REAR ELEVATION
SCALE: 1/8'=Y-O''

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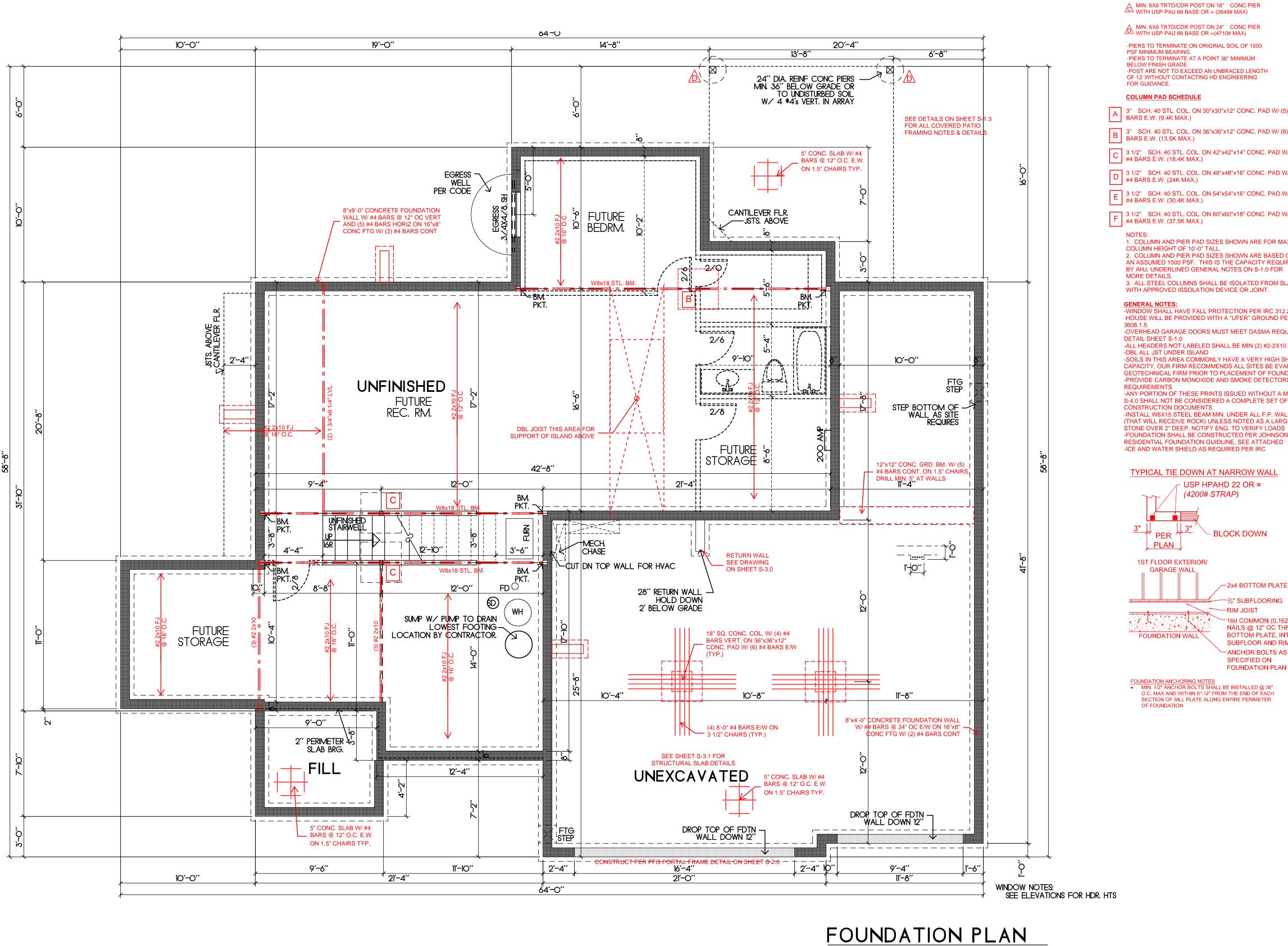




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PLANS DRAWN BY OTHERS



SCALE: 1/4"=1"-0"

**DECK PIER SCHEDULE** 

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 ·PIERS TO TERMINATE AT A POINT 36" MINIMUM

#### **COLUMN PAD SCHEDULE**

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.) B 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.)

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 3. ALL STEEL COLUMNS SHALL BE ISOLATED FROM SLABS WITH APPROVED ISSOLATION DEVICE OR JOINT.

GENERAL NOTES:
-WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4
-HOUSE WILL BE PROVIDED WITH A "UFER" GROUND PER IRC SECTION -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 -INSTALL W8X15 STEEL BEAM MIN. UNDER ALL F.P. WALLS/HEARTHS (THAT WILL RECEIVE ROCK) UNLESS NOTED AS A LARGER BEAM. ANY STONE OVER 2" DEEP, NOTIFY ENG. TO VERIFY LOADS -FOUNDATION SHALL BE CONSTRUCTED PER JOHNSON COUNTY

TYPICAL TIE DOWN AT NARROW WALL ✓ USP HPAHD 22 OR = ► BLOCK DOWN PLAN 1ST FLOOR EXTERIOR/ \_\_2x4 BOTTOM PLATE -3/4" SUBFLOORING --RIM JOIST ─16d COMMON (0.162"x3½") NAILS @ 12" OC THROUGH BOTTOM PLATE, INTO

FOUNDATION ANCHORING NOTES

MIN. 1/2" ANCHOR BOLTS SHALL BE INSTALLED @ 36"
O.C. MAX AND WITHIN 6"-12" FROM THE END OF EACH SECTION OF SILL PLATE ALONG ENTIRE PERIMETER OF FOUNDATION

SUBFLOOR AND RIM JOIST

-ANCHOR BOLTS AS SPECIFIED ON FOUNDATION PLAN

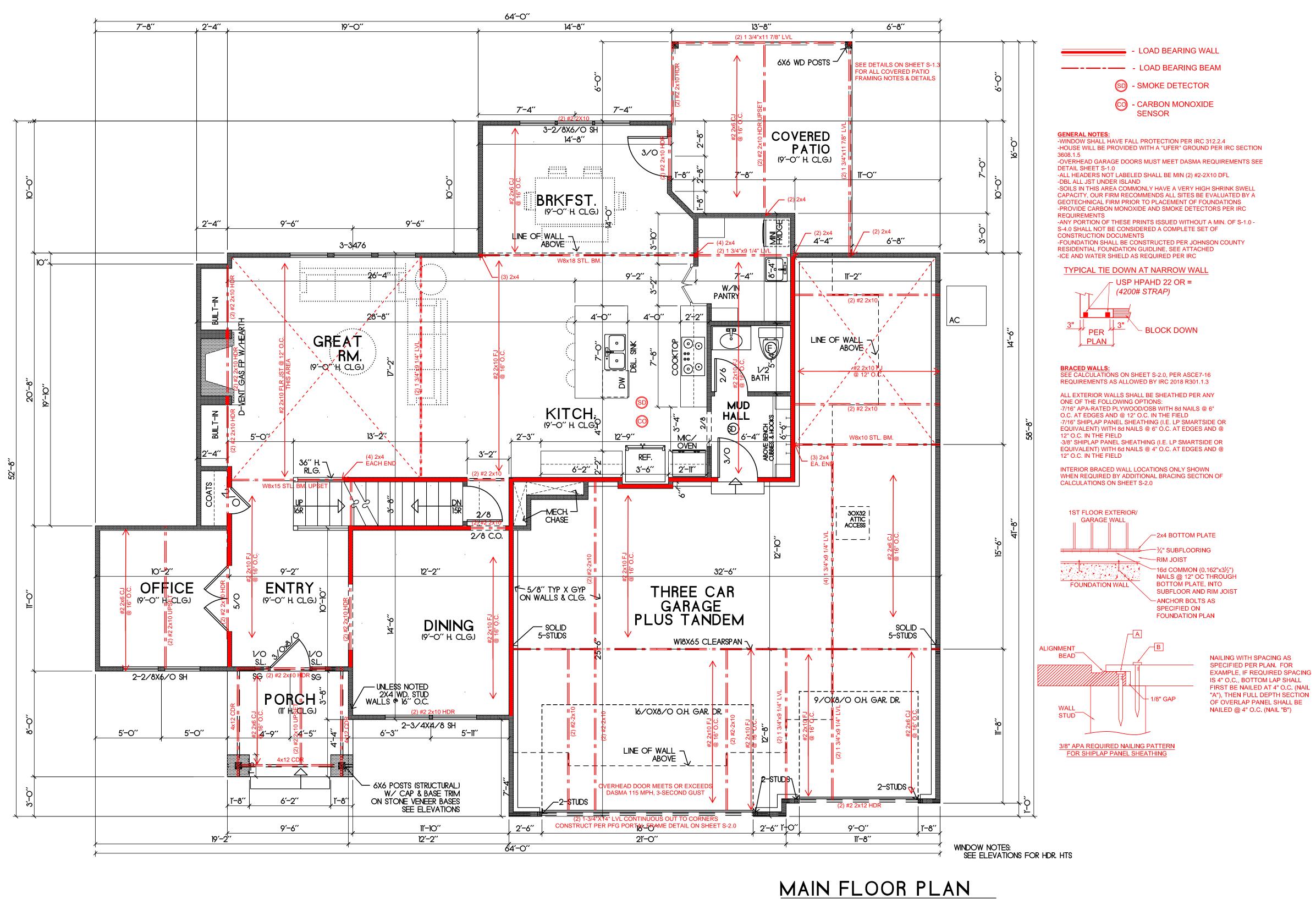
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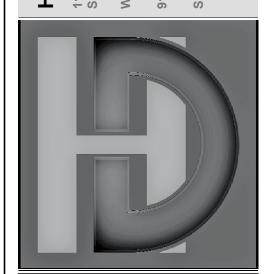
**S-0.2** 

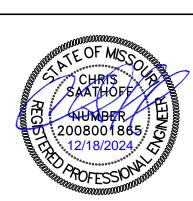


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AB CONSTRUCTION, LLC
DEARBORN - MIAN - HFR204
LEE'S SUMMIT, MO
2221 SW Crown Dr, Lee's Summit, MO 64082
STELLICALIDAL DETAILS & NOTES

HD#: 48740

DATE: 12/18/2024

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S-0.3

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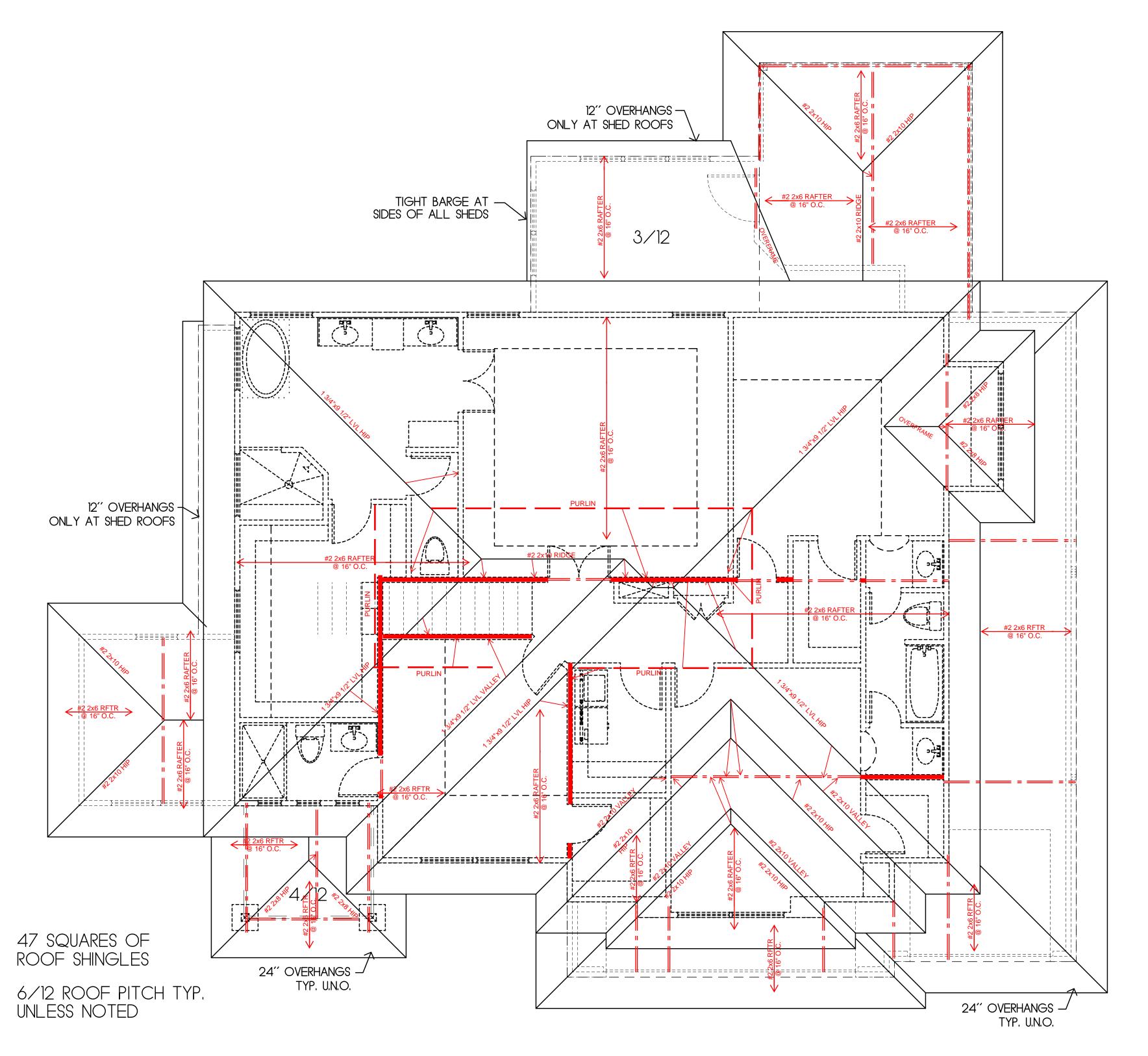
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DEARBORN - MIAN LEE'S SUMMIT,
2221 SW Crown Dr, Lee's Summit, 4

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PLANS DRAWN BY OTHERS



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

**NOTES** 

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

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

CODE MINIMUM

OODE IIIII IIIIIOIII		
RAFTERS	SPACING	MAX HORIZONTAL CLEARSPA
#2 <b>-</b> 2x6	@24" O.C.	11'-11"
#2-2x6	@16" O.C.	14'-1"
#2 <b>-</b> 2x8	@24" O.C.	15'-1"
#2-2x8	@16" O.C.	18'-5"
#2 <b>-</b> 2x10	@24" O.C.	18'-5"
#2 <b>-</b> 2x10	@16" O.C.	22'-6"

NOTE: CODE MINIMUM L/240 DEFLECTION

GREATER THAN CODE

SKERTEK TIMIT GODE						
RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN				
#2 <b>-</b> 2x6	@24" O.C.	8'-6"				
#2 <b>-</b> 2x6	@16" O.C.	9'-9"				
#2 <b>-</b> 2x8	@24" O.C.	11'-3"				
#2 <b>-</b> 2x8	@16" O.C.	12'-9"				
#2 <b>-</b> 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 PURLINS STRUTS SHALL HAVE A MAXIMUM UNBRACED
LENGTH OF 8'-0"

PURLINS 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"

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

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

SEE DETAIL 12/S-1.2 FOR RAFTER TIE CONNECTION FOR

CLG JOISTS PERPENDICULAR TO HIP RAFTERS

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

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

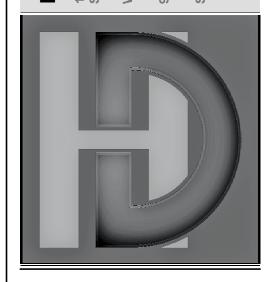
IF ADDITIONAL HOLD DOWN STRAP REQUIRED: X=UPLIFT FORCE (POUNDS), REQUIRED SIMPSON HOLD-DOWN

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

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LEE'S SUMMIT, MO
2221 SW Crown Dr, Lee's Summit, MO 64082

