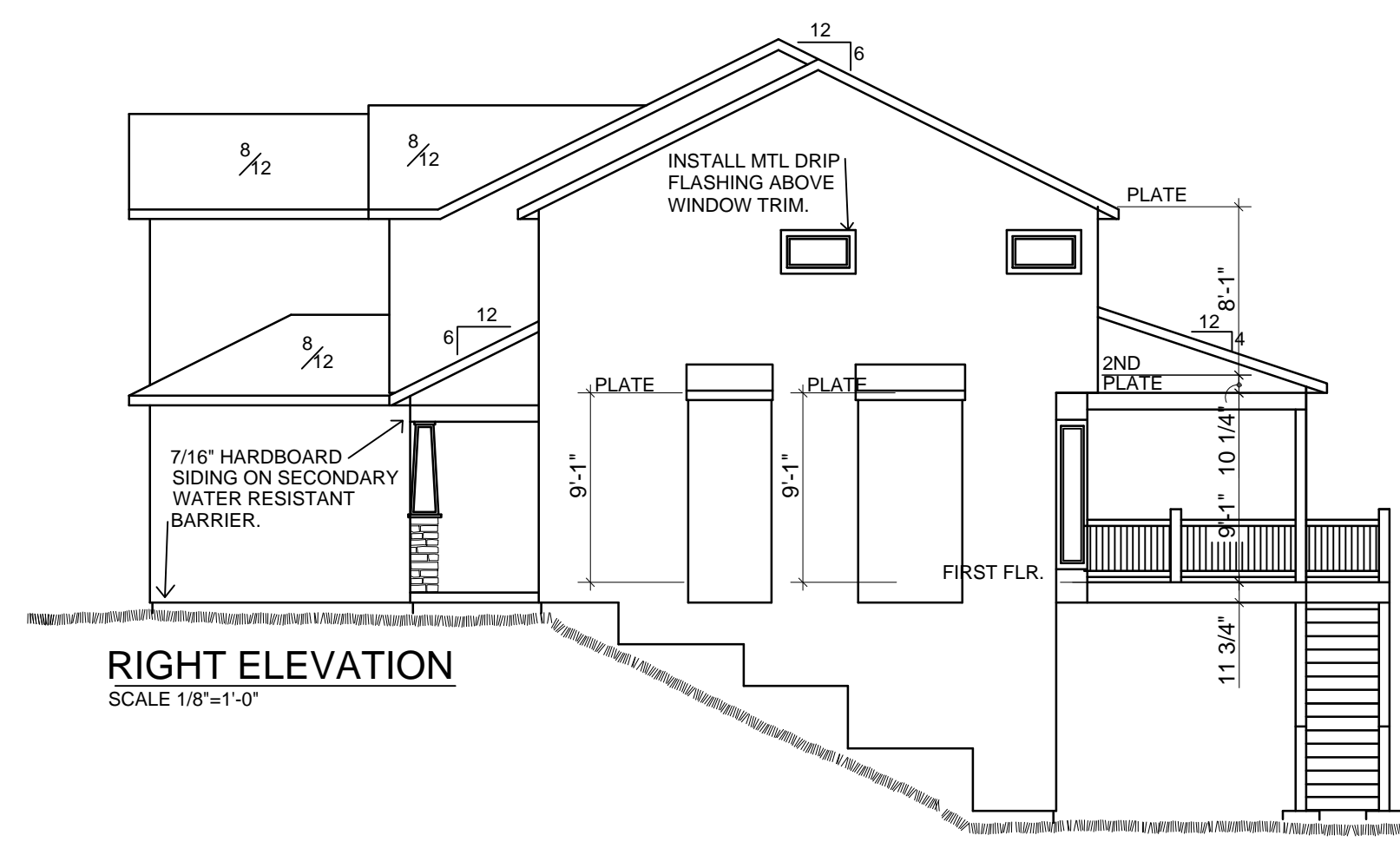
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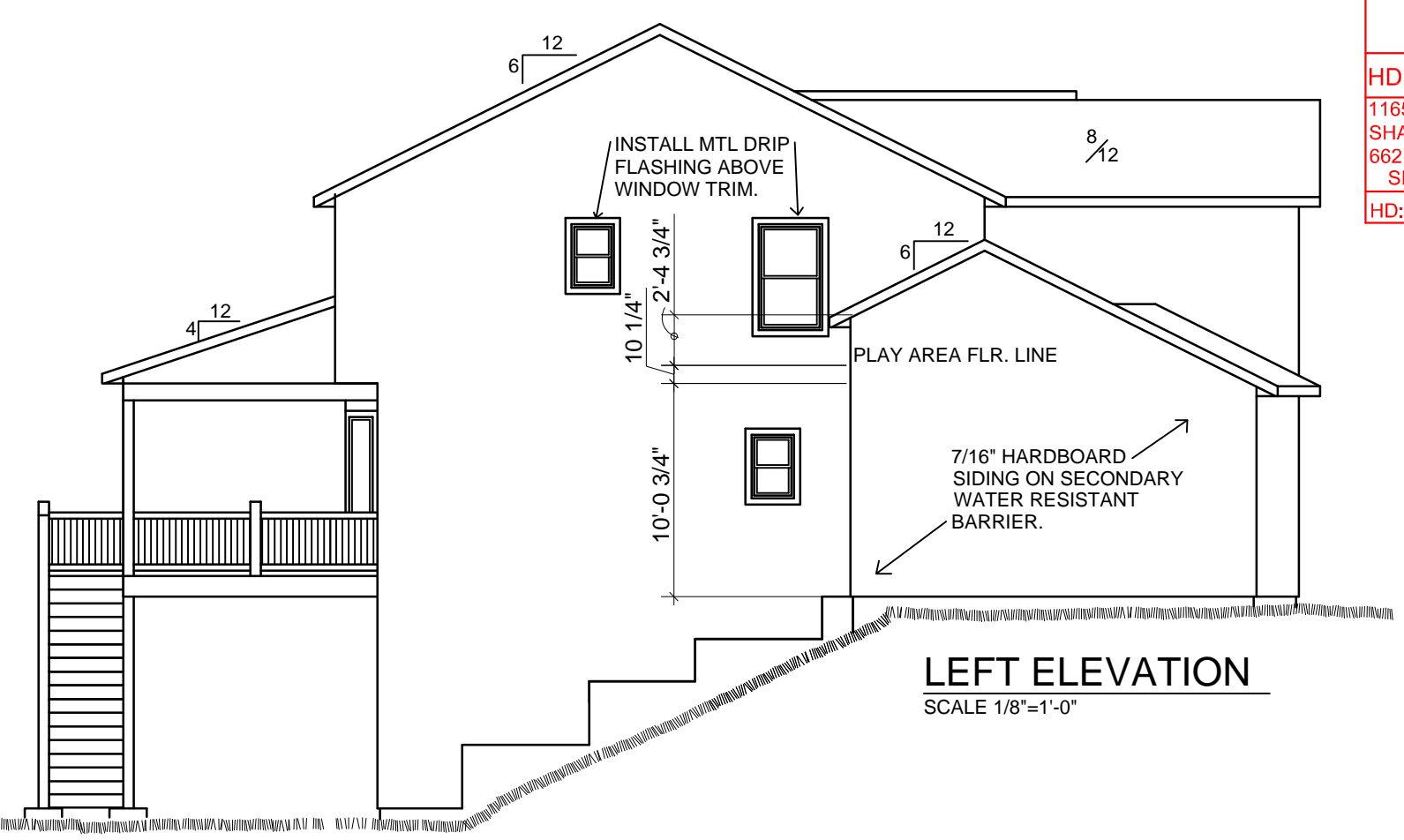
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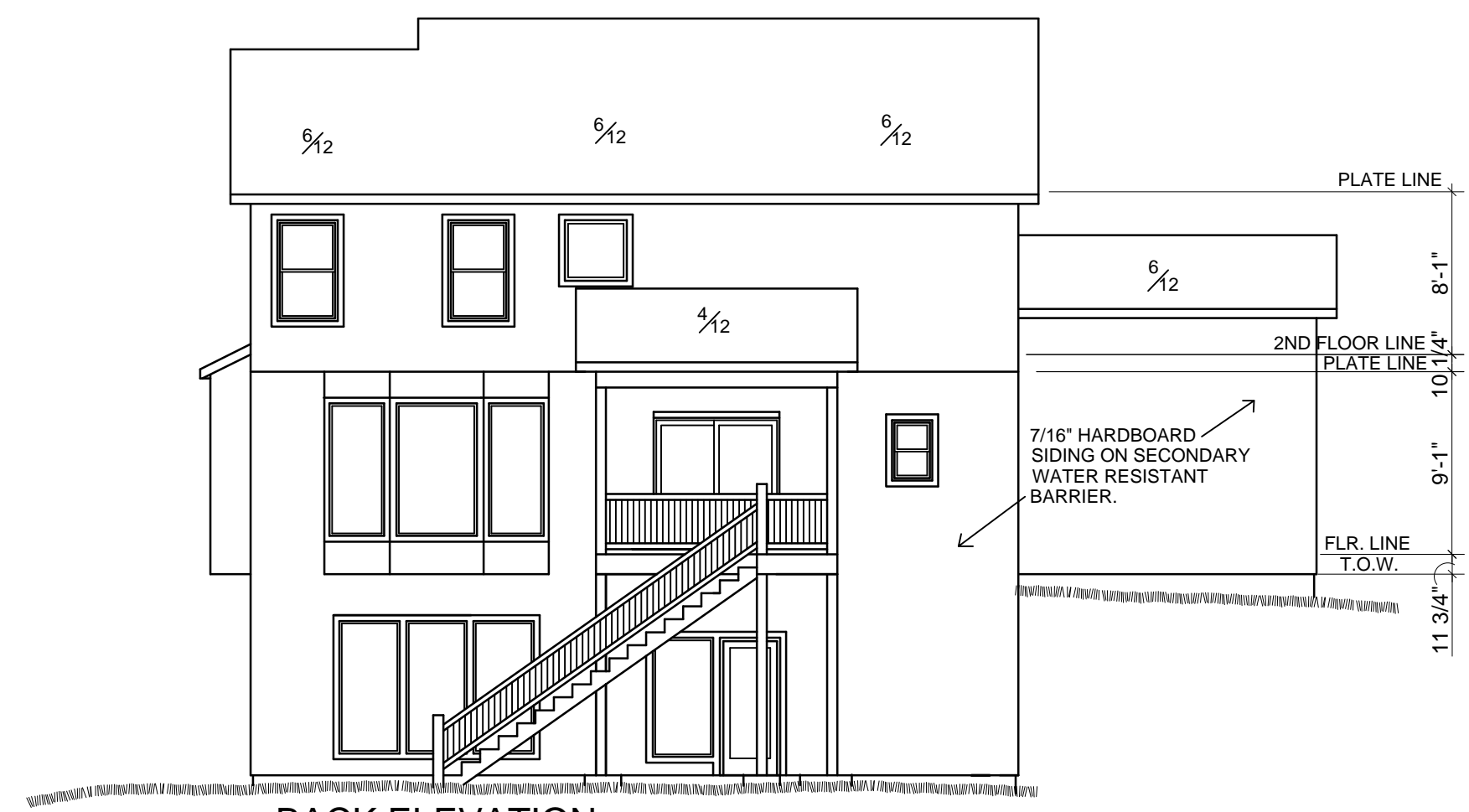


**RIGHT ELEVATION**  
 SCALE 1/8"=1'-0"



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

**MARSHALL HOME DESIGN**  
 "BUILDERS PLANS DEFINITION"  
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 STRUCTURAL DESIGN, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.



**BACK ELEVATION**  
 SCALE 1/8"=1'-0"

# MARSHALL HOME DESIGN

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### DECK PIER SCHEDULE

- ▲ MIN. 6x6 TRTD/CDR POST ON 12" CONC PIER WITH USP PAU 66 BASE OR = (1177# MAX)
- ▲ MIN. 6x6 TRTD/CDR POST ON 16" CONC PIER WITH USP PAU 66 BASE OR = (2050# MAX)
- ▲ MIN. 6x6 TRTD/CDR POST ON 18" CONC PIER WITH USP PAU 66 BASE OR = (2649# MAX)
- ▲ MIN. 6x6 TRTD/CDR POST ON 24" CONC PIER WITH USP PAU 66 BASE OR = (4710# MAX)

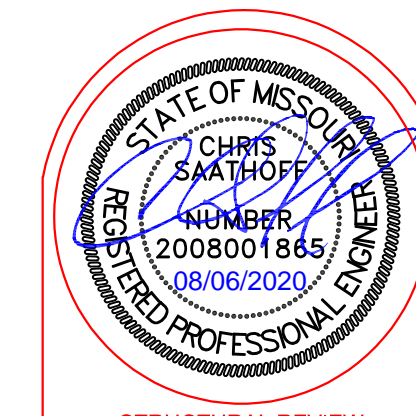
-PIERS TO TERMINATE ON ORIGINAL SOIL OF 1500 PSF MINIMUM BEARING.  
 -PIERS TO TERMINATE AT A POINT 36" MINIMUM BELOW FINISH GRADE.  
 -POST ARE NOT TO EXCEED AN UNBRACED LENGTH OF 12' WITHOUT CONTACTING HD ENGINEERING FOR GUIDANCE.

### COLUMN PAD SCHEDULE

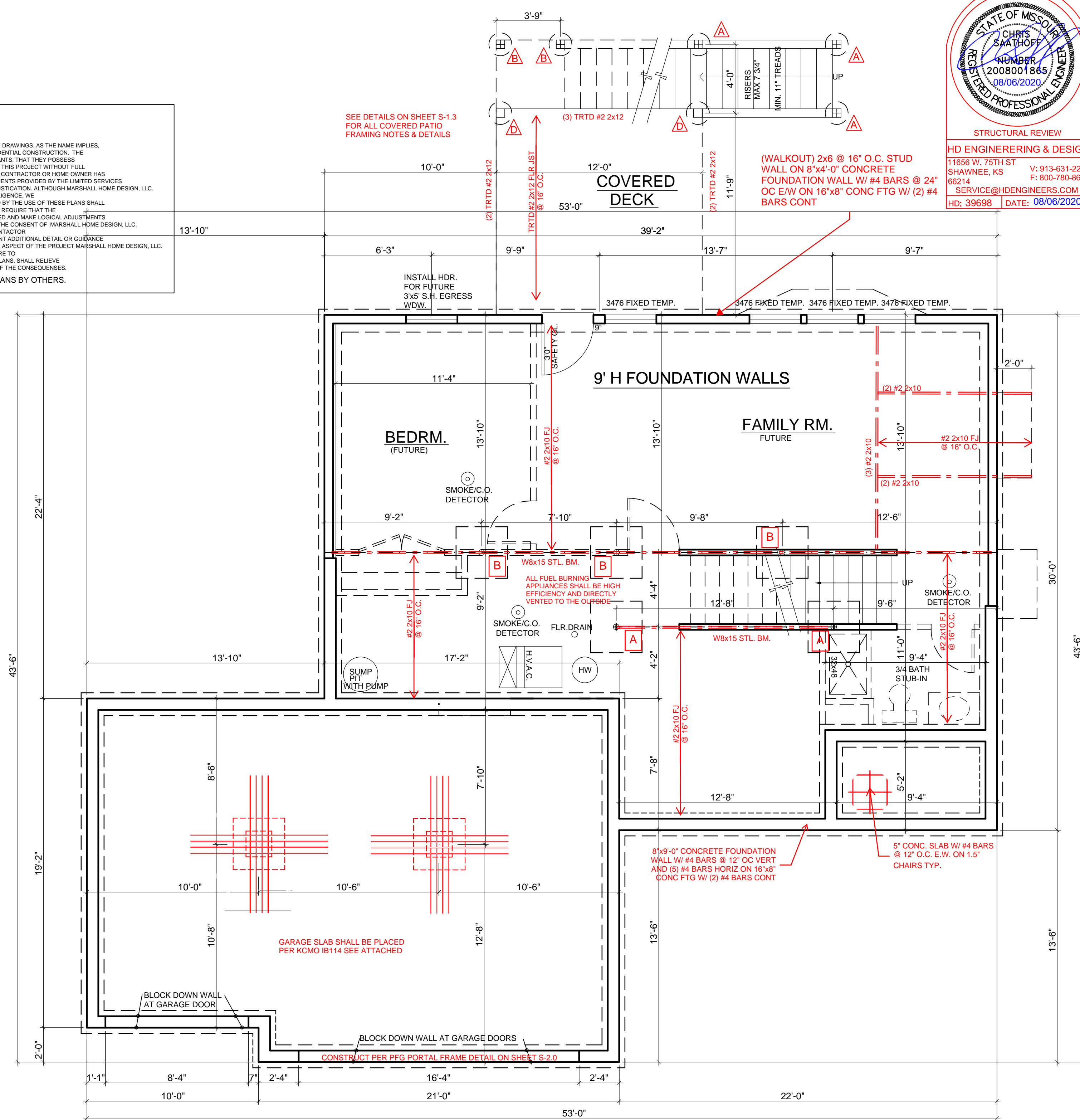
- A** 3" SCH. 40 STL. COL. ON 30"x30"x12" CONC. PAD W/ (5) #4 BARS E.W. (9.4K MAX.)
- B** 3" SCH. 40 STL. COL. ON 36"x36"x12" CONC. PAD W/ (6) #4 BARS E.W. (13.5K MAX.)
- C** 3 1/2" SCH. 40 STL. COL. ON 42"x42"x14" CONC. PAD W/ (7) #4 BARS E.W. (18.4K MAX.)
- D** 3 1/2" SCH. 40 STL. COL. ON 48"x48"x16" CONC. PAD W/ (8) #4 BARS E.W. (24K MAX.)
- E** 3 1/2" SCH. 40 STL. COL. ON 54"x54"x16" CONC. PAD W/ (9) #4 BARS E.W. (30.4K MAX.)
- F** 3 1/2" SCH. 40 STL. COL. ON 60"x60"x18" CONC. PAD W/ (10) #4 BARS E.W. (37.5K MAX.)

### NOTES:

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



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 2341 SW OLD PORT ROAD, LEE'S SUMMIT, MO

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# FOUNDATION PLAN

SCALE 1/4"=1'-0"

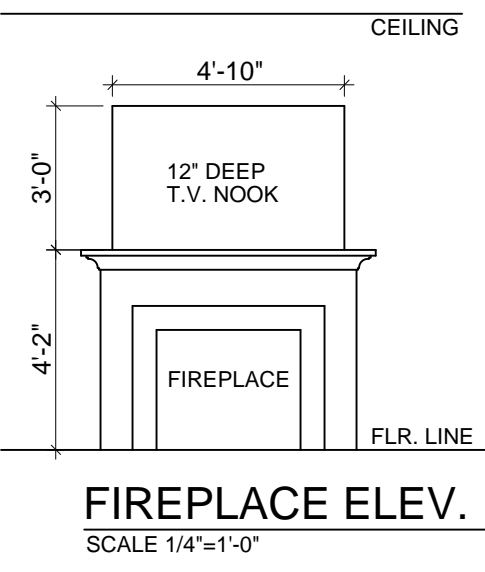
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### GENERAL NOTES:

- WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4
- HOUSE WILL BE PROVIDED WITH A "UFER" GROUND PER IRC SECTION 3608.1.5
- OVERHEAD GARAGE DOORS MUST MEET DASMA REQUIREMENTS SEE DETAIL SHEET S-1.0
- ALL HEADERS NOT LABELED SHALL BE MIN (2) #2-2X10 DFL
- DBL ALL JST UNDER ISLAND
- SOILS IN THIS AREA COMMONLY HAVE A VERY HIGH SHRINK SWELL CAPACITY, OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY A GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF FOUNDATIONS
- PROVIDE CARBON MONOXIDE AND SMOKE DETECTORS PER IRC REQUIREMENTS
- ANY PORTION OF THESE PRINTS ISSUED WITHOUT A MIN. OF S-1.0
- S-4.0 SHALL NOT BE CONSIDERED A COMPLETE SET OF CONSTRUCTION DOCUMENTS
- ICE AND WATER SHIELD AS REQUIRED PER IRC



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

- ### EXTERIOR BRACED WALL METHOD:
- WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/4" WITH MINIMUM SPAN RATING OF 2 3/8" FOR 16" O.C. STUD SPACING WITH 6d NAILS COMMON NAILS @ 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/8" WITH MINIMUM SPAN RATING OF 2 3/8" FOR 24" O.C. SPACING WITH 8d COMMON NAILS @ 6" O.C. EDGES AND 12" O.C. IN FIELD (NOTE: FRAMING MEMBERS 16" O.C. MAX, UNBLOCKED, AND W/ SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS).

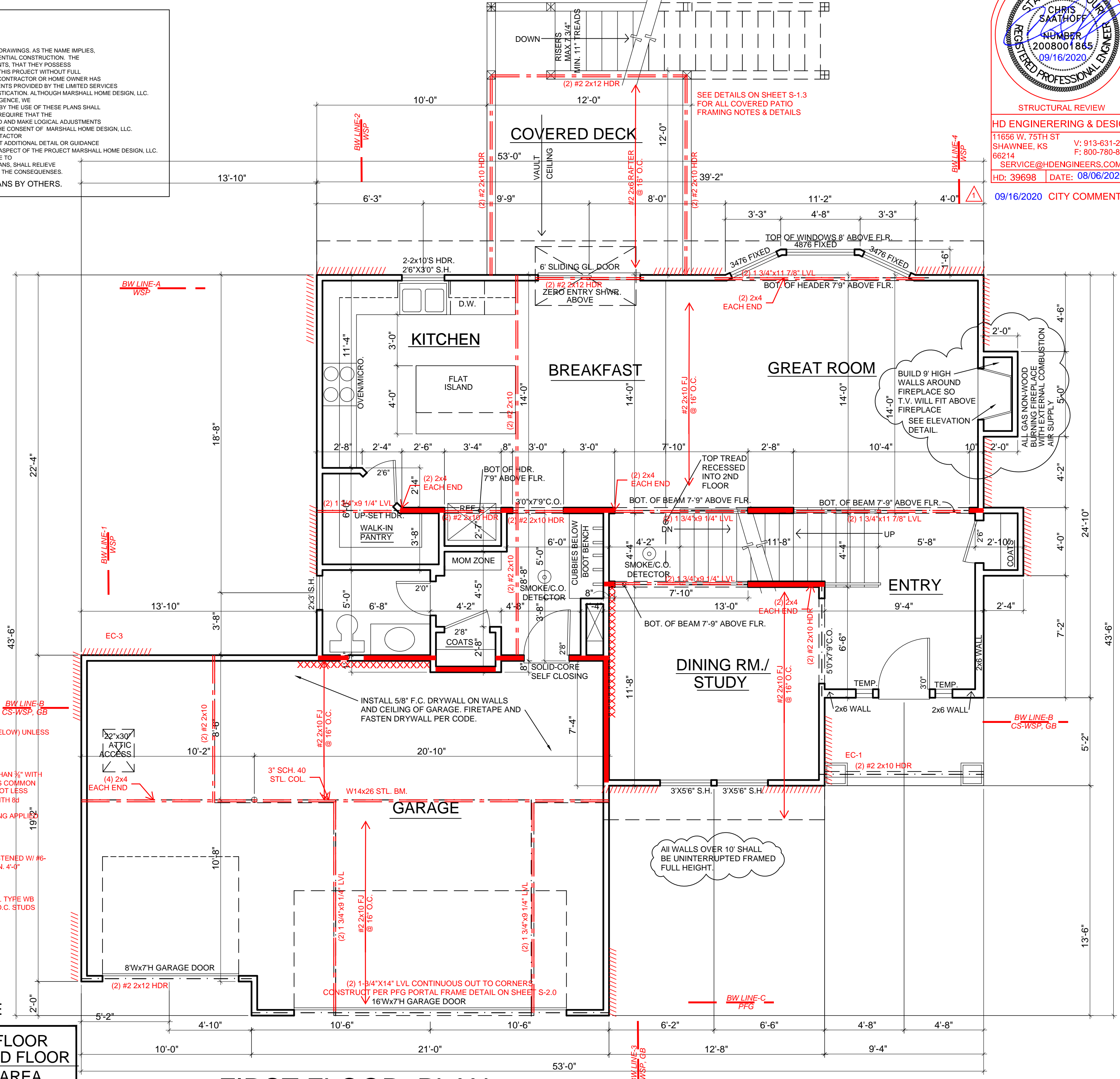
- ### INTERIOR BRACED WALLS (SEE ON SHEET S-2.1)
- GB METHOD: 1/2" MINIMUM GYPSUM BOARD OVER STUDS SPACED @ 24" MAXIMUM FASTENED W/ #6-1 1/2" TYPE "W" OR "S" DRYWALL SCREWS @ 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES) OR LIB METHOD: 1X4 WOOD FASTENED W/ (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUIVALENT) STL. X-BRACE(S) @ 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUDS FASTENED PER MANUF. SPECS.

