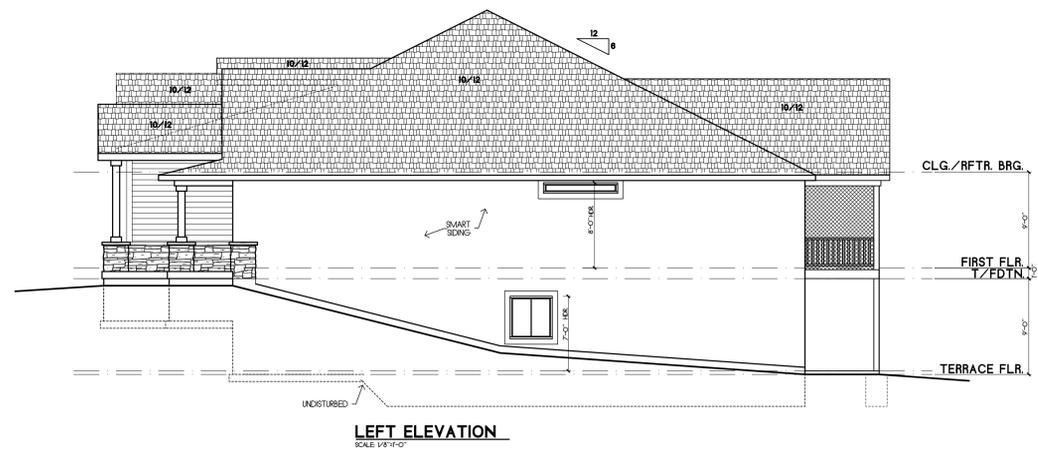
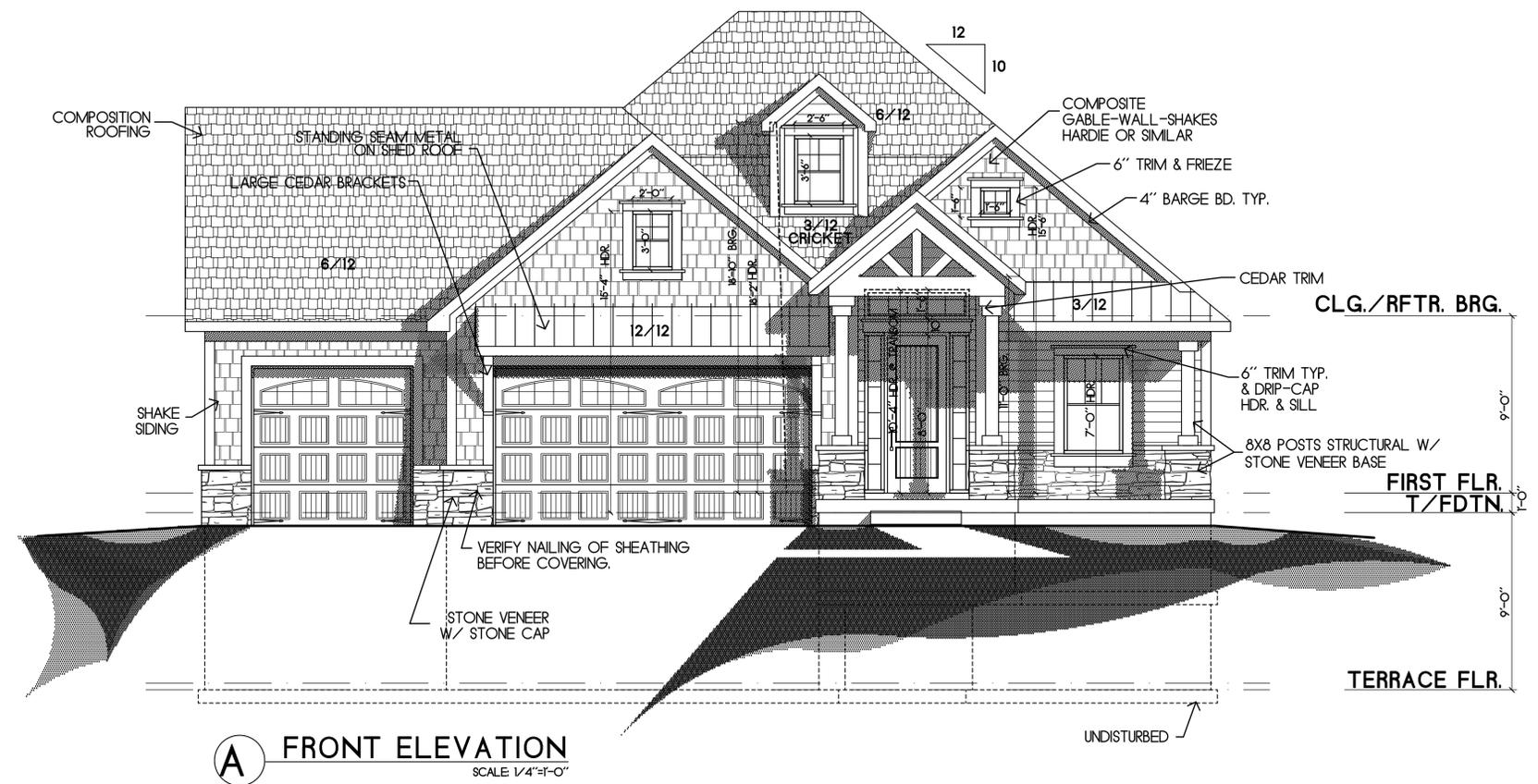
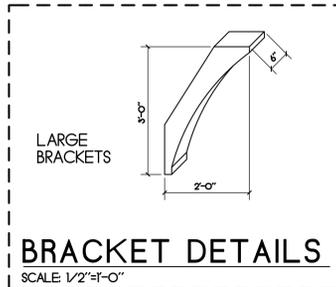


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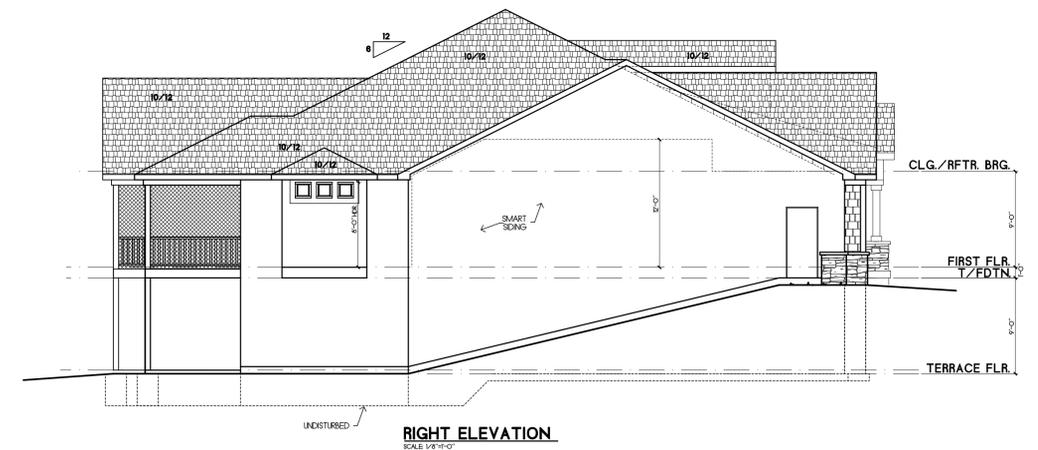
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 CHECKED BY: TPM  
 DATE: 5/30/2022  
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HD ENGINEERING & DESIGN, INC  
 11666 W. 75TH STREET  
 SHAWNEE, KS 66214  
 WWW.HDENGINEERS.COM  
 913.631.2222  
 SERVICE@HDENGINEERS.COM



**A ELEVATION SET**



SQUARE FOOTAGE SUMMARY :

MAIN FLOOR FINISH	1717 SF
LOWER FLOOR FINISH	1154 SF
LOWER FLOOR SLAB	1609 SF
GARAGE AREA	1004 SF
GARAGE SLAB	972 SF
FRONT PORCH	191 SF
REAR DECK	305 SF



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

HD#: 44261  
 DATE: 06/27/2022  
 CHECKED BY: CLS

NO.	ISSUE/REVISION	Revision Date

PLANS DRAWN BY OTHERS

**S-0.1**

RELEASE FOR  
 CONSTRUCTION  
 AS NOTED ON PLANS REVIEW  
 Development Services  
 LEE'S SUMMIT, MISSOURI

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DECK PIER SCHEDULE

- MIN. 6X6 TRTD/CDR POST ON 12" CONC PIER WITH USP PAU 66 BASE OR = (1177R MAX)
- MIN. 6X6 TRTD/CDR POST ON 16" CONC PIER WITH USP PAU 66 BASE OR = (2050R MAX)
- MIN. 6X6 TRTD/CDR POST ON 18" CONC PIER WITH USP PAU 66 BASE OR = (2449R MAX)
- MIN. 6X6 TRTD/CDR POST ON 24" CONC PIER WITH USP PAU 66 BASE OR = (4710R MAX)

PIERS TO TERMINATE ON ORIGINAL SOIL OF 1500 PSF MINIMUM BEARINGS.  
PIERS TO TERMINATE AT A POINT 36" MINIMUM BELOW FINISH GRADE.  
POST ARE NOT TO EXCEED AN UNBRACED LENGTH OF 12' WITHOUT CONTACTING HD ENGINEERING FOR GUIDANCE.  
ALL TREATED WOOD SHALL BE MIN. #2 SYP.  
ALL EXTERIOR STEEL SHALL BE GALVANIZED OR WRAPPED/SEALED WEATHER TIGHT AND ALL EXTERIOR FASTENERS SHALL BE RATED FOR APPROPRIATE USE.