ID#: 48740

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PLANS DRAWN BY OTHERS

**S-0.5** 

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

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

	NAIL GUN		PENETRATION	ALLOWABLE LOADS (POUNDS)			
FASTENER DESCRIPTION	NAILS/ WIRE	WIRE GAGE	REQUIRED INTO MAIN MEMBER FOR LATERAL	LATERAL	STRENGTH	WITHDRAWAL STRENGTH	
DEGGKII TIGIK	DIAMETER	OAGE	STRENGTH (INCHES)	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	200	40	,	40			00
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	79	72	35	28
8d BOX NAIL							
8d CASING NAIL							
6d RING SHANK NAIL							
6d SCREW SHANK NAIL			1-3/8		81	41	
8d RING SHANK NAIL	.120	11		89			32
8d SCREW SHANK NAIL	1						
10d COOLER NAIL							
	120	128 10-1/2	1-1/2	89	81	36	24
10d SINKER NAIL	.128						31
12d SHORT							-
10d BOX NAILS			1-1/2	101	93	40	
12d BOX NAILS	.128	8 10-1/2					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	.135	10	1-5/8	113	103	46	36
12d RING SHANK NAILS		.0	1 6/6		100		
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		_					40
16d SCREW SHANK NAILS	.148	9	1-3/4	128	118	50	
16d COMMON NAILS							
40d BOX NAILS	.162	8	1-3/4	154	141	50	40
20d RING SHANK NAILS							
20d SCREW SHANK NAILS	.177	7	2-1/8	178	163	59	47
20d SINKER NAILS	.177	7	2-1/8	178	163	54	43
20d COMMON NAILS	,	•	2 1/0	.,,	1.00	<u> </u>	10
30d SINKER NAILS	.148	9	2-1/8	170	166	59	47

# MINIMUM SHEATHING REQUIREMENTS

30d SINKER NAILS

BUILDING COMPONENT	MATERIAL	
ROOF SHEATHING	7/16" PLYWOOD	
ROOF SHEATHING	1 x 4 #3 FURRING	
FLOOR SHEATHING	3/4" T&G YELLOW PINE PLYWOOD	
WALL COVERING	1/2" GYPSUM SHEATHING	
CEILING COVERING	1/2" GYPSUM SHEATHING	
EXTERIOR WALL	7/16" APA RATED SHEATHING	
SHEATHING	RATED PANEL SIDING, RATED 16" O.C. 7/16" THICK	

ALL SHEATHING MATERIALS TO BE APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED REFER TO TABLE R602.3(1) ON S-1.1 FOR FASTENING SCHEDULE

## HIP/ VALLEY ALLOWABLE SPAN TABLE

TYPE	MAX. UNSUPPORTED SPAN				
TIPE	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"

#### FRAME FASTENING SCHEDULE

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

NO JOIST HANGER NAILS ALLOWED FOR TOENAILS.

NO GUN NAILS OR SCREWS ALLOWED IN CONNECTORS. 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 EARS 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" x 2" 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 2018 IRC 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.

1. AIR-IMPERMEABLE SPRAY FOAM PRODUCTS SHALL BE PERMITTED TO BE APPLIED WITHOUT ADDITIONAL JOINT

2. 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. 3. 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: 1. 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. 2. ROUGH-IN TEST: TOTAL AIR LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CFM (113.3 L/MIN) PER 100FT2 (9.29m²) 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

**EXCEPTION:** THE TOTAL LEAKAGE IS NOT REQUIRED FOR DUCTS AND AIR HANDLERS LOCATED ENTIRELY WITHIN

PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE, ICC AS ADOPTED BY AHJ, AND ALL AMENDMENTS AS ADOPTED BY THE AHJ. IF ANY CHANGES 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 CONTRACTUAL OBLIGATION OF THESE PLANS IS TO PROVIDE THE OWNER/BUILDER AND THE AHJ WITH A SET OF PLANS THAT MEET AHJ AND 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, PLASTICITY INDEXES, AND SOIL BEARING CAPACITIES IN OUR AREA, OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY HD ENGINEERING OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF ANY "STANDARD" FOUNDATIONS.

#### 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 MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINUOUS, LOCATED A MINIMUM OF 3" CLEAR FROM THE BOTTOM. FOOTINGS SHALL BE A

COLUMN PADS SHALL BE A MINIMUM OF 24"x24"x8" WITH (3) #4 BARS EACH WAY. FOUNDATION WALLS SHALL BE A MINIMUM OF 8" THICK WITH MINIMUM #4 BARS @ 24" O.C. HORIZONTAL AND VERTICAL WITH 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 CONCRETE FLOOR SLABS ON GRADE SHALL BE A MINIMUM OF 4" THICK OVER A MINIMUM 4" BASE OF SAND, GRAVEL, OR CRUSHED STONE. BASEMENT SLABS SHALL

HAVE A MINIMUM 6 MIL POLYETHYLENE OR APPROVED VAPOR RETARDER WITH JOINTS LAPPED NOT LESS THAN 6" AND SHALL BE PLACED BETWEEN THE FLOOR SLAB 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 ANCHORED TO THE FOUNDATION WITH MINIMUM 1/2" DIAMETER ANCHOR BOLTS EMBEDDED AT LEAST 7" INTO THE CONCRETE AND SPACED NOT MORE THAN 3' ON CENTER AND WITHIN 12" OF EACH END OF THE PLATE SECTION 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 THE DEEPENING OF FOUNDATION ELEMENTS, OR THE UNDERCUTTING OF UNSUITABLE MATERIALS AND REPLACEMENT WITH ENGINEERED FILL.

STAIRWAYS SHALL PROVIDE A MAXIMUM 7 3/4" RISE AND A MINIMUM 10" RUN. PROVIDE MINIMUM 36" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES, AND BALCONIES. PROVIDE 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 4" DIAMETER SPHERE

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 ANOTHER 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 THE

WINDERS SHALL PROVIDE A MINIMUM TREAD OF 6" AT ANY POINT WITHIN CLEAR WIDTH OF STAIRS. WINDER TREAD PROPORTION IS TO COMPLY WITH IRC SECTION R311.7.5.2.1.

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 ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR, ENCLOSURES FOR SPAS, TUBS, SHOWERS AND WHIRLPOOLS, 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" ABOVE THE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24" 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" DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 24" OF THE FINISHED FLOOR.

ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE

ALL HEADERS ARE TO BE A MINIMUM OF (2) #2 2x10'S UNLESS NOTED OTHERWISE BLOCK CANTILEVERS, DOOR JAMBS, AND OVER BEAMS.

ALL HEADERS/BEAMS ARE 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' ON CENTER 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' ON CENTER 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 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" IN 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 ARE TO COMPLY WITH IRC SECTIONS 702 AND 703.

ALL RAFTER / COLLAR TIES ARE TO COMPLY WITH IRC SECTION 802. ALL RAFTERS ARE TO HAVE 2x4 COLLAR TIES @ 48" O.C. IN THE UPPER 1/3 OF DISTANCE BETWEEN THE CEILING AND ROOF

BLOCKING BETWEEN JOISTS UNDER A PERPENDICULAR LOAD-BEARING WALL IS NOT REQUIRED.

THE 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 SECTION 602.3

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.

#### 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" THICK SOLID WOOD, MINIMUM 1 3/8" THICK SOLID OR HONEY-COMB-CORE STEEL DOOR, OR 20-MINUTE FIRE-RATED EQUIPPED WITH A SELF-CLOSING DEVICE PER IRC SECTION R302.5.1. 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

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"

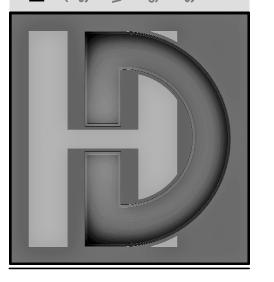
GARAGE DOOR H-FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x6 VERTICAL JAMBS RUNNING FROM FLOOR TO CEILING ATTACHED WITH 1 3/4"x0.120" NAILS AT 7" ON CENTER STAGGERED WITH (7) 3 1/4"x0.120" NAILS THROUGH THE JAMB INTO THE HEADER, MINIMUM 2x8

HEADER FOR ATTACHMENT OF THE COUNTER BALANCE SYSTEM. ANY ATTACHED GARAGE TO THE MAIN HOUSE SHALL BE PROVIDED WITH A SINGLE HEAT DETECTOR. THE HEAT DETECTOR SHALL BE HARDWIRED AND INTERCONNECTED WITH THE HOUSEHOLD SMOKE ALARM SYSTEM. THE HEAT DETECTOR SHALL BE LISTED FOR THE AMBIENT ENVIRONMENT AND INSTALLED PER

BUILDING ENVELOPE INSULATION SHALL COMPLY WITH IRC TABLE N1102.1.2 OR THE 2018 IECC. (SEE S-6.0 FOR MORE DETAILS)

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 1/150th OF THE AREA OF SPACE VENTILATED. WHERE THE VENTILATORS ARE LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED, THE

CONFIDENTIAL INFORMATION ELONGINING TO HD ENGINEER UNAUTHORIZED USE, DISCLOSUR ANY OF THE INFORMATION AINED HEREIN MAY RESULT IN LIABILITY UNDER APPLICABLE LAW.





| 12/18/2024

CHECKED BY: CLS

NO.	ISSUE/REVISION	Revision Date

GENERAL NOTES

AS NOTED FOR PLAN REVIEW LEE'S SUMMIT, MISSOURI 01/09/2025

# TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a, b, c</sup>	SPACING AND LOCATION
		<b>ROOF</b> 4-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR	
2	BLOCKING BETWEEN CEILING JOISTS OR RAFTERS TO TOP PLATE  CEILING JOISTS TO PLATE	3-8D COMMON (2 ½ x 0.131"); OR 3-10D BOX (3" x 0.128"); OR 3-3" x 0.131" NAILS	TOE NAIL PER JOIST, TOE NAIL
3	CEILING JOISTS NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (SEE SECTION R802.5.2 AND TABLE R802.5.2)	4-10D BOX (3" x 0.128"); OR 3-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 4-3" x 0.131" NAILS	FACE NAIL
4	CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) (SEE SECTION R802.5.2 AND TABLE R802.5.2)	TABLE R802.5.2	FACE NAIL
5	COLLAR TIE TO RAFTER, FACE NAIL OR 1 <sup>1</sup> / <sub>4</sub> " x 20 GA. RIDGE STRAP TO RAFTER	4-10D BOX (3" x 0.128"); OR 3-10D COMMON (3" x 0.148"); OR 4-3" x 0.131" NAILS	FACE NAIL EACH RAFTER
6	RAFTER OR ROOF TRUSS TO PLATE	3-16D BOX NAILS (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 3-10D COMMON NAILS (3" x 0.148"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS	2 TOE NAILS ON ONE SIDE AND 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS <sup>i</sup>
7	ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS OR ROOF RAFTER TO MINIMUM 2" RIDGE BEAM	4-16D (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 3-10D COMMON (3" x 0.148"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS 3-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 2-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 3-10D BOX (3" x 0.128"); OR 3-3" x 0.131" NAILS	TOE NAIL END NAIL
		WALL	
8	STUD TO STUD (NOT BRACED WALL PANELS)	16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162")	24" O.C. FACE NAIL
		10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	16" O.C. FACE NAIL
9	STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
		16D COMMON (3 1/2" x 0.162")	16" O.C. FACE NAIL
10	BUILT-UP HEADER (2" TO 2" HEADER WITH 1/2" SPACER)	16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162") 16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135")	16" O.C. EACH EDGE FACE NAIL  12" O.C. EACH EDGE FACE NAIL
11	CONTINUOUS HEADER TO STUD	5-8D BOX (3 1/2" x 0.135")  5-8D BOX (2 1/2" x 0.113"); OR  4-8D COMMON (2 1/2" x 0.131"); OR  4-10D BOX (3" x 0.128")	TOE NAIL
		16D COMMON (3 ½" x 0.162")	16" O.C. FACE NAIL
12	TOP PLATE TO TOP PLATE	10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
13	DOUBLE TOP PLATE SPLICE	8-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 12-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 12-10D BOX (3" x 0.128"); OR 12-3" x 0.131" NAILS	FACE NAIL ON EACH SIDE OF END JOINT (MINIMUM 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
14	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING	16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162")	16" O.C. FACE NAIL
14	(NOT AT BRACED WALL PANELS)	16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
15	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (AT BRACED WALL PANEL)	3-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 2-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 4-3" x 0.131" NAILS	3 EACH 16" O.C. FACE NAIL 2 EACH 16" O.C. FACE NAIL 4 EACH 16" O.C. FACE NAIL
16	TOP OR BOTTOM PLATE TO STUD	4-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 3-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 4-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS	TOE NAIL
		3-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 2-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 3-10D BOX (3" x 0.128"); OR 3-3" x 0.131" NAILS	END NAIL
17	TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	3-10D BOX (3" x 0.128"); OR 2-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 3-3" x 0.131" NAILS	FACE NAIL
18	1" BRACE TO EACH STUD AND PLATE	3-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 2-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 2-10D BOX (3" x 0.128"); OR 2 STAPLES 1 <sup>3</sup> / <sub>4</sub> "	FACE NAIL
19	1" x 6" SHEATHING TO EACH BEARING	3-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 2-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 2-10D BOX (3" x 0.128"); OR 2 STAPLES, 1" CROWN, 16 GA., 1 <sup>3</sup> / <sub>4</sub> " LONG	FACE NAIL
20	1" x 8" AND WIDER SHEATHING TO EACH BEARING	3-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 3-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 3-10D BOX (3" x 0.128"); OR 3 STAPLES, 1" CROWN, 16 GA., 1 <sup>3</sup> / <sub>4</sub> " LONG  WIDER THAN 1" x 8"  4-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 3-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x	FACE NAIL
		0.131"); OR 3-10D BOX (3" x 0.128"); OR 4 STAPLES, 1" CROWN, 16 GA., 1 3/4" LONG FLOOR	
21	JOIST TO SILL, TOP PLATE OR GIRDER	4-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 3-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 3-10D BOX (3" x 0.128"); OR 3-3" x 0.131" NAILS	TOE NAIL
22	RIM JOIST, BAND JOIST OR BLOCKING TO SILL OR TOP PLATE (ROOF APPLICATIONS ALSO)	8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113") 8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	4" O.C. TOE NAIL
23	1" x 6" SUBFLOOR OR LESS TO EACH JOIST	3-8D BOX (2 <sup>1</sup> / <sub>2</sub> " x 0.113"); OR 2-8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR 3-10D BOX (3" x 0.128"); OR 2 STAPLES, 1" CROWN, 16 GA., 1 <sup>3</sup> / <sub>4</sub> " LONG	FACE NAIL
		FLOOR	
24	2" SUBFLOOR TO JOIST OR GIRDER	3-16D BOX (3 ½" x 0.135"); OR 2-16D COMMON (3 ½" x 0.162")	BLIND AND FACE NAIL
25	2" PLANKS (PLANK & BEAM-FLOOR AND ROOF)	3-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 2-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162") 3-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 4-10D BOX (3" x 0.128"); OR	AT EACH BEARING, FACE NAIL
26	BAND OR RIM JOIST TO JOIST	4-3" x 0.131" NAILS; OR 4-3" x 14 GA. STAPLES, <sup>7</sup> / <sub>16</sub> " CROWN 20D COMMON (4" x 0.192"); OR	END NAIL  NAIL EACH LAYER AS FOLLOWS: 32" O.C  AT TOP AND BOTTOM AND STAGGERED
27	BUILT-UP GIRDERS AND BEAMS, 2-INCH LUMBER LAYERS	3" x 0.131" NAILŚ AND: 2-20D COMMON (4" x 0.192"); OR	24" O.C. FACE NAIL AT TOP AND BOTTON STAGGERED ON OPPOSITE SIDES FACE NAIL AT ENDS AND AT EACH SPLIC
28	LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	4-16D BOX (3 X 0.128 ); OR 3-3 X 0.131 NAILS 4-16D BOX (3 <sup>1</sup> / <sub>2</sub> " x 0.135"); OR 3-16D COMMON (3 <sup>1</sup> / <sub>2</sub> " x 0.162"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS	AT EACH JOIST OR RAFTER, FACE NAIL
_	BRIDGING OR BLOCKING TO JOIST	2-10D BOX (3" x 0.128"); OR 2-8D COMMON	EACH END, TOE NAIL

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 mile per hour = 0.447 m/s; 1 ksi = 6.895 MPa.