48 S.F. STOOP  
625 S.F. GARAGE  
1027 S.F. FIRST FLOOR  
1261 S.F. SECOND FLOOR  
2288 S.F. TOTAL AREA

144 S.F. COVERED PATIO/DECK  
920 S.F. UNFINISHED BASEMENT

# FIRST FLOOR PLAN

SCALE 1/4"=1'-0"



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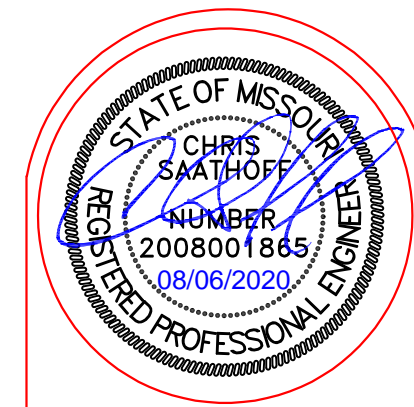


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### NOTES

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

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

#### CODE MINIMUM

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

NOTE: CODE MINIMUM L/240 DEFLECTION

#### GREATER THAN CODE

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	@24" O.C.	8'-6"
#2-2x6	@16" O.C.	9'-9"
#2-2x8	@24" O.C.	11'-3"
#2-2x8	@16" O.C.	12'-9"
#2-2x10	@24" O.C.	14'-3"
#2-2x10	@16" O.C.	16'-3"

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

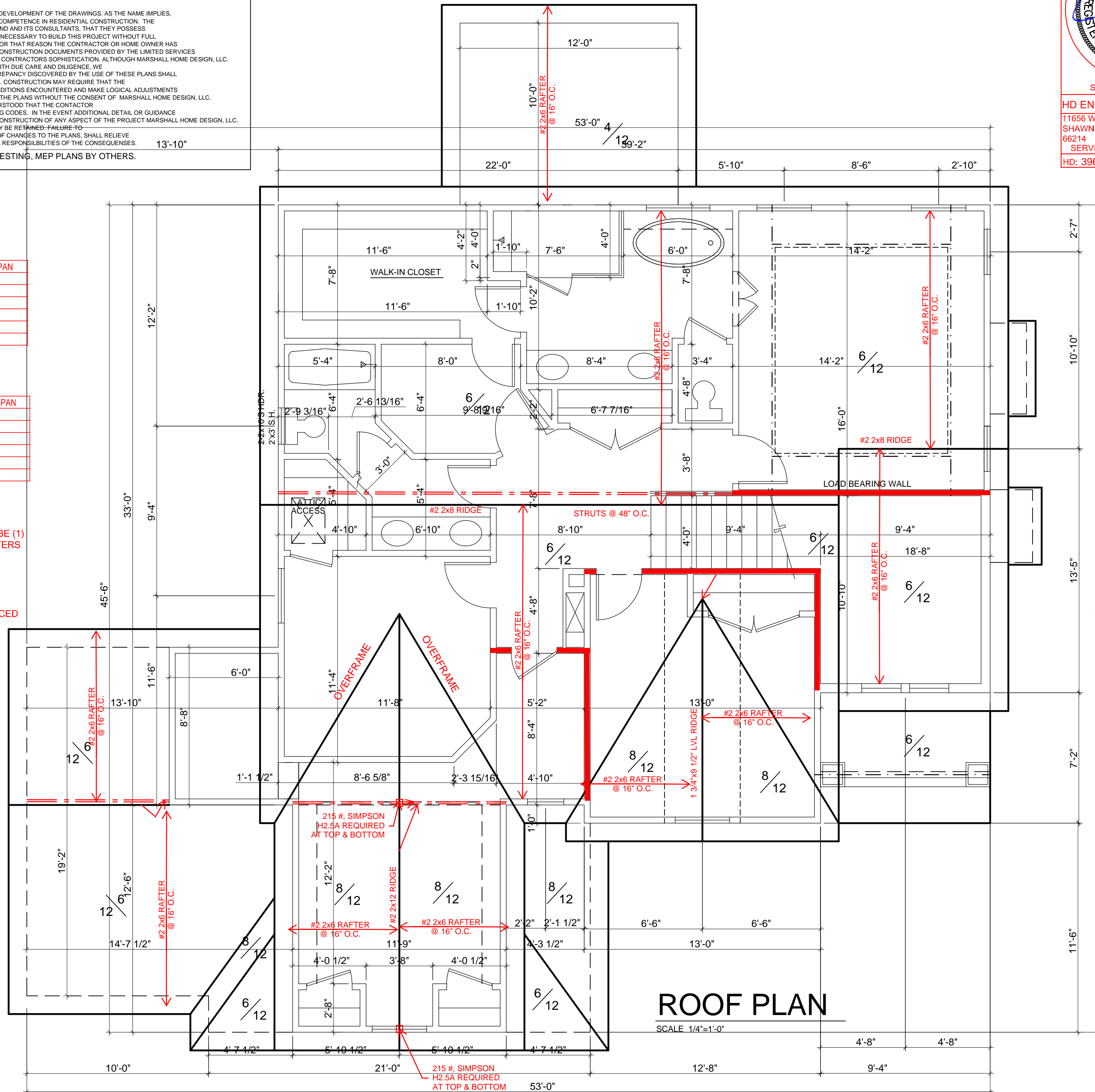
ALL RIDGES, HIPS, AND VALLEYS NOT MARKED SHALL BE (1) NOMINAL SIZE LARGER THAN THE INTERSECTING RAFTERS

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

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

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

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



## ROOF PLAN

SCALE 1/4"=1'-0"

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## ALLOWABLE LOADS FOR PNEUMATIC OR MECHANICALLY DRIVEN NAILS AND STAPLES

FASTENER DESCRIPTION	NAIL GUN NAILS/ WIRE DIA.	WIRE GA.	PENETRATION REQUIRED INTO MAIN MEMBER FOR LATERAL STRENGTH (IN.)	ALLOWABLE LOADS (IN POUNDS)			
				LATERAL STRENGTH		WITHDRAWAL STRENGTH	
				SP	DF/L	SP	DF/L
16 GA. STAPLE	.063	16	1	51		36	32
15 GA. STAPLE	.072	15	1	64		42	37
14 GA. STAPLE	.080	14	1	75		46	41
6d COOLER NAIL							
6d SINKER NAIL	.092	13	1	46		27	23
6d BOX NAIL							
6d CASING NAIL	.099	12-1/2	1-1/8	61	55	31	24
7d COOLER NAIL							
6d COMMON NAIL							
8d COOLER NAIL							
8d SINKER NAIL	.113	11-1/2	1-1/4	74	72	35	28
8d BOX NAIL							
8d CASING NAIL							
6d RING SHANK NAIL							
6d SCREW SHANK NAIL							
8d RING SHANK NAIL	.120	11	1-3/8	89	81	41	32
8d SCREW SHANK NAIL							
10d Cooler Nail							
10d Sinker Nail	.128	10-1/2	1-1/2	89	81	36	31
12d Short							
10d Box Nails							
12d Box Nails	.128	10-1/2	1-1/2	101	93	40	31
10d Casing Nails							
8d Common Nails	.131	10-1/4	1-1/2	106	97	41	32
16d Short							
12d Sinkers	.135	10	1-1/2	113	103	42	33
16d Box Nails							
10d Ring Shank Nails							
10d Screw Shank Nails							
12d Ring Shank Nails	.135	10	1-5/8	113	103	46	36
12d Screw Shank Nails							
10d Common Nails							
12d Common Nails							
16d Sinker Nails	.148	9	1-5/8	128	118	46	36
20d Box Nails							
30d Box Nails							
16d Ring Shank Nails	.148	9	1-3/4	128	118	50	40
16d Screw Shank Nails							
16d Common Nails	.162	8	1-3/4	154	141	50	40
40d Box Nails							
20d Ring Shank Nails	.177	7	2-1/8	178	163	59	47
20d Screw Shank Nails							
20d Sinker Nails	.177	7	2-1/8	178	163	54	43
20d Common Nails	.148	9	2-1/8	170	166	59	47
30d Sinker Nails							

## SHEATHING SCHEDULE

ALL SHEATHING MATERIALS TO BE APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED

BUILDING COMPONENT	MATERIAL	FASTENING
ROOF SHEATHING	7/16" PLYWOOD 1x4 #3 FURRING	16 GA X 1 3/4" STAPLES @ 6" OC EDGES & 12" OC IN FIELD 1/2" CROWN STAPLES
FLOOR SHEATHING	3/4" T&G YELLOW PINE PLYWOOD	14 GA X 1 3/4" STAPLES @ 6" OC EDGES & 12" OC IN FIELD 12.5 GA X 1 1/2" RING OR SCREW SHANK NAILS @ 6" OC EDGES & 12" OC IN FIELD
WALL COVERING	1/2" GYPSUM SHEATHING	6D COMMON NAILS - 1 5/8" GALVANIZED STAPLES; 1 1/4" SCREWS, TYPE W OR S @ 4" OC EDGES & 8" OC IN FIELD
CEILING COVERING	1/2" GYPSUM SHEATHING	7" OC NAILED / 12" OC SCREWED W/ 13GA, 1 3/8" LONG, 19/64" HEAD; 0.098 Ø, 1 1/4" LONG, ANG-RINGED; 5D COOLER NAIL, 0.086 Ø, 1 5/8" LONG, 15/64" HEAD; OR GYP BD NAIL, 0.086 Ø, 1 5/8" LONG, 19/64" HEAD
EXTERIOR WALL SHEATHING	7/16" APA RATED SHEATHING RATED PANEL SIDING, RATED 16" O.C. 7/16" THICK	8D COMMON NAILS @ 6" OC EDGES & 12" OC IN THE FIELD 8D BOX OR SINKER NAILS @ 6" OC EDGES & 12" OC IN THE FIELD

## FRAME FASTENING SCHEDULE

BUILDING COMPONENT	FASTEN TO	FASTEN WITH		
			RAFTERS	CEILING JOISTS
RAFTERS	RIDGE / VALLEY / HIP	TOENAIL W/ (4) 16D, FACENAIL W/ (3) 16D		
	PLATE	TOENAIL W/ (3) 10D		
	LEDGER STRIPS SUPPORTING JOISTS OR RAFTERS	FACENAIL W/ (3) 16D		
CEILING JOISTS	COLLAR TIE TO RAFTERS	FACENAIL W/ (3) 10D		
	TOP PLATE	TOENAIL W/ (3) 8D @ EACH END		
	WHERE CLG JST RUN PARALLEL TO RAFTERS	FACENAIL TO RAFTERS W/ (3) 10D MINIMUM		
BEAMS	LAPS OVER PARTITIONS	FACENAIL W/ (3) 10D		
	BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	TOENAIL W/ (3) 8D		
	BUILT-UP BEAMS, 2" LUMBER LAYERS, FACENAIL OPPOSITE SIDES, (2) @ EACH END PLUS	10D @ 32" OC STAGGERED, TOP & BOTTOM, OPPOSITE SIDES		
FLOOR JOISTS	BUILT-UP BEAMS OF ENGINEERED LUMBER, FACE NAIL OPPOSITE SIDES	(2) ROWS @ 12" OC		
	BUILT-UP HEADER, TWO PIECES W/ 1/2" SPACER	16D @ 16" OC ALONG EDGES		
	BUILT-UP HEADER, TWO PIECES, NO 1/2" SPACER	3" x 0.131" NAILS @ 12" OC ALONG EDGES		
WALLS	BEARING	TOENAIL W/ (2) 18D @ EACH END		
	RIM JOIST TO SILL OR TOP PLATE	TOENAIL W/ 8D COMMON OR 10D BOX NAILS @ 6" OC		
	JOIST TO SILL OR GIRDER	TOENAIL W/ (3) 8D		
	JOIST TO RIM JOIST	FACENAIL W/ (3) 16D		
	BRIDGING TO JOIST	TOENAIL W/ (2) 8D		
	I-JOIST TO BEARING PLATE	TOENAIL W/ (2) 8D - ONE INTO EACH SIDE AT LEAST 1 1/2" FROM THE END		
	RIM JOIST TO I-JOIST	FACENAIL W/ (2) 10D BOX NAILS - ONE INTO EACH FLANGE		
	SOLE PLATE TO LSL RIM BOARD	16D BOX NAILS @ 12" OC		
	SINGLE JOIST HANGERS *	10D FACENAILS AND TOENAILS		
	DOUBLE JOIST HANGERS *	16D FACENAILS AND TOENAILS		
TOP & SOLE PLATE TO STUD	END NAIL W/ (2) 16D			
STUD TO SOLE AND TOP PLATE	TOENAIL W/ (4) 8D			
DOUBLE TOP PLATES	FACENAIL W/ 16D @ 16" OC			
DOUBLE TOP PLATE LAP SPLICE	FACENAIL W/ (8) 16D			
TOP PLATE LAPS & INTERSECTIONS	FACENAIL W/ (2) 16D			
DOUBLE STUDS	FACENAIL W/ 16D @ 24" OC			
BUILT-UP CORNER STUDS	FACENAIL W/ 16D - 2 ROWS @ 24" OC			
STEEL "X" BRACING	FACENAIL W/ (2) 16D IN EACH TOP & BOTTOM PLATE & (1) 8D PER STUD			
SOLE PLATE TO JOIST OR BLOCKING	FACENAIL W/ 16D @ 16" OC			
SOLE PLATES TO JOIST OR BLOCKING AT BRACED WALL LINES, PERPENDICULAR TO FRAMING	FACENAIL W/ (3) 16D @ 16" OC ALONG BRACED WALL PANEL			
TOP PLATE TO JOIST OR BLOCKING AT BW LINES, PERPENDICULAR TO FRAMING	TOENAIL W/ 8D @ 6" OC ALONG BRACED WALL PANEL			
SOLE PLATES TO JOIST OR BLOCKING AT BW LINES PARALLEL TO FRAMING, BLOCKING @ 16" OC	FACENAIL W/ (3) 16D @ 16" OC ALONG BW PANEL & AT EACH BLOCK			
TOP PLATE TO JOIST OR BLOCKING AT BW LINES, PARALLEL TO FRAMING, BLOCKING @ 16" OC	TOENAIL W/ 8D @ 6" OC ALONG BW PANEL & AT EACH BLOCK			
NON-STRUCT. SIDING OVER STRUCT. SHEATHING	(1) 6D BOX NAIL IN EACH STUD			
FIBER CEMENT PLANK SIDING	(1) 6D GALVANIZED NAIL IN EACH STUD			
WINDOW INSTALLATION NAILING	1 3/4" - 2" ROOFING NAILS @ 12" OC MAX.			

\* JOIST HANGER NOTES: 1) NO JOIST HANGER NAILS ALLOWED FOR TOENAILS, 2) NO GUN NAILS OR SCREWS ALLOWED IN CONNECTORS, 3) TOENAILS SHALL ALWAYS BE A FULL 3" OR 3.5" NAIL

COLUMN CONNECTION TO STEEL BEAMS SHALL BE WITH A CLIP POST CAP WITH ALL FOUR TAB ENDS BENT AROUND THE BOTTOM FLANGE OF THE BEAM. FOR A BEARING PLATE, FOUR HOLES SHALL BE DRILLED IN THE BOTTOM FLANGE OF THE STEEL BEAM TO MATCH THE HOLE PATTERN OF THE PLATE. 1/2"x2" BOLTS SHOULD THEN BE INSTALLED WITH A FLAT WASHER, LOCK WASHER, AND A NUT IN EACH OF THE HOLES. THE POST CAP MAY BE WELDED TO THE STEEL BEAM IN ACCORDANCE WITH AWS D1.1-92 AS AN ALTERNATIVE, AND WOULD NEED TO BE INSPECTED BY AN AWS-CERTIFIED INSPECTOR.

## DUCT SEALING METHOD, PER IRC2018 W1103.3.2

**N1103.2.2 (R403.2.2) SEALING (MANDATORY)** DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION M1601.4.1 OF THIS CODE.

### EXCEPTIONS:

- AIR-IMPERMEABLE SPRAY FOAM PRODUCTS SHALL BE PERMITTED TO BE APPLIED WITHOUT ADDITIONAL JOINT SEALS.
- WHERE A DUCT CONNECTION IS MADE THAT IS PARTIALLY INACCESSIBLE, THREE SCREWS OR RIVETS SHALL BE EQUALLY SPACED ON THE EXPOSED PORTION OF THE JOINT SO AS TO PREVENT A HINGE EFFECT.
- CONTINUOUSLY WELDED AND LOCKING-TYPE LONGITUDINAL JOINTS AND SEAMS IN DUCTS OPERATING AT STATIC PRESSURE LESS THAN 2 INCHES OF WATER COLUMN (500 Pa) PRESSURE CLASSIFICATION SHALL NOT REQUIRE ADDITIONAL CLOSURE SYSTEMS.
- DUCT TIGHTNESS SHALL BE VERIFIED BY EITHER OF THE FOLLOWING:
  - POST CONSTRUCTION TEST: TOTAL LEAKAGE SHALL NOT BE LESS THAN OR EQUAL TO 4 CFM (113.3 L/MIN) PER 100FT<sup>2</sup> (9.29m<sup>2</sup>) OF CONDITIONED FLOOR AREA WHEN TESTED AT A PRESSURE DIFFERENTIAL OF 0.1 INCHES W.G. (25 Pa) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. ALL REGISTER BOOTS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST.
  - ROUGH-IN TEST: TOTAL AIR LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CFM (113.3 L/MIN) PER 100FT<sup>2</sup> (9.29m<sup>2</sup>) OF CONDITIONED FLOOR AREA WHEN TESTED AT A PRESSURE DIFFERENTIAL OF 0.1 INCHES W.G. (25 Pa) ACROSS THE ENTIRE SYSTEM, INCLUDING THE MANUFACTURER'S AIR HANDLER ENCLOSURE. ALL REGISTERS SHALL BE TAPED OR OTHERWISE SEALED DURING THE TEST. IF THE AIR HANDLER IS NOT INSTALLED AT THE TIME OF THE TEST, TOTAL AIR LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CFM (85 L/MIN) PER 100FT<sup>2</sup> (9.29m<sup>2</sup>) OF CONDITIONED FLOOR AREA.
- EXCEPTION:** THE TOTAL LEAKAGE IS NOT REQUIRED FOR DUCTS AND AIR HANDLERS LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

### GENERAL NOTES:

- PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE, 2018 IECC, AND ALL AMENDMENTS AS ADOPTED BY THE AHJ. IF ANY CHANGES OR DEVIATIONS ARE MADE FROM THESE PLANS THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND THE ENGINEER TO EVALUATE THE CHANGES AND MAKE ANY APPROPRIATE MODIFICATIONS TO THE PLANS.
- WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, NOTES FOR THE DESIGN PROFESSIONAL OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY.
- THE CONTRACTOR'S OBLIGATION IS TO PROVIDE THE OWNER/BUILDER AND THE AHJ WITH A SET OF PLANS THAT MEET ALL CODE REQUIREMENTS FOR A SINGLE SITE CONSTRUCTION PROJECT, UNLESS REQUESTED BY OUR CLIENT. CODE/AHJ MINIMUM DESIGNS WILL BE UTILIZED, ALSO UNLESS REQUESTED BY THE OWNER, OUR FIRM CAN NOT AND WILL NOT BE AUTHORIZED TO VISIT THE SITE TO EVALUATE THE SITE OR ANY CONSTRUCTION FOR THIS PROJECT. IMPLEMENTATION OF ALTERNATES TO THE DESIGNS INCLUDING BUT NOT LIMITED TO PIER DESIGNS, FOUNDATION ALTERATIONS, OR ANY STRUCTURAL CHANGES NOT PROVIDED BY HD ENGINEERING OR A PROFESSIONAL REFERRED BY HD ENGINEERING SHALL RELEASE HD ENGINEERING FROM ALL LIABILITY ASSOCIATED WITH THIS DESIGN.
- OUR FIRM HIGHLY RECOMMENDS THAT ANY SITE WITH GREATER THAN A 15% GRADE, ANY SITE WHERE A PREVIOUS STRUCTURE WAS LOCATED, OR ANY SITE WITH POTENTIAL FILL MATERIAL OR A POTENTIAL SOIL BEARING CAPACITY BELOW 1500 PSF SHOULD BE EVALUATED BY OUR FIRM OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACING FOOTINGS. THE ATTACHED PLANS HAVE BEEN DESIGNED WITH THE UNDERSTANDING THAT OUR FIRM HAS NOT AND CAN NOT VISIT OR INSPECT THE SITE WITHOUT WRITTEN CONSENT/REQUEST OF THE OWNER/BUILDER. DUE TO THIS FACT OUR FIRM CAN ONLY DESIGN THE ATTACHED PLANS TO CERTAIN CODE REQUIREMENTS WHICH ARE DETAILED THROUGHOUT THE PLAN AND ATTACHED DETAIL SHEETS, IF THE OWNER DESIRES GREATER THAN CODE DESIGNS THAT REQUEST MUST BE MADE CLEARLY AND IN WRITING PRIOR TO ENGINEERING OF THE PLAN.
- DUE TO THE WIDE VARIETY OF SOIL CONDITIONS IN OUR AREA AND THE WIDE VARIETY OF PLASTICITY INDEX AND SOIL BEARING CAPACITIES OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY HD ENGINEERING OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF ANY "STANDARD" FOUNDATIONS.

### FOUNDATION NOTES:

- THE FOUNDATION DESIGN SHALL COMPLY WITH THE ENFORCING JURISDICTION RESIDENTIAL FOUNDATION STANDARD IN LIEU OF ENGINEERING REPORT REQUIREMENTS BASED ON ACTUAL SITE CONDITIONS.
- FOUNDATION WALLS SHALL BE DAMP-PROOFED PER IRC SECTION R406.
- PROVIDE A MINIMUM 4" PERFORATED DRAIN AROUND USABLE SPACE BELOW GRADE OR OTHER EQUIVALENT MATERIALS PER IRC SECTION 405.1. THE PIPE SHALL BE COVERED WITH NOT LESS THAN 6" OF WASHED GRAVEL OR CRUSHED ROCK. THE DRAIN SHALL DAYLIGHT TO THE EXTERIOR BELOW THE FLOOR LEVEL OR TERMINATE IN A MINIMUM 20 GALLON SUMP PIT.
- FOUNDATION DESIGN SHALL BE BASED ON A MINIMUM SOIL BEARING CAPACITY OF 1500 PSF.
- FOOTINGS SHALL BE A MIN. OF 16" WIDE AND 8" DEEP W/ (2) #4 BARS CONTINUOUS, LOCATED A MIN. OF 3" CLEAR FROM BOTTOM. FOOTINGS SHALL BE A MINIMUM OF 36" BELOW GRADE FOR FROST PROTECTION.
- COLUMN PADS SHALL BE A MINIMUM OF 24"x24"x8" WITH (3) #4 BARS EACH WAY.
- FOUNDATION WALLS SHALL BE A MINIMUM 8" THICK W/ MINIMUM #4 BARS @ 24" O.C. HORIZONTAL AND VERTICAL W/ THE TOP BAR WITHIN 8" OF THE TOP OF THE WALL UNLESS NOTED OTHERWISE ON PLAN.
- REINFORCEMENT SHALL LAP A MINIMUM OF 24"
- INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.
- INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE BY A SEPARATION OF 1/2"
- CONCRETE FLOOR SLABS ON GRADE SHALL BE A MINIMUM 4" THICK OVER A MINIMUM 4" BASE OF SAND, GRAVEL, OR CRUSHED STONE. BASEMENT SLABS SHALL HAVE A MIN. 6 MIL POLYETHYLENE OR APPROVED VAPOR RETARDER WITH JOINTS LAPPED NOT LESS THAN 6" SHALL BE PLACED BETWEEN THE FLOOR SLAB AND THE BASE COURSE.
- FLOOR SLABS SUPPORTED BY FILL CONSISTING OF MORE THAN 24" OF GRANULAR FILL OR 8" OF EARTH SHALL BE REINFORCED PER A SEPARATE ENGINEERING DESIGN.
- BASEMENT FOUNDATION SILL PLATES SHALL BE BOLTED TO THE FOUNDATION W/ A MINIMUM OF 1/2" ANCHOR BOLTS EMBEDDED AT LEAST 7" INTO THE CONCRETE AND SPACED NOT MORE THAN 3' ON CENTER AND WITHIN 12" OF EACH END PIECE PER IRC SECTION R403.1.6.
- FOUNDATION WINDOW WELLS FOR SECONDARY MEANS OF EGRESS SHALL PROVIDE A MINIMUM 3'X3' HORIZONTAL AREA.
- THE BASE OF ALL FOOTING EXCAVATIONS SHOULD BE FREE OF ALL WATER AND LOOSE MATERIAL PRIOR TO PLACING CONCRETE. CONCRETE SHOULD BE PLACED AS SOON AS POSSIBLE AFTER EXCAVATING SO THAT EXCESSIVE DRYING OR DISTURBANCE OF BEARING MATERIALS DOES NOT OCCUR. SHOULD THE MATERIALS AT BEARING LEVEL BECOME EXCESSIVELY DRY OR SATURATED, WE RECOMMEND THAT THE AFFECTED MATERIAL BE REMOVED PRIOR TO PLACING CONCRETE.
- IT IS RECOMMENDED THAT ALL FOOTING EXCAVATIONS BE EVALUATED AND TESTED BY A GEOTECHNICAL ENGINEER IMMEDIATELY PRIOR TO PLACEMENT OF FOUNDATION CONCRETE. UNSUITABLE AREAS IDENTIFIED AT THIS TIME SHOULD BE CORRECTED. CORRECTIVE PROCEDURES WOULD BE DEPENDENT UPON CONDITIONS ENCOUNTERED AND MAY INCLUDE DEEPENING OF FOUNDATION ELEMENTS, OR UNDERCUTTING OF UNSUITABLE MATERIALS AND REPLACEMENT WITH ENGINEERED FILL.

### STAIRWAY NOTES:

- STAIRWAYS SHALL PROVIDE A MAXIMUM 7 3/4" RISE AND MIN. 10" RUN.
- PROVIDE MINIMUM 36" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES AND BALCONIES. MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF STAIRWAYS LOCATED MORE THAN 30" ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERNS THAT DO NOT ALLOW PASSAGE OF A SPHERE 4" IN DIAMETER.
- EACH STAIRWAY OF 3 OR MORE RISERS SHALL PROVIDE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34" AND 38" ABOVE THE NOSING OF THE TREADS.
- HANDRAILS SHALL HAVE A CIRCULAR CROSS-SECTION OF 1 1/4" MINIMUM TO 2" MAXIMUM OR OTHER APPROVED GRASPABLE SHAPE PER IRC SECTION R311.7.8.5
- PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS.
- ENCLOSED ACCESSIBLE SPACE UNDER STAIRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON ENCLOSURE SIDE.
- WINDERS SHALL PROVIDE A MINIMUM TREAD OF AT LEAST 6" AT ANY POINT WITHIN CLEAR WIDTH OF STAIRS. WINDER TREAD PROPORTION TO COMPLY WITH IRCR311.7.5.2.1.

### GLAZING NOTES:

- GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE OF APPROVED SAFETY GLAZING MATERIALS. GLASS IN STORM DOORS, INDIVIDUAL FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 24" ARCH OF THE DOOR IN A CLOSED POSITION AND WHOSE BOTTOM EDGE IS WITHIN 60" OF THE FLOOR, WALLS ENCLOSEING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR, ENCLOSURES FOR SPAS, TUBS, SHOWERS AND WHIRLSPOOLS, GLAZING IN FIXED OR OPERABLE PANELS EXCEEDING 9 S.F. AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36"
- IN DWELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 24 INCHES OF THE FINISHED FLOOR.

### FRAMING NOTES:

- ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS OTHERWISE NOTED.
- ALL HEADERS TO BE A MINIMUM OF (2) #2-2X10'S UNLESS OTHERWISE NOTED.
- BLOCK CANTILEVERS, DOOR JAMBS, AND OVER BEAMS.
- ALL HEADERS/BEAMS TO BEAR ON A MINIMUM OF (2) 2X4 POSTS UNLESS NOTED OTHERWISE.
- INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
- WHERE JOISTS RUN PARALLEL TO FOUNDATION WALLS, SOLID BLOCKING FOR A MINIMUM OF (2) JOIST SPACES SHALL BE PROVIDED AT A MAXIMUM OF 4' CENTERS TO TRANSFER LATERAL LOADS ON THE WALL TO THE FLOOR DIAPHRAGM. THE BLOCKING SHALL BE SECURELY NAILED TO THE JOISTS AND FLOORING. NAIL JOISTS AND BLOCKING TO SILL PLATE WITH (4) 10D NAILS.
- IF DUCTS ARE INSTALLED IN THE FIRST JOIST SPACE(S), NAIL 2X4'S FLAT AT 4' CENTERS WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING, INSTALLED UPRIGHT, IN THE NEXT TWO JOIST SPACES. SECURE THE 2X4'S TO THE SILL PLATE WITH (4) 10D NAILS.
- ALL SILLS AND SLEEPERS SUPPORTED ON CONCRETE OR MASONRY AND FURRING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT MATERIALS.
- JOISTS UNDER BEARING PARTITIONS SHALL BE SIZED TO CARRY THE DESIGN LOAD IN ACCORDANCE WITH IRC SECTION R502.4.
- JOISTS FRAMING FROM OPPOSITE SIDES OVER BEARING SUPPORTS SHALL LAP A MINIMUM OF 3" AND SHALL BE NAILED TOGETHER WITH A MINIMUM 10D FACE NAILS.
- JOISTS FRAMING INTO A WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR ON MINIMUM 2"x2" LEDGER STRIPS.
- HEADER AND TRIMMERS SHALL BE OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR FRAMING. TRIMMER JOISTS SHALL BE DOUBLED WHEN THE HEADER IS SUPPORTED MORE THAN 3' FROM THE TRIMMER JOIST BEARING. WHEN THE HEADER SPAN EXCEEDS 4', THE HEADER AND TRIMMER SHALL BE DOUBLED.
- JOISTS AT SUPPORTS SHALL BE SUPPORTED Laterally AT THE ENDS BY FULL-DEPTH SOLID BLOCKING NOT LESS THAN 2" NOMINAL THICKNESS OR BY ATTACHMENT TO A HEADER, BAND OR RIM JOIST OR TO AN ADJOINING STUD OR OTHERWISE PROVIDED WITH LATERAL SUPPORT TO PREVENT ROTATION.
- ALL WALL COVERINGS TO COMPLY WITH IRC SECTION 702 AND 703
- ALL RAFTER / COLLAR TIES TO COMPLY WITH IRC SECTIONS 804
- ALL RAFTERS TO HAVE 2x4 COLLAR TIES @ 48" OC IN UPPER 1/3 OF DISTANCE BETWEEN CEILING AND ROOF
- BLOCKING BETWEEN JOISTS UNDER A PERPENDICULAR LOAD-BEARING WALL IS NOT REQUIRED.
- BOTTOM OF ALL FLOOR ASSEMBLIES SHALL BE PROVIDED WITH A 1/2" GYPSUM WALLBOARD MEMBRANE (IF REQUIRED BY LOCAL CODE)
- I-JOIST AND FLOOR TRUSS SYSTEMS SHALL BE FIRE PROTECTED PER IRC AS ADOPTED BY AHJ
- STUDS SHALL BE CONTINUOUS FROM THE FLOOR TO THE ROOF/CEILING DIAPHRAGM PER IRC 602.3

### CONCRETE NOTES:

- CONCRETE SHALL BE AIR-ENTRAINED (5%-7%) WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI FOR BASEMENT AND INTERIOR FLOOR SLABS, 3000 PSI FOR BASEMENT AND FOUNDATION WALLS AND 3500 PSI FOR PORCHES, CARPORTS AND GARAGE FLOOR SLABS.

### EMERGENCY EGRESS AND RESCUE NOTES:

- PROVIDE ONE WINDOW FOR EACH BEDROOM THAT HAS A MINIMUM OPENABLE AREA OF 5.7 S.F. WITH A MINIMUM OPENABLE HEIGHT OF 24" AND WIDTH OF 21". IN ADDITION, THE OPENABLE PORTION OF EGRESS WINDOWS SHALL NOT EXCEED 44" ABOVE THE ADJOINING FLOOR OR PERMANENT STEP.
- PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA AND ON EACH FLOOR INCLUDING BASEMENTS. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.
- PROVIDE CARBON MONOXIDE ALARMS AS REQUIRED PER IRC. CARBON MONOXIDE ALARMS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA, WHERE FUEL-BURNING APPLIANCES ARE LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM. A CARBON MONOXIDE ALARM SHALL BE INSTALLED IN THE BEDROOM.