COLUMN PAD SCHEDULE

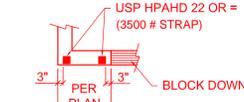
- A 3" SCH. 40 STL. COL. ON 30"x30"x12" CONC. PAD W/ (5) #4 BARS E.W. (9.4K MAX.)
- B 3" SCH. 40 STL. COL. ON 36"x36"x12" CONC. PAD W/ (6) #4 BARS E.W. (13.5K MAX.)
- C 3 1/2" SCH. 40 STL. COL. ON 42"x42"x14" CONC. PAD W/ (7) #4 BARS E.W. (18.4K MAX.)
- D 3 1/2" SCH. 40 STL. COL. ON 48"x48"x16" CONC.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

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

GENERAL NOTES:

- WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4
- HOUSE WILL BE PROVIDED WITH A "UFER" GROUND PER IRC SECTION 3606.1.5
- OVERHEAD GARAGE DOORS MUST MEET DASHA 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 WRX15 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 RESIDENTIAL FOUNDATION GENERAL NOTES. SEE ATTACHED ICE AND WATER SHIELD AS REQUIRED PER IRC

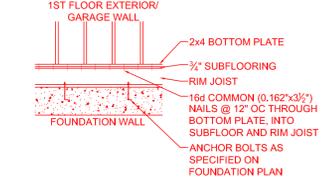
TYPICAL TIE DOWN AT NARROW WALL



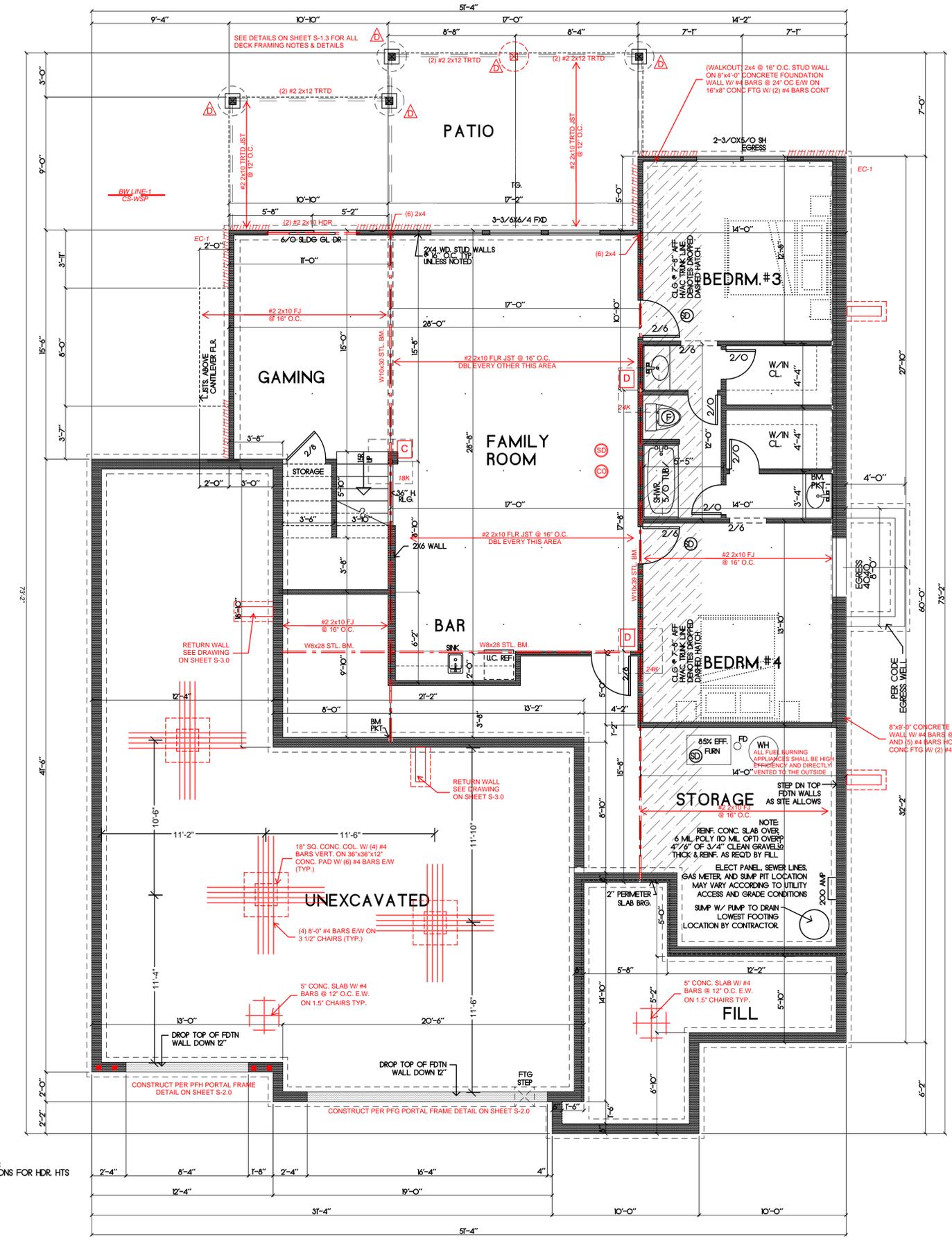
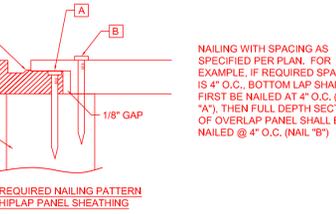
BRACED WALLS:

- SEE CALCULATIONS ON SHEET S-2.0, PER ASCET-10 REQUIREMENTS AS ALLOWED BY IRC 2018 R301.2.1
- ALL EXTERIOR WALLS SHALL BE SHEATHED PER ANY ONE OF THE FOLLOWING OPTIONS:  
7/16" APA-RATED PLYWOOD/OSB WITH 6d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD  
7/16" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 6d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD  
3/8" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 6d NAILS @ 4" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD

INTERIOR BRACED WALL LOCATIONS ONLY SHOWN WHEN REQUIRED BY ADDITIONAL BRACING SECTION OF CALCULATIONS ON SHEET S-2.0



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



LOWER FLOOR PLAN  
SCALE 1/4"=1'-0"  
AREA= 1,197 SF

WINDOW NOTES:  
SEE ELEVATIONS FOR HDR. HTS

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HD ENGINEERING & DESIGN, INC  
11666 W. 75TH STREET  
SHAWNEE, KS 66214  
WWW.HDENGINEERS.COM  
913.631.2222  
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SOLAIA II HFR030  
2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