- NAILS ARE SMOOTH-COMMON, BOX OR DEFORMED SHANKS EXCEPT WHERE OTHERWISE STATED. NAILS USED FOR FRAMING AND SHEATHING CONNECTIONS SHALL HAVE MINIMUM AVERAGE BENDING YIELD STRENGTHS AS SHOWN: 80 KSI FOR SHANK DIAMETER OF 0.192 INCH (20D COMMON NAIL), 90 KSI FOR SHANK DIAMETERS LARGER THAN 0.142 INCH BUT NOT LARGER THAN 0.177 INCH, AND 100 KSI FOR SHANK DIAMETERS OF 0.142 INCH OR LESS. STAPLES ARE 16 GAGE WIRE AND HAVE A MINIMUM 7/16-INCH ON DIAMETER CROWN WIDTH.
- NAILS SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER. FOUR-FOOT BY 8-FOOT OR 4-FOOT BY 9-FOOT PANELS SHALL BE APPLIED VERTICALLY. SPACING OF FASTENERS NOT INCLUDED IN THIS TABLE SHALL BE BASED ON TABLE R602.3(2).
- FOR WOOD STRUCTURAL PANEL ROOF SHEATHING ATTACHED TO GABLE END ROOF FRAMING AND TO INTERMEDIATE SUPPORTS WITHIN 48 INCHES OF ROOF EDGES AND RIDGES, NAILS SHALL BE SPACED AT 6 INCHES ON CENTER WHERE THE
- ULTIMATE DESIGN WIND SPEED IS LESS THAN 130 MPH AND SHALL BE SPACED 4 INCHES ON CENTER WHERE THE ULTIMATE DESIGN WIND SPEED IS 130 MPH OR GREATER BUT LESS THAN 140 MPH.

  GYPSUM SHEATHING SHALL CONFORM TO ASTM C1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C208.
- SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING AND AT FLOOR PERIMETERS ONLY. SPACING OF FASTENERS ON ROOF SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING. BLOCKING OF ROOF OR FLOOR SHEATHING PANEL EDGES PERPENDICULAR TO THE FRAMING MEMBERS NEED NOT BE PROVIDED EXCEPT AS
- REQUIRED BY OTHER PROVISIONS OF THIS CODE. FLOOR PERIMETER SHALL BE SUPPORTED BY FRAMING MEMBERS OR SOLID BLOCKING.

  WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE, PROVIDE TWO TOE NAILS ON ONE SIDE OF THE RAFTER AND TOE NAILS FROM THE CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED. RSRS-01 IS A ROOF SHEATHING RING SHANK NAIL MEETING THE SPECIFICATIONS IN ASTM F1667.

# **CONTINUED TABLE R602.3(1) FASTENING SCHEDULE**

			SPACING (	OF FASTENERS
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a, b, c</sup>	EDGES (INCHES)h	INTERMEDIATE SUPPORTS <sup>c, e</sup> (INCHES)
	WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF AND INTERIOR [SEE TABLE R602.3(3) FOR WOOD STRUC	WALL SHEATHING TO FRAMING AND PARTICLEBOARD W TURAL PANEL <i>EXTERIOR</i> WALL SHEATHING TO WALL FRA	ALL SHEATHING TO	
30	<sup>3</sup> / <sub>8</sub> " - <sup>1</sup> / <sub>2</sub> "	6D COMMON (2" x 0.113") NAIL (SUBFLOOR, WALL) <sup>i</sup> 8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131") NAIL (ROOF); OR RSRS-01 (2 <sup>3</sup> / <sub>8</sub> " x 0.113") NAIL (ROOF)	6	12 <sup>f</sup>
31	<sup>19</sup> / <sub>32</sub> " - 1"	8D COMMON NAIL (2 <sup>1</sup> / <sub>2</sub> " x 0.131"); OR RSRS-01 (2 <sup>3</sup> / <sub>8</sub> " x 0.113") NAIL (ROOF)	6	12 <sup>f</sup>
32	1 <sup>1</sup> / <sub>8</sub> " - 1 <sup>1</sup> / <sub>4</sub> "	10D COMMON (3" x 0.148") NAIL; OR 8D (2 ½" x 0.131") DEFORMED NAIL	6	12
	o	THER WALL SHEATHING®		
33	1/2" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 <sup>1</sup> / <sub>2</sub> " GALVANIZED ROOFING NAIL, <sup>7</sup> / <sub>16</sub> " HEAD DIAMETER, OR 1 <sup>1</sup> / <sub>4</sub> " LONG 16 GA. STAPLE WITH <sup>7</sup> / <sub>16</sub> " OR 1" CROWN	3	6
34	<sup>25</sup> / <sub>32</sub> " STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 3/4" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1 1/2" LONG 16 GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
35	1/2" GYPSUM SHEATHING <sup>d</sup>	1 1/2" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1 1/2" LONG; 1 1/4" SCREWS, TYPE W OR S	7	7
36	<sup>5</sup> / <sub>8</sub> " GYPSUM SHEATHING <sup>d</sup>	1 3/4" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1 5/8" LONG; 1 5/8" SCREWS, TYPE W OR S	7	7
	WOOD STRUCTURAL PANELS, C	OMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING		
37	<sup>3</sup> / <sub>4</sub> " AND LESS	6D DEFORMED (2" x 0.120") NAIL; OR 8D COMMON (2 1/2" x 0.131") NAIL	6	12
38	7/8" - 1"	8D COMMON (2 <sup>1</sup> / <sub>2</sub> " x 0.131") NAIL; OR 8D DEFORMED (2 <sup>1</sup> / <sub>2</sub> " x 0.120") NAIL	6	12
39	1 1/8" - 1 1/4"	10D COMMON (3" x 0.148") NAIL; OR 8D DEFORMED (2 1/2" x 0 120") NAII	6	12

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

NOMINAL MATERIAL	SP	SPACING° OF FASTENERS		
THICKNESS (INCHES)	DESCRIPTION <sup>a, b</sup> OF FASTENER AND LENGTH (INCHES)	EDGES (INCHES)	INTERMEDIATE SUPPORTS (INCHES	
WOOD STRUCTL	RAL PANELS SUBFLOOR, ROOF <sup>9</sup> AND WALL SHEATHING TO FRAMING AND PARTI	CLEBOARD WALL SI	I HEATHING TO FRAMING <sup>f</sup>	
	STAPLE 15 GA. 1 <sup>3</sup> / <sub>4</sub>	4	8	
UP TO <sup>1</sup> / <sub>2</sub>	0.097 - 0.099 NAIL 2 <sup>1</sup> / <sub>4</sub>	3	6	
-	STAPLE 16 GA. 1 <sup>3</sup> / <sub>4</sub>	3	6	
	0.113 NAIL 2	3	6	
<sup>19</sup> / <sub>32</sub> AND <sup>5</sup> / <sub>8</sub>	STAPLE 15 AND 16 GA. 2	4	8	
	0.097 - 0.099 NAIL 2 <sup>1</sup> / <sub>4</sub>	4	8	
	STAPLE 14 GA. 2	4	8	
	STAPLE 15 GA. 1 <sup>3</sup> / <sub>4</sub>	3	6	
<sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub>	0.097 - 0.099 NAIL 2 <sup>1</sup> / <sub>4</sub>	4	8	
	STAPLE 16 GA. 2	4	8	
	STAPLE 14 GA. 2 <sup>1</sup> / <sub>4</sub>	4	8	
-	0.113 NAIL 2 <sup>1</sup> / <sub>4</sub>	3	6	
1	STAPLE 15 GA. 2 <sup>1</sup> / <sub>4</sub>	4	8	
-	0.097 - 0.099 NAIL 2 <sup>1</sup> / <sub>2</sub>	4	8	
NOMINAL MATERIAL		SP	ACING° OF FASTENERS	
THICKNESS (INCHES)	DESCRIPTION <sup>a, b</sup> OF FASTENER AND LENGTH (INCHES)	EDGES (INCHES)	BODY OF PANEL <sup>d</sup> (INCHES)	
	FLOOR UNDERLAYMENT; PLYWOOD-HARDBOARD-PARTICLEBOARD <sup>f</sup> -	FIBER-CEMENT <sup>h</sup>		
	FIBER-CEMENT			
	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS	3	6	
	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN		6	
1/4	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT	3		
<sup>1</sup> / <sub>4</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE) STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS	3 3	6	
1/4	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)	3 3 8	6 8	
-	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD	3 3 8	6 8	
1/ <sub>4</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)	3 3 8 8	6 8 8	
-	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM	3 3 8 8	6 8 8	
<sup>1</sup> / <sub>4</sub> AND <sup>5</sup> / <sub>16</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM	3 3 8 8 8	6 8 8 6 5	
<sup>1</sup> / <sub>4</sub> AND <sup>5</sup> / <sub>16</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 ¹/ <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 ¹/ <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 ¹/ <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 ¹/ <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 ¹/ <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 ¹/ <sub>2</sub> GA. (0.099") SHANK DIAMETER	3 3 8 8 8	6 8 8 8 6 5 8 <sup>e</sup>	
<sup>1</sup> / <sub>4</sub> AND <sup>5</sup> / <sub>16</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER	3 3 8 8 8 3 2 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8	
<sup>1</sup> / <sub>4</sub> AND <sup>5</sup> / <sub>16</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 <sup>1</sup> / <sub>2</sub> STAPLE 16 GA.1 <sup>1</sup> / <sub>2</sub>	3 3 8 8 8 3 2 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8	
<sup>1</sup> / <sub>4</sub> AND <sup>5</sup> / <sub>16</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 <sup>1</sup> / <sub>2</sub> HARDBOARD <sup>f</sup>	3 3 8 8 8 3 2 6 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8	
1/ <sub>4</sub> AND <sup>5</sup> / <sub>16</sub> 11/ <sub>32</sub> , <sup>3</sup> / <sub>8</sub> , <sup>15</sup> / <sub>32</sub> AND <sup>1</sup> / <sub>2</sub> 19/ <sub>32</sub> , <sup>5</sup> / <sub>8</sub> , <sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 <sup>1</sup> / <sub>2</sub> HARDBOARD <sup>f</sup> 1 <sup>1</sup> / <sub>2</sub> LONG RING-GROOVED UNDERLAYMENT NAIL	3 8 8 8 3 2 6 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8 8	
1/ <sub>4</sub> AND <sup>5</sup> / <sub>16</sub> 11/ <sub>32</sub> , <sup>3</sup> / <sub>8</sub> , <sup>15</sup> / <sub>32</sub> AND <sup>1</sup> / <sub>2</sub> 19/ <sub>32</sub> , <sup>5</sup> / <sub>8</sub> , <sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE) STAPLE 18 GA., 7/8 LONG, 3/4 CROWN (FINISHED FLOORING OTHER THAN TILE)  1 1/4 LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 1/4 LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., 7/8, 3/16 CROWN WIDTH  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  1 1/2 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 1/2  HARDBOARD  1 1/2 LONG RING-GROOVED UNDERLAYMENT NAIL  4D CEMENT-COATED SINKER NAIL	3 3 8 8 8 3 2 6 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8 8	
1/ <sub>4</sub> AND 5/ <sub>16</sub> 11/ <sub>32</sub> , 3/ <sub>8</sub> , 15/ <sub>32</sub> AND 1/ <sub>2</sub> 19/ <sub>32</sub> , 5/ <sub>8</sub> , 23/ <sub>32</sub> AND 3/ <sub>4</sub> 0.200	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., 7/8 LONG, 3/4 CROWN (FINISHED FLOORING OTHER THAN TILE)  1 1/4 LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 1/4 LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., 7/8, 3/16 CROWN WIDTH  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  1 1/2 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 1/2  HARDBOARD  1 1/2 LONG RING-GROOVED UNDERLAYMENT NAIL  4D CEMENT-COATED SINKER NAIL  STAPLE 18 GA., 7/8 LONG (PLASTIC COATED)	3 3 8 8 8 3 2 6 6 6	6 8 8 8 6 5 8 <sup>e</sup> 8 8	
1/ <sub>4</sub> AND <sup>5</sup> / <sub>16</sub> 11/ <sub>32</sub> , <sup>3</sup> / <sub>8</sub> , <sup>15</sup> / <sub>32</sub> AND <sup>1</sup> / <sub>2</sub> 19/ <sub>32</sub> , <sup>5</sup> / <sub>8</sub> , <sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub>	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., 7/8 LONG, 3/4 CROWN (FINISHED FLOORING OTHER THAN TILE)  1 1/4 LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 1/4 LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., 7/8, 3/16 CROWN WIDTH  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  1 1/2 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 1/2  HARDBOARD  1 1/2 LONG RING-GROOVED UNDERLAYMENT NAIL  4D CEMENT-COATED SINKER NAIL  STAPLE 18 GA., 7/8 LONG (PLASTIC COATED)  PARTICLEBOARD	3 8 8 8 8 6 6 6 6 3	6 8 8 8 6 5 8 <sup>e</sup> 8 8	
1/ <sub>4</sub> AND <sup>5</sup> / <sub>16</sub> 11/ <sub>32</sub> , <sup>3</sup> / <sub>8</sub> , <sup>15</sup> / <sub>32</sub> AND <sup>1</sup> / <sub>2</sub> 19/ <sub>32</sub> , <sup>5</sup> / <sub>8</sub> , <sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub> 0.200	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG, <sup>3</sup> / <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 <sup>1</sup> / <sub>4</sub> LONG x. 121 SHANK x. 375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 <sup>1</sup> / <sub>4</sub> LONG, NO. 8 x. 375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> , <sup>3</sup> / <sub>16</sub> CROWN WIDTH  1 <sup>1</sup> / <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 <sup>1</sup> / <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 <sup>1</sup> / <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 <sup>1</sup> / <sub>2</sub> HARDBOARD <sup>1</sup> 1 <sup>1</sup> / <sub>2</sub> LONG RING-GROOVED UNDERLAYMENT NAIL  STAPLE 18 GA., <sup>7</sup> / <sub>8</sub> LONG (PLASTIC COATED)  PARTICLEBOARD  4D RING-GROOVED UNDERLAYMENT NAIL	3 8 8 8 8 6 6 6 6 6 3	6 8 8 8 6 5 8 <sup>e</sup> 8 8 8	
1/ <sub>4</sub> AND 5/ <sub>16</sub> 11/ <sub>32</sub> , 3/ <sub>8</sub> , 15/ <sub>32</sub> AND 1/ <sub>2</sub> 19/ <sub>32</sub> , 5/ <sub>8</sub> , 23/ <sub>32</sub> AND 3/ <sub>4</sub> 0.200	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE) STAPLE 18 GA., 7/ <sub>8</sub> LONG, 3/ <sub>4</sub> CROWN (FINISHED FLOORING OTHER THAN TILE)  1 1/ <sub>4</sub> LONG x. 121 SHANK x. 375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 1/ <sub>4</sub> LONG, NO. 8 x375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 1/ <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 1/ <sub>2</sub> GA. (0.099") SHANK DIAMETER STAPLE 18 GA., 7/ <sub>8</sub> , 3/ <sub>16</sub> CROWN WIDTH  1 1/ <sub>4</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 1/ <sub>2</sub> GA. (0.099") SHANK DIAMETER  1 1/ <sub>2</sub> RING OR SCREW SHANK NAIL-MINIMUM 12 1/ <sub>2</sub> GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 1/ <sub>2</sub> HARDBOARD  1 1/ <sub>2</sub> LONG RING-GROOVED UNDERLAYMENT NAIL  STAPLE 18 GA., 7/ <sub>8</sub> LONG (PLASTIC COATED)  PARTICLEBOARD  4D RING-GROOVED UNDERLAYMENT NAIL  STAPLE 18 GA., 7/ <sub>8</sub> LONG, 3/ <sub>16</sub> CROWN	3 3 8 8 8 8  3 2 6 6 6 6 3 3 3 3 3	6 8 8 8 6 5 8 <sup>e</sup> 8 8 8	
1/ <sub>4</sub> AND <sup>5</sup> / <sub>16</sub> 11/ <sub>32</sub> , <sup>3</sup> / <sub>8</sub> , <sup>15</sup> / <sub>32</sub> AND <sup>1</sup> / <sub>2</sub> 19/ <sub>32</sub> , <sup>5</sup> / <sub>8</sub> , <sup>23</sup> / <sub>32</sub> AND <sup>3</sup> / <sub>4</sub> 0.200	FIBER-CEMENT  3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE) STAPLE 18 GA., 7/8 LONG, 3/4 CROWN (FINISHED FLOORING OTHER THAN TILE)  1 1/4 LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)  1 1/4 LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)  PLYWOOD  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 18 GA., 7/8, 3/16 CROWN WIDTH  1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  1 1/2 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER  STAPLE 16 GA.1 1/2  HARDBOARD  1 1/2 LONG RING-GROOVED UNDERLAYMENT NAIL  STAPLE 18 GA., 7/8 LONG (PLASTIC COATED)  PARTICLEBOARD  4D RING-GROOVED UNDERLAYMENT NAIL  STAPLE 18 GA., 7/8 LONG, 3/16 CROWN  6D RING-GROOVED UNDERLAYMENT NAIL	3 3 8 8 8 8 3 2 6 6 6 6 3 3 3 3 6	6 8 8 8 6 5 8 8 8 8 6 6 6 6	

- NAIL IS A GENERAL DESCRIPTION AND SHALL BE PERMITTED TO BE T-HEAD, MODIFIED ROUND HEAD OR ROUND HEAD. STAPLES SHALL HAVE A MINIMUM CROWN WIDTH OF 7/16-INCH ON DIAMETER EXCEPT AS NOTED.
- NAILS OR STAPLES SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER. NAILS OR STAPLES SHALL BE SPACED AT NOT MORE THAN 12 INCHES ON CENTER AT INTERMEDIATE
- SUPPORTS FOR FLOORS.
  FASTENERS SHALL BE PLACED IN A GRID PATTERN THROUGHOUT THE BODY OF THE PANEL.
  FOR 5-PLY PANELS, INTERMEDIATE NAILS SHALL BE SPACED NOT MORE THAN 12 INCHES ON CENTER EACH WAY.
  HARDBOARD UNDERLAYMENT SHALL CONFORM TO CPA/ANSI A135.4
  SPECIFIED ALTERNATE ATTACHMENTS FOR ROOF SHEATHING SHALL BE PERMITTED WHERE THE ULTIMATE DESIGN WIND SPEED IS LESS THAN 130 MPH. FASTENERS ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL
- FRAMING SHALL BE INSTALLED USING THE SPACING LISTED FOR PANEL EDGES.
  FIBER-CEMENT UNDERLAYMENT SHALL CONFORM TO ASTM C1288 OR ISO 8336, CATEGORY C.