### GARAGE NOTES:

- THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS OR SLOPE TO A TRENCH OR UNTRAPPED DRAIN THAT DISCHARGES DIRECTLY TO THE EXTERIOR ABOVE GRADE.
- DOORS BETWEEN THE GARAGE AND DWELLING - MINIMUM 1 3/8" SOLID WOOD, SOLID OR HONEY-COMBED CORE STEEL DOOR NOT LESS THAN 1 3/8" THICK, OR 20 - MINUTE FIRE - RATED EQUIPPED WITH SELF-CLOSING DEVICE PER IRC 1001.5.
- GARAGE VEHICLE DOORS AND FRAMES SHALL BE DESIGNED AND INSTALLED TO MEET THE 115-MPH 3-SECOND GUST LOADING PER DASMA 108 AND ASTM E 330-96 PER IRC2018 R301.2.1
- THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY MINIMUM 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE HABITABLE SPACE OCCURS ABOVE THE GARAGE, THE FLOOR CEILING ASSEMBLY SHALL BE PROTECTED WITH MINIMUM 5/8" TYPE X GYPSUM BOARD ON THE GARAGE CEILING. WHERE A FLOOR/CEILING SPACE IS PROVIDED ABOVE THE GARAGE COLUMNS AND BEAMS SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED WITH 5/8" GYPSUM BOARD OR EQUIVALENT
- GARAGE DOOR H-FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x6 VERTICAL JAMBS RUNNING FROM FLOOR TO CEILING ATTACHED WITH 1 3/4"x 120" NAILS AT 7" CENTERS STAGGERED WITH (7) 3 1/4"x 120" NAILS THRU THE JAMB INTO THE HEADER, MINIMUM 2X8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.
- ANY ATTACHED GARAGE TO THE MAIN HOUSE SHALL BE PROVIDED WITH A SINGLE HEAT DETECTOR. HEAT DETECTOR SHALL BE HARDWIRED AND INTERCONNECTED WITH THE HOUSEHOLD SMOKE ALARM SYSTEM. HEAT DETECTOR SHALL BE LISTED FOR THE AMBIENT ENVIRONMENT AND INSTALLED PER MANF. INSTRUCTIONS.

### MECHANICAL INSULATION:

- BUILDING ENVELOPE INSULATION SHALL COMPLY WITH IRC TABLE N1102.1.1 OR THE 2018 IECC. (SEE S-6.0 FOR MORE DETAILS)

### VENTILATION:

- ENCLOSED ATTICS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATING OPENINGS SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE MESH, WITH 1/8" TO 1/4" OPENINGS. THE TOTAL FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF SPACE VENTILATED, EXCEPT WHERE THE VENTILATORS AREA LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED THE REQUIRED AREA MAY BE REDUCED TO 1/300.

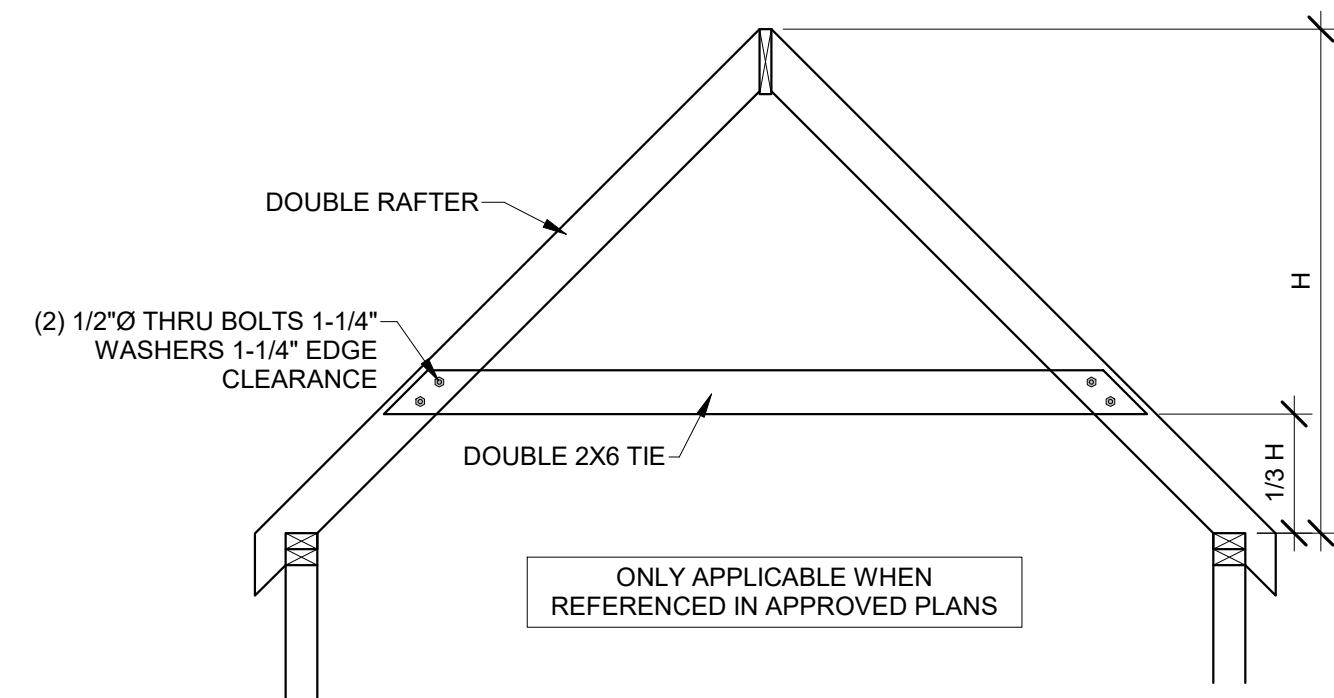


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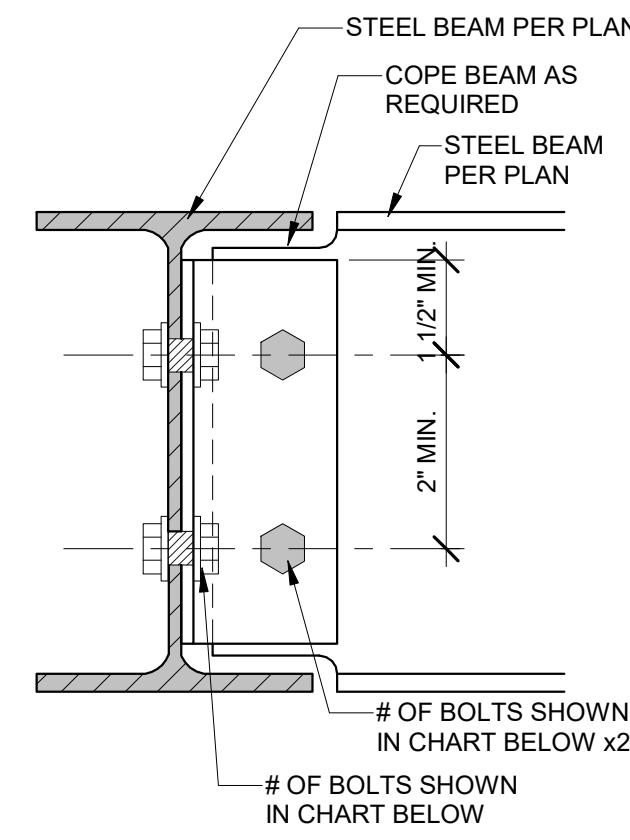
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**11 HIP SUPPORT FRAME**  
3/8" = 1'-0"

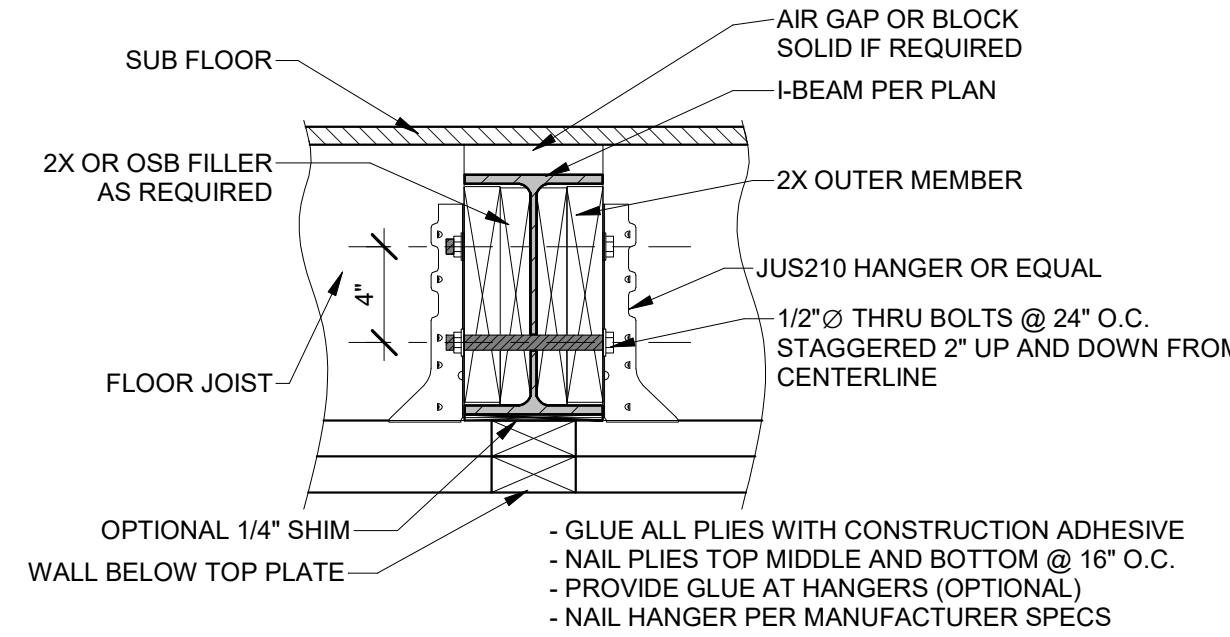


**BEAM CONNECTION SCHEDULE**

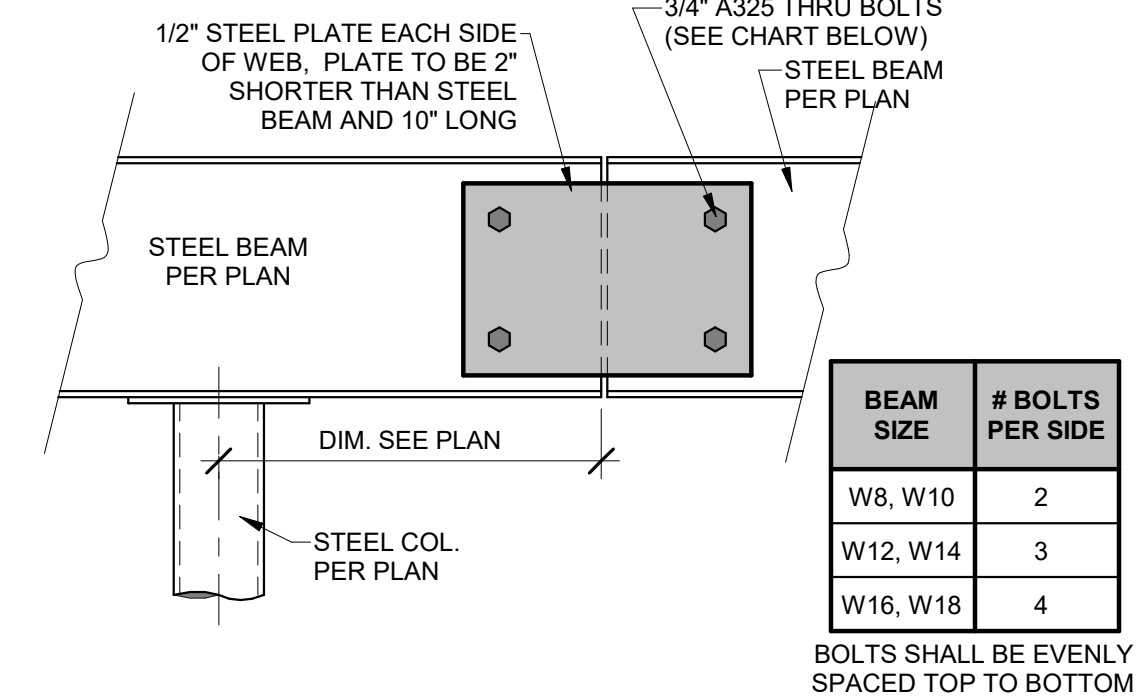
BEAM SIZE	# OF BOLT IN CONNECTION
W8, W10	2
W12, W14	3
W16, W18	4

NOTES:  
1. NUMBER OF BOLTS DETERMINED BY SMALLER OF TWO BEAMS BEING CONNECTED  
2. ALL BOLTS, 3/4" DIAMETER A325-N, UNO  
3. FULL PERIMETER 1/4" FILLET WELD MAY BE SUBSTITUTED FOR EITHER OR BOTH BOLTED CONNECTIONS

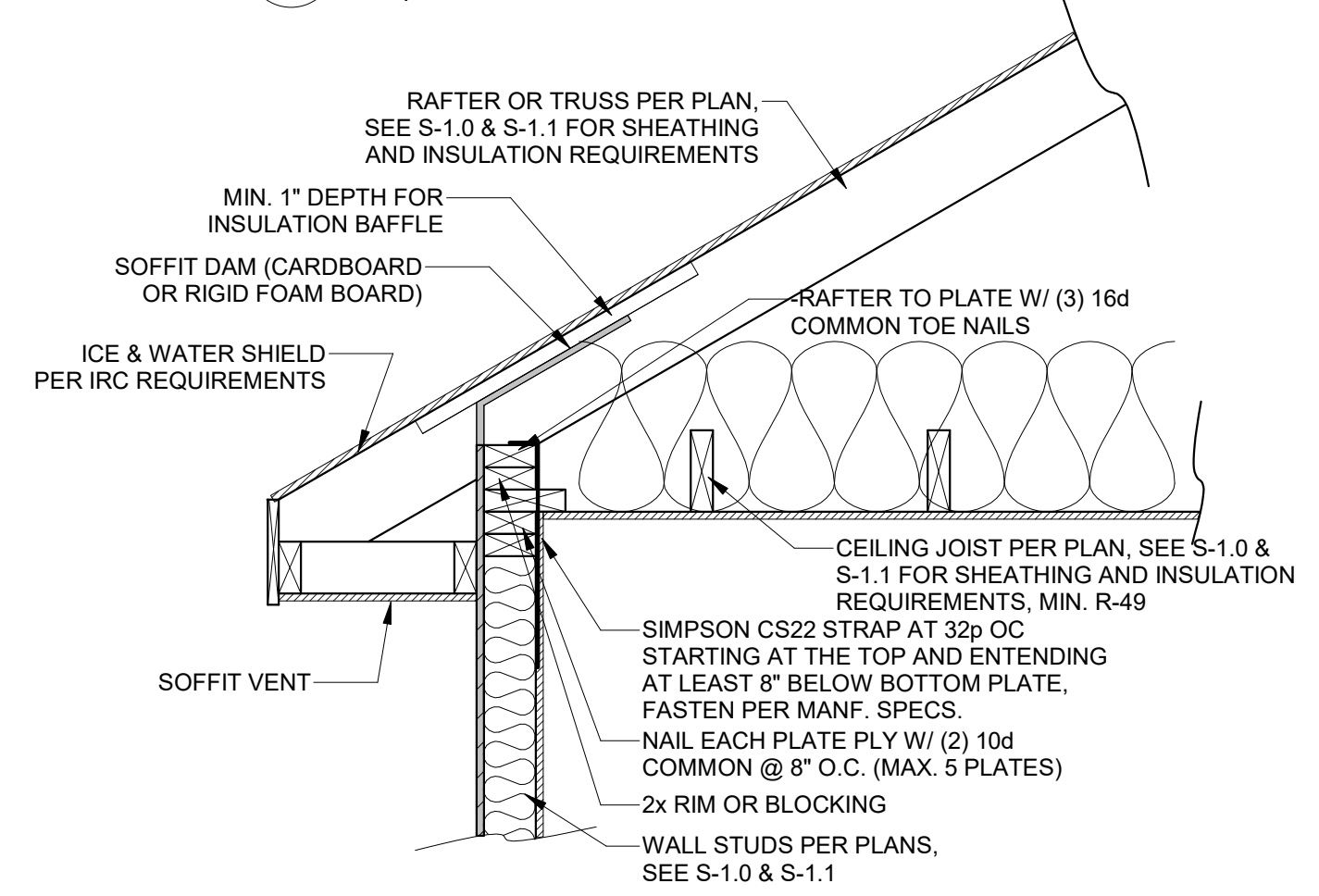
**10 BEAM TO GIRDER CONNECTION**  
3" = 1'-0"



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



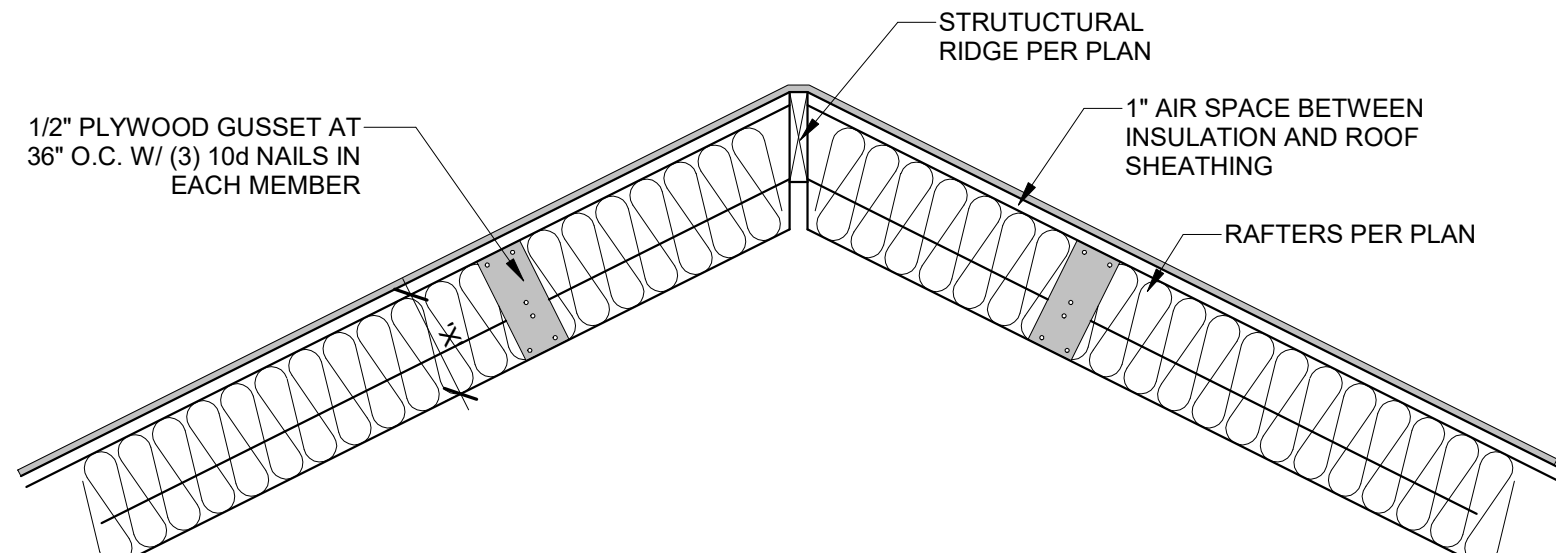
**9 STEEL BEAM SPLICE DETAIL**  
1 1/2" = 1'-0"



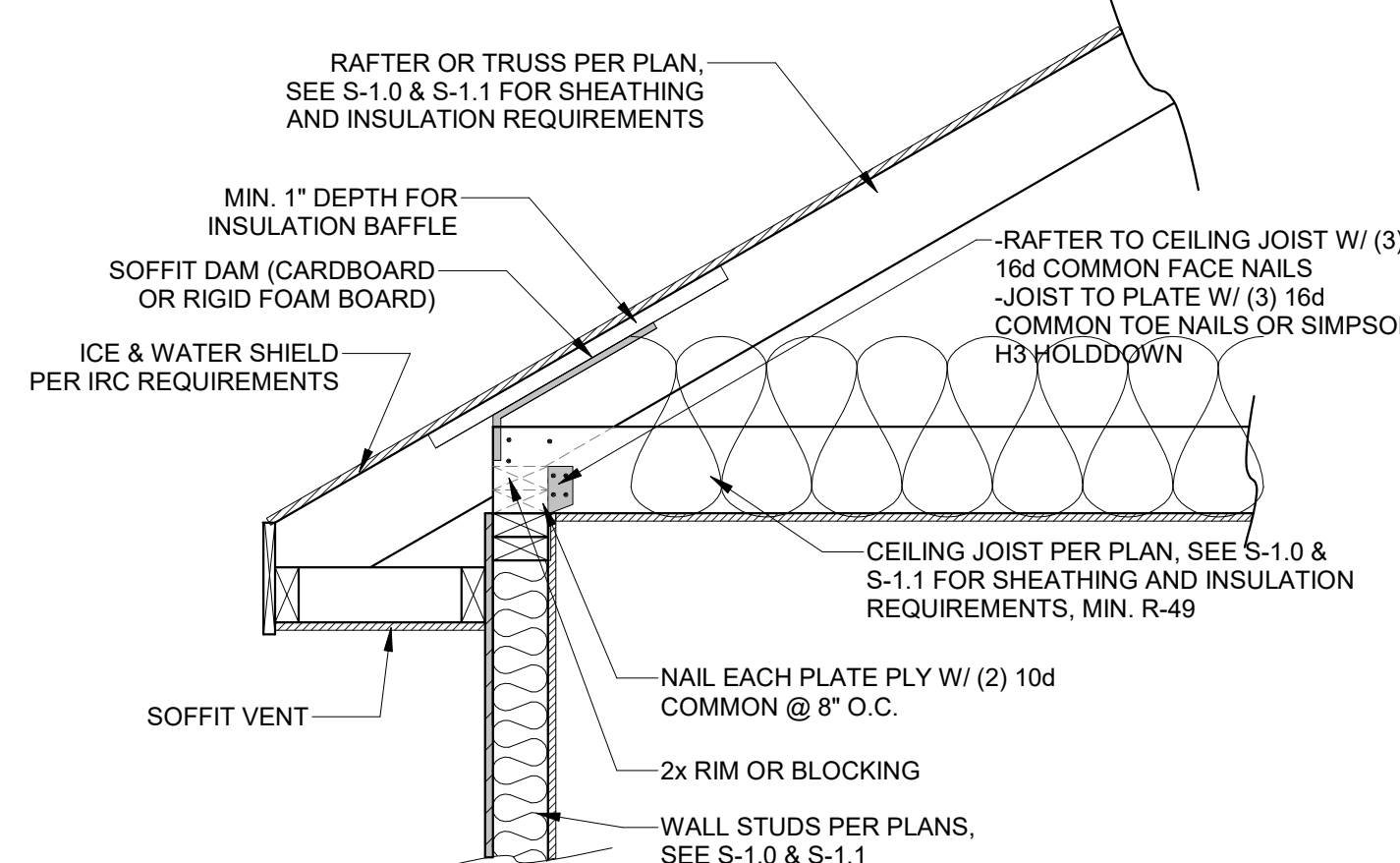
**7 OPTION 4 RAFTER BEARING**  
1" = 1'-0"

**HIP/VALLEY ALLOWABLE SPAN TABLE**

TYPE	MAX. UNSUPPORTED SPAN				
	2x8	2x10	2x12	1 3/4"x9 1/2" LVL	1 3/4"x11 7/8" LVL
HIP RAFTER	11'-3"	13'-3"	15'-2"	15'-8"	18'-2"
VALLEY RAFTER	8'-11"	10'-6"	12'-0"	13'-2"	15'-3"