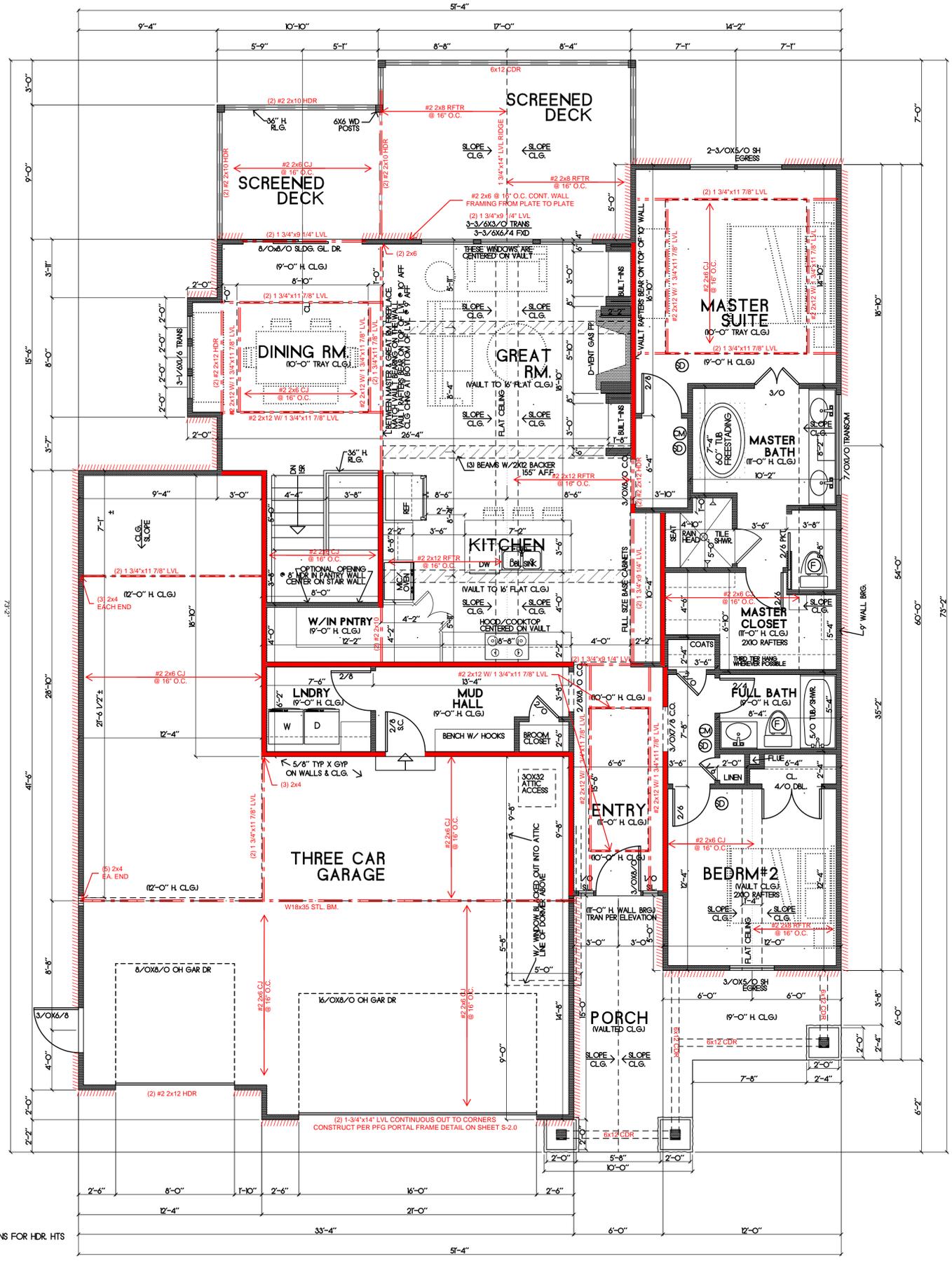
STRUCTURAL DETAILS & NOTES

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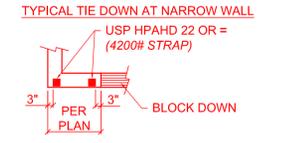
PLANS DRAWN BY OTHERS

S-0.2



- - LOAD BEARING WALL
- - LOAD BEARING BEAM
- SD - SMOKE DETECTOR
- CO - CARBON MONOXIDE SENSOR

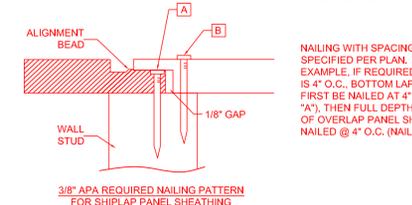
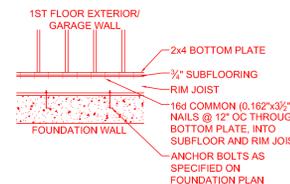
**GENERAL NOTES:**  
 -WINDOW SHALL HAVE FALL PROTECTION PER IRC 312.2.4  
 -HOUSE WILL BE PROVIDED WITH A "UPPER" GROUND PER IRC SECTION 3608.1.5  
 -OVERHEAD GARAGE DOORS MUST MEET DASHA REQUIREMENTS SEE DETAIL SHEET S-1.0  
 -ALL HEADERS NOT LABELED SHALL BE MN (2) #2-2X10 DFL  
 -DBL ALL JST UNDER 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/HEARTHES (THAT WILL RECEIVE ROCKS) UNLESS NOTED AS A LARGER BEAM. ANY STONE OVER 2" DEEP, NOTIFY ENG. TO VERIFY LOADS  
 -FOUNDATION SHALL BE CONSTRUCTED PER JOHNSON COUNTY RESIDENTIAL FOUNDATION GUIDELINE, SEE ATTACHED ICE AND WATER SHIELD AS REQUIRED PER IRC



**BRACED WALLS:**  
 SEE CALCULATIONS ON SHEET S-2.0, PER ASCET-10 REQUIREMENTS AS ALLOWED BY IRC 2018 R301.2.1

ALL EXTERIOR WALLS SHALL BE SHEATHED PER ANY ONE OF THE FOLLOWING OPTIONS:  
 -7/16" APA-RATED PLYWOOD/OSB WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD  
 -7/16" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 8d NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD  
 -3/8" SHIPLAP PANEL SHEATHING (I.E. LP SMARTSIDE OR EQUIVALENT) WITH 8d NAILS @ 4" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD

INTERIOR BRACED WALL LOCATIONS ONLY SHOWN WHEN REQUIRED BY ADDITIONAL BRACING SECTION OF CALCULATIONS ON SHEET S-2.0



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

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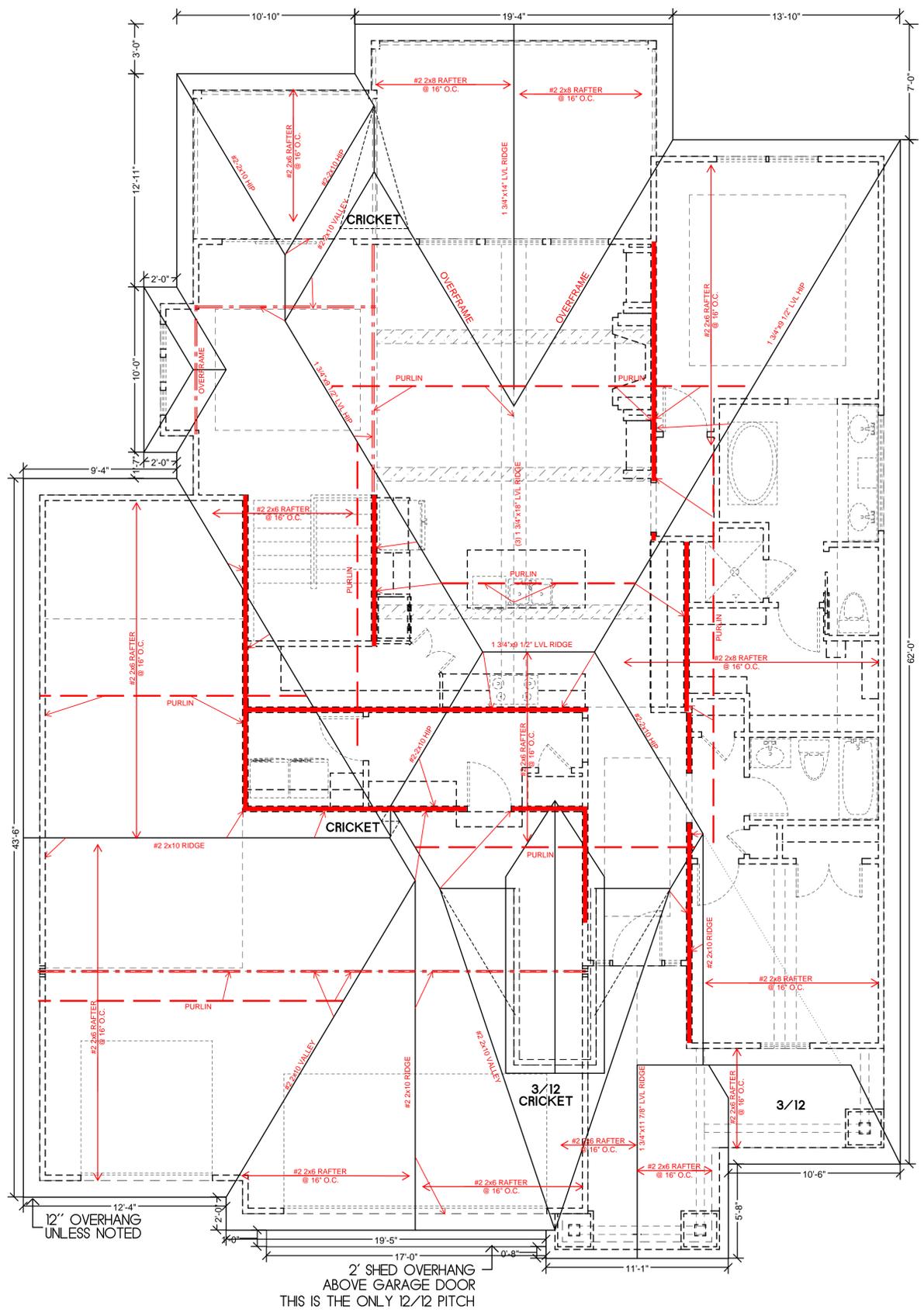
**S-0.3**

**MAIN FLOOR PLAN**  
 SCALE 1/4"=1'-0"  
 AREA= 1,717 SF

WINDOW NOTES:  
 SEE ELEVATIONS FOR HDR. HTS



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO  
 STRUCTURAL DETAILS & NOTES