#### **DESIGN LOADS (PSF)**

THE DWELLING SHALL COMPLY WITH THE FOLLOWING LOAD CONDITIONS

AREA	MIN. DEAD LOAD	MIN. LIVE LOAD
EXTERIOR BALCONIES	10	60
DECKS, STAIRS	10	40
CEILING JOISTS / ATTICS NO STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE 3:12 OR LESS	10	10
CEILING JOISTS / ATTICS NO STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE OVER 3:12	10	10
CEILING JOISTS / ATTICS WITH STORAGE - DOOR PULL DOWN LADDER ACCESS	10	20
ROOMS: NON-SLEEPING	10	40
ROOMS: SLEEPING	10	30
ROOF: LIGHT ROOF COVERING	10	20
ROOF: HEAVY ROOF COVERING / CONCRETE / TILE / SLATE	20	20
GUARDRAILS, HANDRAILS	200# LL 1	NORMAL

HEAVY ROOF COVERING MATERIAL (TILE, CONCRETE, SLATE, ETC.) SHALL NOT BE USED UNLESS 20 PSF DEAD LOAD AND HEAVY ROOF IS NOTED ON THE ROOF PLAN. IF HEAVY ROOFING IS TO BE USED AND IS NOT NOTED ON THE ROOF PLAN, NOTIFY ENGINEER PRIOR TO ANY CONSTRUCTION, INCLUDING FOUNDATION AND SITE WORK. IF THE PLAN HAS BEEN DESIGNED FOR HEAVY ROOF LOADS IT WILL BE NOTED IN THE ROOF NOTES ON THE ROOF PLAN.

### **COLUMN SCHEDULE**

BASED ON FOOTING SIZE (ASSUME 1500 PSF SOIL)

PAD SIZE	REINFORCEMENT	COL. MIN.	COL. TYPE	MAX. LOAD
24"x24"x12"	(4) #4 BARS E/W	3"	SCH40	6K
30"x30"x12"	(5) #4 BARS E/W	3"	SCH40	9.4K
36"x36"x12"	(6) #4 BARS E/W	3"	SCH40	13.5K
42"x42"x14"	(7) #4 BARS E/W	3 1/2"	SCH40	18.4K
48"x48"x16"	(8) #4 BARS E/W	3 1/2"	SCH40	24.0K
54"x54"x16"	(9) #4 BARS E/W	3 1/2"	SCH40	30.4K
60"x60"x18"	(10) #4 BARS E/W	3 1/2"	SCH40	37.5K

COLUMN CONNECTION TO STEEL BEAMS SHALL BE WITH A CLIP POST CAP WITH ALL FOUR TAB EARS BENT AROUND THE BOTTOM FLANGE OF THE BEAM. 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" x 2" 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.

# **ENGINEERED LUMBER**

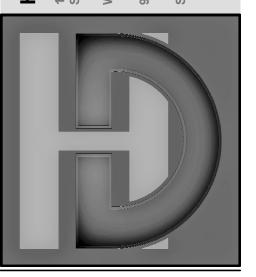
MIN. DESIGN REQUIREMENTS

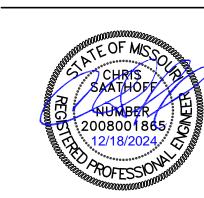
	F <sub>b</sub> (psi)	E (psi)	F <sub>v</sub> (psi)
LVL	2600	1.8x10	285
GLULAM	2400	1.8x10	190
PARALAM	2600	2.0x10	290

**BUILDER'S PLANS:** THE TERM "BUILDER'S PLANS" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS. AS THE NAME IMPLIES, THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION AND A THOROUGH UNDERSTANDING OF THE INTERNATIONAL RESIDENTIAL CODE (IRC). THE CONTRACTOR WARRANTS TO HD ENGINEERING & DESIGN THAT THEY POSSESSES THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND 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 "BUILDER'S PLANS" IN RECOGNITION OF THE CONTRACTOR'S SOPHISTICATION. ALTHOUGH HD ENGINEERING & DESIGN 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 HD ENGINEERING. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER'S PLANS" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUANTITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF HD ENGINEERING & DESIGN ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, AND PLUMBING CODE REQUIREMENTS (WHICH IS EXCLUDED FROM THESE PLANS). IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED BY THE CONTRACTOR OR HOMEOWNER FOR CONSTRUCTION OF ANY ASPECT OF THE PROJECT, HD ENGINEERING & DESIGN OR A QUALIFIED ENGINEER SHALL IMMEDIATELY BE RETAINED. FAILURE TO NOTIFY US OF THESE NEEDS OR OF CHANGES TO THE PLANS SHALL RELIEVE HD ENGINEERING & DESIGN OF ALL RESPONSIBILITIES OF THE CONSEQUENCES.

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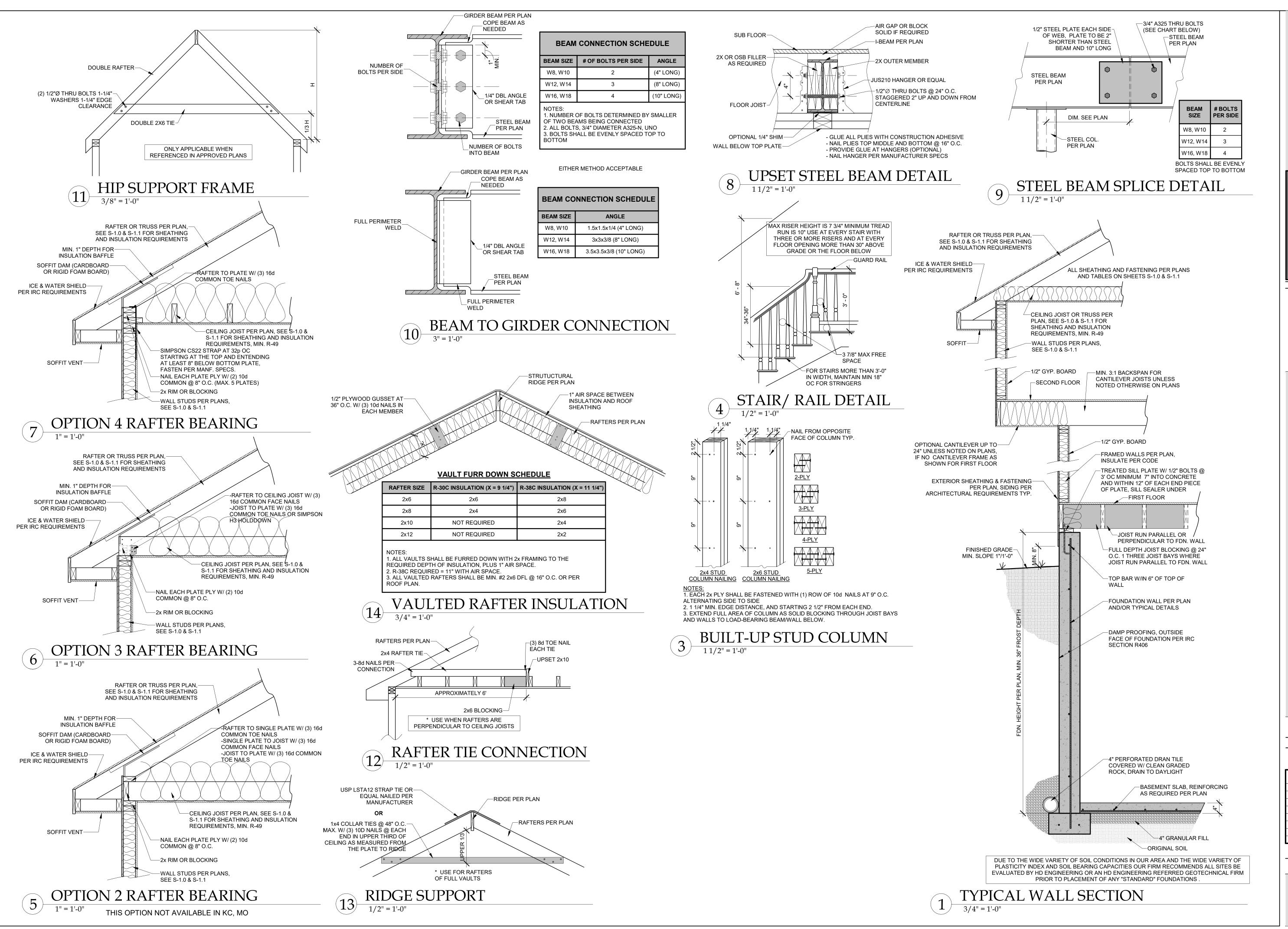




DATE: 12/18/2024 CHECKED BY: CLS

NO.	ISSUE/REVISION	Revision Date

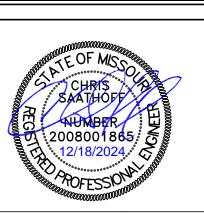
**GENERAL NOTES** 



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631.2222





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

HD#: 48740

DATE: 12/18/2024

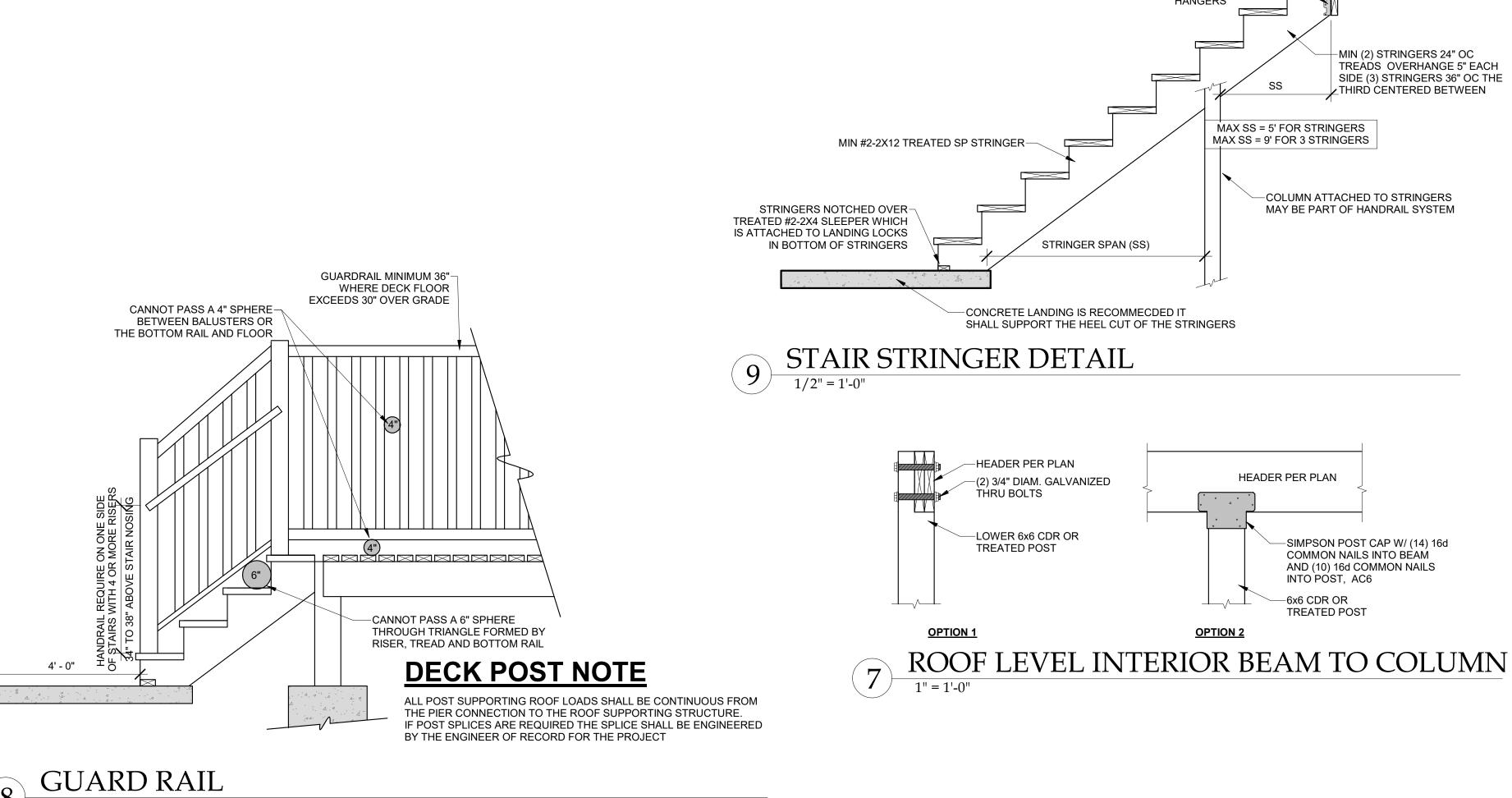
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FRAMING SECTIONS

S-1.2

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



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

TOP OF EACH STRINGER IS-TOE-NAILED (TYP) AND

ON ONE SIDE, OR SLOPED

SUPPORTED BY SIMPSON LS70

GUSSET ANGLE OR EQUIVALENT

JOIST SPAN	6' AND LESS	6'-1" TO 8'	8'-1" TO 10'	10'-1" TO 12'	12'-1" TO 14'	14'-1" TO 16'	16'-1" TO 18'		
CONNECTION DETAILS		ON-CENTER SPACING OF FASTENERS <sup>d, e</sup>							
1/2" LAG SCREW WITH 15/32" MAX. SHEATHING <sup>c,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" thinckness 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.