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

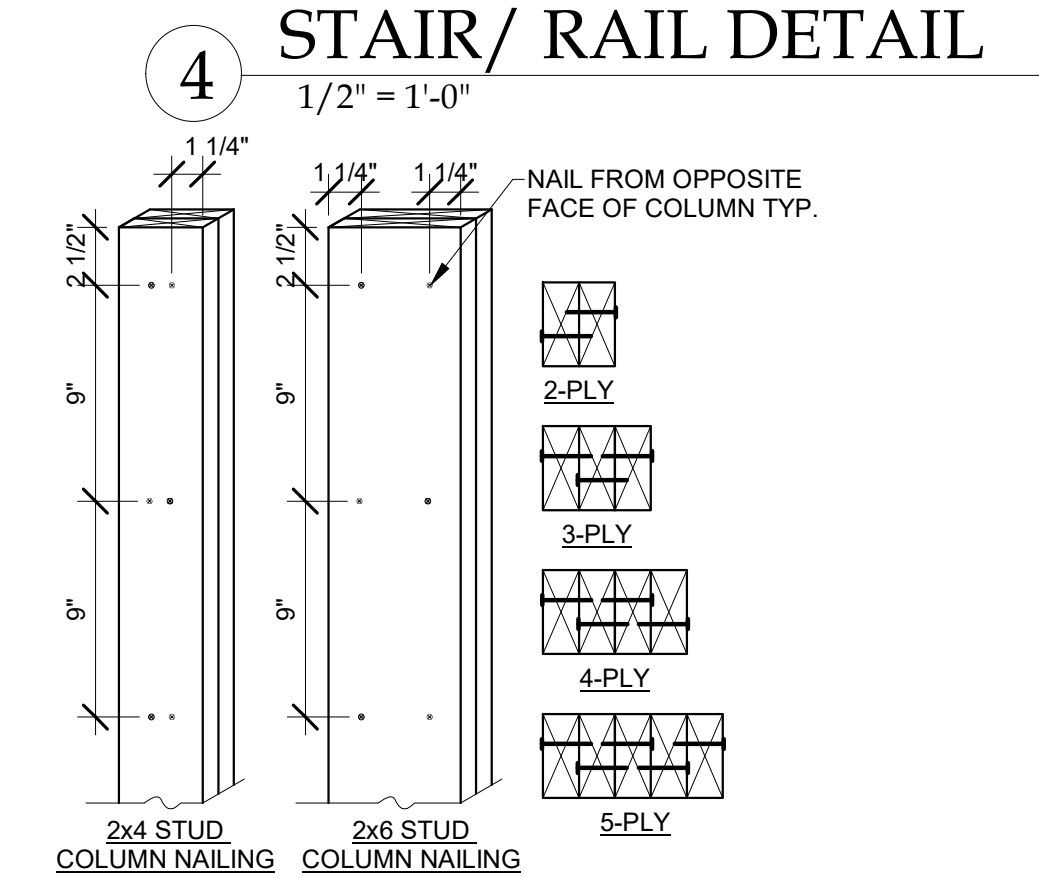


**6 OPTION 3 RAFTER BEARING**  
1" = 1'-0"

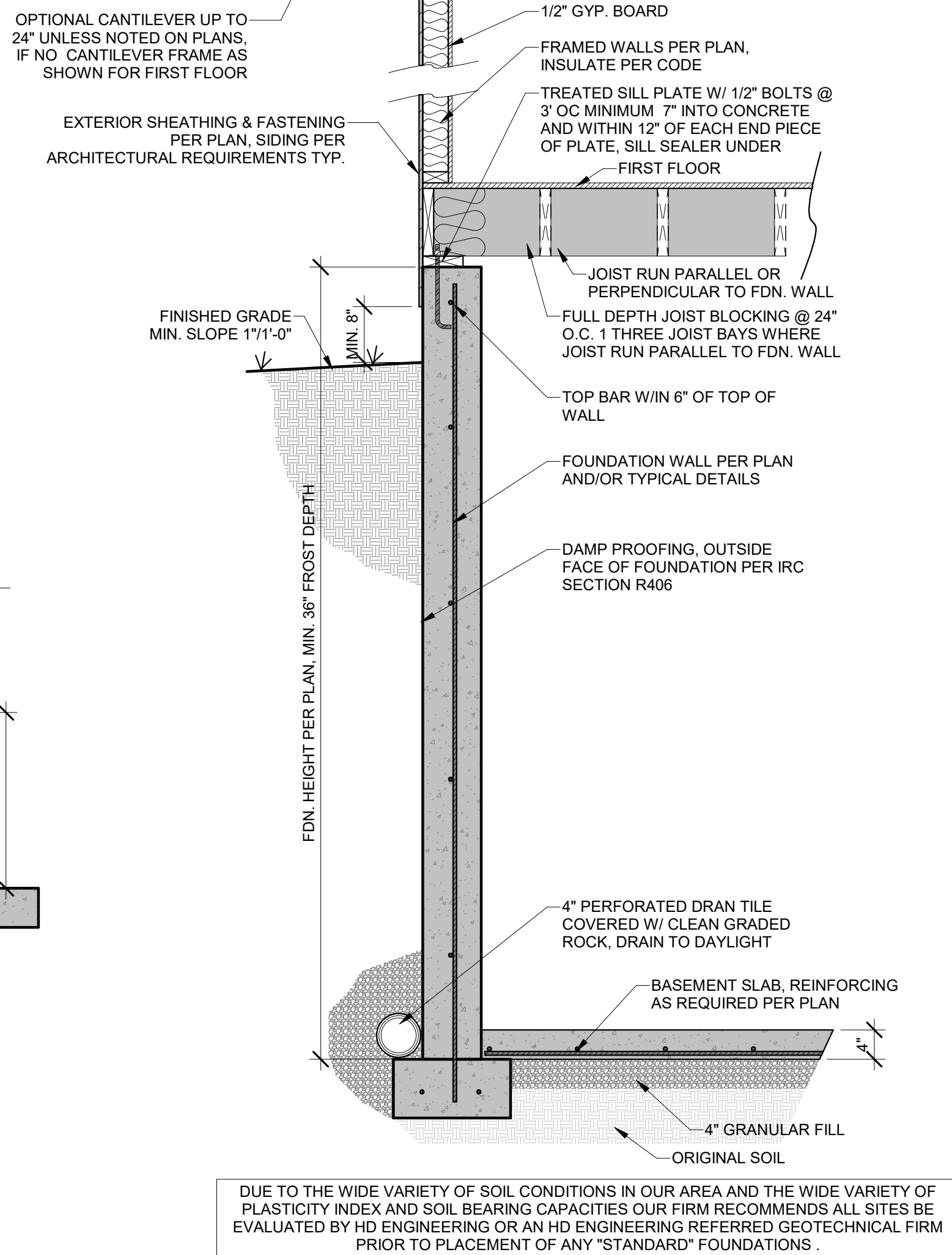
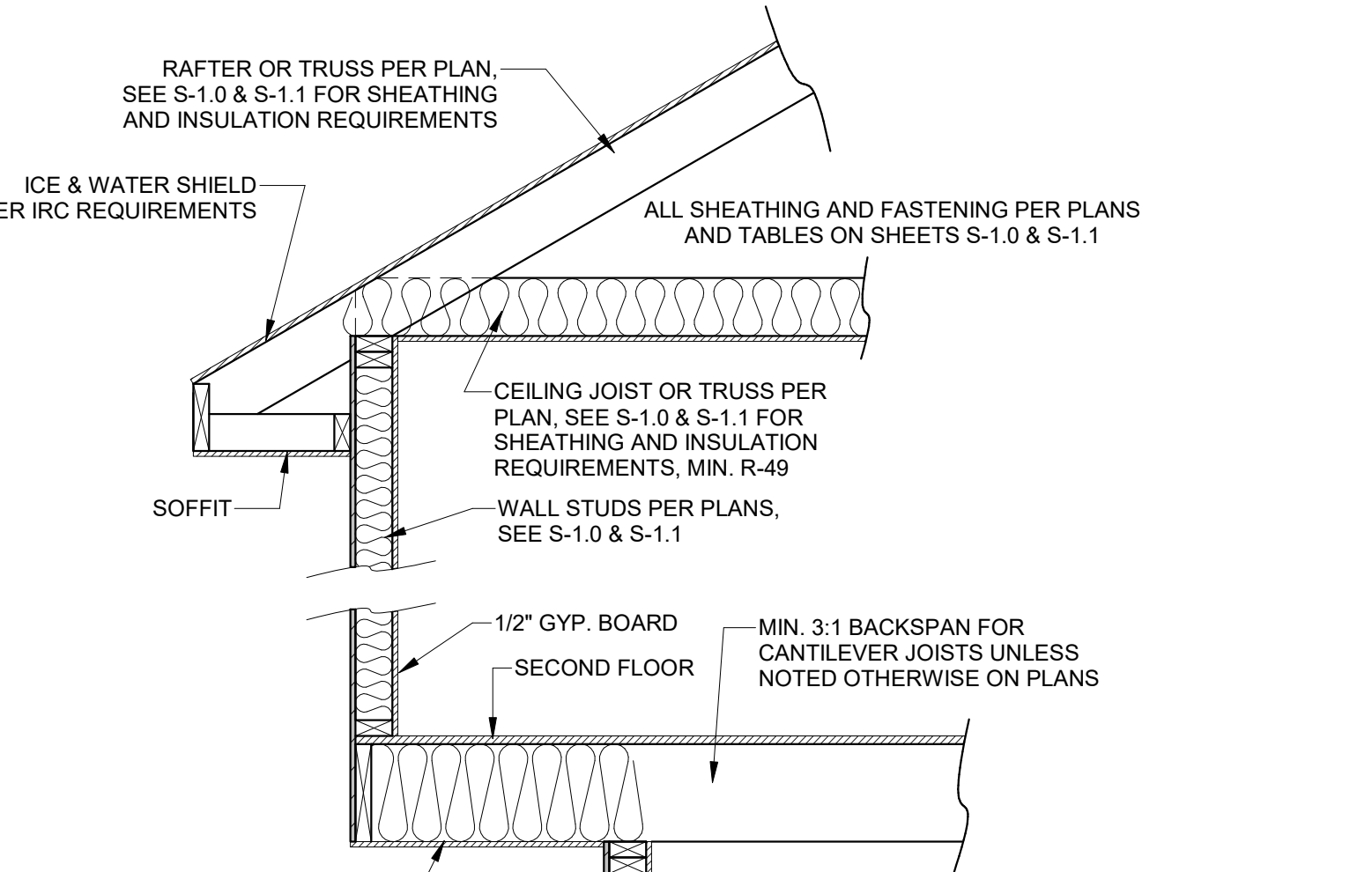
**VAULT FURR DOWN SCHEDULE**

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

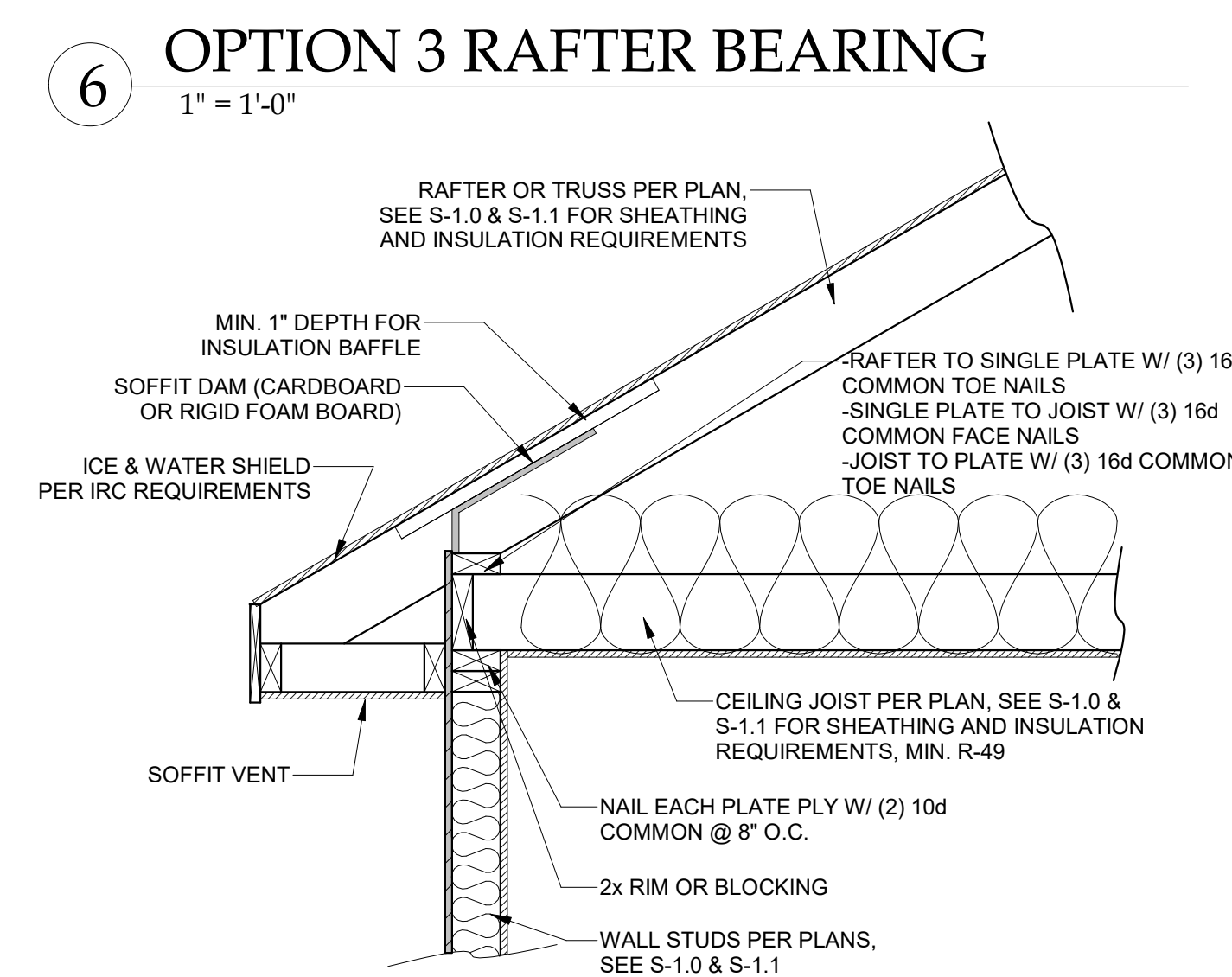
NOTES:  
1. ALL VAULTS SHALL BE FURRED DOWN WITH 2X FRAMING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.  
2. R-38C REQUIRED = 11" WITH AIR SPACE.  
3. ALL VAULTED RAFTERS SHALL BE MIN. #2 2x6 DFL @ 16" O.C. OR PER ROOF PLAN.



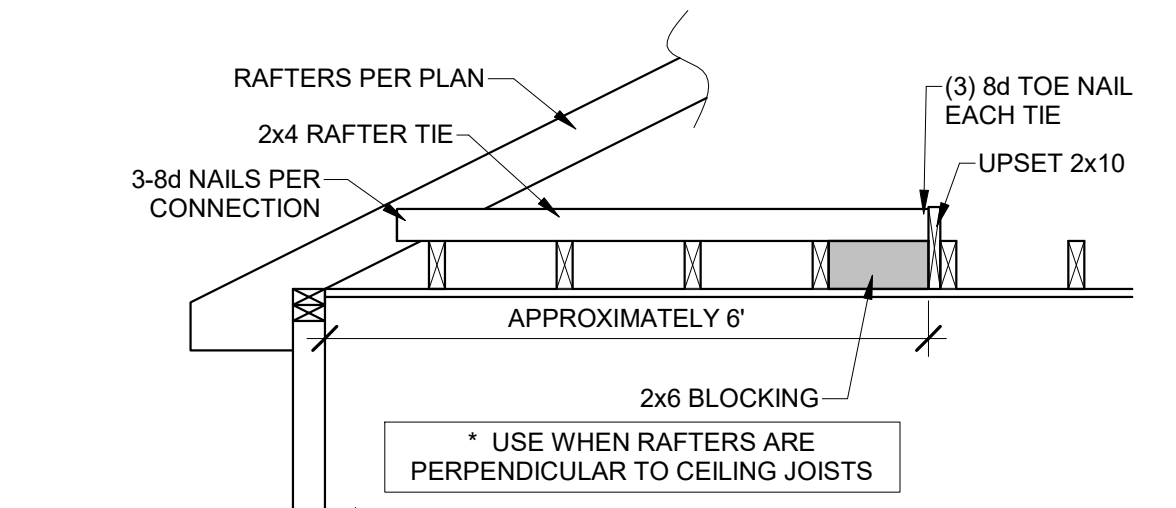
**4 STAIR/ RAIL DETAIL**  
1/2" = 1'-0"



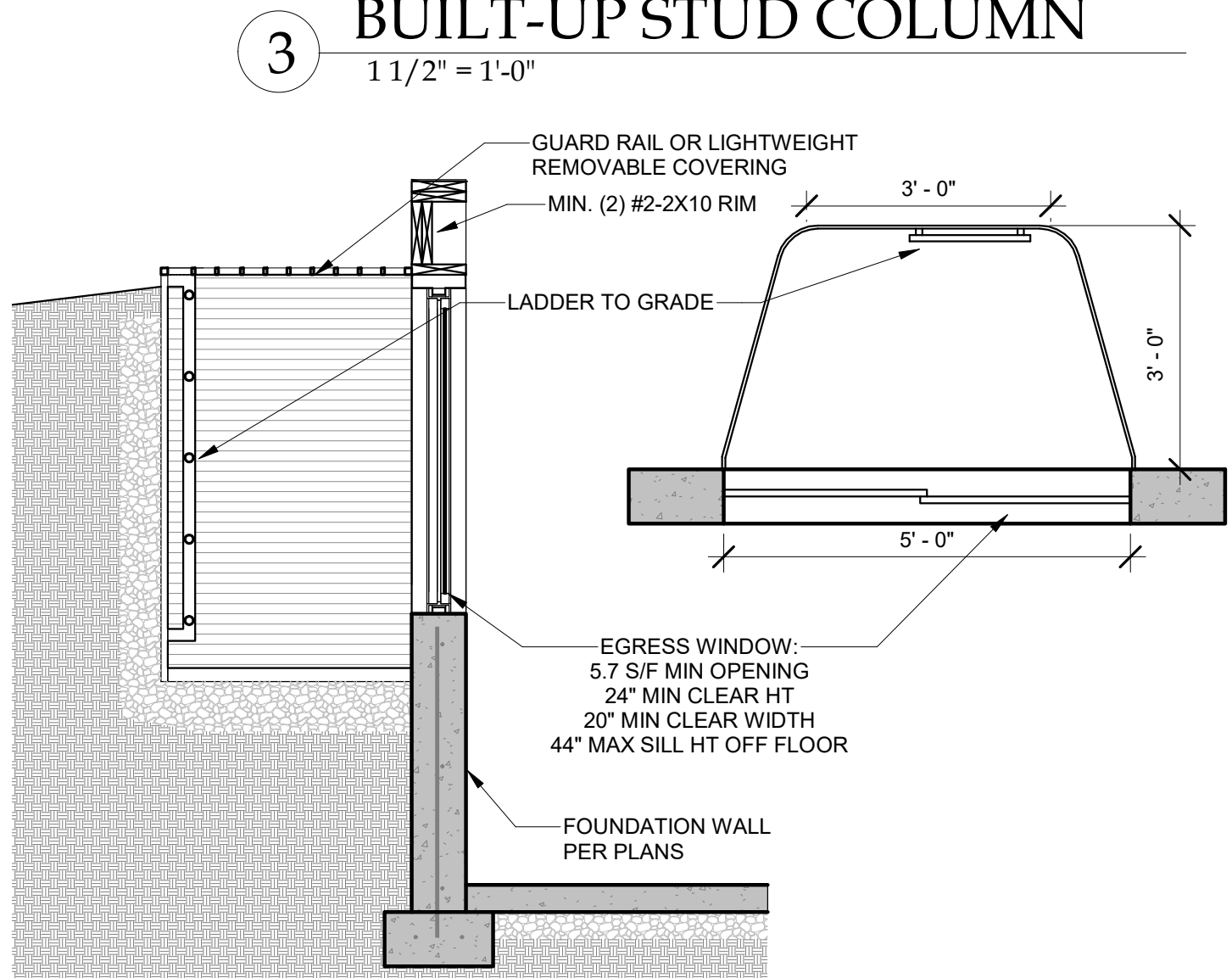
**1 TYPICAL WALL SECTION**  
3/4" = 1'-0"



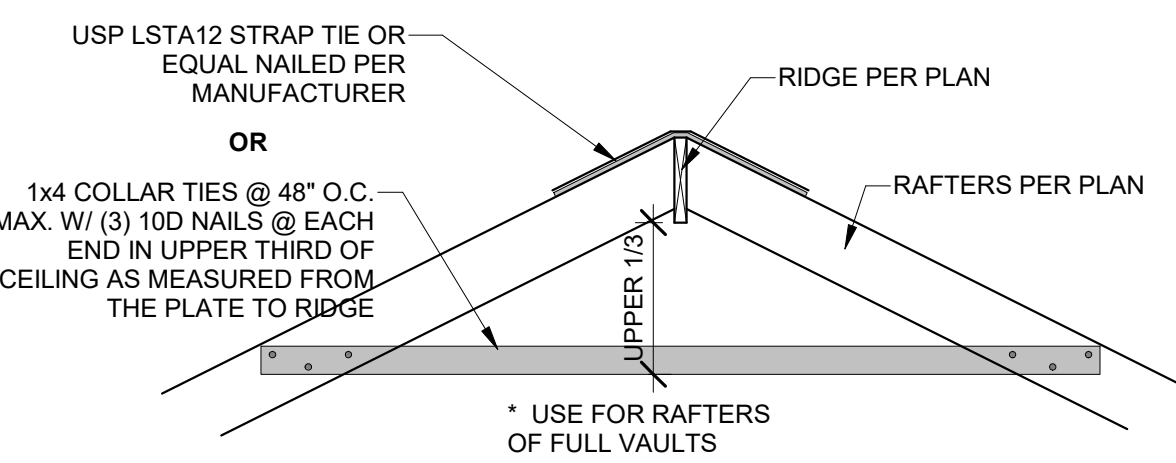
**5 OPTION 2 RAFTER BEARING**  
1" = 1'-0"



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

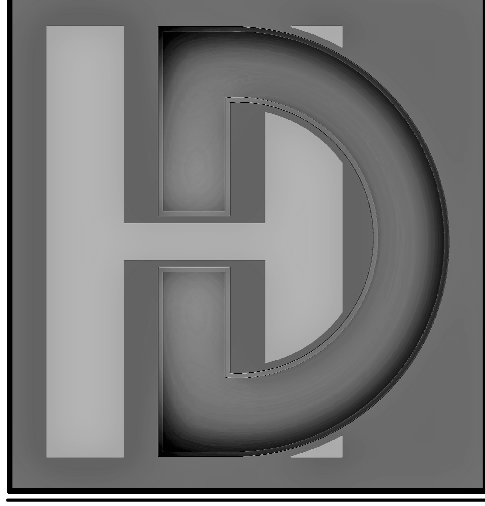


**2 EGRESS WINDOW SECTION**  
1/2" = 1'-0"



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

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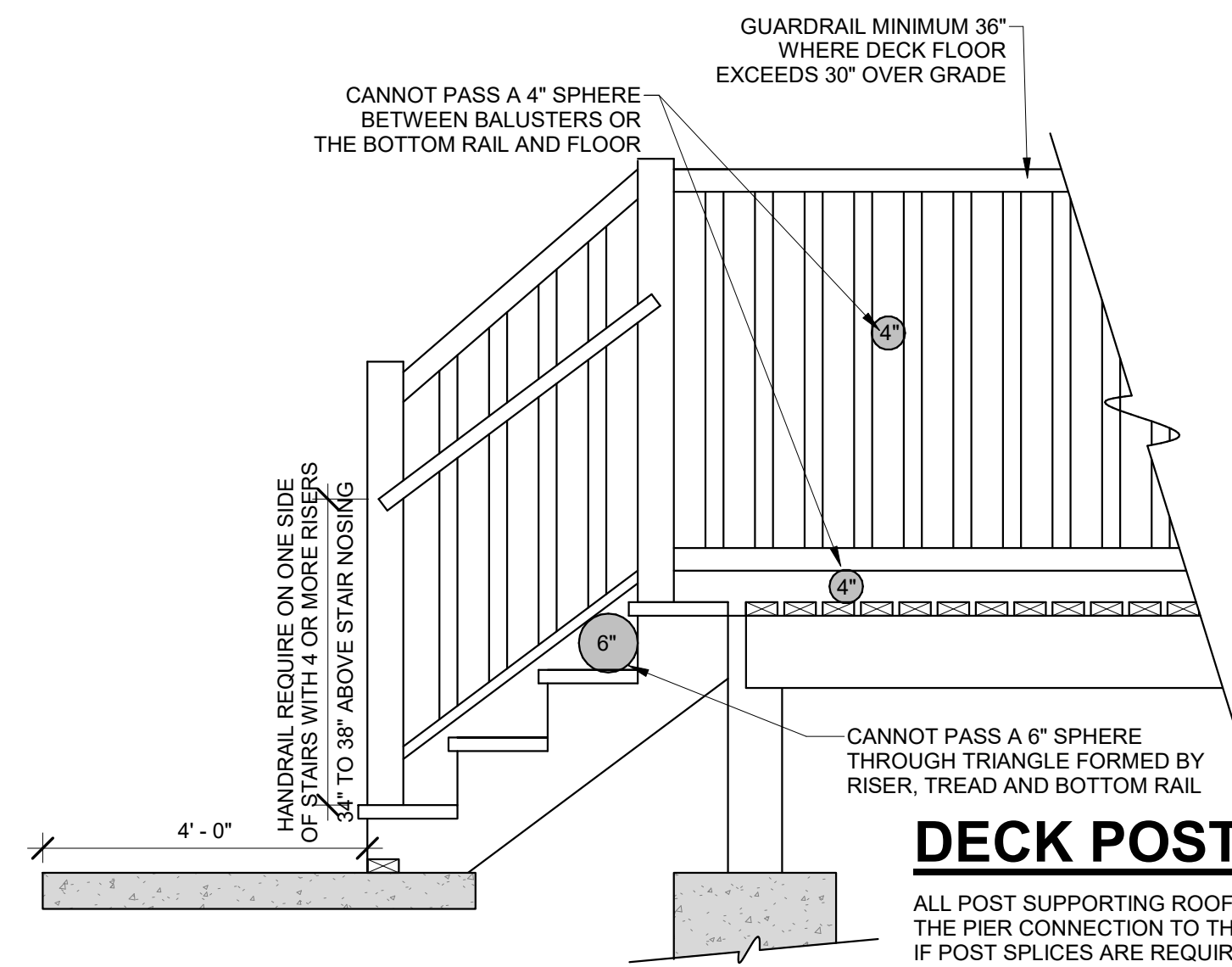
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FRAMING SECTIONS

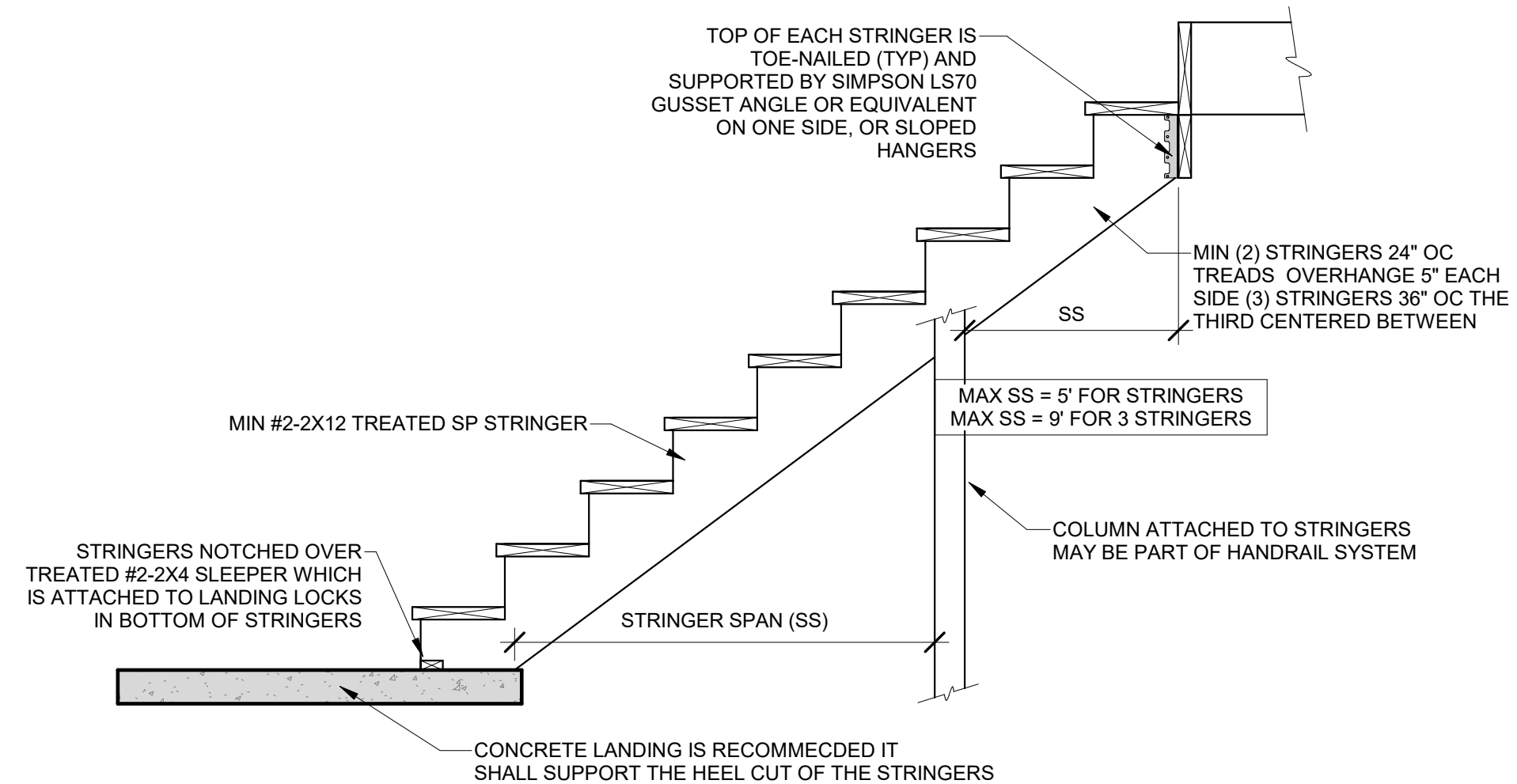
**S-1.2**



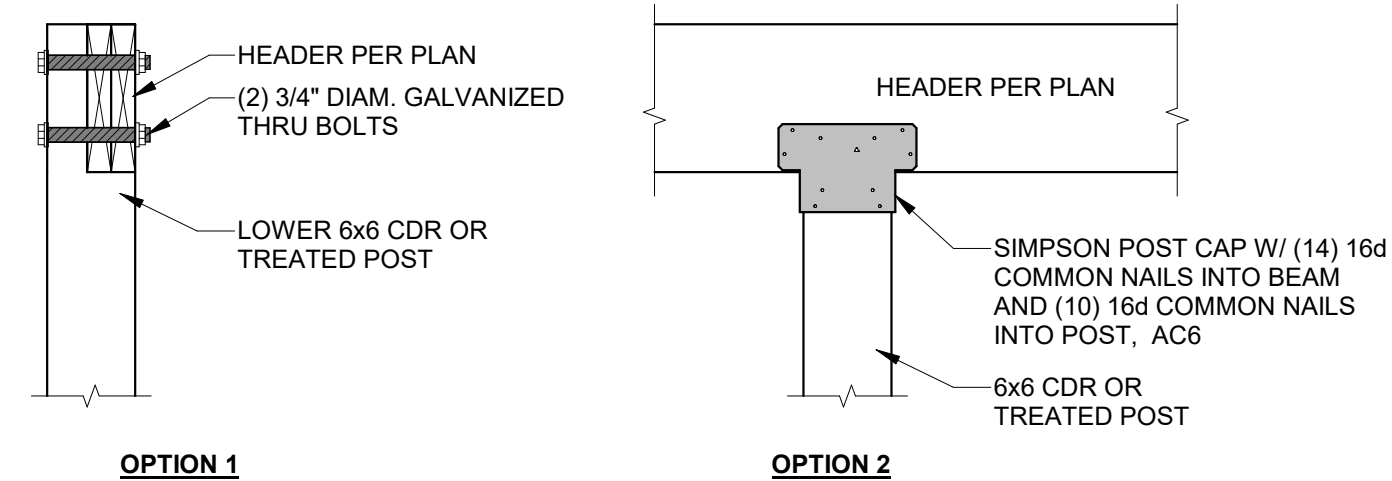
8 GUARD RAIL  
1/2" = 1'-0"