**NOTES**

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

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

CODE MINIMUM

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

NOTE: CODE MINIMUM L/240 DEFLECTION

GREATER THAN CODE

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

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

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

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

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

- 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

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

SEE DETAIL 12S-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

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

6/12 ROOF PITCH FRONT TO BACK  
 10/12 ROOF PITCH SIDE TO SIDE  
 UNLESS NOTED

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**S-0.4**



## TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a,b,c</sup>	SPACING OF FASTENERS
<b>ROOF</b>			
1	BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOE NAIL	4-8D BOX (2 1/2" X 0.113") 3-8D (2 1/2" X 0.113") 3-10D (3" X 0.128") 3-3" X 0.131" NAILS	TOE NAIL
2	CEILING JOISTS TO PLATE, TOE NAIL	4-10D BOX (3" X 0.128") 3-16D COMMON (3 1/2" X 0.162") 4-3" X 0.131" NAILS	PER JOIST, TOE NAIL
3	CEILING JOISTS NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (SEE SECTION R602.5.2 AND TABLE R602.52)	4-10D BOX (3" X 0.128") 3-16D COMMON (3 1/2" X 0.162") 4-3" X 0.131" NAILS	FACE NAIL
4	CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) SEE SECTION R602.5.2 AND TABLE R602.5.2)	TABLE R602.5.2	FACE NAIL
5	COLLAR TIE TO RAFTER, FACE NAIL OR 1 1/4" X 20GA. RIDGE STRAP TO RAFTER	4-10D BOX (3" X 0.128") 3-10D COMMON (3" X 0.148") 4-3" X 0.131" NAILS	FACE NAILS EACH RAFTER
6	RAFTER OR ROOF TRUSS TO PLATE	3-16D BOX NAILS (3 1/2" X 0.162") 3-10D COMMON NAILS (3" X 0.148") 4-10D BOX (3" X 0.128") 4-3" X 0.131" NAILS	2 TOE NAILS ON ONE SIDE AND 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS
7	ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS OR ROOF RAFTER TO MINIMUM 2" RIDGE BEAM	4-16D (3 1/2" X 0.135"); OR 3-10D COMMON (3" X 0.148") 4-10D BOX (3" X 0.128"); OR 4-3" X 0.131" NAILS  3-16D (3 1/2" X 0.135"); OR 2-10D COMMON (3 1/2" X 0.162") 3-10D BOX (3" X 0.128); OR 3-3" X 0.131" NAILS	TOE NAIL
<b>WALL</b>			
8	STUD TO STUD (NOT BRACED WALL PANELS)	16D (3 1/2" X 0.162") 10D BOX (3" X 0.128"); OR 3" X 0.131" NAILS	24" OC FACE NAIL 16" OC FACE NAIL
9	STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16D BOX (3 1/2" X 0.135"); OR 3" X 0.131" NAILS 16D COMMON (3 1/2" X 0.162")	12" OC FACE NAIL 16" OC FACE NAIL
10	BUILT-UP HEADER (2" TO 2" HEADER WITH 1/2" SPACER)	16D COMMON (3 1/2" X 0.162") 16D BOX (3 1/2" X 0.135")	16" OC EACH EDGE FACE NAIL 12" OC EACH EDGE FACE NAIL
11	CONTINUOUS HEADER TO STUD	5-8D BOX (2 1/2" X 0.113") or 4-8D COMMON (2 1/2" X 0.131") 4-10D BOX (3" X 0.128")	TOE NAIL
12	TOP PLATE TO TOP PLATE	16D COMMON (3 1/2" X 0.162") 10D BOX (3" X 0.128") OR 3" X 0.131" NAILS	16" OC FACE NAIL 12" OC FACE NAIL
13	DOUBLE TOP PLATE SPLICE	8-16D COMMON (3 1/2" X 0.162"); or 12-16D BOX (3 1/2" 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 (NOT AT BRACED WALL PANELS)	16D COMMON (3 1/2" X 0.162") 16D BOX (3 1/2" X 0.135"); OR 3" X 0.131" NAILS	16" OC FACE NAIL 12" OC FACE NAIL
15	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (NOT AT BRACED WALL PANELS)	3-16D BOX (3 1/2" X 0.135"); or 2-16D COMMON (3 1/2" X 0.162"); or 3-3" X 0.131" NAILS	3, 2, OR 4 EACH 16" OC FACE NAIL
16	TOP OR BOTTOM PLATE TO STUD	4-8D BOX (2 1/2" X 0.113"); or 3-16D BOX (3 1/2" X 0.135"); or 4-8D COMMON (2 1/2" X 0.131"); or 4-10D BOX (3" X 0.128"); or 3-3" X 0.131" NAILS 3-16D BOX (3 1/2" X 0.135"); or 2-16D COMMON (3 1/2" X 0.162"); or 3-10D BOX (3" X 0.128); or 3-3" X 0.131" NAILS	TOE NAIL END NAIL
17	TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	3-10D BOX (3" X 0.128"); or 2-16D COMMON (3 1/2" X 0.162"); or 3-3" X 0.131" NAILS	FACE NAIL
18	1" BRAVE TO EACH STUD AND PLATE	3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X 0.131") or 2-10D BOX (3" X 0.128"); or 2 STAPLES 1 3/4" CROWN, 16GA., 1 3/4" LONG	FACE NAIL
19	1" X 6" SHEATHING TO EACH BEARING	3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X 0.131") or 2-10D BOX (3" X 0.128"); or 2 STAPLES 1" CROWN, 16GA., 1 3/4" LONG	FACE NAIL
20	1" X 6" AND WIDER SHEATHING TO EACH BEARING	3-8D BOX (2 1/2" X 0.113"); or 3-8D COMMON (2 1/2" X 0.131") or 3-10D BOX (3" X 0.128"); or 3 STAPLES, 1" CROWN, 16GA., 1 3/4" LONG WIDER THAN 1" X 8" 4-8D BOX (2 1/2" X 0.113"); or 3-8D COMMON (2 1/2" X 0.131") or 3-10D BOX (3" X 0.128"); or 4 STAPLES, 1" CROWN, 16GA., 1 3/4" LONG	FACE NAIL
<b>FLOOR</b>			
21	JOIST TO SILL, TOP PLATE OR GIRDER	4-8D BOX (2 1/2" X 0.113"); or 3-8D COMMON (2 1/2" 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 1/2" X 0.113") 8D COMMON (2 1/2" X 0.131"); or 10D BOX (3" X 0.128") or 3-3" X 0.131" NAILS	4" OC TOE NAIL 6" OC TOE NAIL
23	1" X 6" SUBFLOOR OR LESS TO EACH JOIST	3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X 0.131") or 2-10D BOX (3" X 0.128"); or 2 STAPLES, 1" CROWN, 16GA., 1 3/4" LONG	FACE NAIL
24	2" SUBFLOOR TO JOIST OR GIRDER	3-16D BOX (3 1/2" X 0.135"); or 2-16D COMMON (3 1/2" X 0.162")	BLIND AND FACE NAIL
25	2" PLANKS (PLANK & BEAM-FLOOR AND ROOF)	3-16D BOX (3 1/2" X 0.135"); or 2-16D COMMON (3 1/2" X 0.162")	AT EACH BEARING, FACE NAIL
26	BAND OR RIM JOIST TO JOIST	3-16D COMMON (3 1/2" X 0.162"); or 4-10D BOX (3" X 0.128") or 4-3" X 0.131" NAILS, 7/16" CROWN	END NAIL
27	BUILT-UP GIRDERS AND BEAMS, 2-INCH LUMBER LAYERS	20D COMMON (4" X 0.192"); or 10D BOX (3" X 0.128"); or 3" X 0.131" NAILS AND: 2-20D COMMON (4" X 0.192"); or 3-10D BOX (3" X 0.128); or 3-3" X 0.131" NAILS	NAIL EACH LAYER AS FOLLOWS: 32" OC AT TIP AND BOTTOM AND STAGGERED 24" OC FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES FACE NAIL AT END AND AT EACH SPLICE
28	LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	4-16D BOX (3 1/2" X 0.135"); or 3-26D COMMON (3 1/2" 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
29	BRIDGING OR BLOCKING TO JOIST	2-10D BOX (3" X 0.128"); or 2-8D COMMON (2 1/2" X 0.131") or 2-3" X 0.131" NAILS	EACH END, TOE NAIL

a. ALL 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 (200 COMMON); 100 KSI FOR SHANK DIAMETERS LARGER THAN 0.192 INCH BUT NOT LARGER THAN 0.171 INCH, AND 100 KSI FOR SHANK DIAMETER OF 0.142 INCH OR LESS.  
b. STAPLES ARE 16 GAGE WIRE AND HAVE A MINIMUM 7/16" INCH ON DIAMETER CROWN WIDTH.  
c. NAILS SHALL BE SPACED AT NOT MORE THAN 6 INCHES ON CENTER AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES OR GREATER.  
d. FOUR FOOT BY SIX FOOT OR FOUR BY FOUR FOOT PANELS SHALL BE APPLIED VERTICALLY.  
e. SPACING OF FASTENERS NOT INCLUDED IN THIS TABLE SHALL BE BASED ON TABLE R602.3(2).  
f. FOR REGIONS HAVING BASIC WIND SPEED OF 110 MPH OR GREATER, 40 REFORMED (2 1/2" X 0.120) NAILS SHALL BE USED FOR ATTACHING PLYWOOD AND WOOD STRUCTURAL PANEL ROOF SHEATHING TO FRAMING WITHIN MINIMUM 48-INCHES DISTANCE FROM GABLE END WALLS, IF MEAN ROOF HEIGHT IS MORE THAN 25 FEET, UP TO 35 FEET MAXIMUM.  
g. FOR REGIONS HAVING BASIC WIND SPEED OF 110 MPH OR LESS, NAILS FOR ATTACHING WOOD STRUCTURAL PANEL ROOF SHEATHING TO GABLE END WALL FRAMING SHALL BE SPACED 6 INCHES ON CENTER, WHEN BASIC WIND SPEED IS GREATER THAN 100 MPH, NAILS FOR ATTACHING PANEL ROOF SHEATHING TO INTERMEDIATE SUPPORTS SHALL BE SPACED 8 INCHES ON CENTER FOR MINIMUM 48-INCH DISTANCE FROM RIDGES, EAVES AND GABLE END WALLS, AND 4 INCHES ON CENTER TO GABLE END WALL FRAMING.  
h. GYPSUM SHEATHING SHALL CONFORM TO ASTM C 1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C 208.  
i. SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRE BLOCKING AND AT ALL FLOOR PERIMETERS ONLY. SPACING OF FASTENERS ON ROOF SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRE 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.  
j. 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 ONE NAIL ON CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE, THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED.