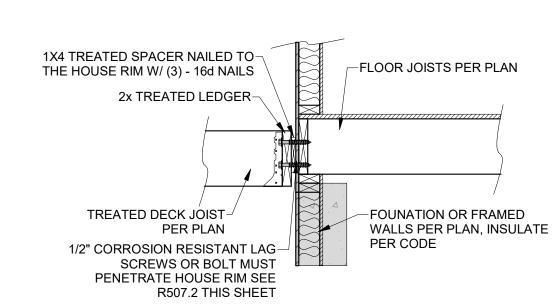
# **TABLE IRC2018 R507.9.1.3(2)** PLACEMENT OF LAG SCEWS AND BOLT IN **DECK LEDGERS AND BAND JOISTS**

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>				

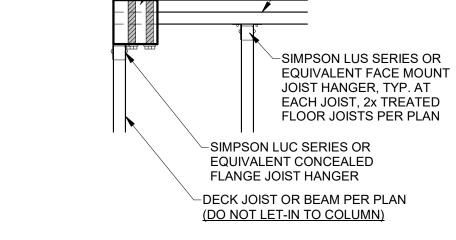
For SI: 1 inch = 25.4mm. a. Lag screws of bolts shal lbe staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9.1.3(1)

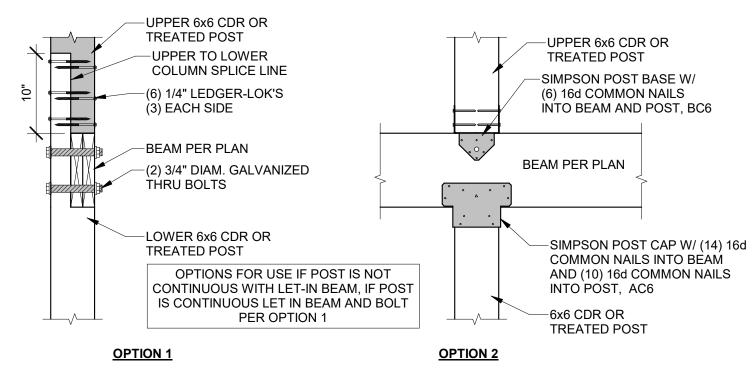
c. For engineered rim joists, the manufacturer's recommendations shall govern.

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)

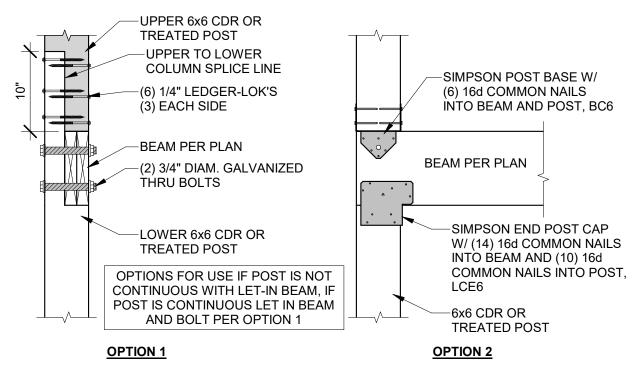


DECK LEDGER ATTACHMENT

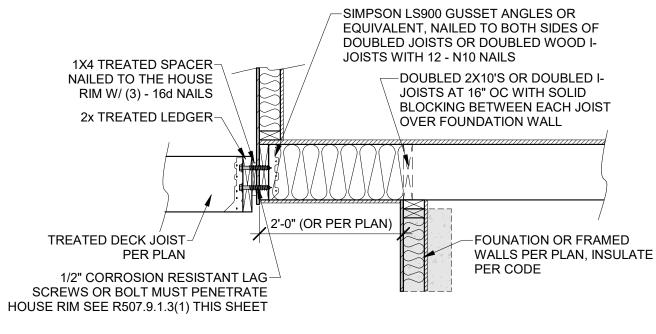




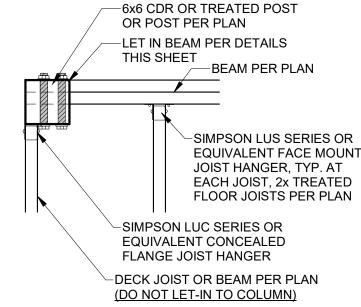
DECK LEVEL INTERIOR BEAM TO COLUMN



DECK LEVEL EXTERIOR BEAM TO COLUMN

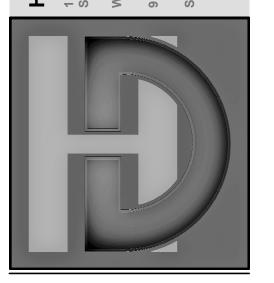


DECK LEDGER TO CANTILEVER



DECK CORNER COLUMN

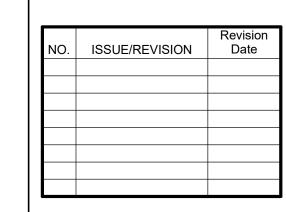
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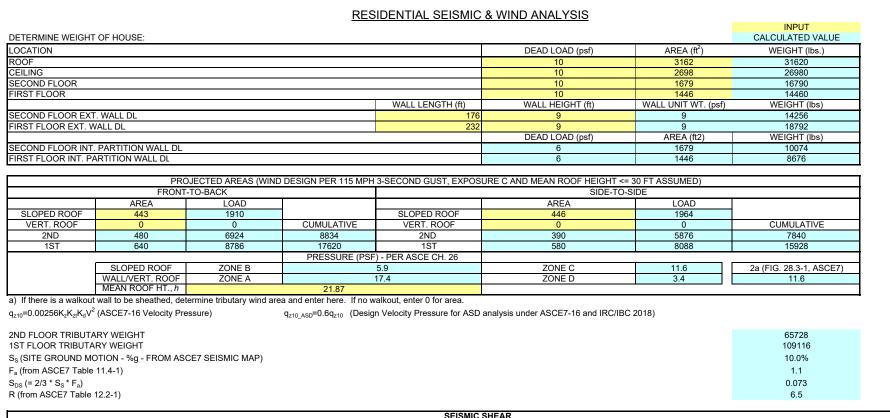
DECK DETAILS

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

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

LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD. INCREASES IN UNSUPPORTED HEIGHT ARE PERMITTED WHERE IN COMPLIANCE WITH EXCEPTION 2 OF SECTION R602.3.1 OR DESIGNED IN ACCORDANCE WITH

A HABITABLE ATTIC ASSEMBLY SUPPORTED BY 2 x 4 STUDS IS LIMITED TO A ROOF SPAN OF 32 FEET. WHERE THE ROOF SPAN EXCEEDS 32 FEET, THE WALL STUDS SHALL BE INCREASED TO 2 x 6 OR THE STUDS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.



		SEISMIC SHEAR			
LOCATION			ASCE7 (Eq. 12.8-1):	V (= 1.25 *	S <sub>DS</sub> * W / R) (lbs.)
2ND FLOOR					927
1ST FLOOR					1539
Sheathing Location	Min. Sheathing Schedule	Fastening Schedule	Allowal	ole Shear (#/LF)	Code Reference
Exterior ( <i>Option #4</i> )	7/16" APA Rated Plywood/OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing	8d Common Nails w/ 1-3/8" penetration @ 6" O.C. Edges, 12" O.C. Field for 7/16" APA-rated plywood/OSB or shiplap panel sheathing OR @ 4" O.C. Edges, 12" O.C. Field for 3/8" shiplap panel sheathing		220	AF&PA SDPWS Table 4.3A
Interior	1/2" Gypsum Board	No. 6- 1 <sup>1</sup> / <sub>4</sub> " Type W or S Screws @ 8" O.C. Edges, 12" O.C. Field		60	per IBC, Table 2306.4.4
Interior	16 Ga. Simpson/USP Type WB Steel X-Brace (or equal)	(3) 16d @ end studs & (1) 8d @ intermediate studs (per manufacturer specifications - see detail on sheet S3)		325	

EXTERIOR SHEAT	HING OPTION FOR FIRS	I FLOOR	4		DEPTH OF 1ST STORY (FT.)	58	DEPTH OF 2ND STORY (FT.)	39
					BACK WALL OF GARAGE (FT.)	32.5		
				_	GAR. WALL: 1=F-B, 2=S-S	2		
						•		
			EXTE	RIOR STRUCTURAL WALL	LENGTHS (ft.) & RESISTANCES			
		SE	ISMIC		WIND			
	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)
2ND FLOOR	61	17080	69	19320	61	23912	69	27048
1ST FLOOR	116	32480	98	27440	116	45472	98	38416
		ADDITIONAL RESIS	STANCE REQUIRED		Anchor Bolt Spacing	ı (in.)	16d Nail Spacing req'd at	bottom plate (in.)
				7				

	ADDITIONAL RESIS	ADDITIONAL RESISTANCE REQUIRED		Anchor Bolt Spacing (in.)		16d Nail Spacing req'd at bottom plate (in.)	
	SEISMIC	WIND		diameter (in.)	0.5	2nd Floor F-B	
2ND FLOOR FRONT-TO-BACK	0	0		Shear value (per NDS)	944	2nd Floor S-S	
2ND FLOOR SIDE-TO-SIDE	0	0		Spacing F-B (inches)	119.3	1st Floor F-B	
1ST FLOOR FRONT-TO-BACK	0	0		spacing S-S (inches)	145.7	1st Floor S-S	
1ST FLOOR SIDE-TO-SIDE	0	0					
		RESISTANCE REQU	IRED IN ADDITION TO RES	SISTANCE PROVIDED BY EXTERIOR V			
	ADDITIONAL RESISTANCE REQUIRED (POUNDS)	PORTAL FRAMES OR PERF. SHEAR WALL RESISTANCE	INTERIOR X-BRACES (325#/BRACE)	INTERIOR WALL LENGTH W/ 1/2" GYPSUM BOARD PER TABLE (FT.)	INT. WALL LENGTH SHEATHED W/ OSB (TOTAL LENGTH, ONE SIDE, FT.)	RESISTANCE PROVIDED BY ADDITIONAL METHODS (POUNDS)	OK?
2ND FLOOR FRONT-TO-BACK	0					0	YES
2ND FLOOR SIDE-TO-SIDE	_					_	YES

2) SEE SHEET S1 FOR INTERIOR STEEL X-BRACE INSTALLATION, 3) INTERIOR WALLS SHEATHED WITH OSB SHALL BE ATTACHED WITH SAME STAPLE/NAILING PATTERN AS EXTERIOR OSB ON SAME FLOOR (SEE TABLE ABOVE) AND ARE ONLY APPLICABLE FOR FULL-HEIGHT SECTIONS OF 2'-8" OR LONGER

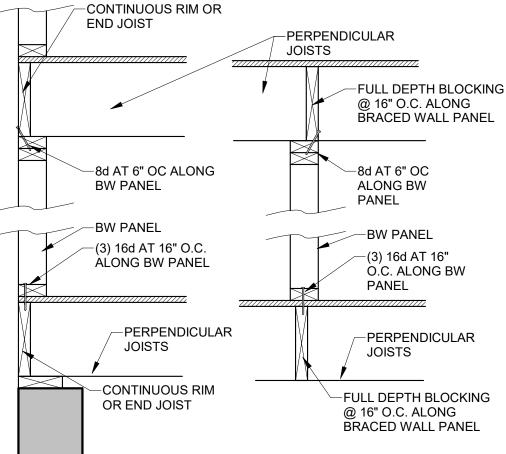
	WIND UPLIFT ANALYSIS									
	X/12	DEGREES								
ROOF PITCH (MAX)	6	26.6	PITCH OF 6 OR LESS:	EOH -13.3, E -7.2, G -5.2						
		ASCE 7								
	LENGTH (FT.)	PRESSURE (PSF)	LINEAL FT. OF OH	UPLIFT PER FT* (LBS)						
OVERHANG	2	16.56	248	33.12						
	TOTAL AREA (FT <sup>2</sup> )	ZONE E AREA (FT <sup>2</sup> )	ZONE G AREA (FT <sup>2</sup> )	PRESSURE ZN. E (PSF)	PRESSURE ZN. G (PSF)	TOTAL FORCE (LBS)	FORCE PER LINEAL FT @ PERIMETER (LB			
MAIN ROOF**	3712	1480.16	2231.84	15.12	10.5	45814	187.8			
ALONG PERIMETER TOTAL UPLIFT PER LINEAL FOOT ALONG EXTERIOR (POUNDS)					220.9	UPLIFT OK				
INSIDE EXTERIOR WALLS RESISTANCE DUE TO DEAD WEIGHT & (3) 10d TOENAILS					258.6					

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

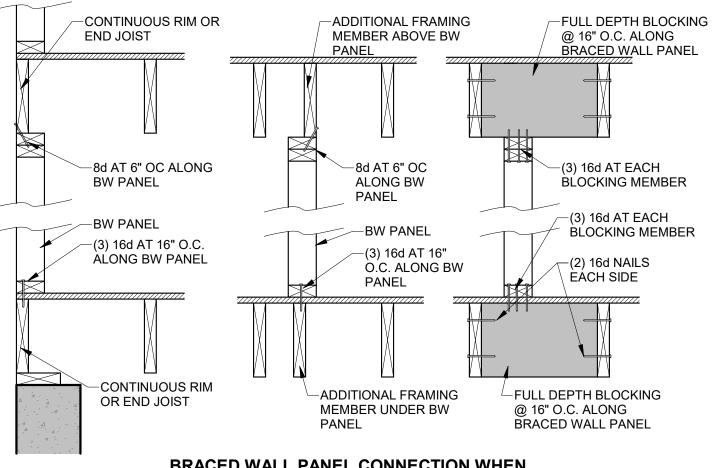
ALL WALLS USED IN THE CALCULATION OF THE RESISTANCE FOR THIS STRUCTURE SHALL HAVE A MINIMUM UNINTERRUPTED HEIGHT OF 8'-0" AND LENGTH OF 2'-8". ALLOWABLE RESISTANCES HAVE BEEN #/FT AND INCREASED BY 40% FOR WIND LOADS, PER VALUES IN 2018 IBC SECTION 2306 AND AF&PA SDPWS TABLE 4.3A. FOR EXAMPLE, 7/16" APA-RATED SHEATHING WITH 8d @ 6" & 12" HAS A SEISMIC SHEAR VALUE OF 22 A WIND SHEAR VALUE OF 335#/FT - 40% GREATER THAN THAT OF SEISMIC

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

EXTERIOR SHEATHING OPTION FOR SECOND FLOOR



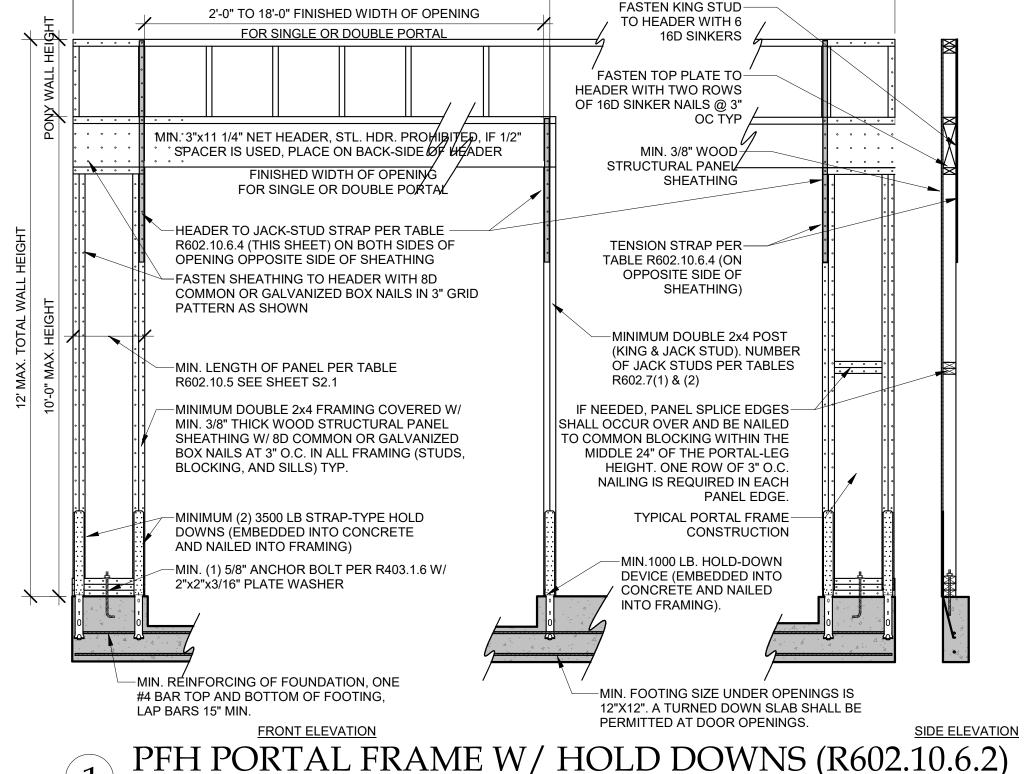
#### **BRACED WALL PANEL CONNECTION WHEN** PERPENDICULAR TO FLOOR/CEILING JOISTS



BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING JOISTS

BRACED WALL PANEL CONNECTIONS

1" = 1'-0"