**DECK POST NOTE**

ALL POST SUPPORTING ROOF LOADS SHALL BE CONTINUOUS FROM THE PIER CONNECTION TO THE ROOF SUPPORTING STRUCTURE. IF POST SPLICES ARE REQUIRED THE SPLICE SHALL BE ENGINEERED BY THE ENGINEER OF RECORD FOR THE PROJECT



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



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

**TABLE IRC2018 R507.9.1.3(1)**  
**DECK LEDGER CONNECTION TO BAND JOIST**<sup>a,b</sup>  
**(DECK LIVE LOAD = 40 PSF, DECK HEAD LOAD = 10 PSF, SNOW LOAD ≤ 40 PSF)**

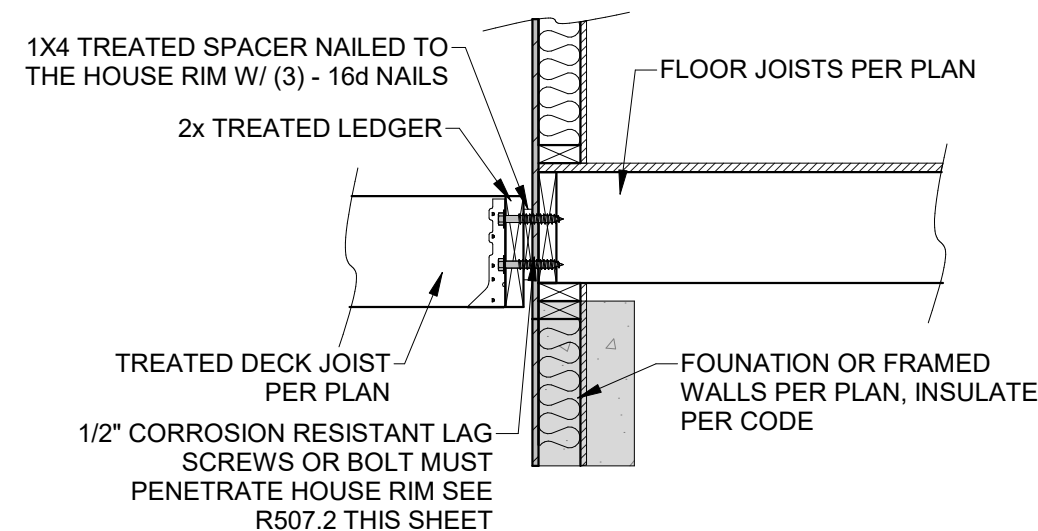
JOIST SPAN	ON-CENTER SPACING OF FASTENERS <sup>c,d</sup>						
	6' AND LESS	6'-1" TO 8'	8'-1" TO 10'	10'-1" TO 12'	12'-1" TO 14'	14'-1" TO 16'	16'-1" TO 18'
1/2" LAG SCREW WITH 15/32" MAX. SHEATHING <sup>e,d</sup>	30	23	18	15	13	11	10
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING <sup>d</sup>	36	36	34	29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

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

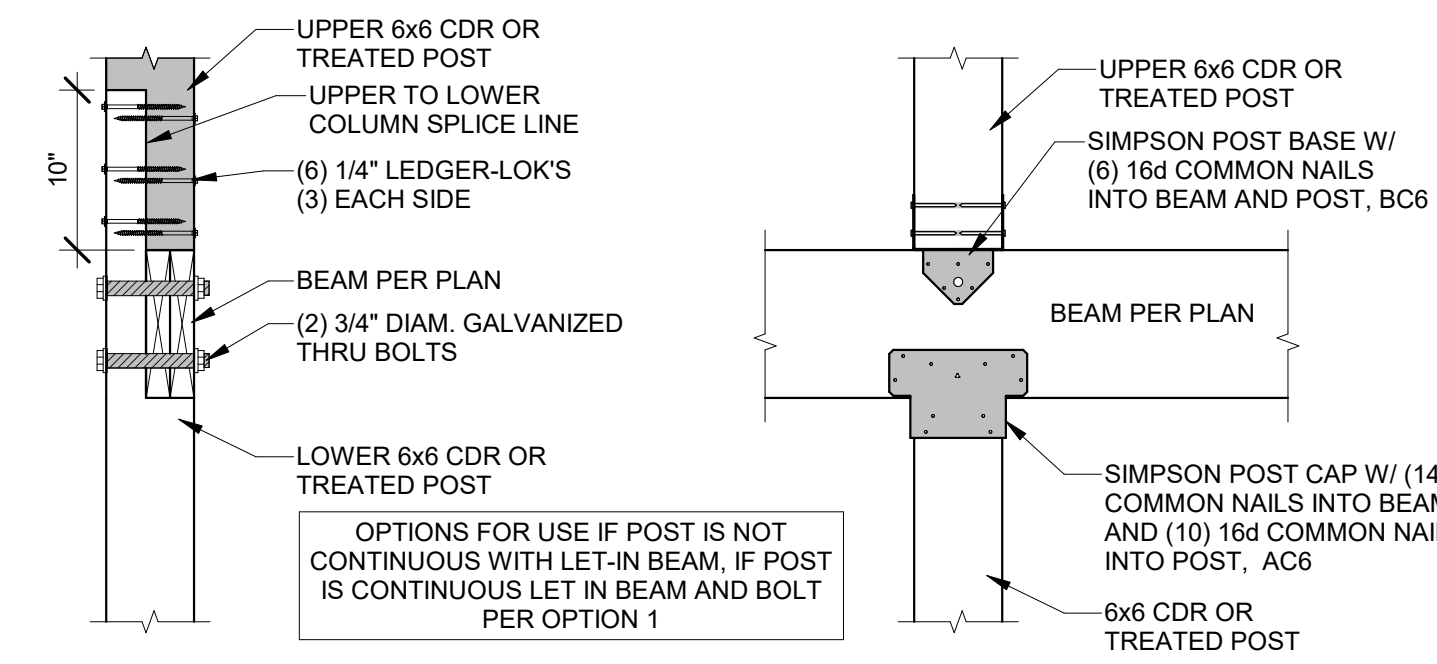
**TABLE IRC2018 R507.9.1.3(2)**  
**PLACEMENT OF LAG SCREWS AND BOLT IN DECK LEDGERS AND BAND JOISTS**

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

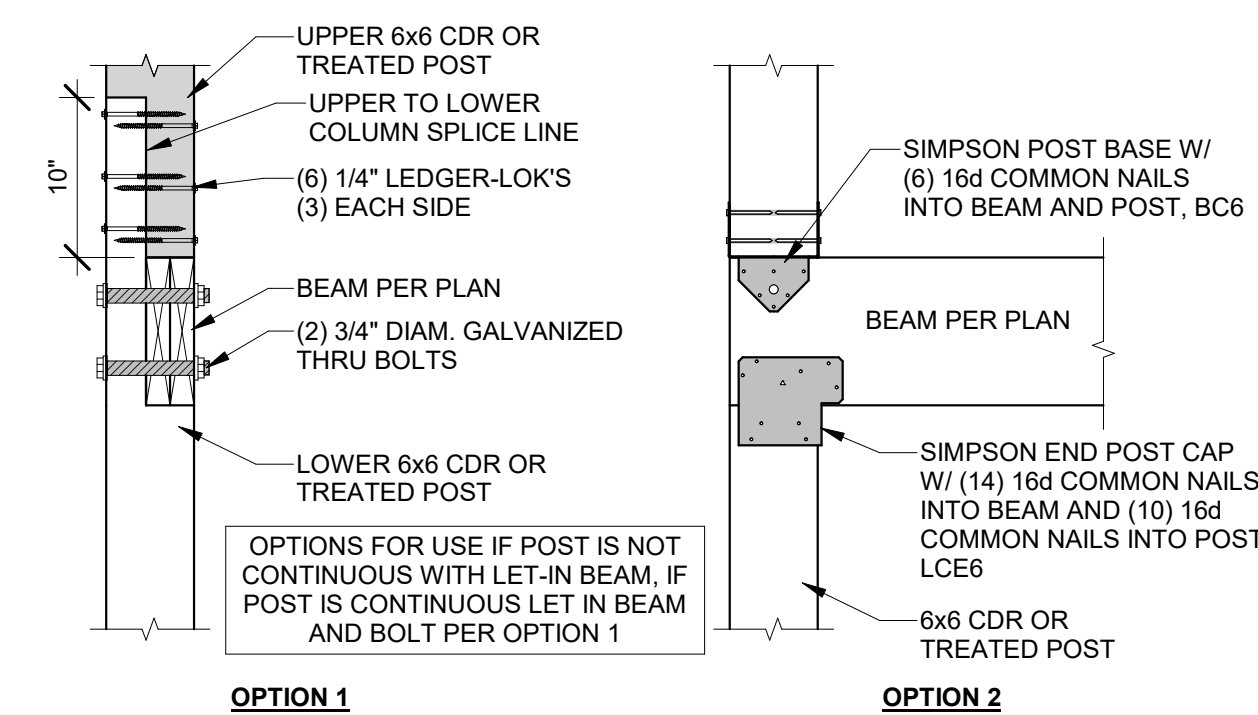
For SI: 1 inch = 25.4mm.  
 a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1)  
 b. Maximum 5 inches  
 c. For engineered rim joists, the manufacturer's recommendations shall govern.  
 d. The minimum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



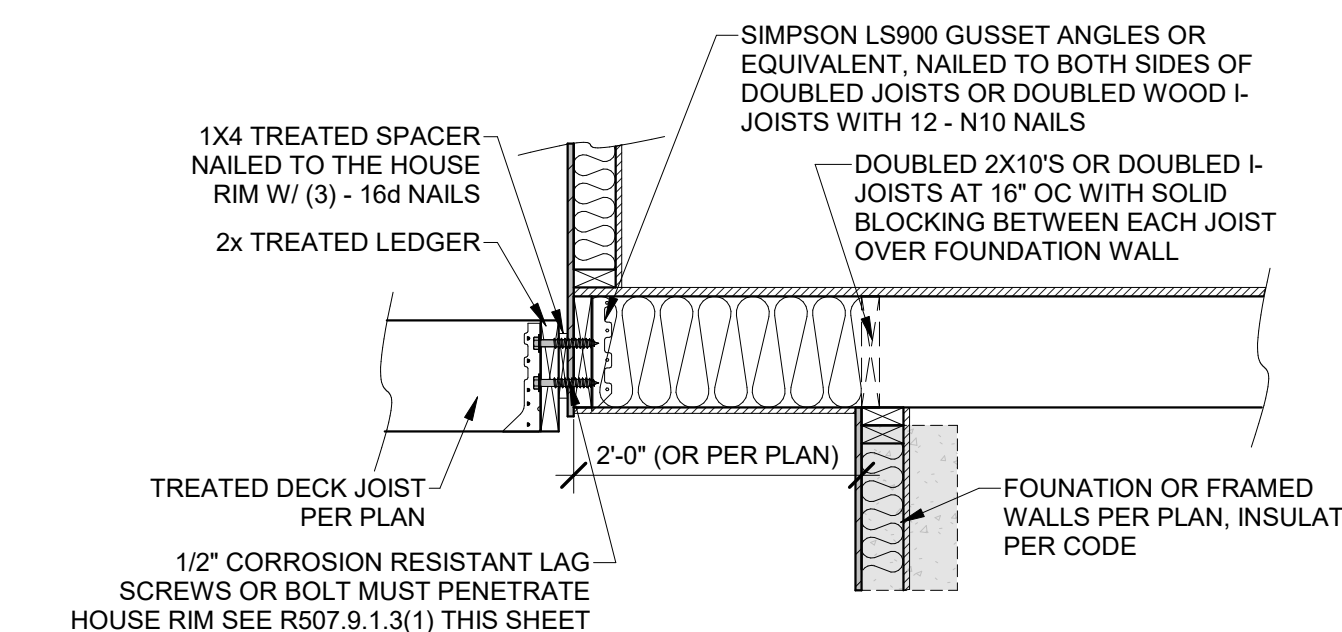
2 DECK LEDGER ATTACHMENT  
3/4" = 1'-0"



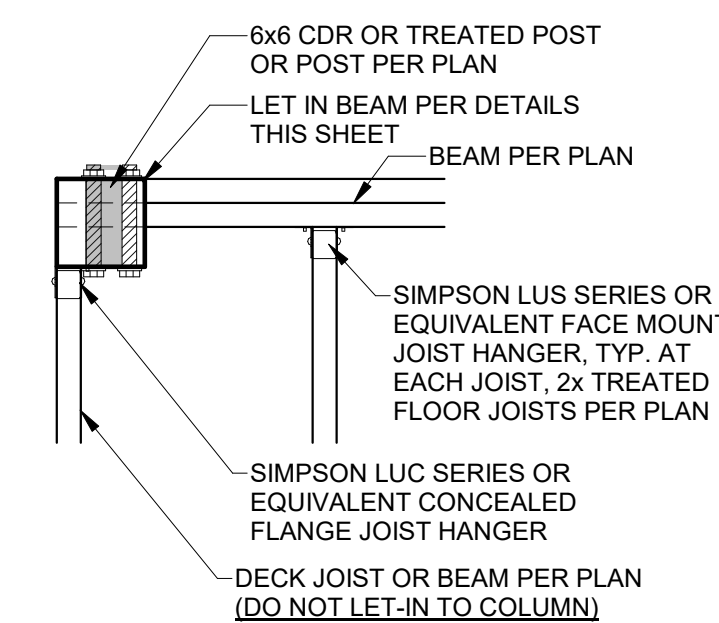
6 DECK LEVEL INTERIOR BEAM TO COLUMN  
1" = 1'-0"



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



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



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

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STRUCTURAL DETAILS & NOTES

HD#: 39698

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DECK DETAILS

**S-1.3**

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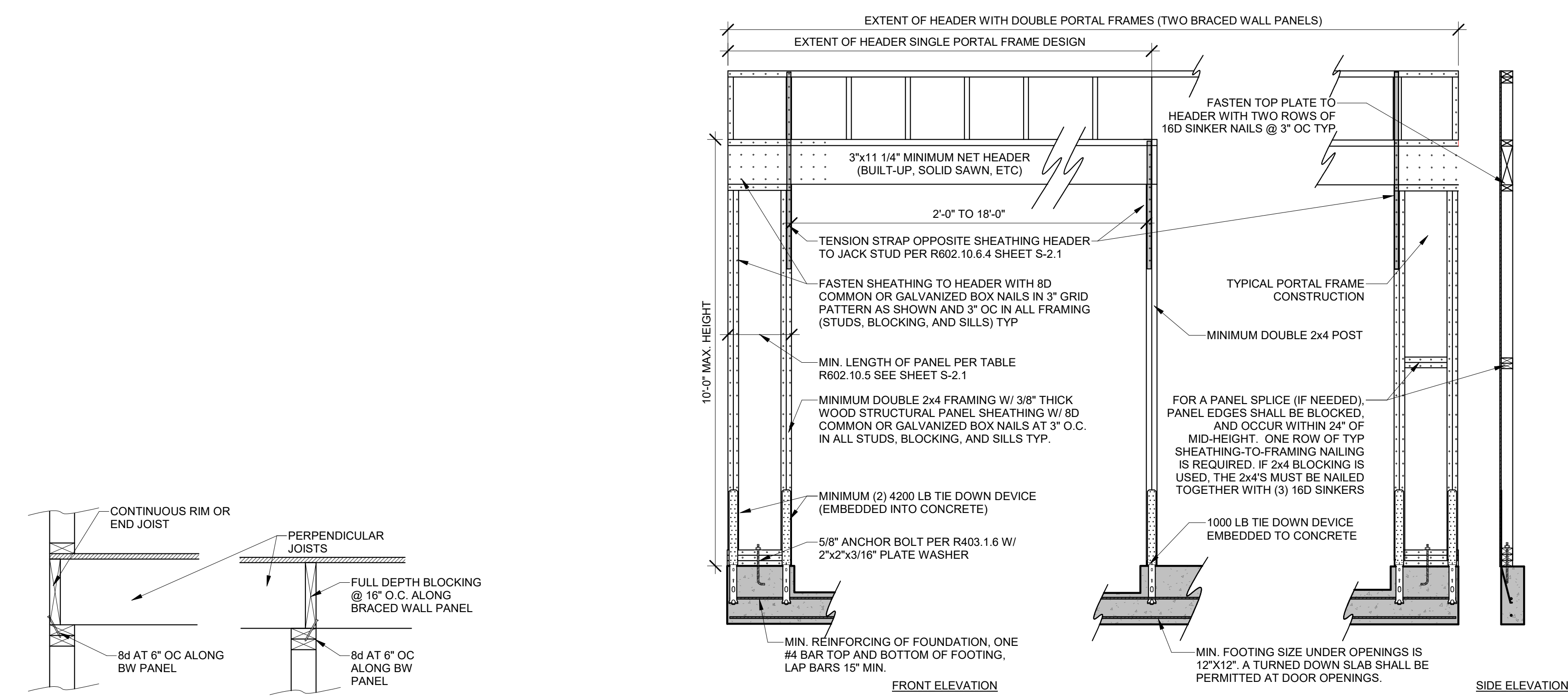
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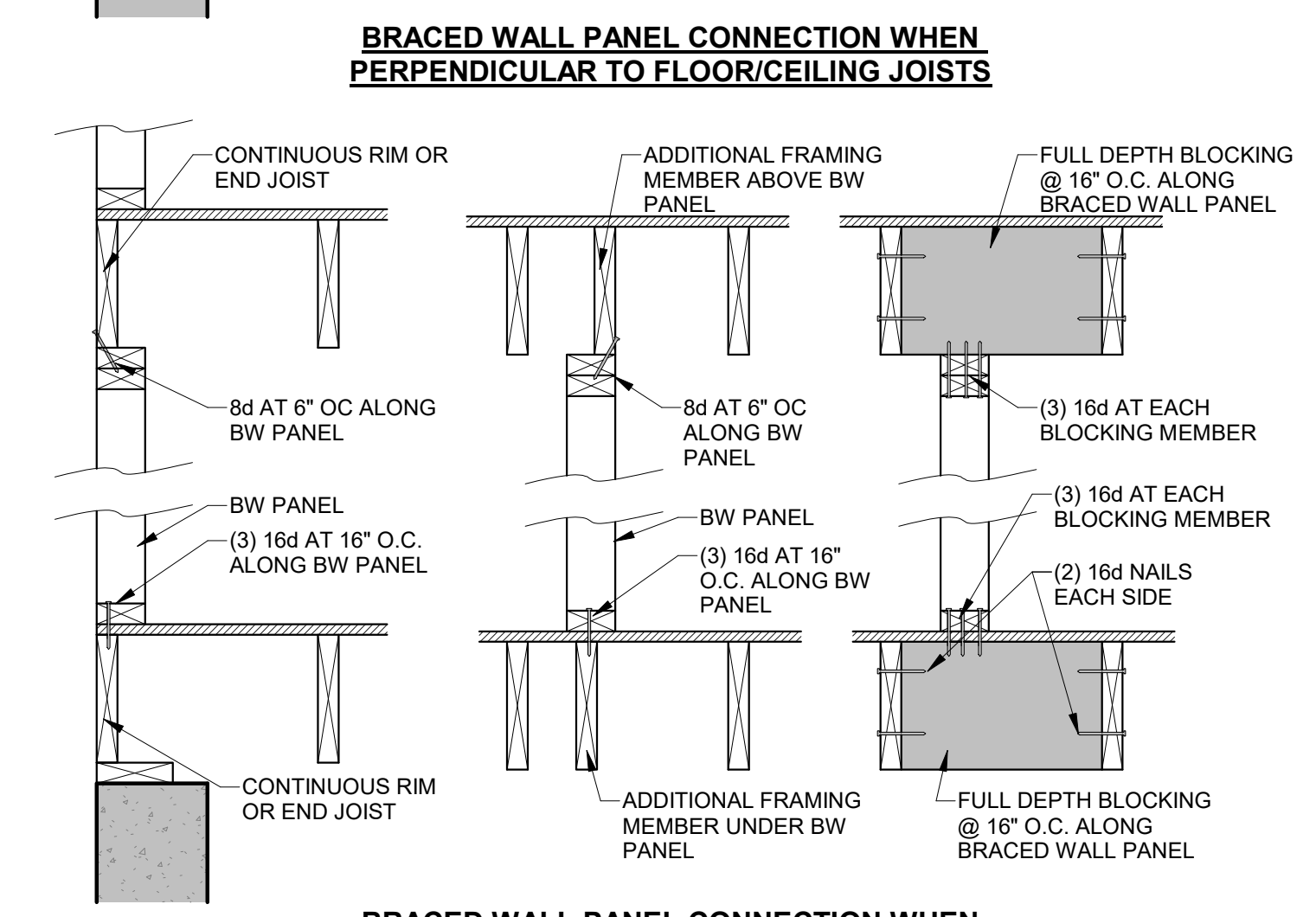
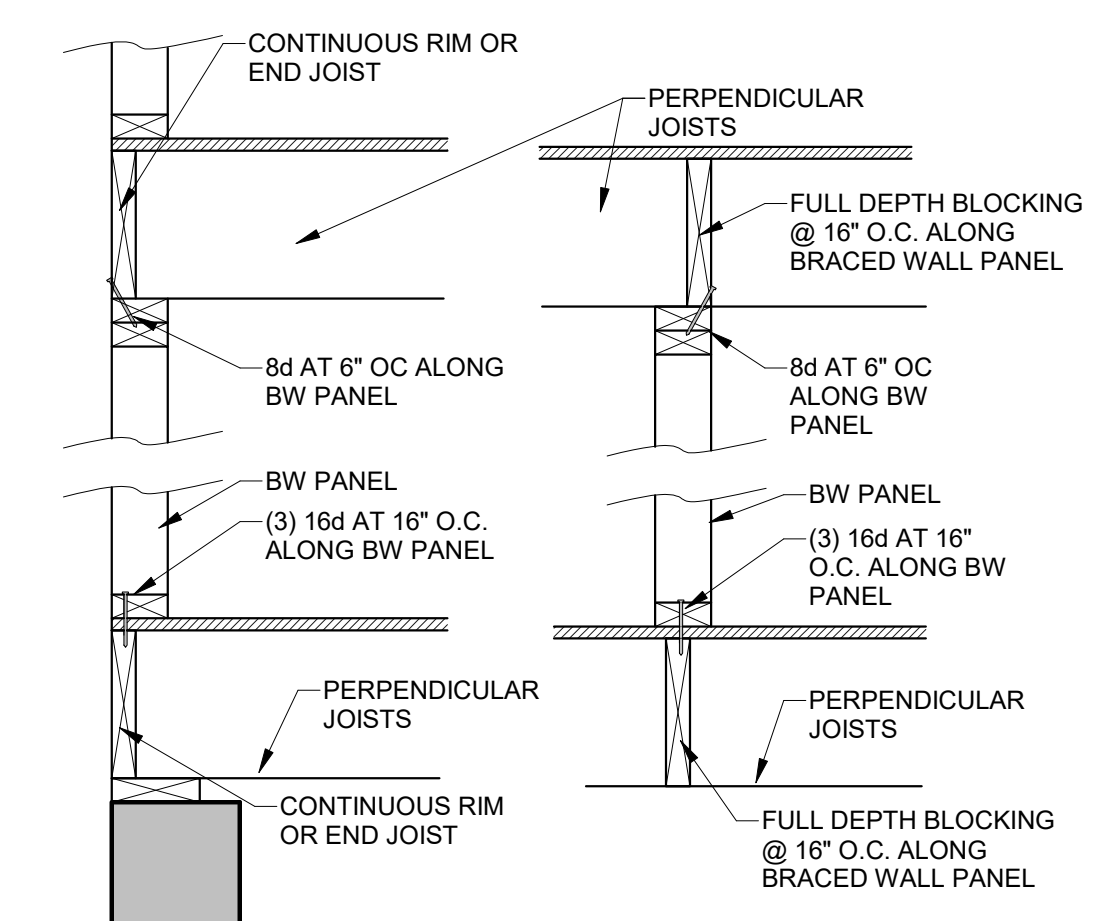
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BRACED WALL NOTES & DETAILS

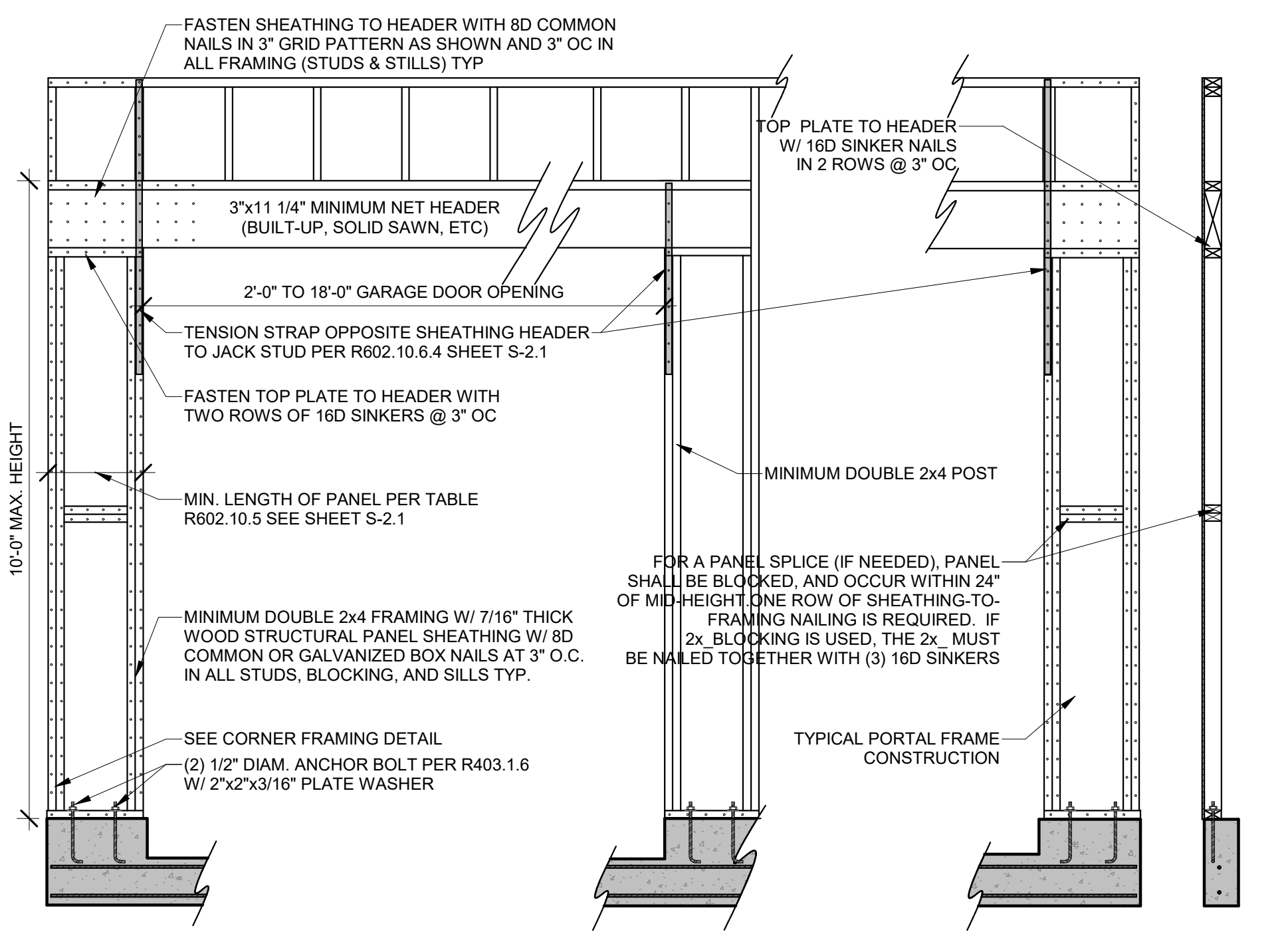
**S-2.0**



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

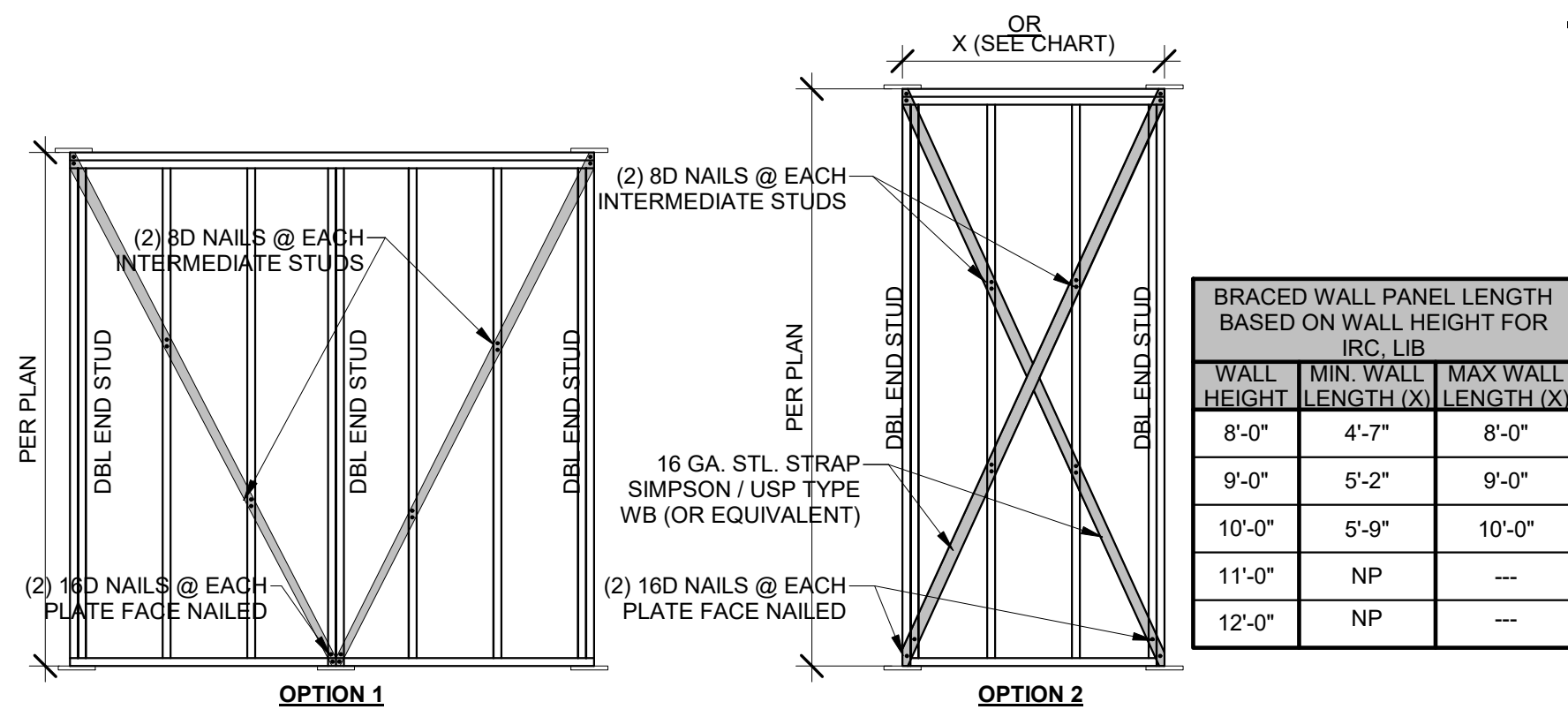


**3 BRACED WALL PANEL CONNECTIONS**  
 1" = 1'-0"



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

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



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

FOR IRC CODE PRESCRIPTIVE METHOD  
**TABLE R602.10.5 MINIMUM LENGTH OF BRACED WALL PANELS**

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

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

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

**EXTERIOR BRACED WALL METHOD: (SEE ON THIS SHEET)**

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

**INTERIOR BRACED WALLS (SEE ON THIS SHEET)**

**GB METHOD:**  
1/2" MINIMUM GYPSUM BOARD OVER STUDS SPACED @ 24" MAXIMUM FASTENED W/ #6 - 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS @ 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES)  
OR