## CONTINUED TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER <sup>a,b,c</sup>	SPACING OF FASTENERS	
			EDGES (INCHES) <sub>f</sub>	INTERMEDIATE <sub>g</sub> SUPPORTS (INCHES)
<b>WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO WALL FRAMING</b> (SEE TABLE R602.3(3) FOR WOOD STRUCTURAL PANEL EXTERIOR WALL SHEATHING TO WALL FRAMING)				
30	3/8" - 1/2"	6D COMMON (2" X 0.113" NAIL (SUBFLOOR, WALL) ; 8D COMMON (2 1/2" X 0.131 NAIL (ROOF); or RRSR-01 (2 3/8" X 0.113" NAIL (ROOF) )	6	12 1
31	19/32" - 1"	8D COMMON NAIL (2 1/2" X 0.131; or RRSR-01; 2 3/8" X 0.113 NAIL ROOF )	6	12 1
32	1 1/8" - 1 1/4"	10D COMMON NAIL (3" X 0.148) NAIL; or 8D (2 1/2" X 0.131") DEFORMED NAIL	6	12
<b>OTHER WALL SHEATHING <sup>g</sup></b>				
33	1/2" STRUCTURAL CELLULOSE FIBERBOARD SHEATHING	1 1/2" GALVANIZED ROOF NAIL, 7/16" HEAD DIAMETER, OR 1 1/4" LONG 16GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
34	25/32" STRUCTURAL CELLULOSE FIBERBOARD SHEATHING	1 3/4" GALVANIZED ROOF NAIL, 7/16" HEAD DIAMETER, OR 1 1/2" LONG 16GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
35	1/2" GYPSUM SHEATHING <sup>d</sup>	1 1/2" GALVANIZED ROOF NAIL, STAPLE GALVANIZED, 1 1/2" LONG, 1 1/4" SCREWS, TYPE W or S	7	7
36	5/8" GYPSUM SHEATHING <sup>d</sup>	1 3/4" GALVANIZED ROOF NAIL, STAPLE GALVANIZED, 1 5/8" LONG, 1 5/8" SCREWS, TYPE W or S	7	7
<b>WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING</b>				
37	3/4" 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 1/2" X 0.131") NAIL OR 8D DEFORMED (2 1/2" 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") NAIL	6	12

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

## TABLE R 602.3(5) SIZE, HEIGHT, AND SPACING OF WOOD STUDS

STUD SIZE (IN)	BEARING WALLS					NON-BEARING WALLS	
	LATERALLY UNSUPPORTED STUD HEIGHT <sub>a</sub> (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 <sub>b</sub> (inches)	LATERALLY UNSUPPORTED STUD HEIGHT <sub>a</sub> (feet)	LATERALLY UNSUPPORTED STUD HEIGHT (feet)
2x3 <sup>b</sup>	---	---	---	---	---	10	16
2x4	10	24 <sub>c</sub>	16 <sub>c</sub>	---	24	14	24
3x4	10	24	24	16	24	14	24
2x5	10	24	24	---	24	16	24
2x6	10	24	24	16	24	20	24

FOR SI: 1 INCH = 25.4mm, 1 FOOT = 304.8mm

a. LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALL SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 2 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 ACCEPTED ENGINEERING PRACTICES.

b. SHALL NOT BE USED IN EXTERIOR WALLS

c. A HABITABLE ATTIC ASSEMBLY SUPPORTED BY 2X4 STUDS IS LIMITED TO A ROOF SPAN OF 32 FEET, WHERE THE ROOF SPAN EXCEEDS 32 FEET, THE WALL STUDS SHALL BE INCREASED TO 2X6 OR THE STUDS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.

## MINIMUM MECHANICAL EQUIPMENT EFFICIENCY VALUES BY COMPONENT, PER IRC2018 N1103.6.1

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 HOOD	ANY	2.8 CFM/WATT	ANY
IN-LINE FAN	ANY	2.8 CFM/WATT	ANY
BATHROOM UTILITY FAN	10	1.4 CFM/WATT	<90
BATHROOM UTILITY FAN	90	2.8 CFM/WATT	ANY

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

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

CLIMATE ZONE	FENSTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED SHGC FENSTRATION	INSULATED METAL DOOR U-VALUE	INSULATED WOOD DOOR U-VALUE	CEILING R-VALUE	WOOD FRAMED WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE & DEPTH	CRAWL SPACE WALL R-VALUE	DUCTWORK OVER OUTSIDE R-VALUE	DUCTWORK (ALL OTHER) 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

**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 HE 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.

## 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 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 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
24x24x12	(4) #4 BARS E/W	3"	SCH40	6K
30x30x12	(5) #4 BARS E/W	3"	SCH40	9.4K
36x36x12	(6) #4 BARS E/W	3"	SCH40	13.5K
42x42x14	(7) #4 BARS E/W	3 1/2"	SCH40	18.4K
48x48x16	(8) #4 BARS E/W	3 1/2"	SCH40	24.0K
54x54x16	(9) #4 BARS E/W	3 1/2"	SCH40	30.4K
60x60x18	(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

## CATHEDRAL / VAULTED CEILING FRAMING AND INSULATION

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

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 (R606.3) NOTE: RAFTER SIZES SPECIFIED ON PLANS ARE THE MINIMUM REQUIRED FOR STRUCTURAL PURPOSES ONLY.

BUILDER TO VERIFY: 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 1" AIR SPACE (FIBERGLASS)	2x6	2x8	2x10	2x12
	R-13, 3 1/2"	R-19, 6 1/4"	CONDENSED R-38, 8 1/4"	R-38, 10 1/4"

GENERAL NOTES

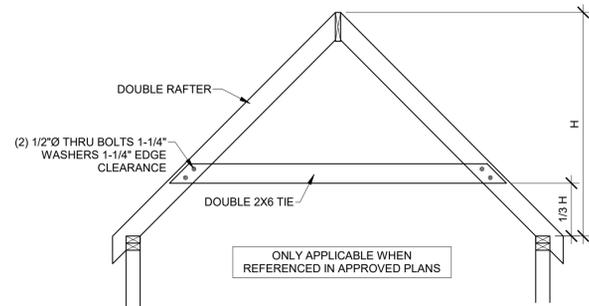
**S-1.1**

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS REVIEW  
Development Services  
LEE'S SUMMIT, MISSOURI

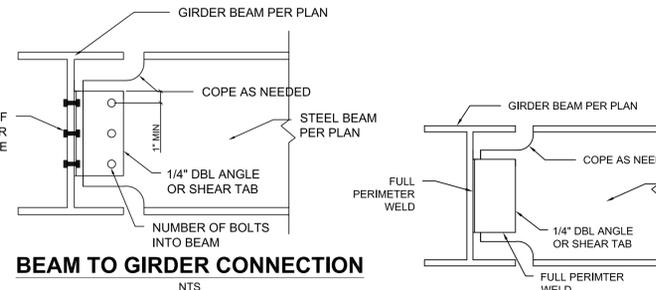
HD ENGINEERING & DESIGN, INC  
 11666 W. 75TH STREET  
 SHAWNEE, KS 66214  
 WWW.HDENGINEERS.COM  
 913.651.2222  
 SERVICE@HDENGINEERS.COM



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 SOL



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



**BEAM TO GIRDER CONNECTION**

NTS

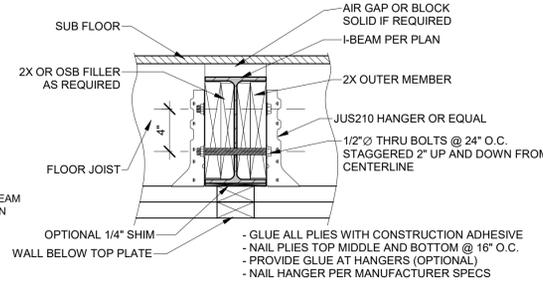
BOLTS SHALL BE EVENLY SPACED TOP TO BOTTOM