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

EXTENT OF HEADER SINGLE PORTAL FRAME DESIGN (ONE BRACED WALL PANEL)

-FASTEN TOP PLATE TO HEADER WITH

TWO ROWS OF 16D SINKERS @ 3" OC

PFH PORTAL FRAME W/ HOLD DOWNS (R602.10.6.2)

1/2" = 1'-0"

EXTENT OF HEADER W/ DOUBLE PORTAL FRAMES (TWO BRACED WALL PANELS) EXTENT OF HEADER W/ SINGLE PORTAL FRAME (ONE BRACED WALL PANEL) 2'-0" TO 18'-0" FINISHED WIDETH OF OPENING FOR SINGLE OR DOUBLE PORTAL FASTEN SHEATHING TO HEADER WITH 8D COMMON FASTEN KING STUD TO-OR GALVANIZED BOX NAILS IN 3" GRID PATTERN AS HEADER WITH 6 16D SINKERS TENSION STRAP PER TABLE 602.10.6.4 (ON OPPOSITE SIDE OF SHEATHING), MIN. 3"x11 1/4" NET HEADER, STEEL HEADER PROHIBITED "IF" 1/2" SPACER IS USED, PLACE ON BACK SIDE OF HEADER FASTEN TOP PLATE TO-HEADER WITH TWO ROWS OF -HEADER TO JACK-STUD STRAP PER TABLE 16D SINKERS @ 3" OC R602.10.6.4 ON BOTH SIDES OF OPENING OPPOSITE SIDE OF SHEATHING MIN. 7/16" WOOD-STRUCTURAL PANEL SHEATHING -MINIMUM DOUBLE 2x4 POST (KING & JACK STUD) NUMBER MIN. LENGTH OF PANEL PER TABLE ÒF JACK STUDS PER TABLES R602.10.5 SEE SHEET S-2.1 R602.7(1) & (2) IF NEEDED, PANEL SPLICE-EDGES SHALL OCCUR OVER AND BE NAILED TO COMMON -MINIMUM DOUBLE 2x4 FRAMING COVERED W/ BLOCKING WITHIN THE MIN. 7/16" THICK WOOD STRUCTURAL PANEL MIDDLE 24" OF THE PORTAL-SHEATHING W/8D COMMON OR GALVANIZED LEG HEIGHT. ONE ROW OF 3" BOX NAILS AT 3" O.C. IN ALL FRAMING (STUDS, O.C. NAILING IS REQUIRED IN BLOCKING, AND SILLS) TYP. EACH PANEL EDGE. TYPICAL PORTAL FRAME-SEE CORNER FRAMING DETAIL CONSTRUCTION -MIN. (2) 1/2" DIAM. ANCHOR BOLT INSTÀLLED PER R403.1.6 W/ 2"x2"x3/16" -INTERMITTENT BRACED WALL PANEL REQUIRED PLATE WASHER

FRONT ELEVATION SIDE ELEVATION PFG PORTAL FRAME W/OUT HOLD DOWNS (R602.10.6.3)

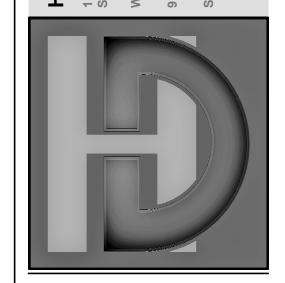
ADJACENT OPENING FOR

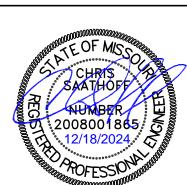
SINGLE PORTAL FRAME,

-ANCHOR BOLTS PER

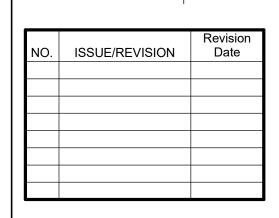
SECTION R403.1.6

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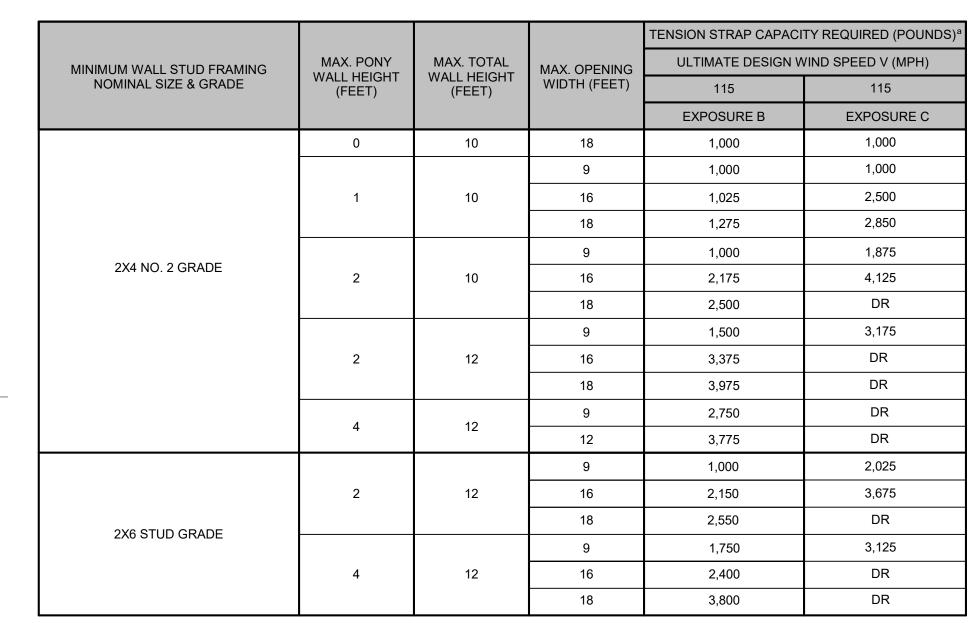
12/18/2024 DATE: CHECKED BY: CLS



BRACED WALL NOTES & DETAILS

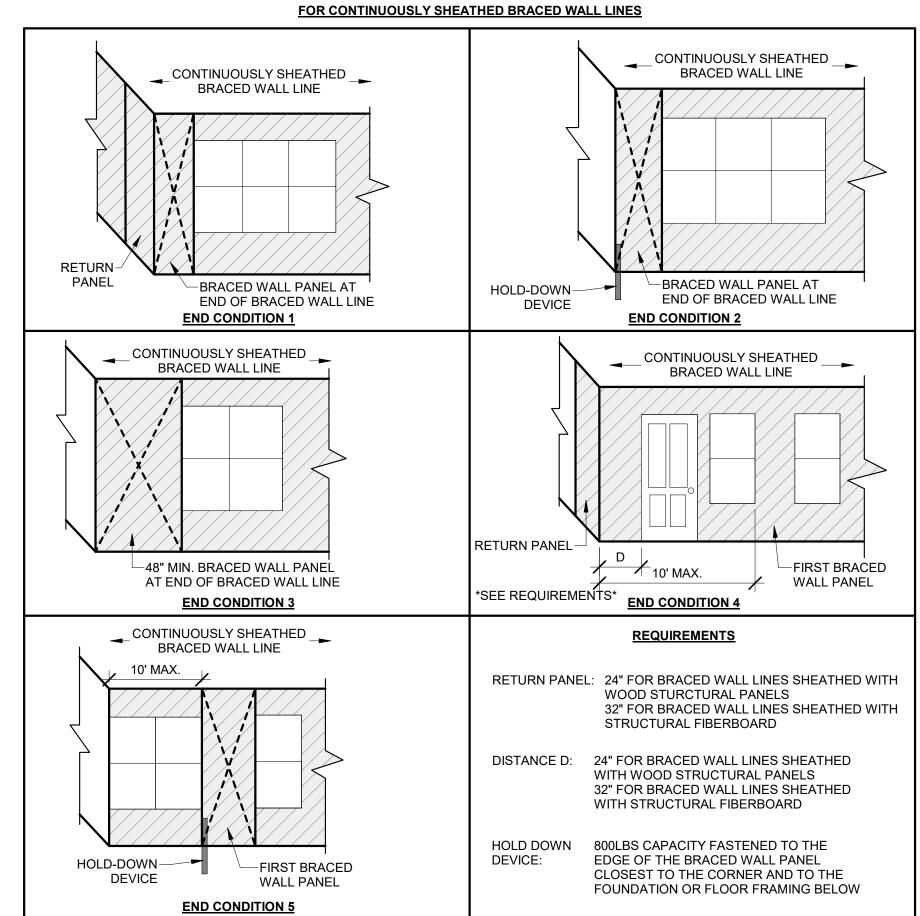
AS NOTED FOR PLAN REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI 01/09/2025

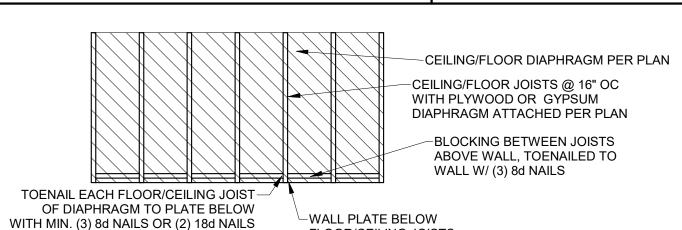
# **TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND** PRESSURES PERPENDICULAR TO METHOD PFH, PFG AND CS-PF BRACED WALL PANELS IRC2018 TABLE R602.10.6.4



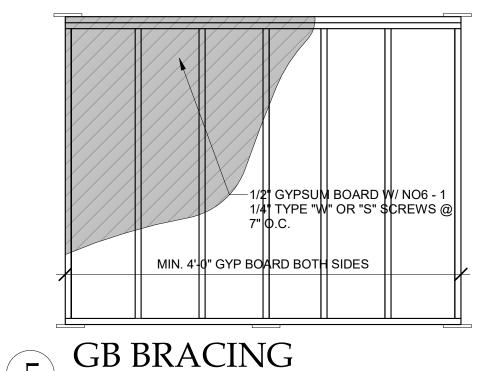
a. DR = DESIGN REQUIRED b. STRAP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

# **END WALL CONDITIONS**





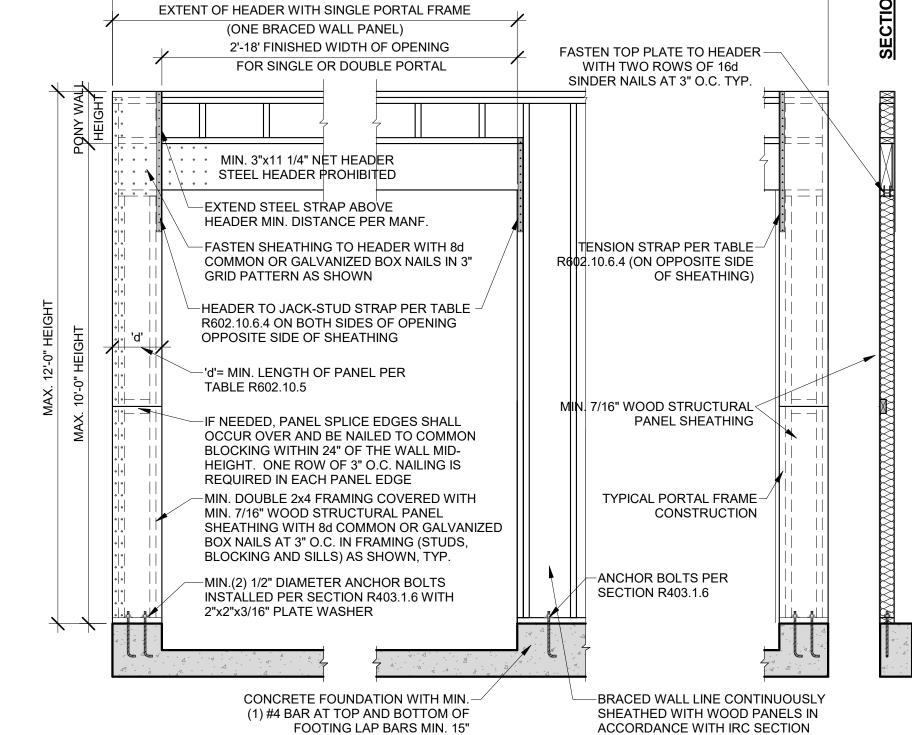
DIAPHRAGM CONNECTION TO INTERIOR WALL



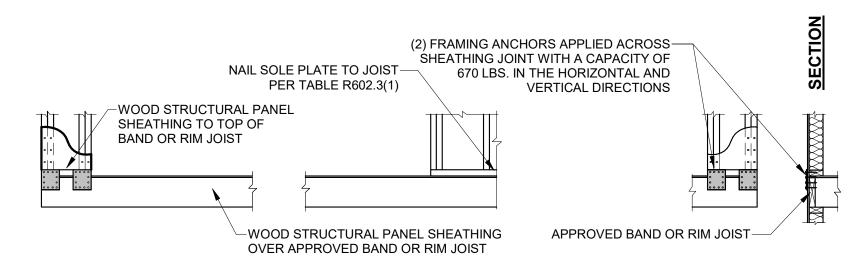
#### FRONT ELEVATION

EXTENT OF HEADER WITH DOUBLE PORTAL FRAMES

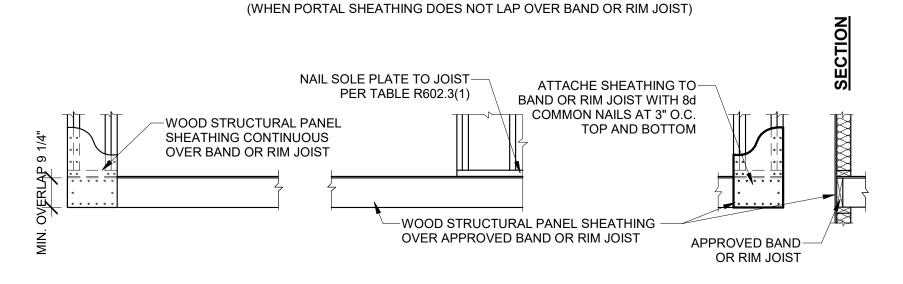
(TWO BRACED WALL PANELS)



# OVER CONCRETE OR MASONRY BLOCK FOUNDATION



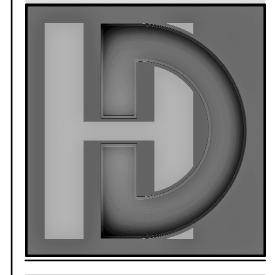
# **OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION**



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

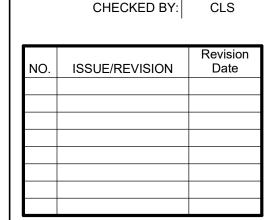
CS-PF

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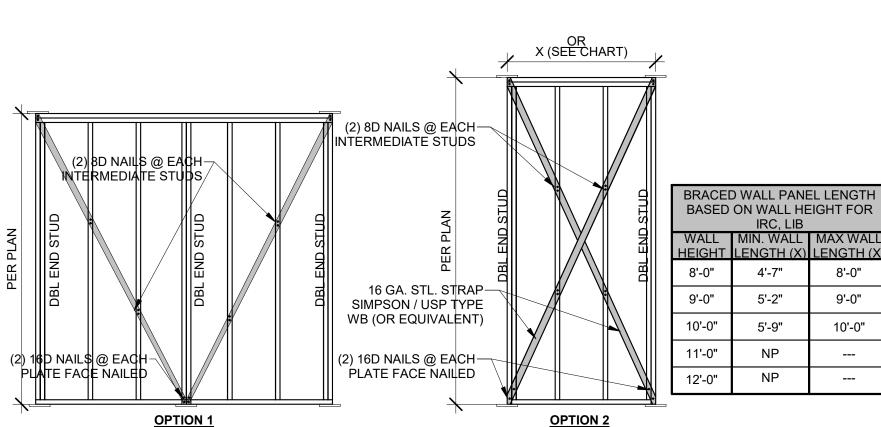


12/18/2024



BRACED WALLS NOTES & DETAILS

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



LIB BRACING

FOR IRC CODE PRESCRIPTIVE METHOD

8'-0"

9'-0"

10'-0"

5'-2"

5'-9"

NP

NP

# TABLE R602.10.5 MINIMUM LENGTH OF BRACED

			MINIMUM	LENGTH	(INCHES)	a	
	METHOD (SEE TABLE R602.10.4)			ALL HEIGI	CONTRIBUTING LENGTH		
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET	(INCHES)	
DWB,\	WSP,SFB,PBS,PCP,HPS,BV-WSP	48	48	48	53	58	ACTUAL <sup>b</sup>
	48	48	48	53	58	DOUBLE SIDED = ACTUAL SINGLE SIDED=.5xACTUAL	
LIB			62	69	NP	NP	ACTUAL <sup>b</sup>
A D) A /	SDC A, B, AND C ULTIMATE DESIGN WIND SPEED<140	28	32	34	38	42	40
ABW		32	32	34	NP	NP	48
PFH	SUPPORTING ROOF ONLY	16	16	16	NOTE C	NOTE C	48
PFN	SPTNG. ONE STORY & ROOF	24	24	24	NOTE C	NOTE C	48
•	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>
	ADJACENT CLEAR OPENING HEIGHT (INCHES)						
	≤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	
CS-WSP,	96	48	41	38	36	36	ACTUAL <sup>b</sup>
CS-SFB	100	-	44	40	38	38	71010712
	104	-	49	43	40	39	
	108	-	54	46	43	41	
	112	-	-	50	45	43	
	116	-	-	55	48	45	
	120	-	-	60	52	48	
Ī	124	-	-	-	56	51	
	128	-	-	-	61	54	
ļ	132	-	-	-	66	58	
ļ	136	-	-	-	-	62	
İ	140	-	-	-	-	66	
ľ	144	-	-	-	-	72	

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

e. MAX. OPENING HEIGHT FOR CS-PF IS 10' IN ACCORDANCE WITH R602.10.6.4, WALL HEIGHT MAY BE INCREASED TO 12' WITH PONY WALL.