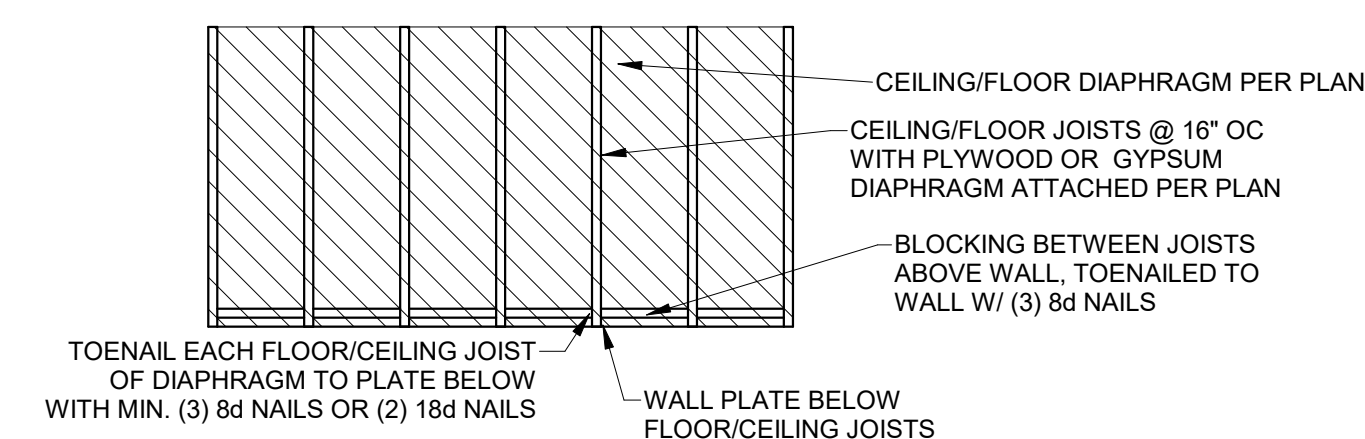
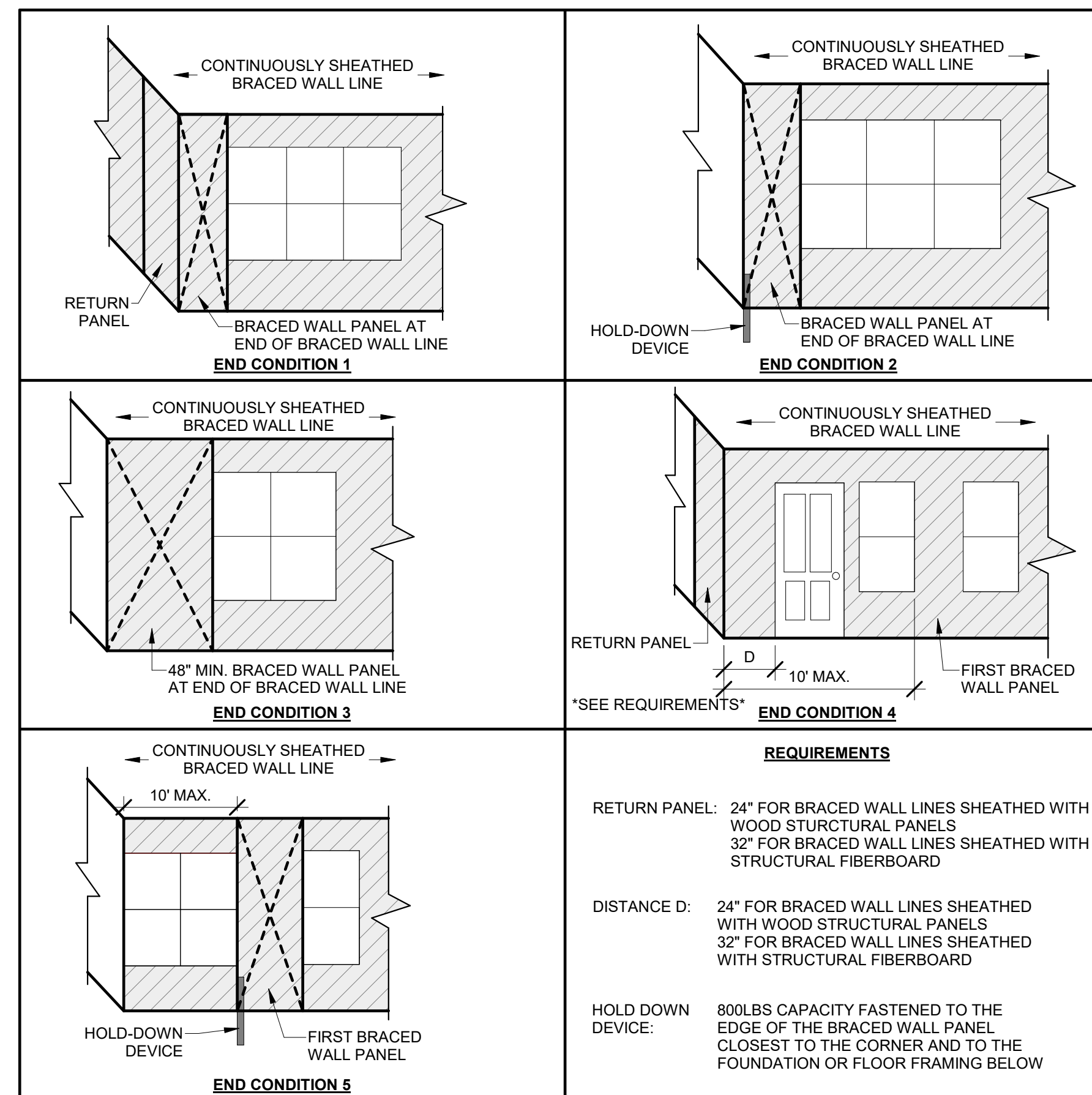
**LIB METHOD:**  
1x4 WOOD FASTENED W/ (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUIVALENT) STL. X-BRACE(S) @ 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUDS FASTENED PER MANUF. SPECS.

MINIMUM WALL STUD FRAMING NOMINAL SIZE & GRADE	MAX. PONY WALL HEIGHT (FEET)	MAX. TOTAL WALL HEIGHT (FEET)	MAX. OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQUIRED (POUNDS) <sup>a</sup>	
				ULTIMATE DESIGN WIND SPEED V (MPH)	
				115	115
				EXPOSURE B	EXPOSURE C
2x4 NO. 2 GRADE	0	10	18	1,000	1,000
			9	1,000	1,000
			16	1,025	2,500
			18	1,275	2,850
			9	1,000	1,875
			16	2,175	4,125
	2	10	18	2,500	DR
			9	1,500	3,175
			16	3,375	DR
			18	3,975	DR
			9	2,750	DR
			12	3,775	DR
2x6 STUD GRADE	2	12	9	1,000	2,025
			16	2,150	3,675
			18	2,550	DR
			9	1,750	3,125
			16	2,400	DR
			18	3,800	DR
	4	12	9	1,500	3,175
			16	3,375	DR
			18	3,975	DR
			9	2,750	DR
			12	3,775	DR
			18	3,800	DR

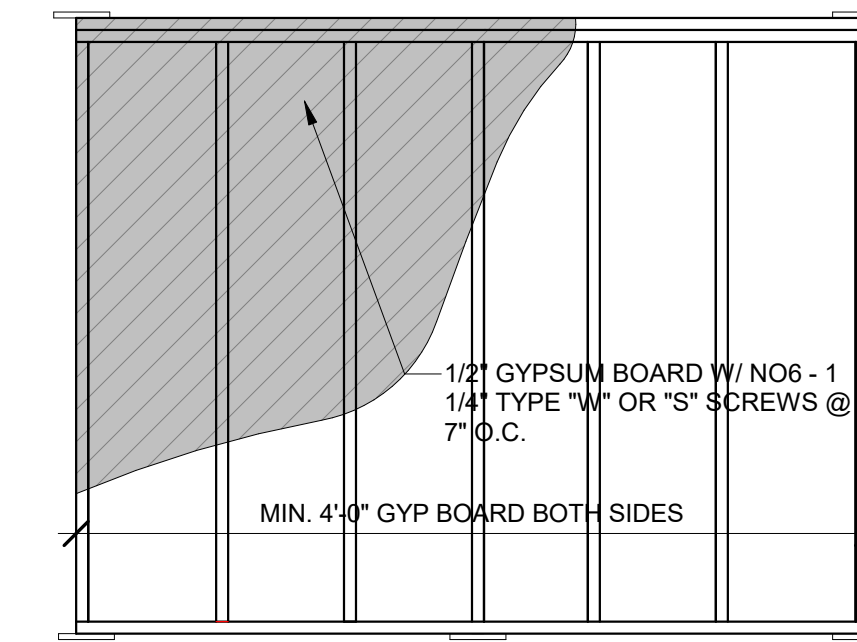
<sup>a</sup> DR = DESIGN REQUIRED  
<sup>b</sup> STRAP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

### END WALL CONDITIONS

FOR CONTINUOUSLY SHEATHED BRACED WALL LINES



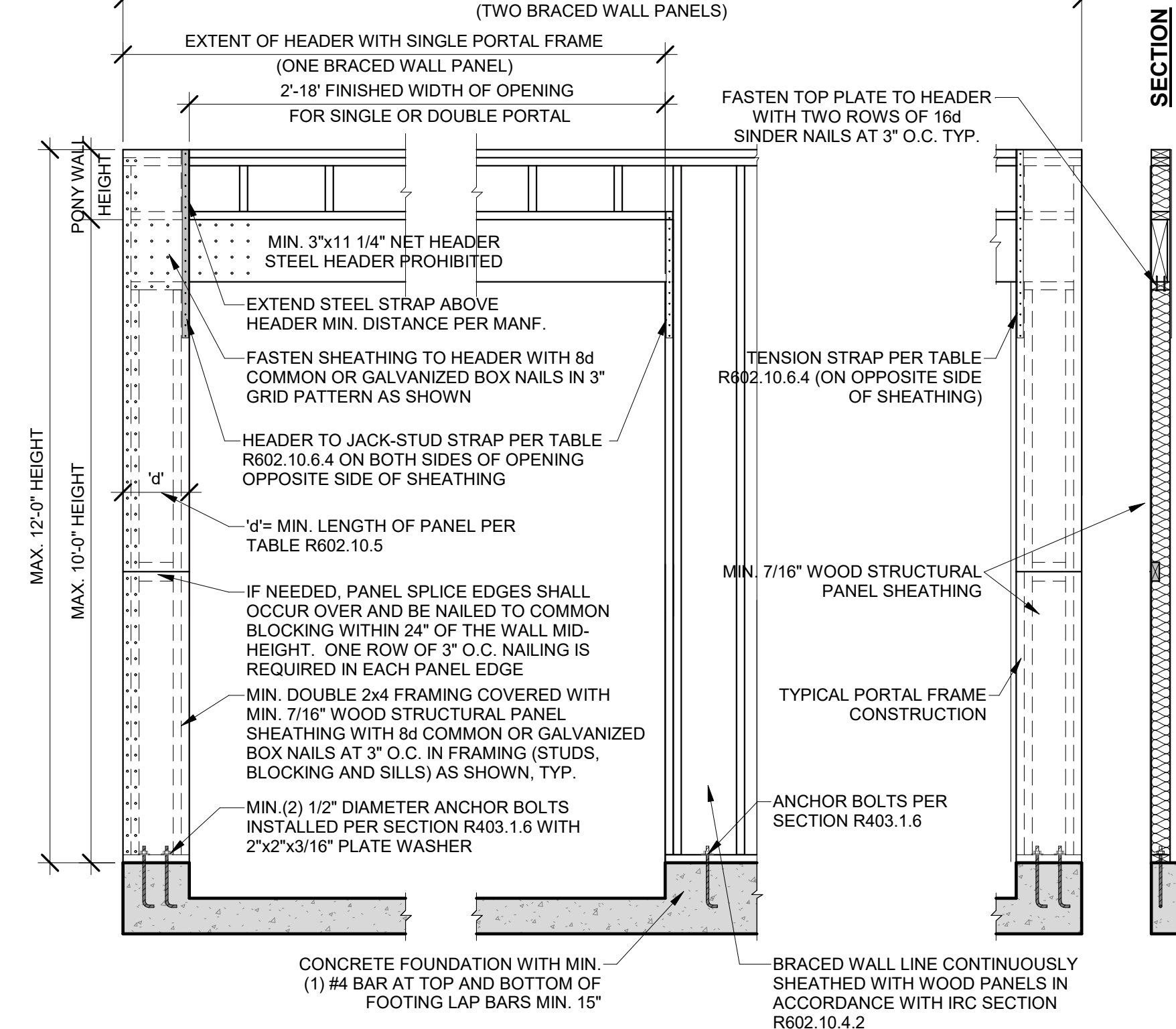
**1 DIAPHRAGM CONNECTION TO INTERIOR WALL**  
3/8" = 1'-0"



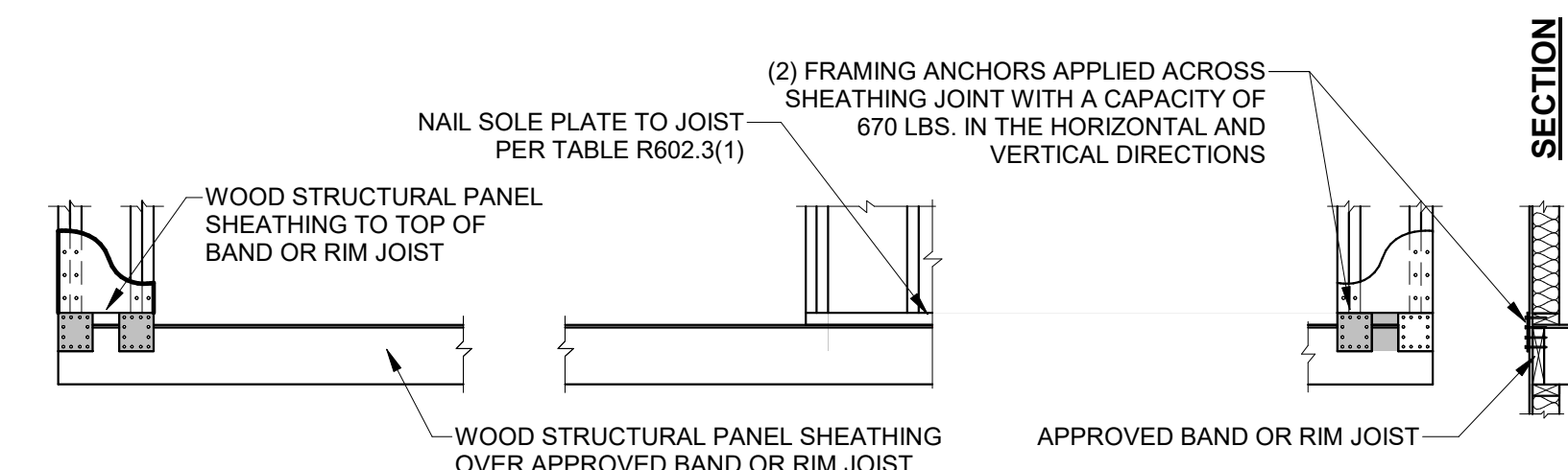
**5 GB BRACING**  
1/2" = 1'-0"

### FRONT ELEVATION

EXTENT OF HEADER WITH DOUBLE PORTAL FRAMES (TWO BRACED WALL PANELS)

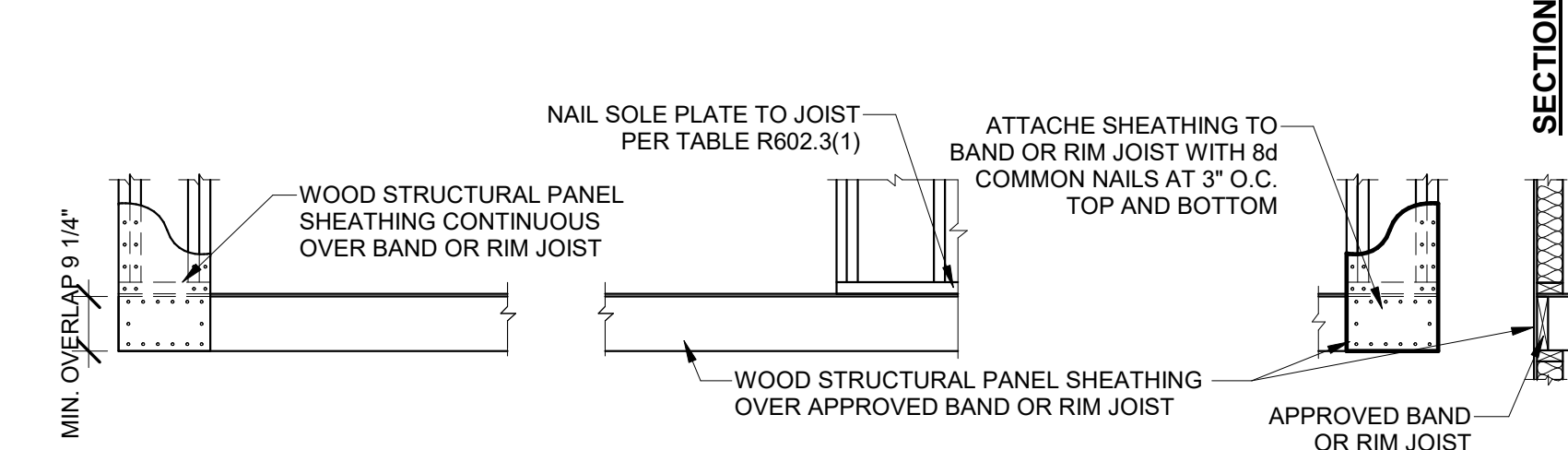


### OVER CONCRETE OR MASONRY BLOCK FOUNDATION



### OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

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

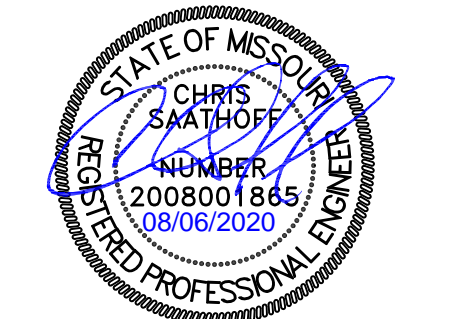


### OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

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

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 STRUCTURAL DETAILS & NOTES

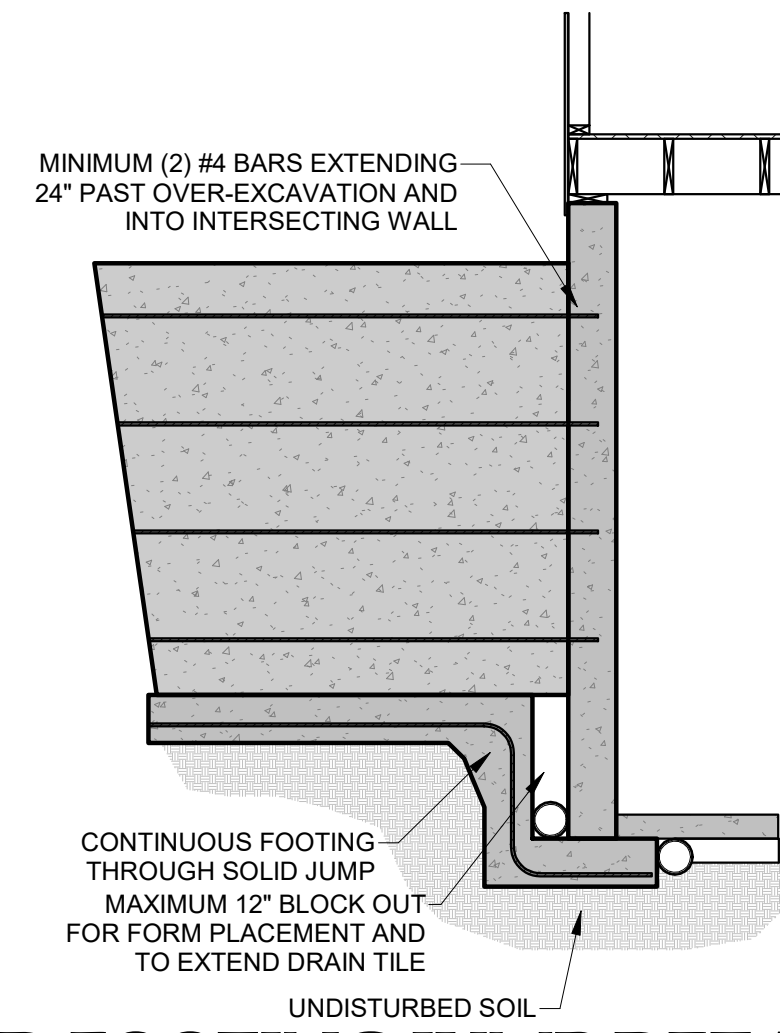
HD#: 39698

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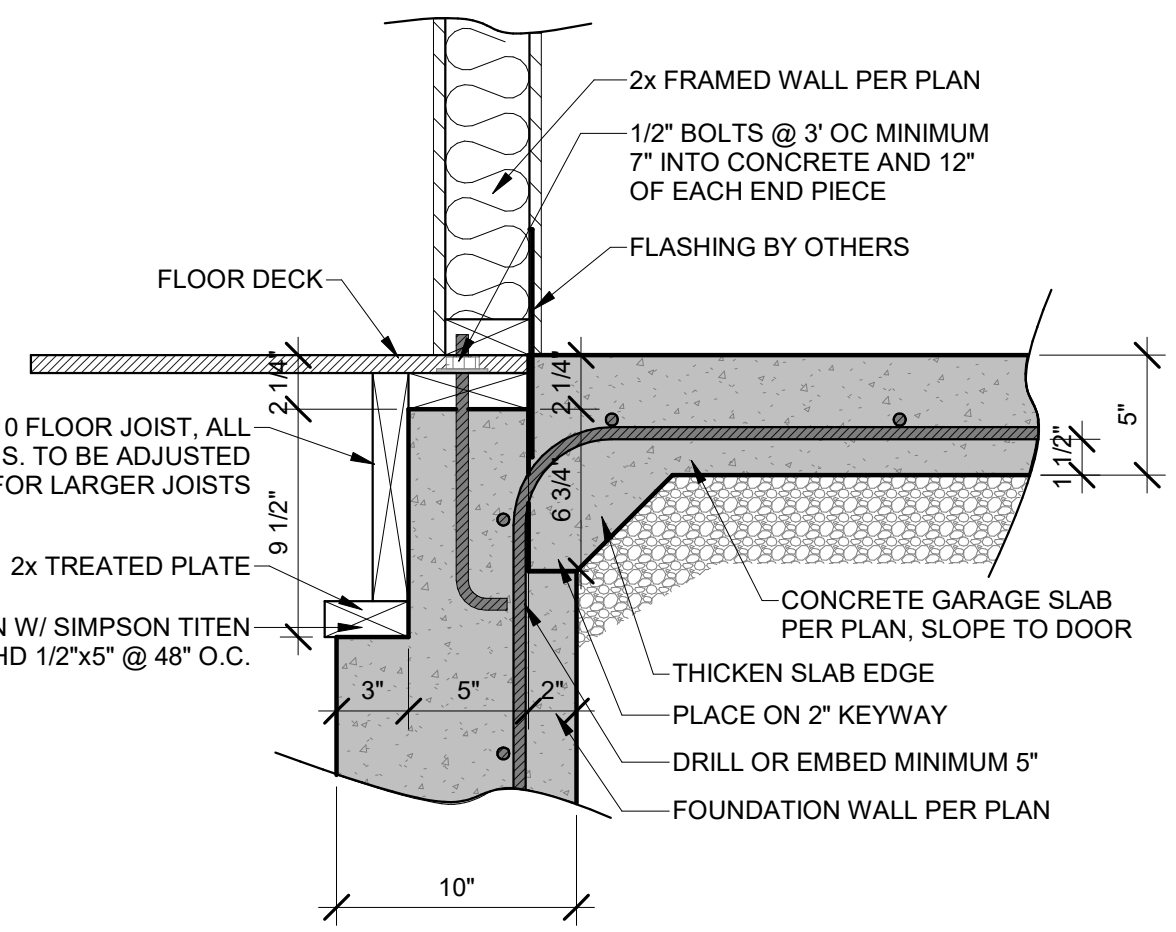
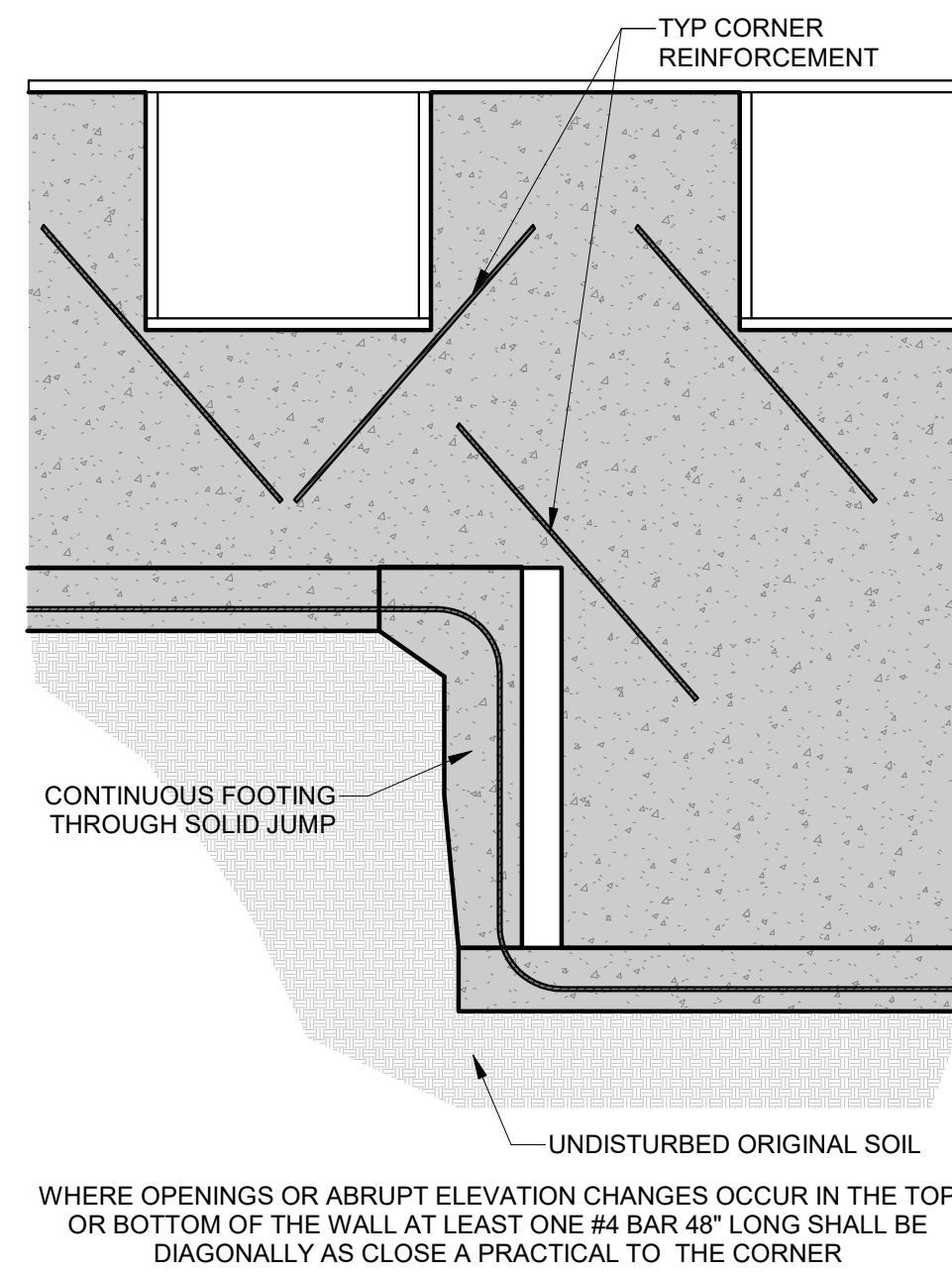
NO.	ISSUE/REVISION	Revision Date