BEAM SIZE	# BOLTS PER SIDE	ANGLE
W8, W10	2	(4\"/>

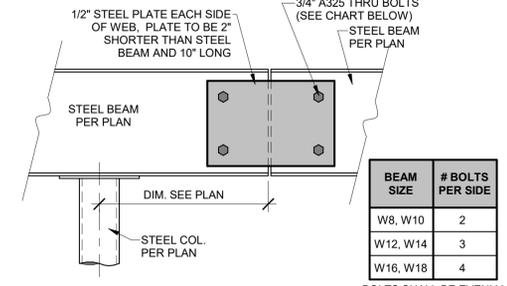
**MIN REQ WELD CONNECTION**

NTS

BEAM SIZE	ANGLE
W8, W10	1.5X1.5X1/4 (4\"/>



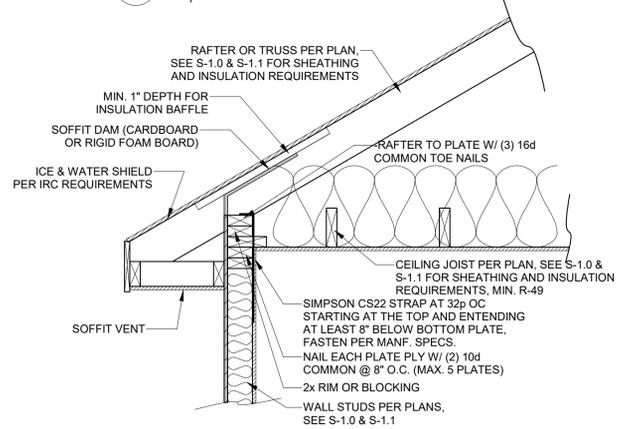
**8 UPSET STEEL BEAM DETAIL**  
1 1/2" = 1'-0"



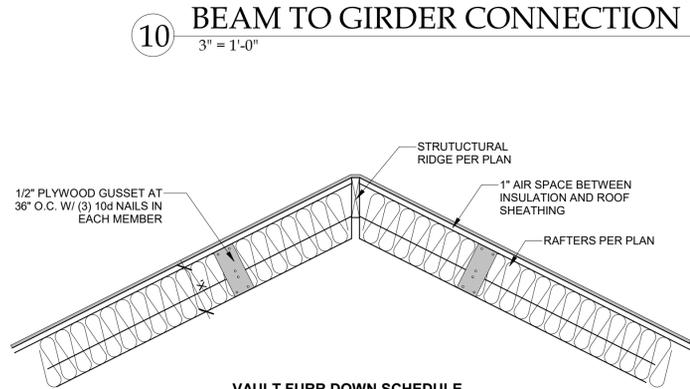
**9 STEEL BEAM SPLICE DETAIL**  
1 1/2" = 1'-0"

BEAM SIZE	# BOLTS PER SIDE
W8, W10	2
W12, W14	3
W16, W18	4

BOLTS SHALL BE EVENLY SPACED TOP TO BOTTOM



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

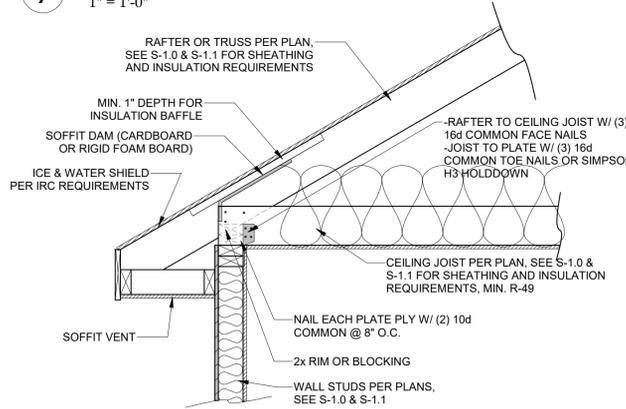


**10 BEAM TO GIRDER CONNECTION**  
3" = 1'-0"

**VAULT FURR DOWN SCHEDULE**

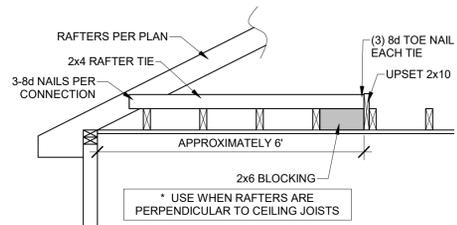
RAFTER SIZE	R-30C INSULATION (X = 9 1/4")	R-38C INSULATION (X = 11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	2x2

NOTES:  
1. ALL VAULTS SHALL BE FURRED DOWN WITH 2X FRAMING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1\"/>

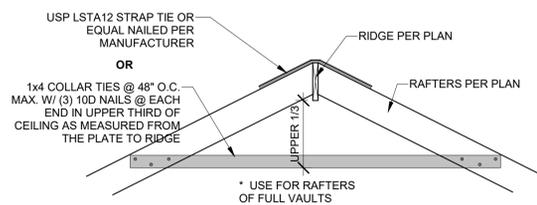


**6 OPTION 3 RAFTER BEARING**  
1" = 1'-0"

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

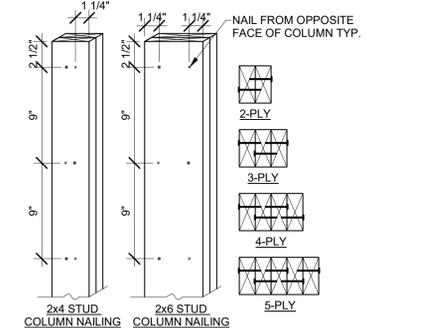


**12 RAFTER TIE CONNECTION**  
1/2" = 1'-0"



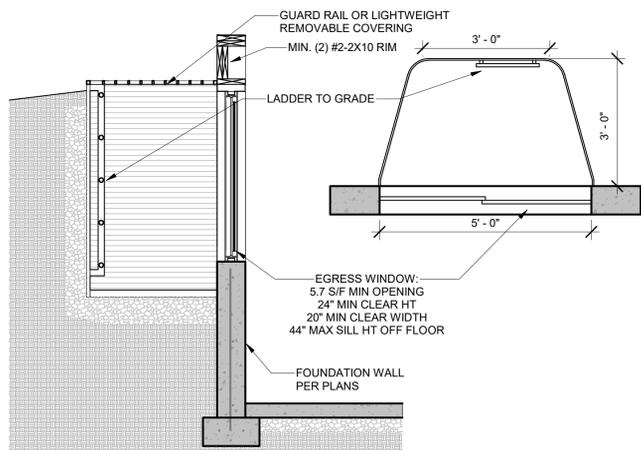
**13 RIDGE SUPPORT**  
1/2" = 1'-0"

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

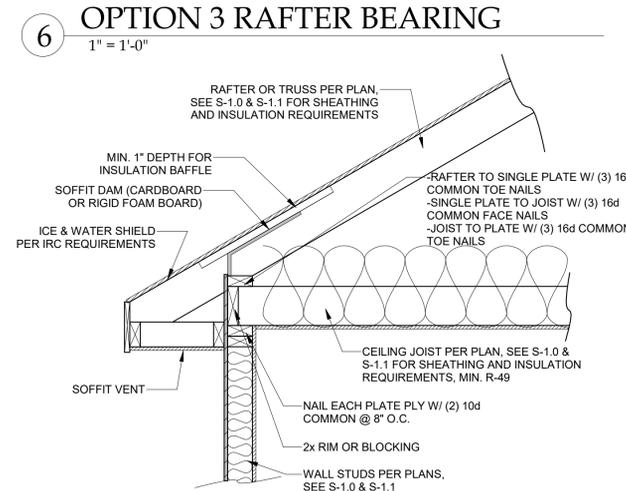


NOTES:  
1. EACH 2X PLY SHALL BE FASTENED WITH (1) ROW OF 10d NAILS AT 9\"/>

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

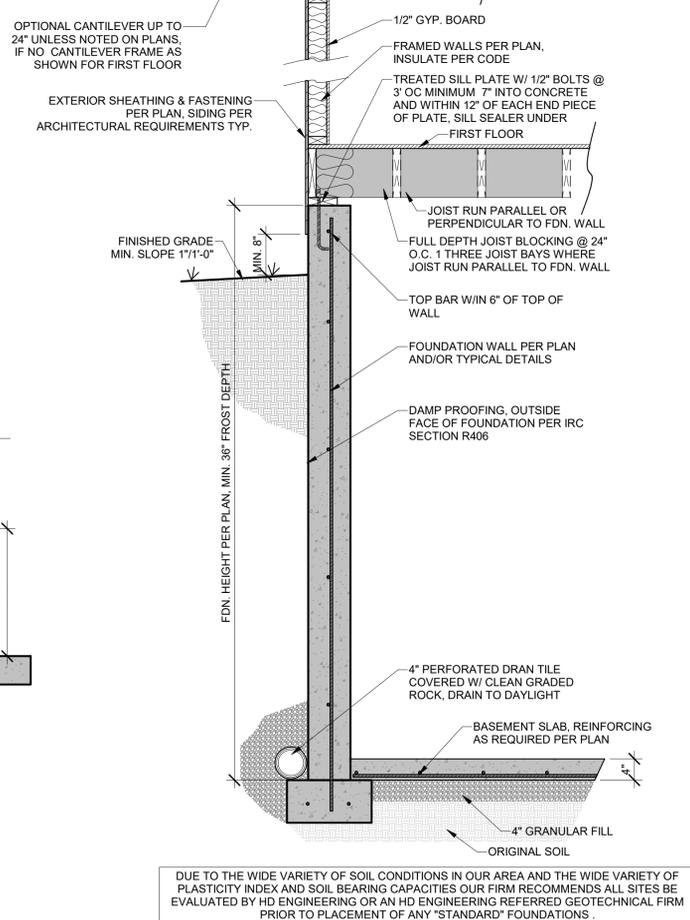


**2 EGRESS WINDOW SECTION**  
1/2" = 1'-0"



**5 OPTION 2 RAFTER BEARING**  
1" = 1'-0"  
THIS OPTION NOT AVAILABLE IN KC, MO

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



DUE TO THE WIDE VARIETY OF SOIL CONDITIONS IN OUR AREA AND THE WIDE VARIETY OF PLASTICITY INDEX AND SOIL BEARING CAPACITIES OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY HD ENGINEERING OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF ANY \"STANDARD\" FOUNDATIONS.