BRACED WALL PRESCRIPTIVE METHOD:

CONTINOUS EXTERIOR SHEATHING (CS-WSP) PER WSP METHOD (BELOW) UNLESS OTHERWISE NOTED ON THE PLAN

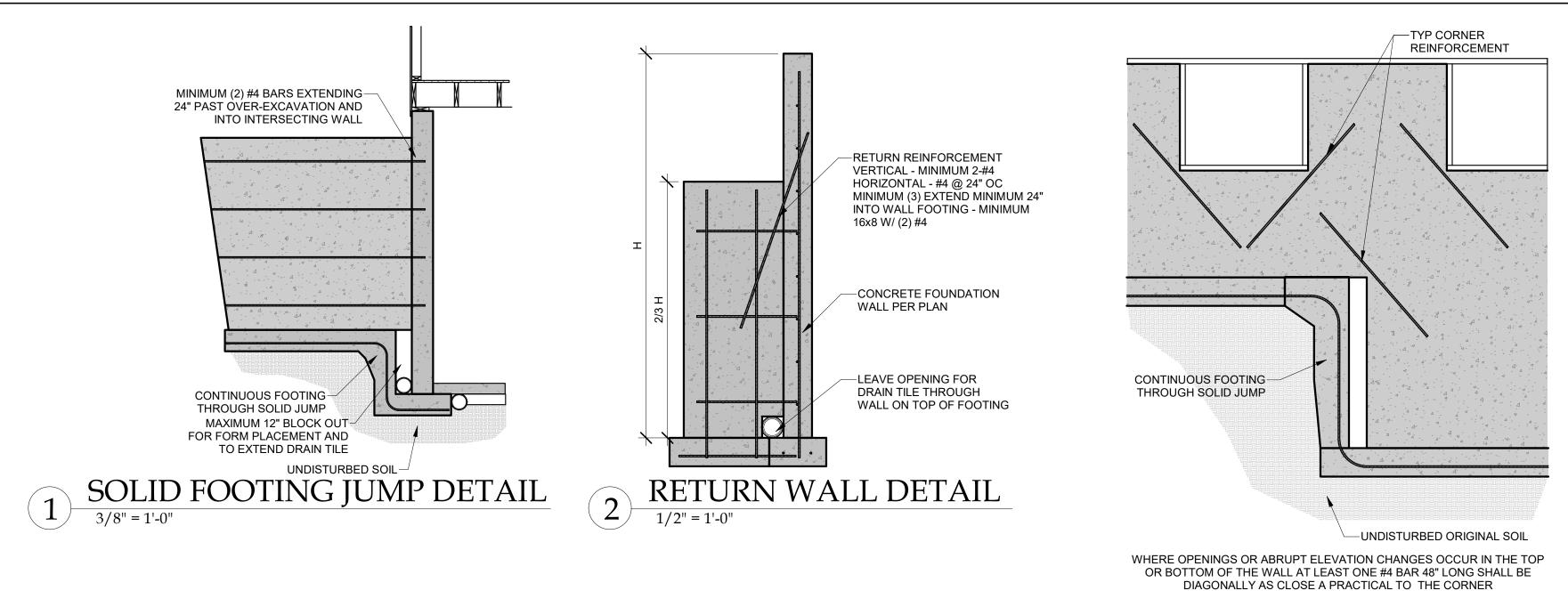
#### **EXTERIOR BRACED WALL METHOD: (SEE ON THIS SHEET)**

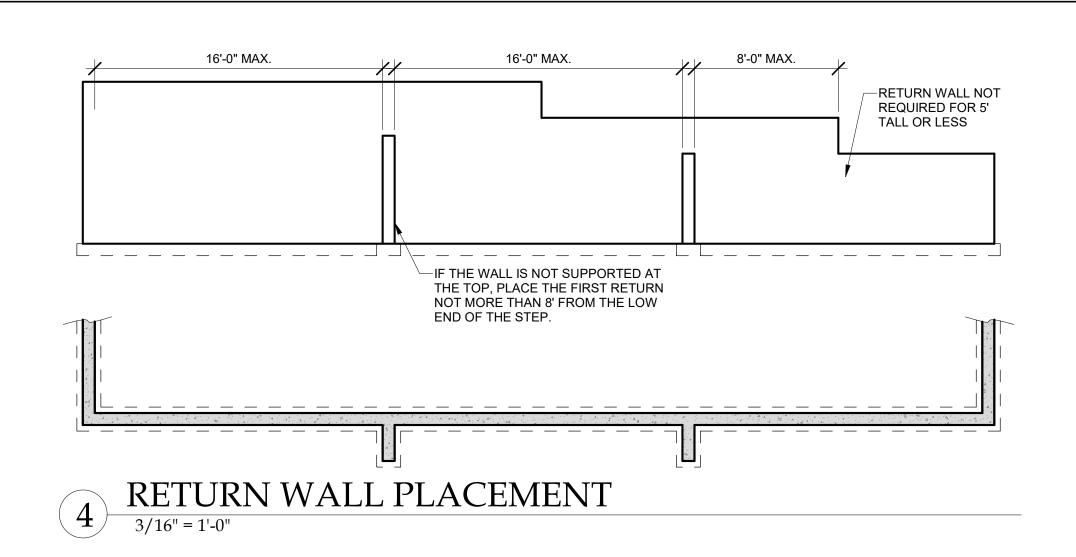
WOOD STRUCUTRAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" O.C. STUD SPACING WITH 6d NAILS COMMON NAILS @ 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THANK 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" O.C. SPACING WITH 8d COMMON 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

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

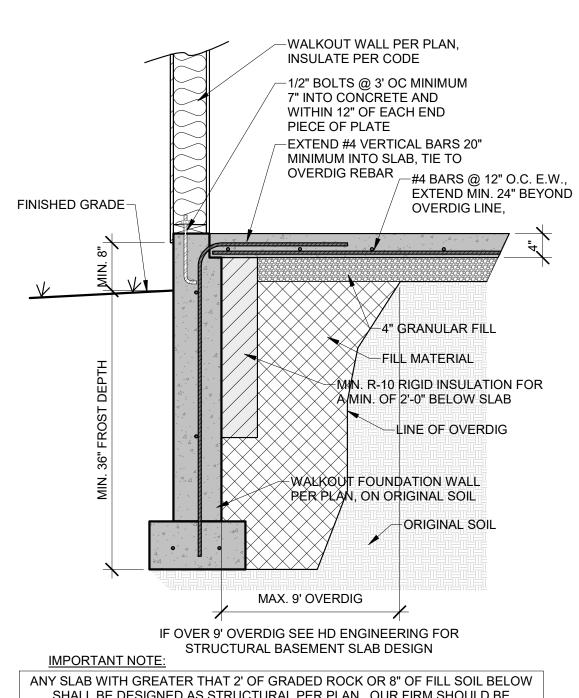
1/2" MINĪMUM GYPSUM BOARD OVER STUDS SPACED @ 24" MAXIMUM FASTENED W/ #6- 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS @ 7" O.C. EDGES AND FIELD (MIN. 4'-0" SECTION FOR BOTH SIDES)

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.





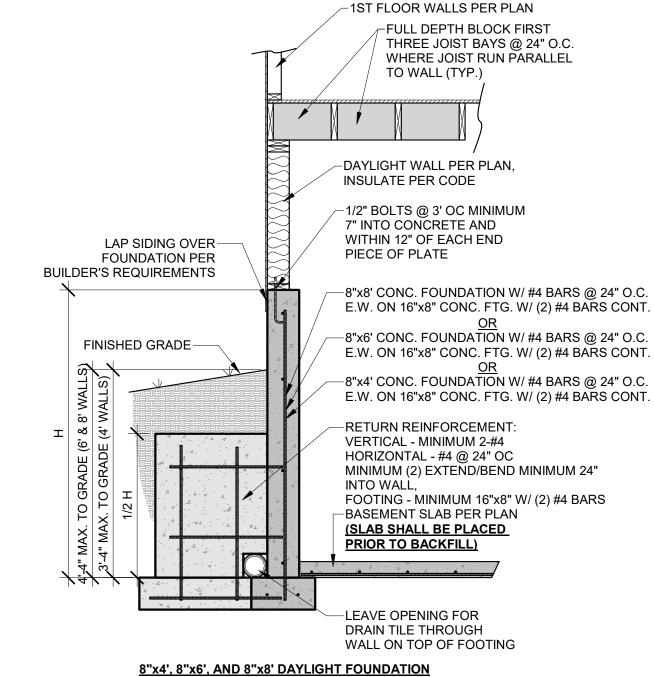
# 9 REINFORCEMENT AT CORNERS AND STEPS 1/2" = 1'-0"



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

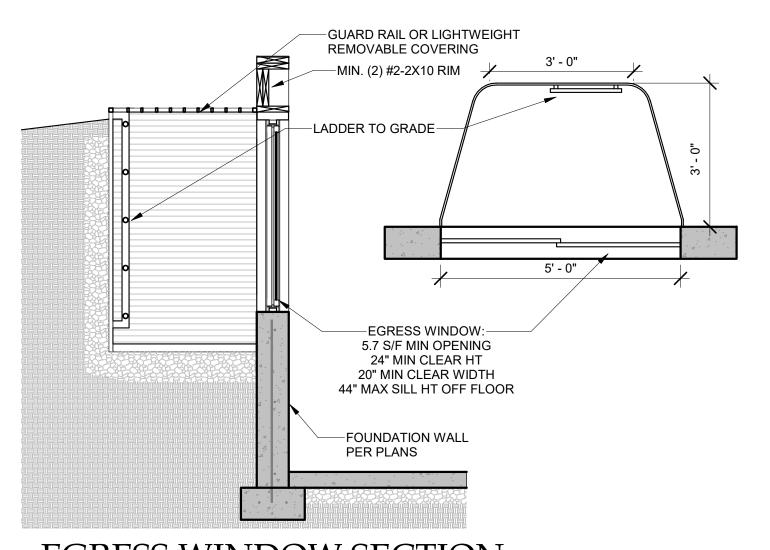
10 WALKOUT DETAIL

3/4" = 1'-0"



IF SLAB IS NOT PLACED PRIOR TO BACKFILL CONTRACTOR IS RESPONSIBLE FOR BRACING THE FOUNDATION AS REQUIRED

7 UNRESTRAINED FOUNDATION WALL



EGRESS WINDOW SECTION

1/2" = 1'-0"

CONCRETE STRENGTH	8" THIC	K WALL	10"	10" THICK WALL		
CONCRETE STRENGTH	8'	9'	8'	9'	10	
3000 PSI/ 40 KSI	16	12	24	16	1:	
3500 PSI/ 40 KSI	16	12	24	24	1:	
3000 PSI/ 60 KSI	24	16	24	20	1	
3500 PSI/ 60 KSI	24	16	24	24	1	
HORIZONTAL REINFORCEMENT**						
HORIZONTAL REINFORCEMENT**						

\* 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

\* REINFORCEMENT SHALL LAP A MINIMUM OF 24 INCHES AT ENDS, SPLICES, AND CORNERS.

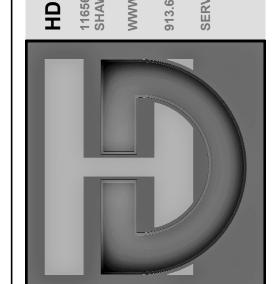
\*\* #4 BARS @ 24" ON CENTER. \*\* #4 BAR WITHIN 12 OF TOP AND BOTTOM OF WALL.

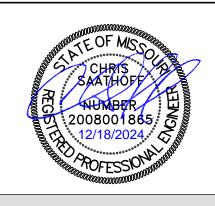
\*\* MINIMUM GRADE 40 (40ksi) STEEL (PER ACI 332).

\*\* HORIZONTAL REINFORCEMENT SHALL BE INSTALLED ON THE COMPRESSION SIDE (SOIL SIDE) OF THE VERTICAL REINFORCEMENT

SIDE) OF THE VERTICAL REINFORCEMEN

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# 3 CONSTRUCTION, LLC DEARBORN - MIAN - HFR204