BRACED WALLS NOTES & DETAILS

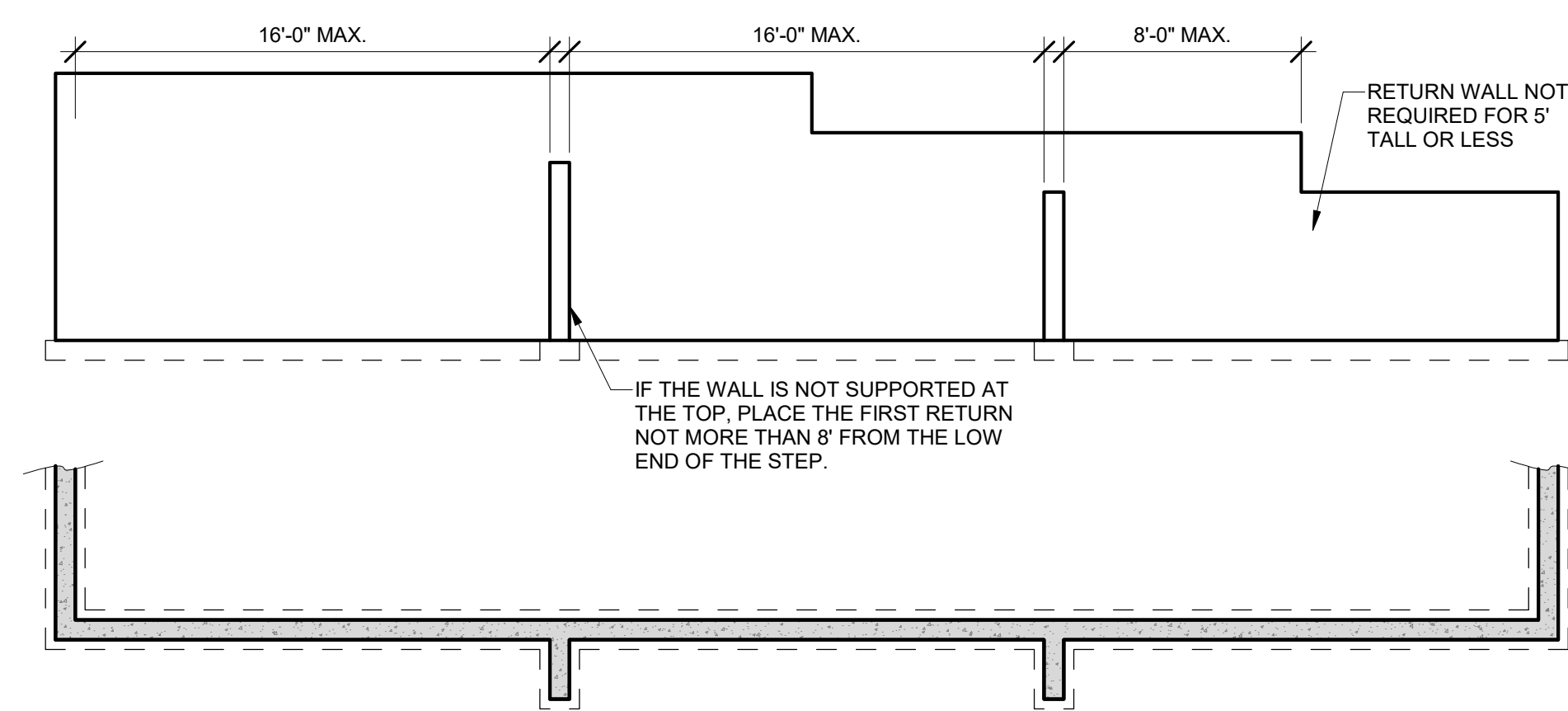
## S-2.1



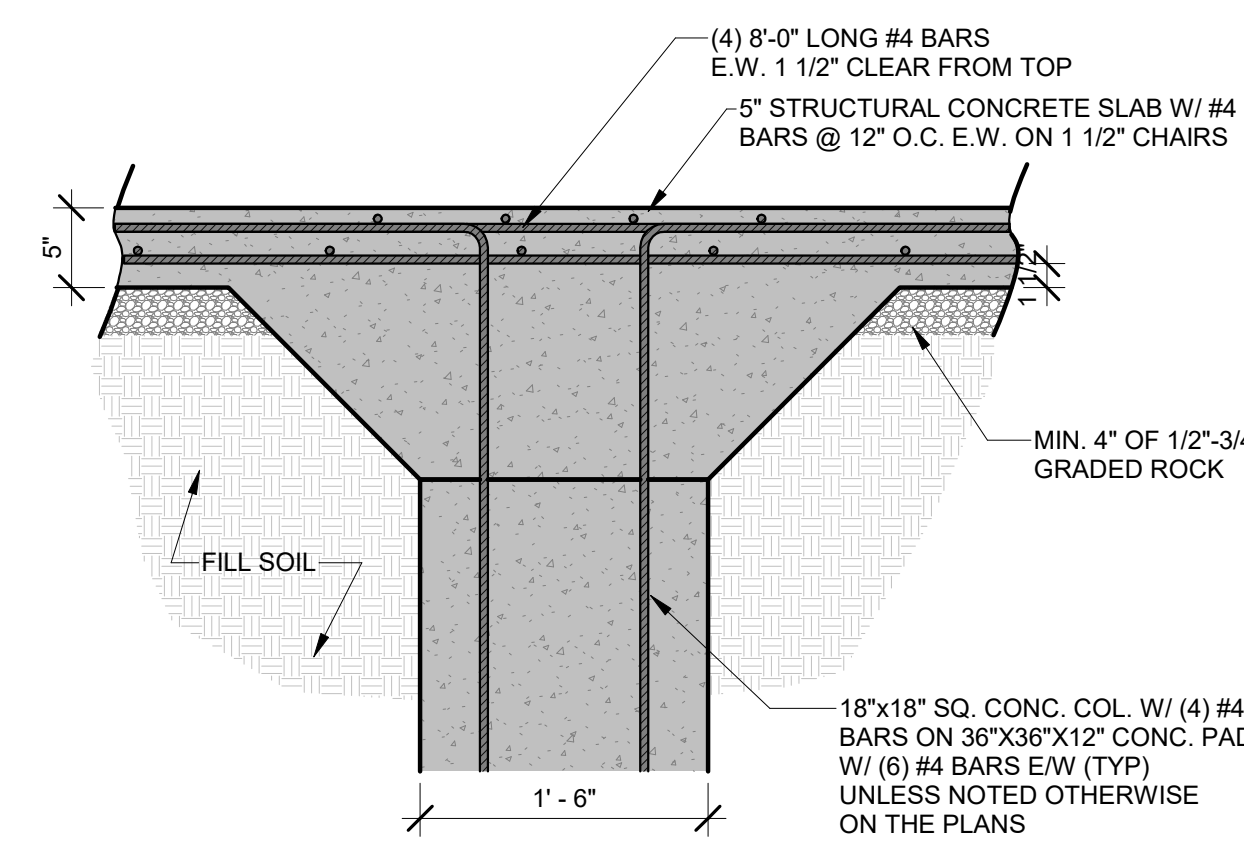
**1** SOLID FOOTING JUMP DETAIL  
3/8" = 1'-0"



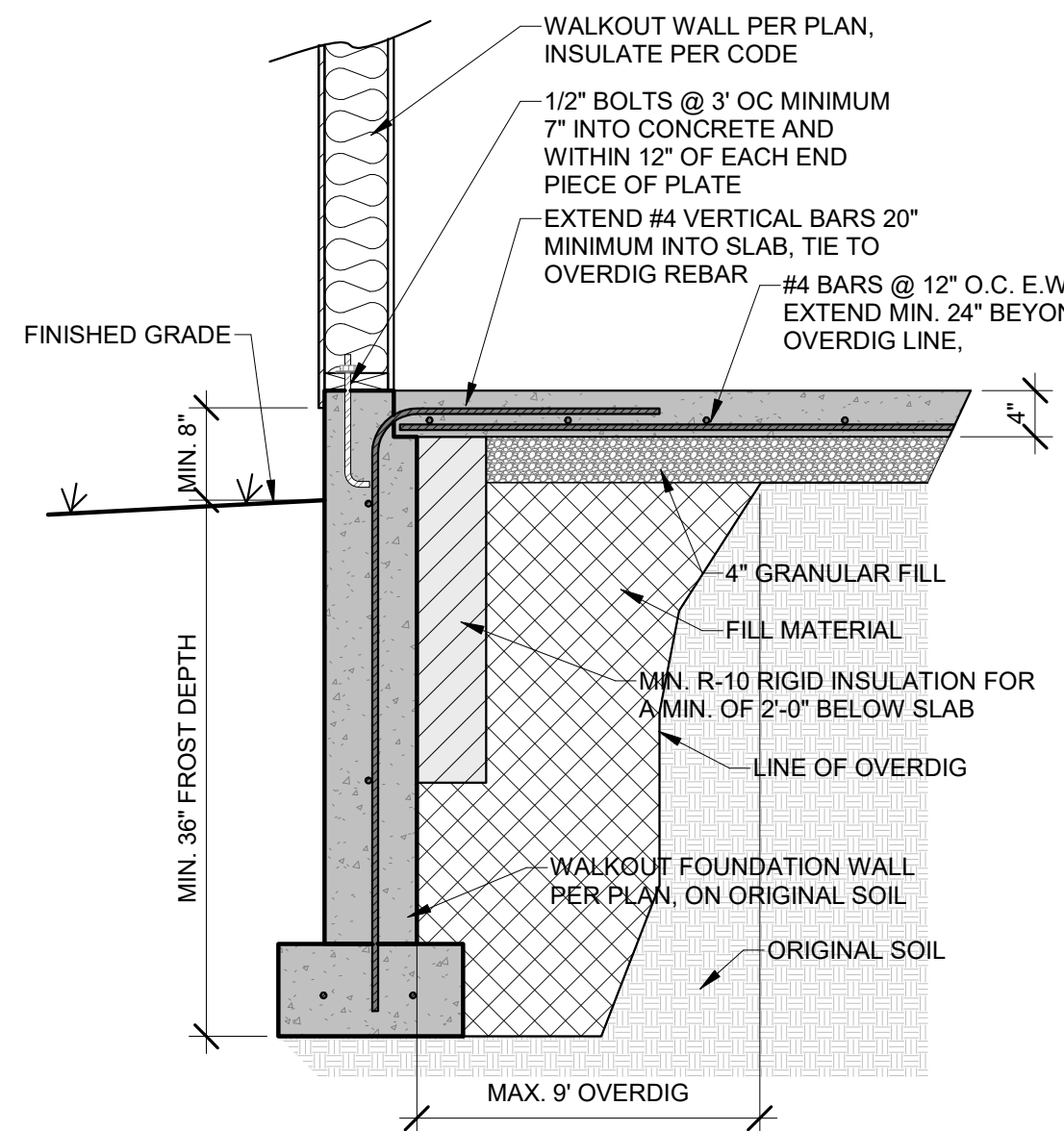
**6** ZERO ENTRY GARAGE DETAIL  
1 1/2" = 1'-0"



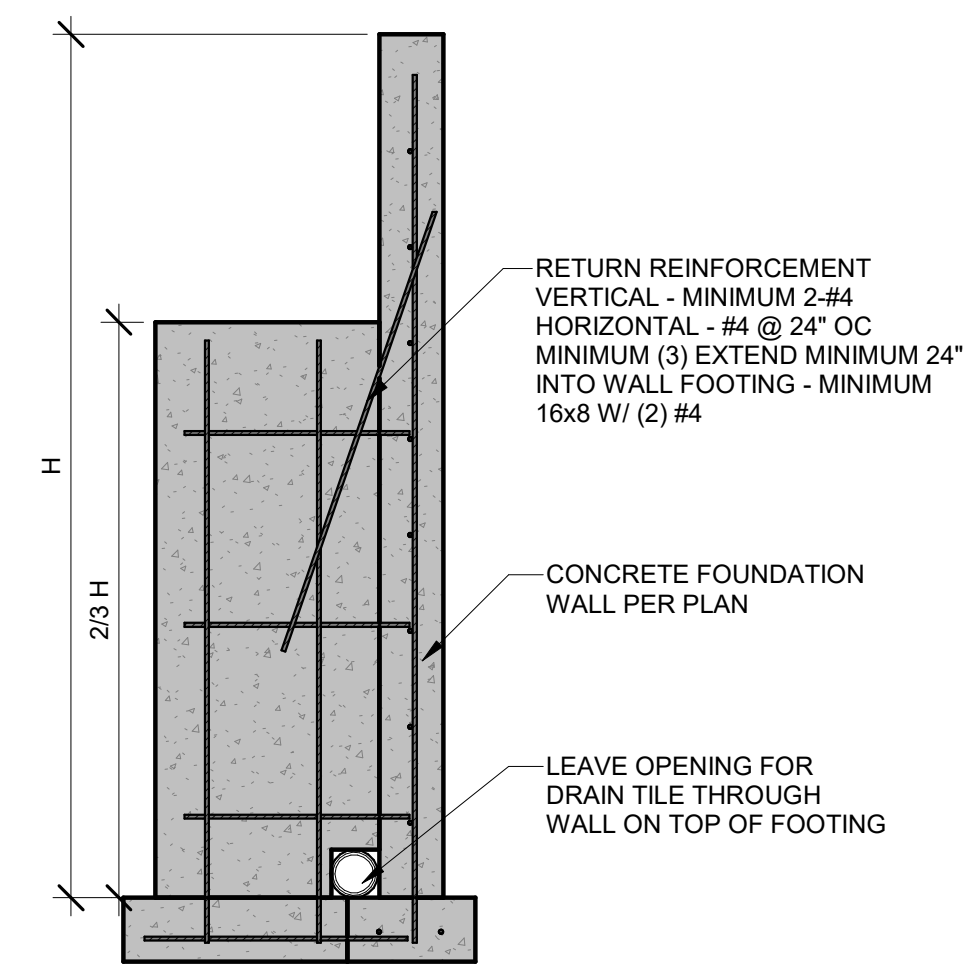
**4** RETURN WALL PLACEMENT  
3/16" = 1'-0"



**3** GARAGE SLAB COLUMN DETAIL  
1" = 1'-0"

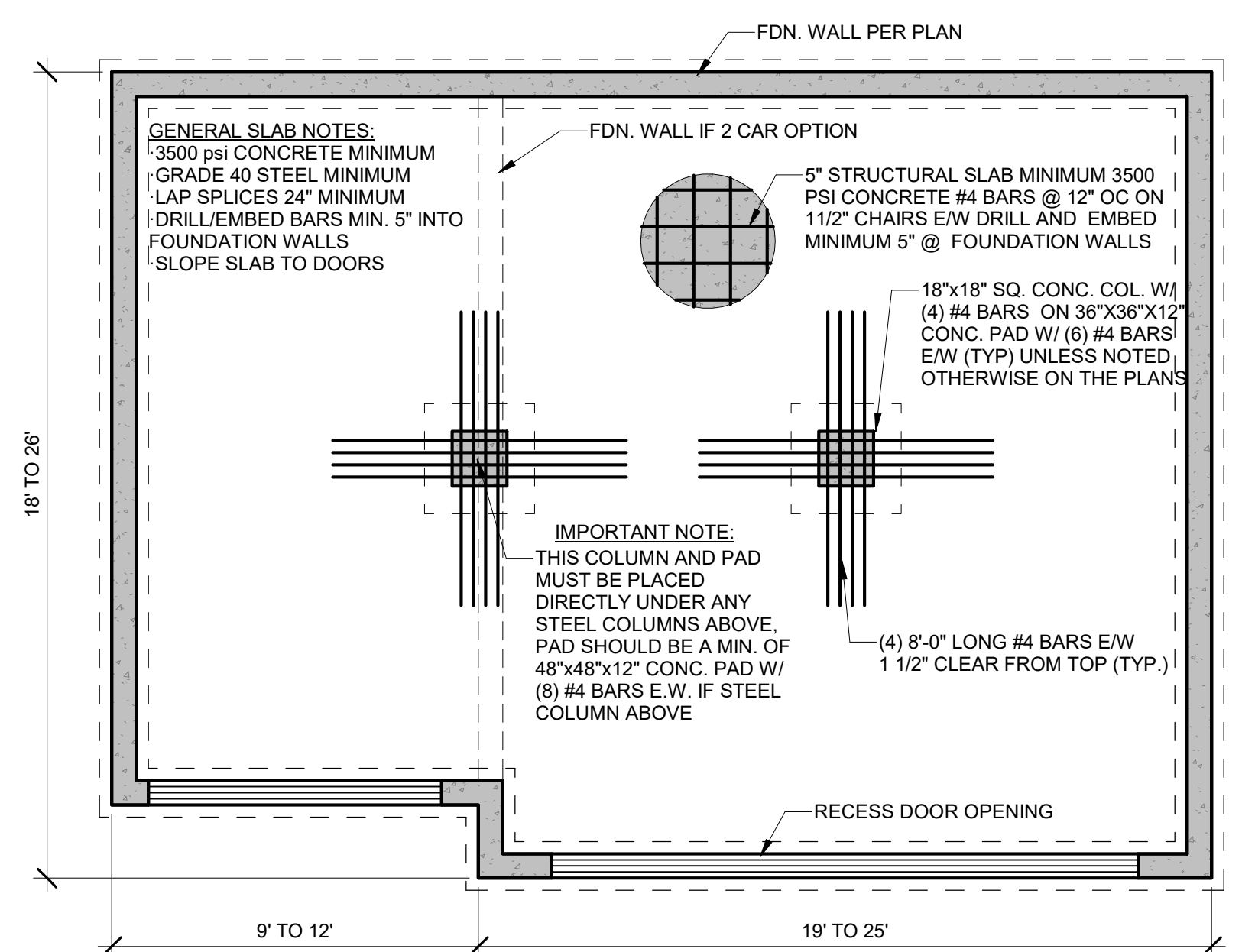


**10** WALKOUT DETAIL  
3/4" = 1'-0"

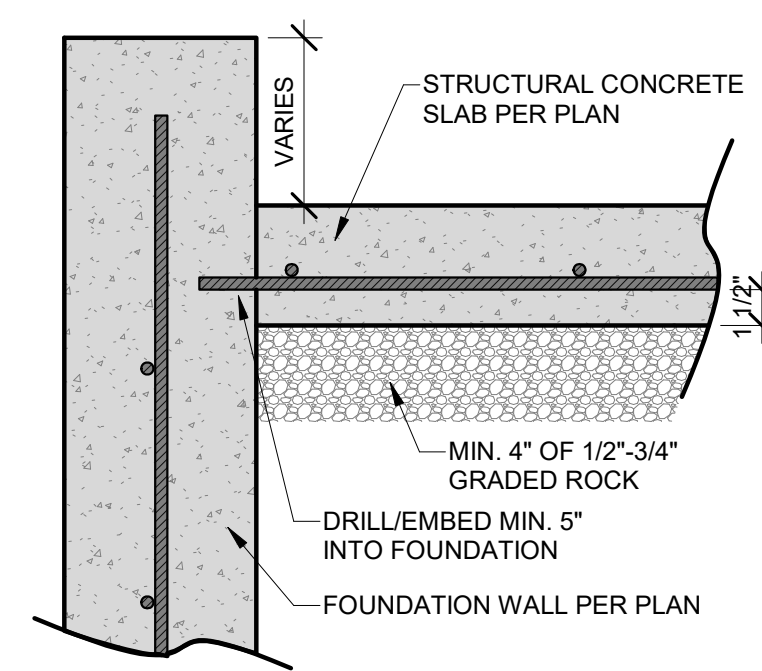


**2** RETURN WALL DETAIL  
1/2" = 1'-0"

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



**5** TYPICAL GARAGE SLAB  
1/4" = 1'-0"



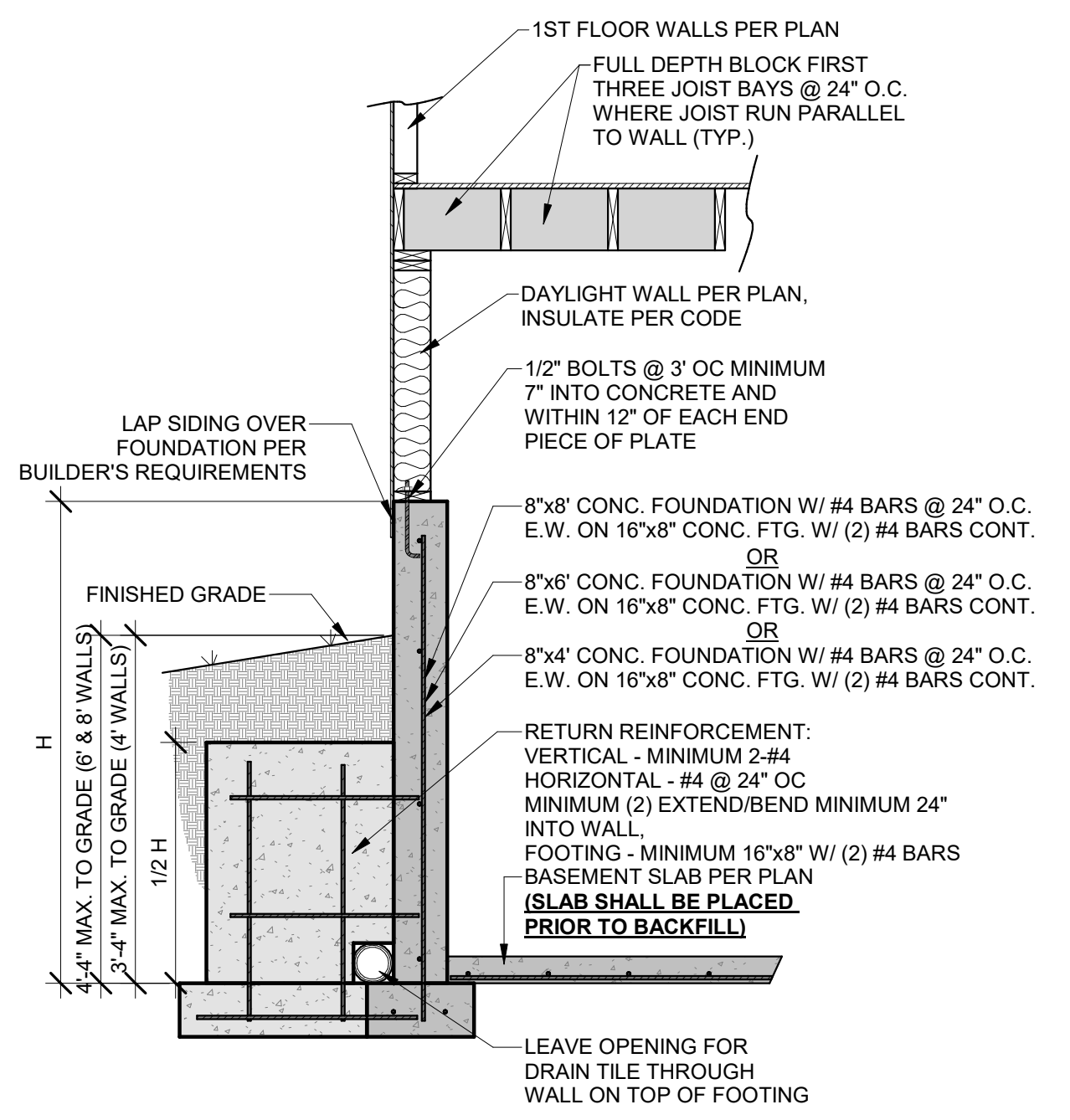
**8** STRUCTURAL SLAB/ WALL  
1 1/2" = 1'-0"

CONCRETE STRENGTH	VERTICAL REINFORCEMENT SPACING*				
	8" THICK WALL		10" THICK WALL		
3000 PSI/ 40 KSI	16	12	24	16	12
3500 PSI/ 40 KSI	16	12	24	24	12
3000 PSI/ 60 KSI	24	16	24	20	16
3500 PSI/ 60 KSI	24	16	24	24	16