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HD ENGINEERING & DESIGN, INC.  
11656 W. 75TH STREET  
SHAWNEE, KS 66214  
WWW.HDENGINEERS.COM  
913.631.2222  
SERVICE@HDENGINEERS.COM



STATE OF MISSOURI  
CHRIS SATHOFF  
LICENSE NUMBER  
2008001865  
10/27/2022  
REGISTERED PROFESSIONAL ENGINEER

**SAB HOMES INC.**  
SOLAIA II HFR030  
2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

HD#: 44261

DATE: 06/27/2022

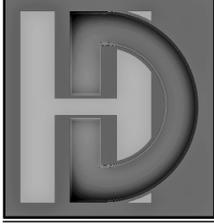
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NO.	ISSUE/REVISION	Revision Date

FRAMING SECTIONS

**S-1.2**

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS REVIEW Development Services LEE'S SUMMIT, MISSOURI



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

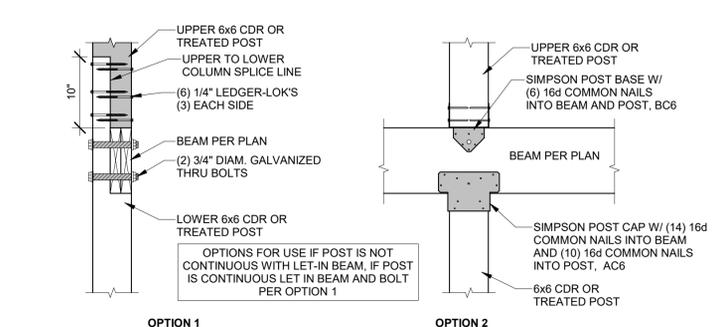
STRUCTURAL DETAILS & NOTES

HD#: 44261  
 DATE: 06/27/2022  
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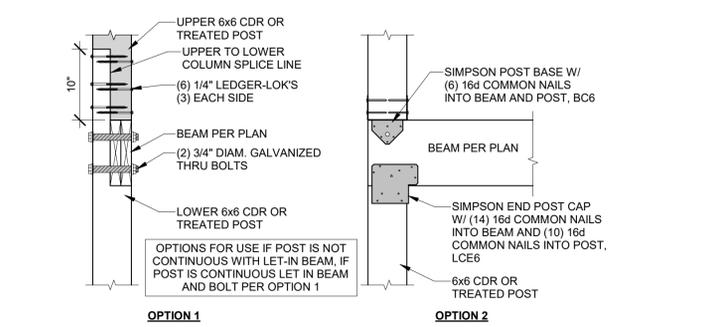
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DECK DETAILS

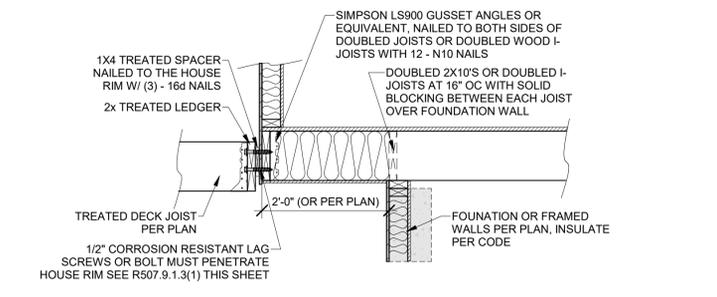
**S-1.3**



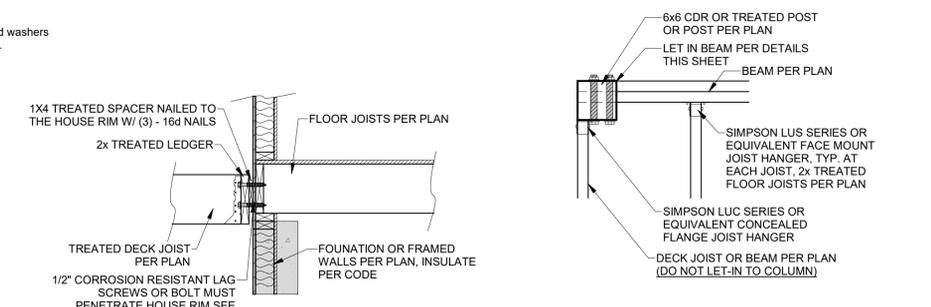
**6 DECK LEVEL INTERIOR BEAM TO COLUMN**  
 1" = 1'-0"



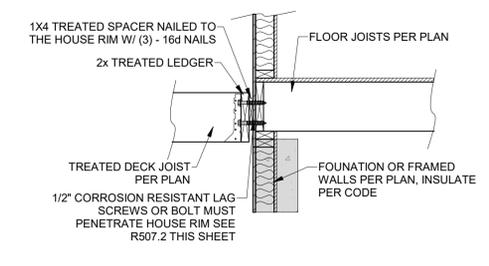
**5 DECK LEVEL EXTERIOR BEAM TO COLUMN**  
 1" = 1'-0"



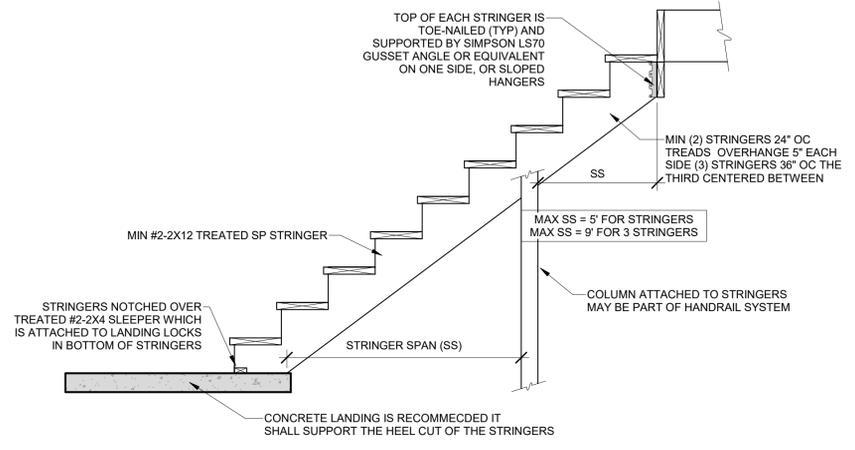
**4 DECK LEDGER TO CANTILEVER**  
 3/4" = 1'-0"



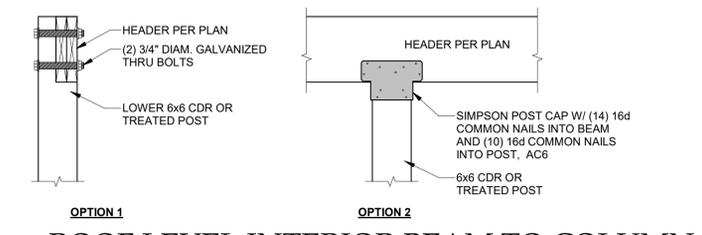
**1 DECK CORNER COLUMN**  
 1" = 1'-0"



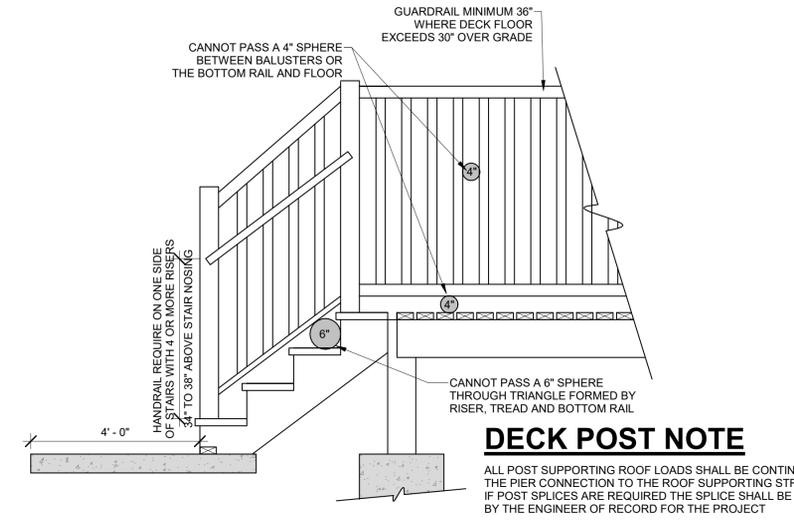
**2 DECK LEDGER ATTACHMENT**  
 3/4" = 1'-0"



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



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



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

**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)

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>a, b</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" thickness of stacked washers shall be permitted to substitute for you to 1/2" of allowable sheathing thickness where combined with wood structural panel or lumbers sheathing.