HD#: 48740

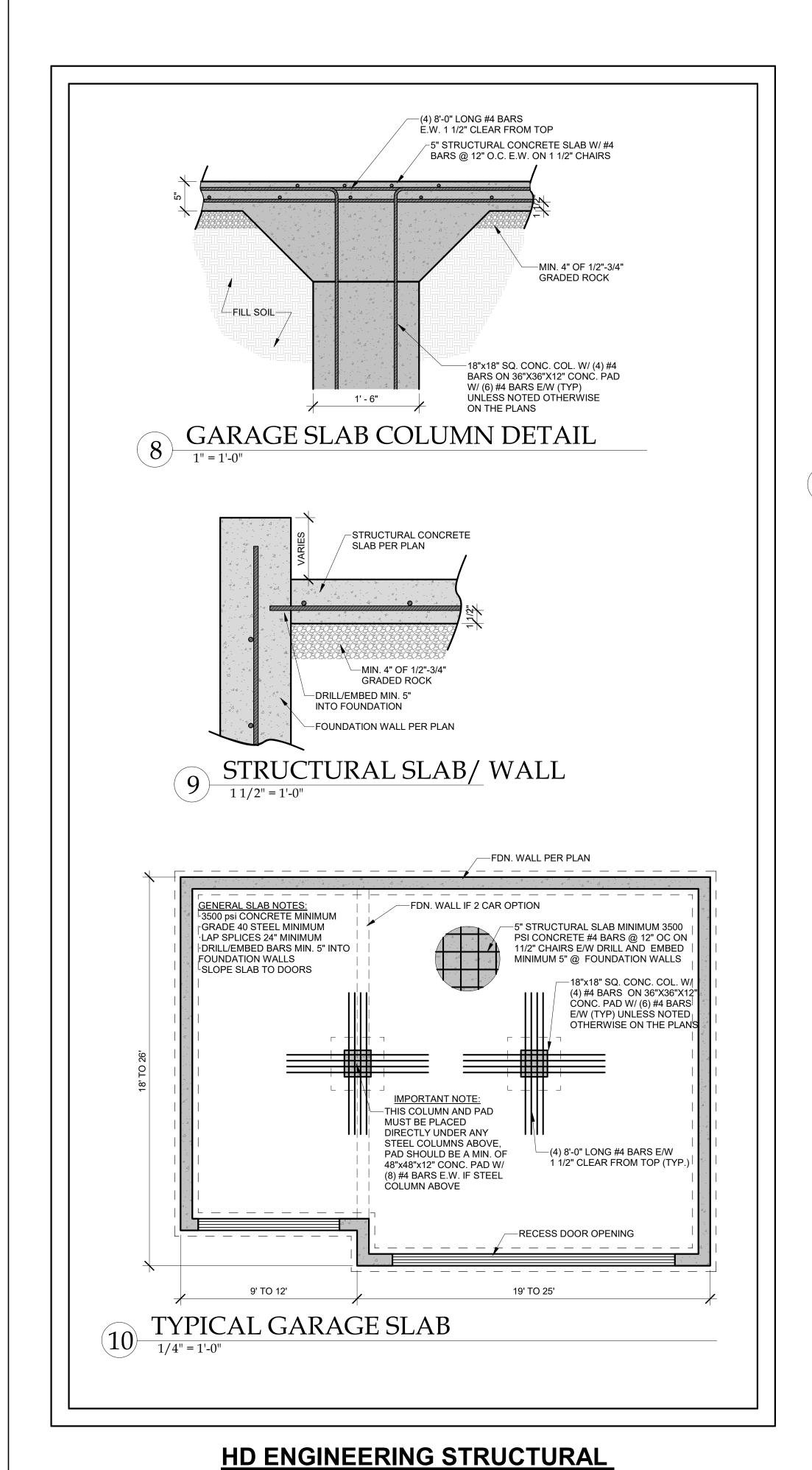
DATE: 12/18/2024

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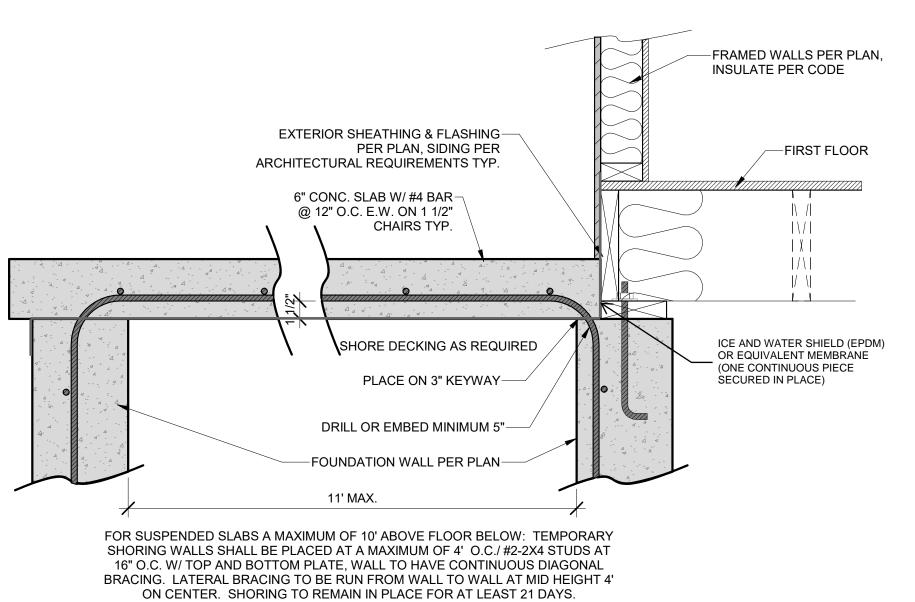
NO.	ISSUE/REVISION	Revision Date

CONCRETE DETAILS

S-3.0

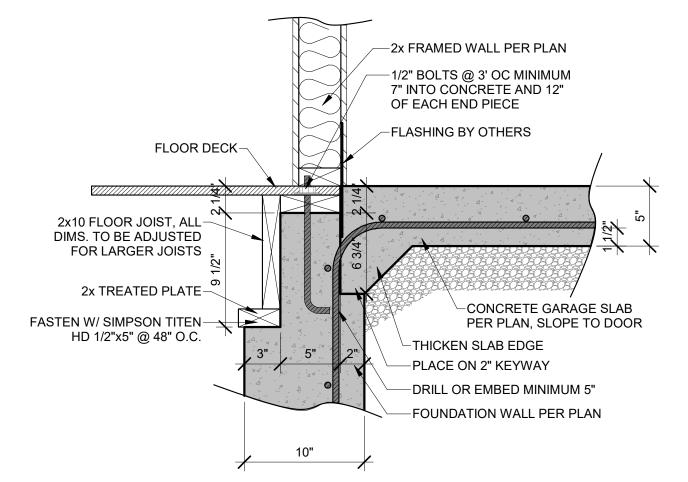


**GARAGE SLAB DETAILS** 

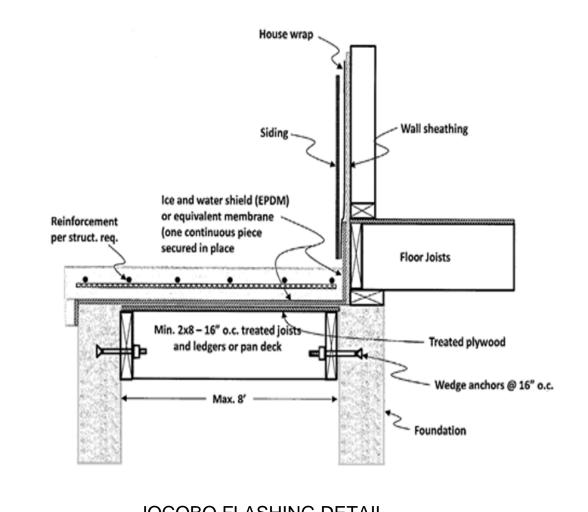


# 6 SUSPENDED PORCH STOOP SLAB

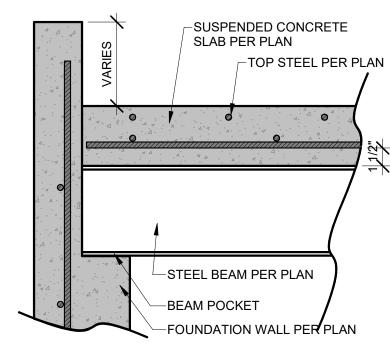
SEE JOCOBO FLASHING DETAIL FOR ADDITIONAL INFORMATION



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

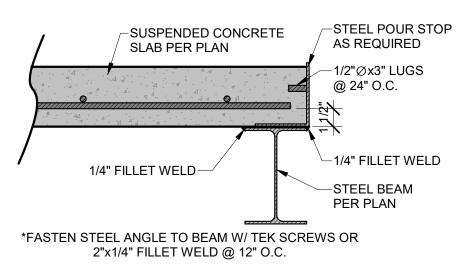


JOCOBO FLASHING DETAIL



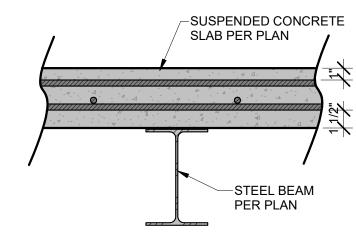
SUSPENDED SLAB BEAM/WALL CONNECTION

1 1/2" = 1'-0"



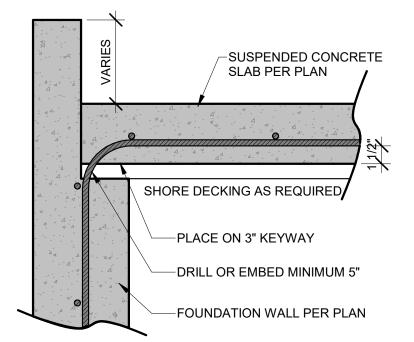
SUSPENDED SLAB POUR STOP

1 1/2" = 1'-0"

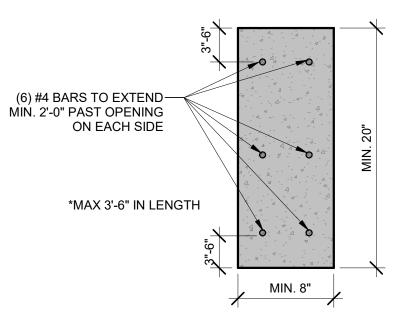


SUSPENDED SLAB/STEELBEAM CROSS SECTION

11/2" = 1'-0"



SUSPENDED SLAB/WALL CONNECTION

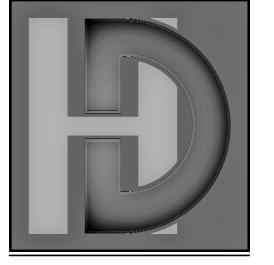


CONCRETE HEADER DETAIL

PORTANT NOTE: 11/2" = 1'-0"FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW: TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4'
.C. / #2-2X4 STUDS AT 16" O.C. W/ TOP AND BOTTOM PLATE, WALL TO HAVE CONTINUOUS DIAGONAL BRACING. LATERAL BRACING TO BE
UN FROM WALL TO WALL AT MID HEIGHT 4' ON CENTER. SHORING TO REMAIN IN PLACE FOR AT LEAST 21 DAYS.
ANY CAST IN PLACE SLABS FORMED MORE THAN 10' ABOVE THE FLOOR BELOW SHALL HAVE A SITE SPECIFIC SHORING DESIGN DONE. OUR
IRM SHOULD BE CONSULTED FOR THIS DESIGN ONCE FOUNDATION WALLS ARE IN PLACE TO EVALUATE ALL FIELD CONDITIONS. IT SHOULD

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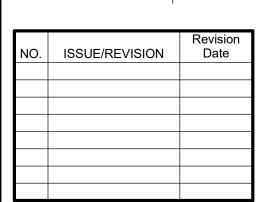
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LEE'S SUMI
2221 SW Crown Dr, Lee's
STRUCTURAL DET

HD#: 48740

DATE: 12/18/2024

CHECKED BY: CLS



SUSPENDED SLAB DETAILS

S-3.1

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

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

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

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

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

# CATHEDRAL / VAULTED CEILING FRAMING AND INSULATION

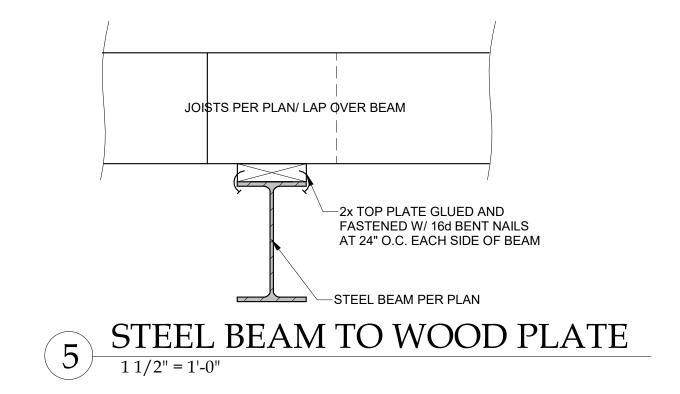
MINIMUM R-38 INSULATION REQUIRED, <u>SEE DETAIL 14/S-1.2</u>

WHERE THE CEILING IS APPLIED DIRECTLY TO THE BOTTOM OF THE RAFTERS, A MINIMUM 1" AIR SPACE SHALL BE PROVIDED BETWEEN THE TOP OF THE INSULATION AND THE SHEATHING FOR VENTILATION (R806.3) NOTE: RAFTER SIZES SPECIFIED ON PLANS ARE THE MINIMUM REQUIRED FOR STRUCTURAL PURPOSES ONLY.

IF FULL RAFTER DEPTH IS NOT ADEQUATE FOR MINIMUM INSULATION VALUE, RAFTER SIZES WILL NEED TO BE INCREASED. OR ADEQUATE FURRING SHALL BE USED TO OBTAIN THE MINIMUM JOIST DEPTH FOR THE REQUIRED INSULATION. IN ADDITION, IF THE RAFTER SIZE IS INCREASED IT SHALL BE VERIFIED THAT THE RIDGE BE A MINIMUM OF ONE NOMINAL SIZE LARGER THAN THE RAFTERS BEING RECEIVED. (SEE CHART BELOW)

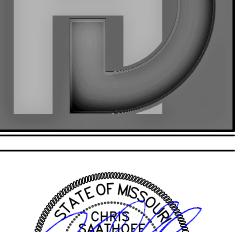
MAXIMUM INSULATION VALUE	2x6	2x8	2x10	2x12
1" AIR SPACE (FIBERGLASS)	R-13, 3 1/2"	R-19, 6 1/4"	CONDENSED R-38, 8 1/4"	R-38, 10 1/4"

#### -JOIST SECTION TO BE REMOVED FOR SHOWER PAN -APA SHEATHING FILLER -JOIST SECTION TO BE REMOVED -1.75"x9.25" LVL (11-7/8" I-JOIST FLOOR) FOR SHOWER PAN 1.75"x7.25" LVL (9-1/2" I-JOIST FLOOR) -1.75"x9.25" LVL (2X12 FLOOR) \* SISTER TO RUN FULL 1.75"x7.25" LVL (2X10 FLOOR) LENGTH OF FLOOR JOIST TO BE ALTERED SISTER TO RUN FULL LENGTH OF FLOOR JOIST TO BE ALTERED -12D 16" O.C FROM THIS SIDE -12D 16" O.C FROM THIS SIDE -JOIST PER PLAN ZERO ENTRY SHOWER DETAIL



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EXTERIOR WALL STEEL BEAM BEARING

-(3) 10D NAILS INTO EACH

BÉAM/HDR PLY

SAB

12/18/2024

CHECKED BY: CLS NO. ISSUE/REVISION

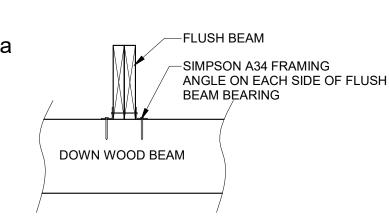
GENERAL DETAILS

**S-4.0** 

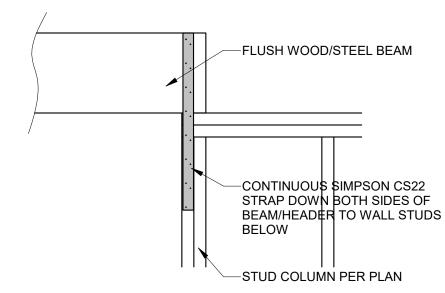
TABLE N1103.6.1 (R403.6.1) WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY

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

WHEN TESTED IN ACCORDANCE WITH HVI STANDARD 916

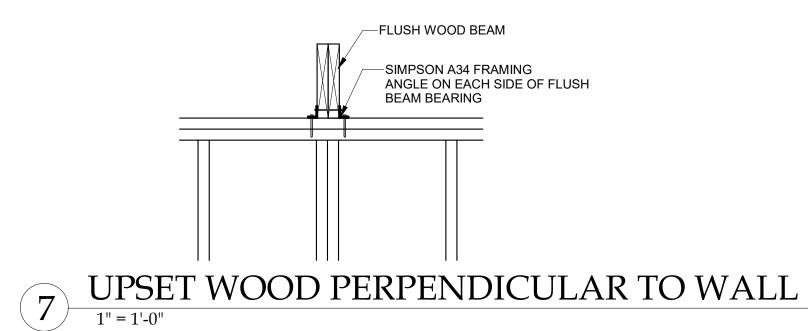


WOOD TO WOOD STACKED CONNECTION



UPSET WOOD/STEEL PARALLEL TO WALL

1" = 1'-0"



-2X4 BLOCKING BETWEEN **HEADER AND ADJACENT STUDS** ` └─(3) 10D NAILS -DOWN BEAM DOWN WOOD BEAM PERPENDICULAR

-JOISTS PER PLAN

FLUSH WOOD BEAM

-(3) 8d TOE NAILS

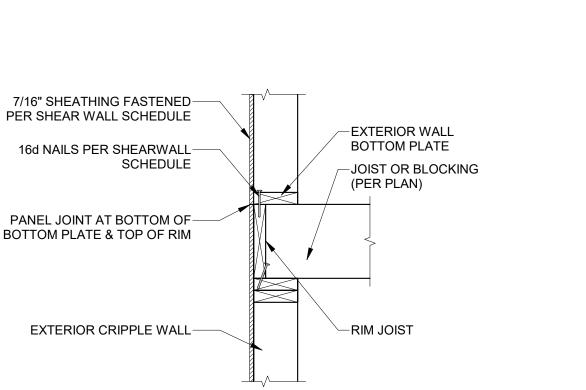
-STEEL BEAM

TOP PLATE

FLUSH WOOD BEAM CONNECTION

-SIMPSON A34 FRAMING ANGLE

ON EACH SIDE OF BEAM



SCH. 40 STL. COL. PER PLAN (4) 1/2" DIAM. x MIN. 4" LONG LAG BOLTS 

STEEL COLUMN TO WOOD FLOOR

DOWN WOOD BEAM PARALLEL

1" = 1'-0"

**DOWN BEAM** 

SHEATHING JOINT LOCATION

1" = 1'-0"

AS NOTED FOR PLAN REVIEW LEE'S SUMMIT, MISSOURI

01/09/2025