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

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



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

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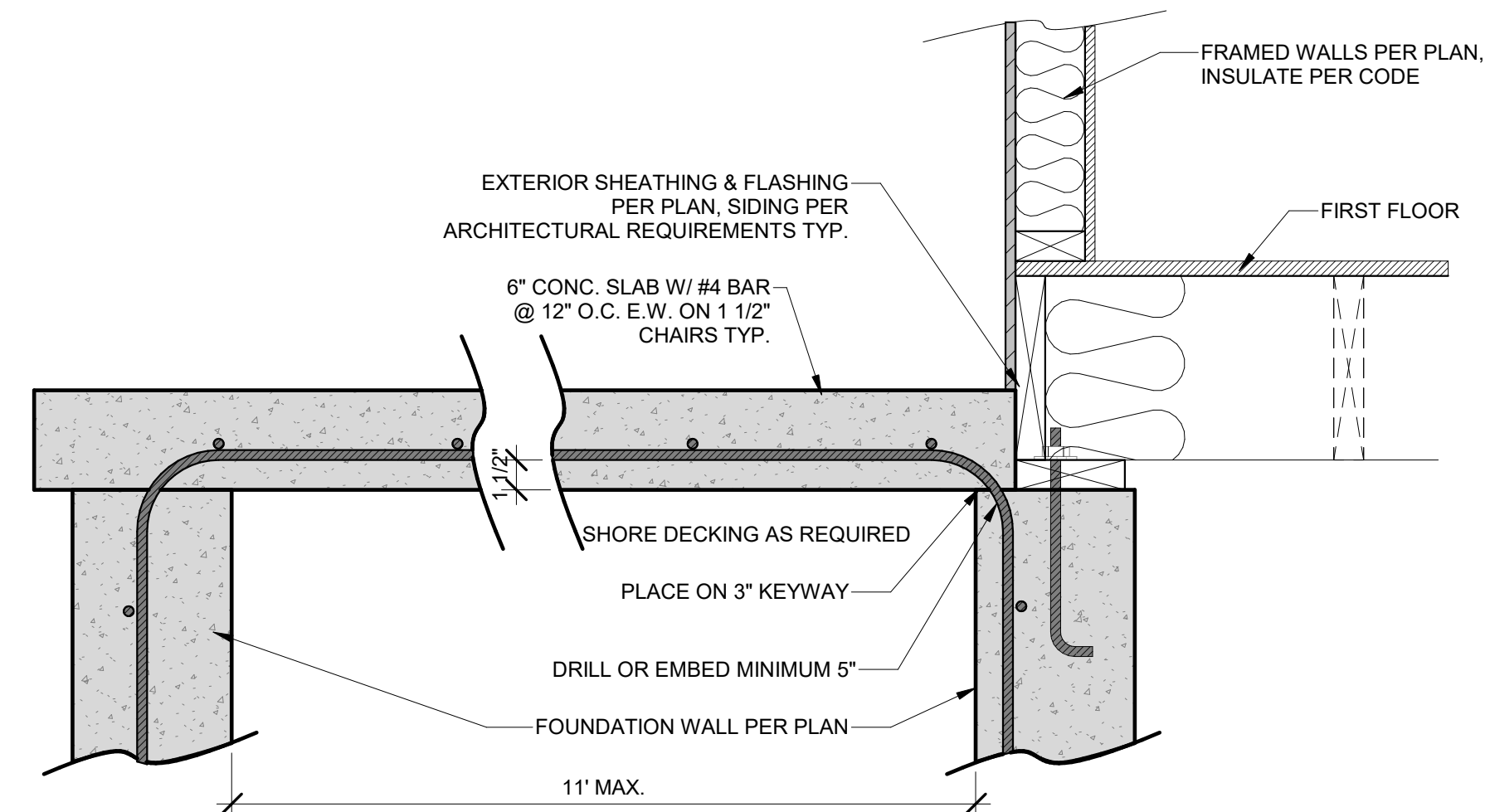
STRUCTURAL DETAILS & NOTES

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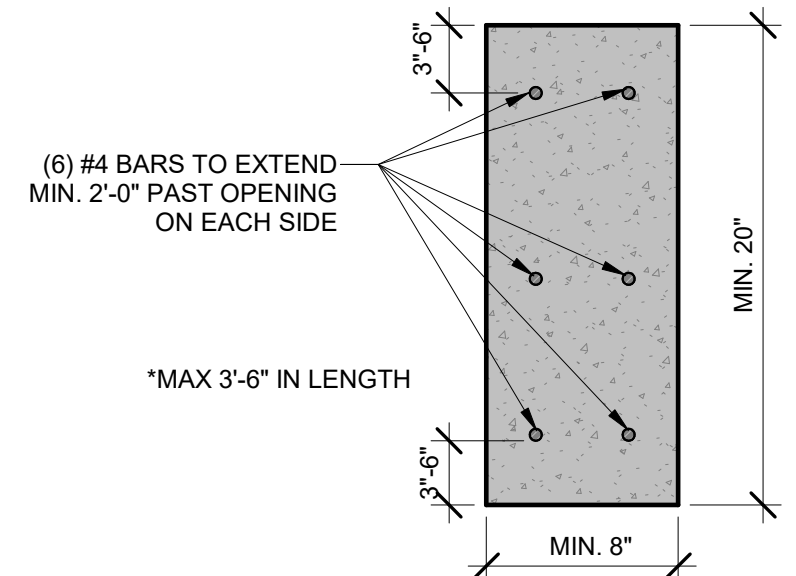
CONCRETE DETAILS

**S-3.0**

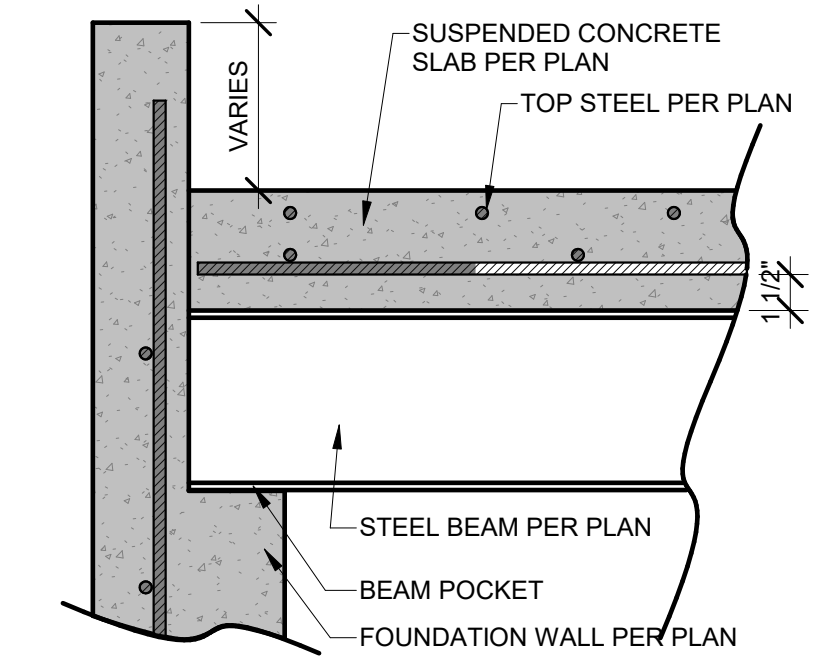


FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW. TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C./#2-2X4 STUDS AT 16\"/>

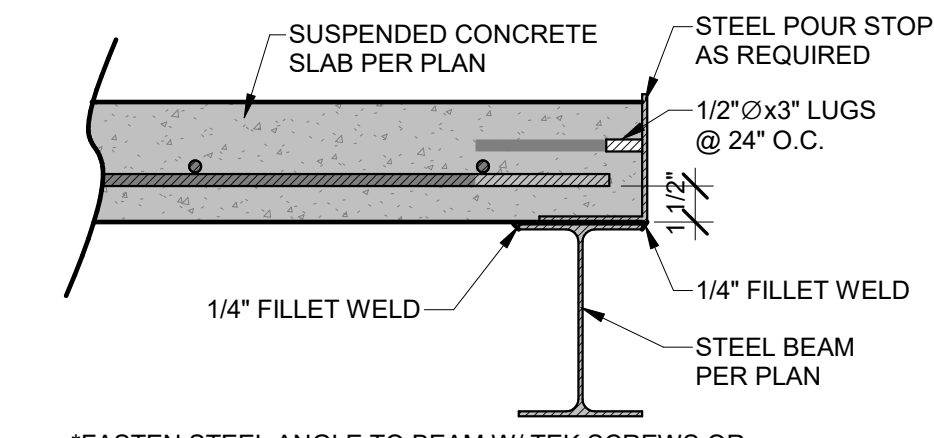
**6** **SUSPENDED PORCH STOOP SLAB**  
1 1/2" = 1'-0"



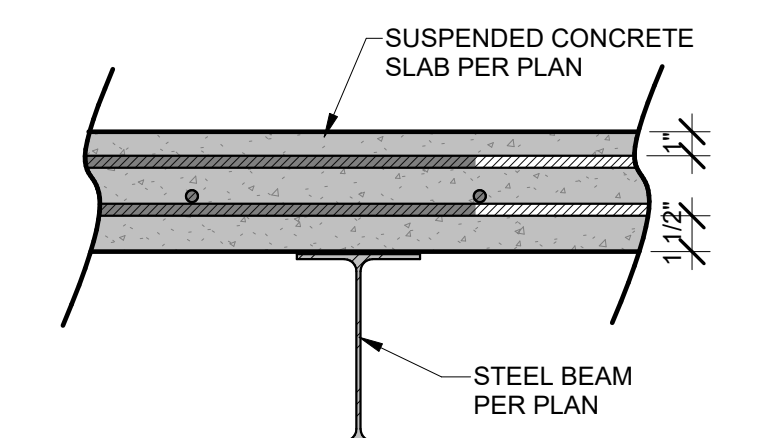
**5** **CONCRETE HEADER DETAIL**  
1 1/2" = 1'-0"



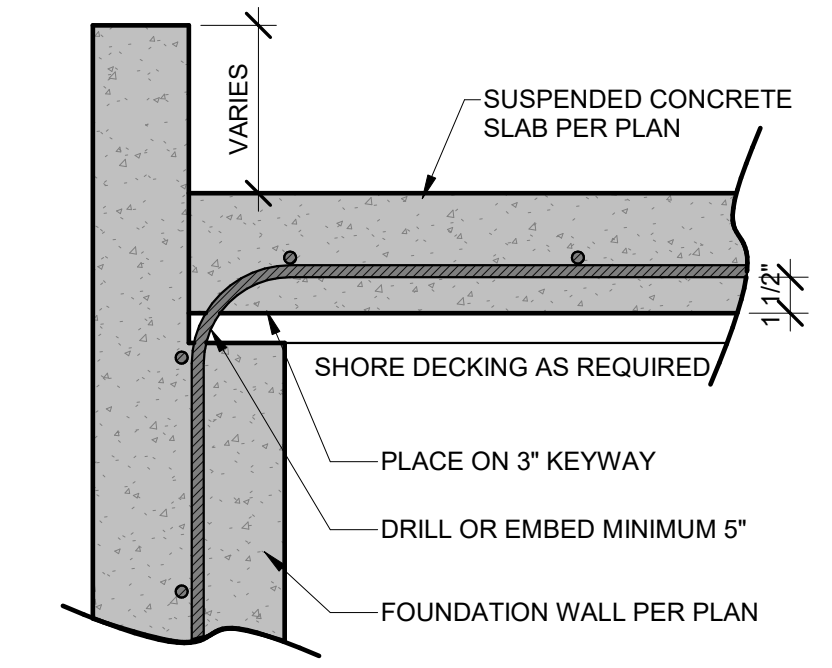
**1** **SUSPENDED SLAB BEAM/WALL CONNECTION**  
1 1/2" = 1'-0"



**2** **SUSPENDED SLAB POUR STOP**  
1 1/2" = 1'-0"



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



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

**IMPORTANT NOTE:**  
FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW. TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C./#2-2X4 STUDS AT 16\"/>

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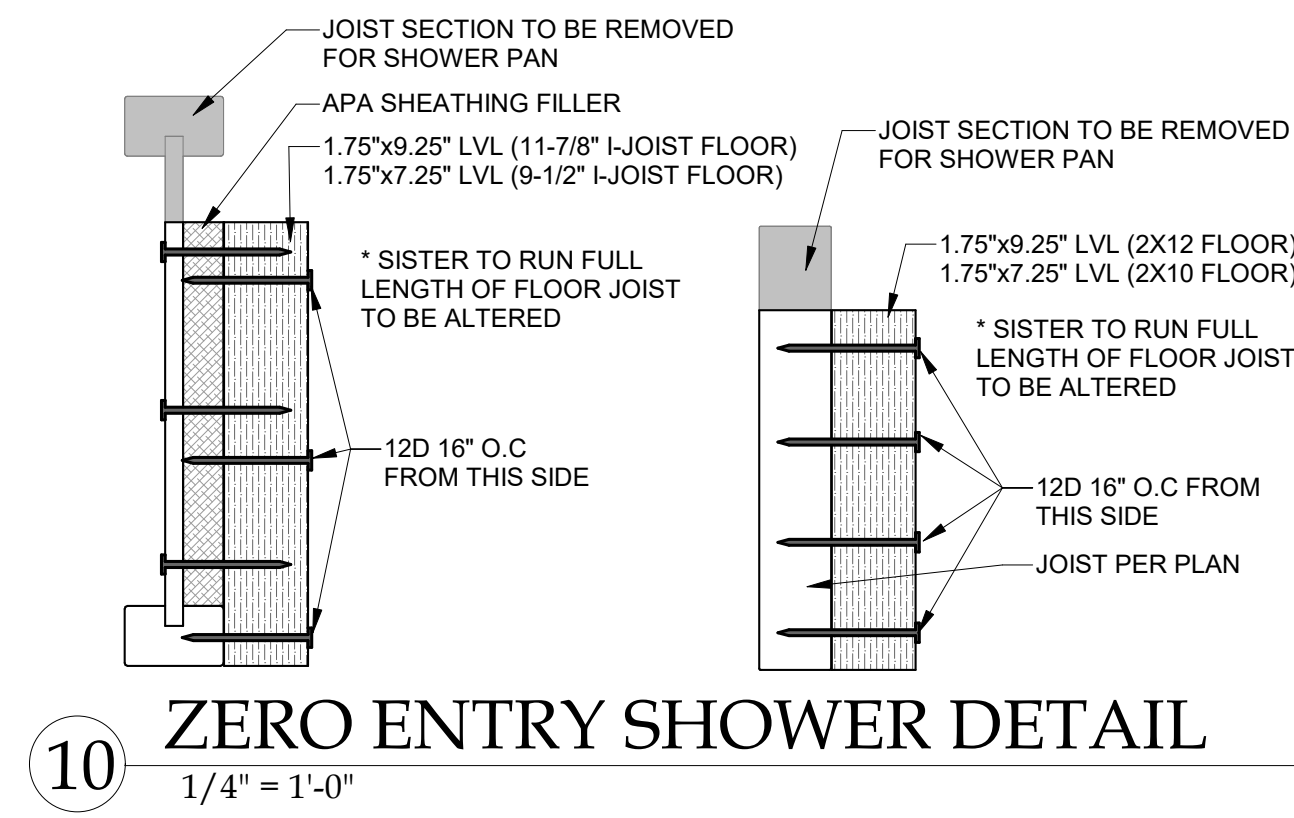
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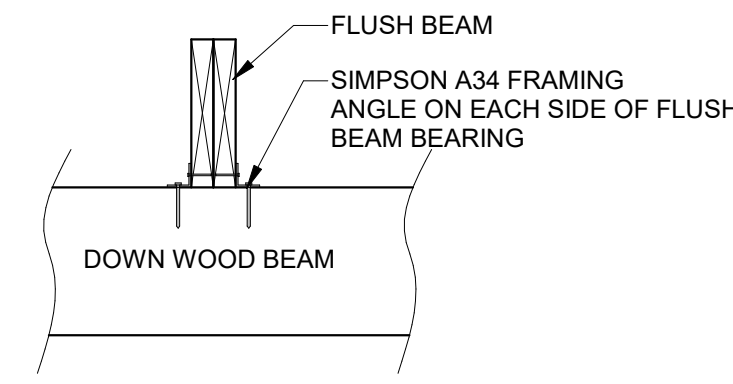
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SUSPENDED SLAB DETAILS

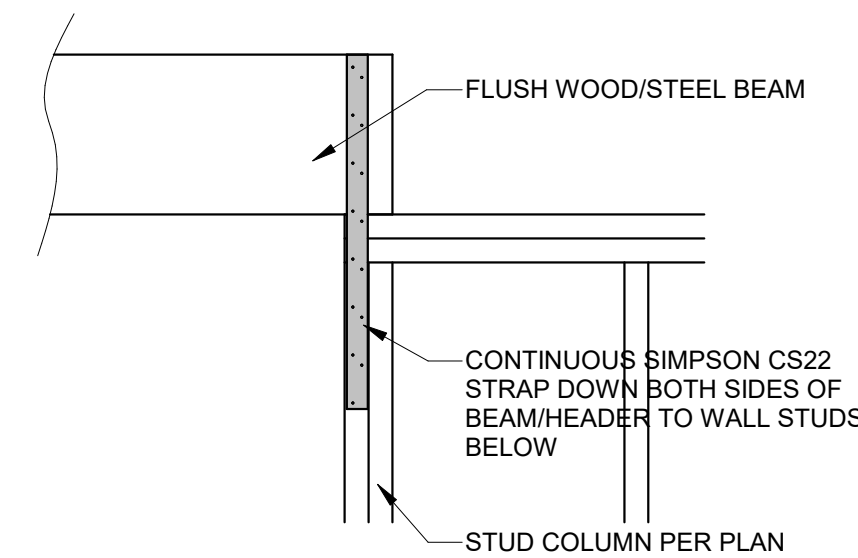
**S-3.1**



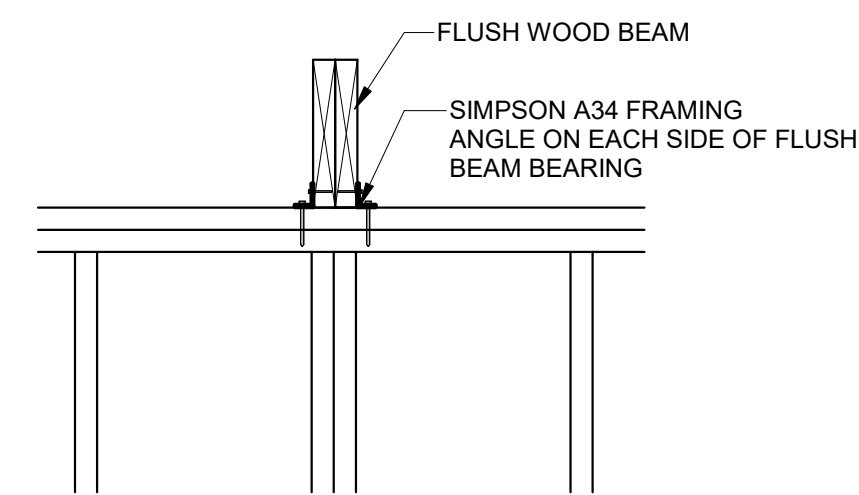
10 ZERO ENTRY SHOWER DETAIL  
1/4" = 1'-0"



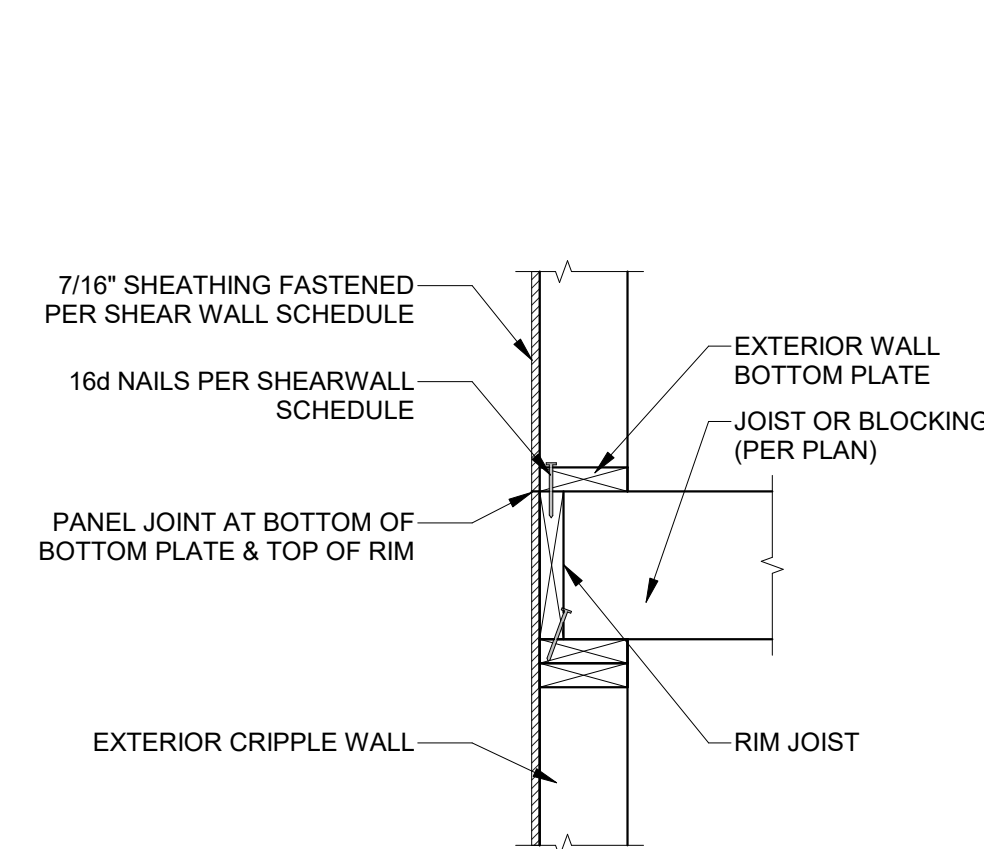
9 WOOD TO WOOD STACKED CONNECTION  
1" = 1'-0"



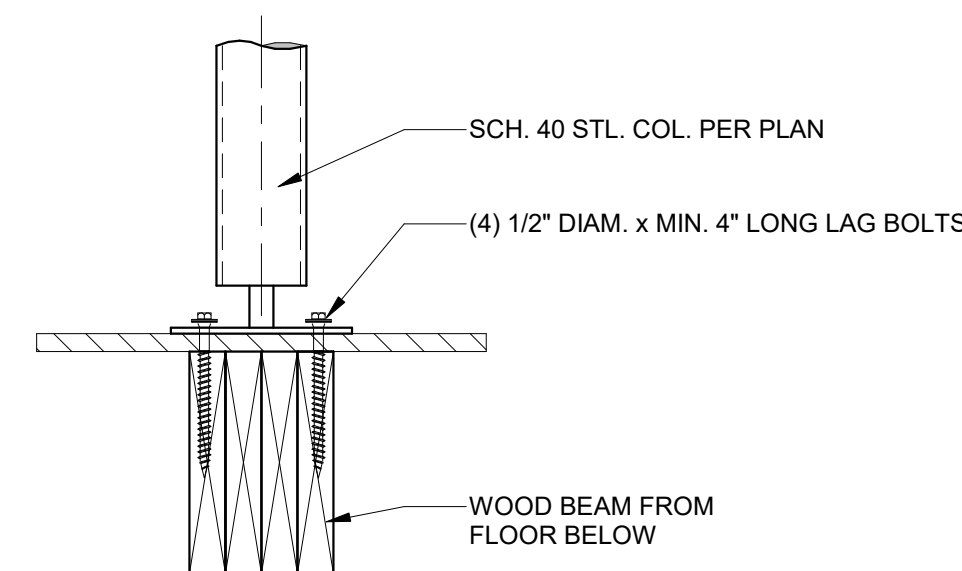
8 UPSET WOOD/STEEL PARALLEL TO WALL  
1" = 1'-0"



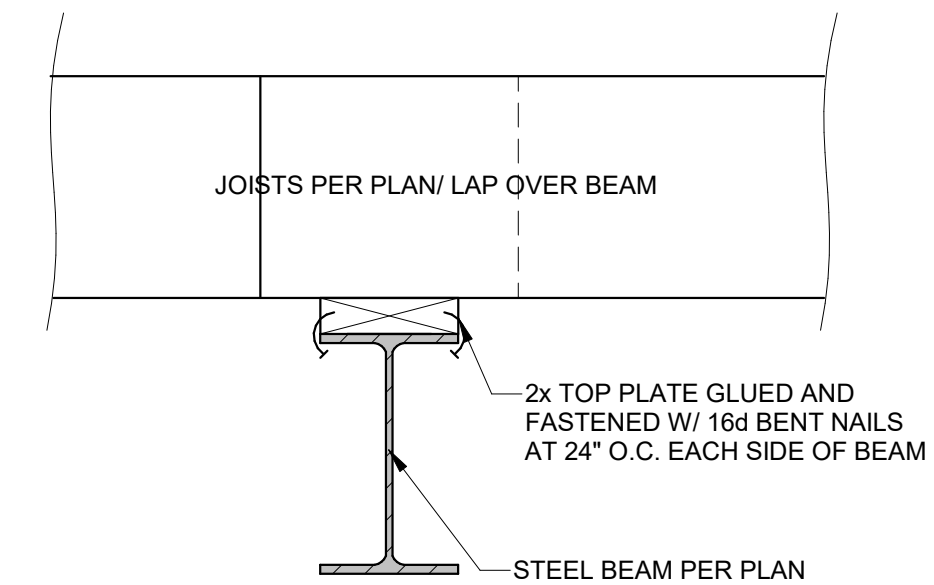
7 UPSET WOOD PERPENDICULAR TO WALL  
1" = 1'-0"



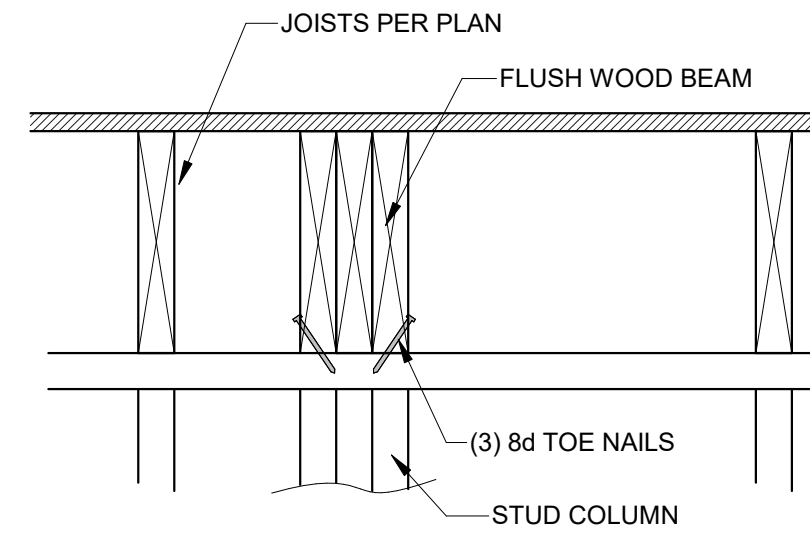
11 SHEATHING JOINT LOCATION  
1" = 1'-0"



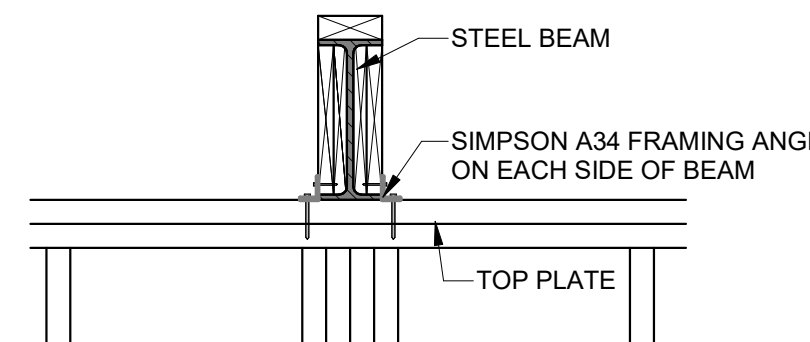
6 STEEL COLUMN TO WOOD FLOOR  
1 1/2" = 1'-0"



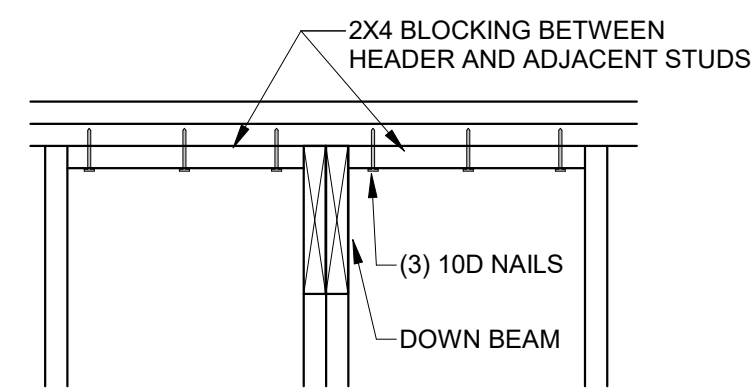
5 STEEL BEAM TO WOOD PLATE  
1 1/2" = 1'-0"



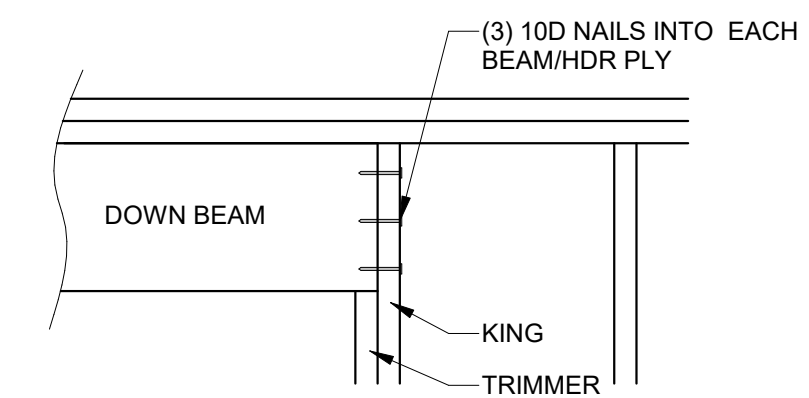
4 FLUSH WOOD BEAM CONNECTION  
1 1/2" = 1'-0"



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



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



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

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GENERAL DETAILS

S-4.0