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

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

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

RESIDENTIAL SEISMIC & WIND ANALYSIS

DETERMINE WEIGHT OF HOUSE:				INPUT		CALCULATED VALUE	
LOCATION	DEAD LOAD (psf)	AREA (ft <sup>2</sup> )	WEIGHT (lbs.)				
ROOF	10	3144	31440				
CEILING	10	3200	32000				
FIRST FLOOR	10	1717	17170				
FIRST FLOOR EXT. WALL DL	WALL LENGTH (ft)	WALL HEIGHT (ft)	WALL UNIT WT. (psf)	WEIGHT (lbs.)			
	256	10	10	25600			
FIRST FLOOR INT. PARTITION WALL DL	DEAD LOAD (psf)	AREA (ft <sup>2</sup> )	WEIGHT (lbs.)				
	6	171	1026				

PROJECTED AREAS (WIND DESIGN PER 115 MPH 3-SECOND GUST EXPOSURE C AND MEAN ROOF HEIGHT <= 30 FT ASSUMED)							
FRONT-TO-BACK				SIDE-TO-SIDE			
SLOPED ROOF	AREA	LOAD		SLOPED ROOF	AREA	LOAD	
	345	1519			809	3323	
VERT. ROOF	252	3514	CUMULATIVE	VERT. ROOF	0	0	CUMULATIVE
	438	6107			693	7827	
1ST			151				11309
			5.9				2.8 (FIG. 28.8-1, ASCE7)
SLOPED ROOF	ZONE B			ZONE C	11.6		
WALL/VERT. ROOF	ZONE A	17.4		ZONE D	3.4		
MEAN ROOF HT., #		17.5					

a) If there is a walkout wall to be sheathed, determine tributary wind area and enter here. If no walkout, enter 0 for area.  
 $Q_{wz} = 0.00256 K_d K_e K_z V^2$  (ASCE7-10 Velocity Pressure)       $Q_{wz} = 0.00256 K_d K_e K_z V^2$  (Design Velocity Pressure for ASD analysis under ASCE7-10 and IRC/IBC 2018)

1ST FLOOR TRIBUTARY WEIGHT	79440
$S_s$ (SITE GROUND MOTION - %g - FROM ASCE7 SEISMIC MAP)	12.0%
$F_a$ (FROM ASCE7 Table 11.4-1)	1.8
$S_{DS}$ ( $= 2.3 \cdot S_s \cdot F_a$ )	0.128
R (FROM ASCE7 Table 12.2-1)	6.5

SEISMIC SHEAR			
LOCATION	From ASCE7 (Eq. 12.8-1):	$V = 1.2 \cdot S_{DS} \cdot W / R$ (lbs.)	
1ST FLOOR		1877	

Sheathing Location	Min. Sheathing Schedule	Fastening Schedule	Allowable Shear (#/F)	Code Reference
Exterior (Option #4)	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

EXTERIOR SHEATHING OPTION FOR FIRST FLOOR	
Option #	4

WIDTH OF 1ST STORY (FT.)	51
DEPTH OF 1ST STORY (FT.)	73
BACK WALL OF GARAGE (FT.)	19
GAR. WALL: 1=F-8, 2=S-8	2

EXTERIOR STRUCTURAL WALL LENGTHS (L) & RESISTANCES							
	SEISMIC				WIND		
	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE
1ST FLOOR	133	37240	76	21280	133	52136	76

ADDITIONAL RESISTANCE REQUIRED		Anchor Bolt Spacing (in.)		16d Nail Spacing req'd at bottom plate (in.)	
SEISMIC	WIND	diameter (in.)	1/4 Floor F-B	1st Floor F-B	3/8
0	0	Shear value (see NDS)	3/4	1st Floor S-S	24
0	0	Spacing F-B (inches)	234.8		
0	0	Spacing S-S (inches)	163.5		

RESISTANCE REQUIRED IN ADDITION TO RESISTANCE PROVIDED BY EXTERIOR WALLS**							
	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?
1ST FLOOR FRONT-TO-BACK	0					0	YES
1ST FLOOR SIDE-TO-SIDE	0					0	YES

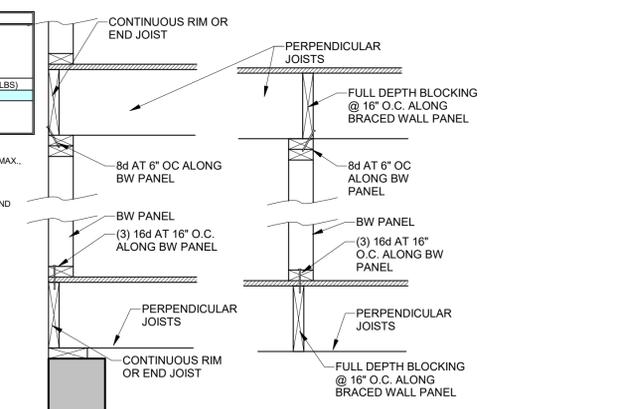
\*\*NOTES: 1) SEE ATTACHED CALCULATIONS FOR PORTAL FRAME OR PERFORATED SHEAR WALL RESISTANCE CAPACITIES (IF APPLICABLE).  
 2) SEE SHEET S1 FOR INTERIOR STEEL X-BRACE INSTALLATION, 3) INTERIOR WALLS SHEATHED WITH OSB SHALL BE ATTACHED WITH SAME START/END NAILING PATTERN AS EXTERIOR OSB ON SAME FLOOR (SEE TABLE ABOVE) AND ARE ONLY APPLICABLE FOR FULL-HEIGHT SECTIONS OF 2'-8" OR LONGER

WIND UPLIFT ANALYSIS									
ROOF PITCH (MAX)	X/12	DEGREES	PITCH OF 6 OR LESS: EDH-13.3, E-7.2, G-5.2						
	6	26.6	ASCE 7						
OVERHANG	LENGTH (FT.)	PRESSURE (PSF)	LINEAL FT. OF OH	UPLIFT PER FT. (LBS)					
	1	16.56	250	16.56					
MAIN ROOF**	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 (LBS)		
	3723	-375.36	4098.36	15.12	10.5	37357	150.6		
ALONG PERIMETER	TOTAL UPLIFT PER LINEAL FOOT ALONG EXTERIOR (POUNDS)					167.2		UPLIFT OK	
**INSIDE EXTERIOR WALLS	RESISTANCE DUE TO DEAD WEIGHT & (D) 16d NAILS					251.6			

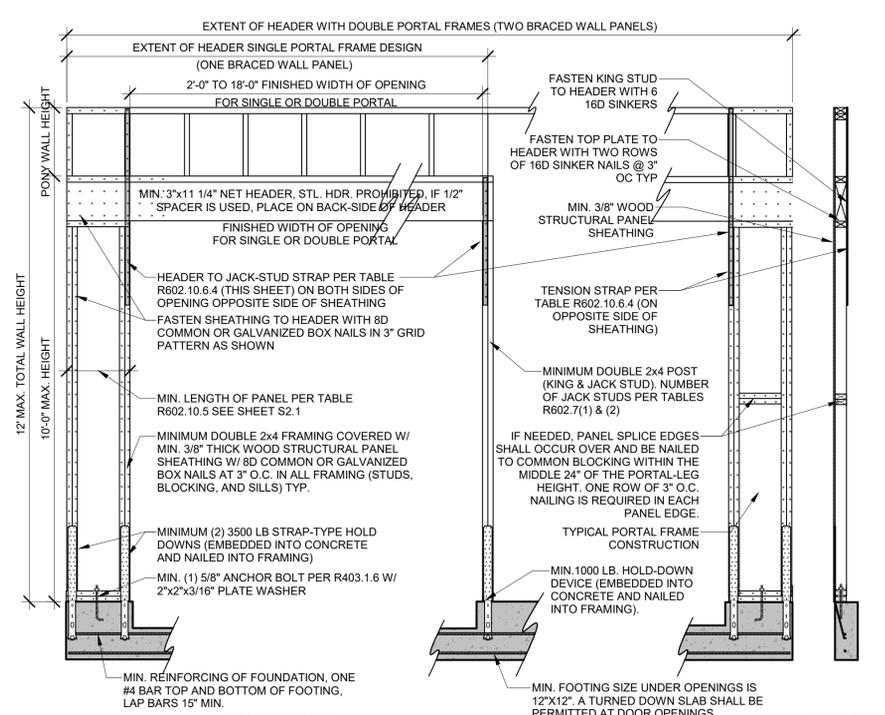
NOTE FOR CONSTRUCTION:  
 THE CONTINUOUS STRUCTURAL PANEL SHEATHING BRACING METHOD REQUIRES USE OF THE ABOVE TABLE FOR SHEATHING OF THE ENTIRE STRUCTURE. IN ADDITION, FRAMING MEMBERS SHALL BE @ 16" O.C. MAX., UNBLOCKED, AND W/ SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS

NOTE FOR DESIGN:  
 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 220 A WIND SHEAR VALUE OF 335#/FT. 40% GREATER THAN THAT OF SEISMIC

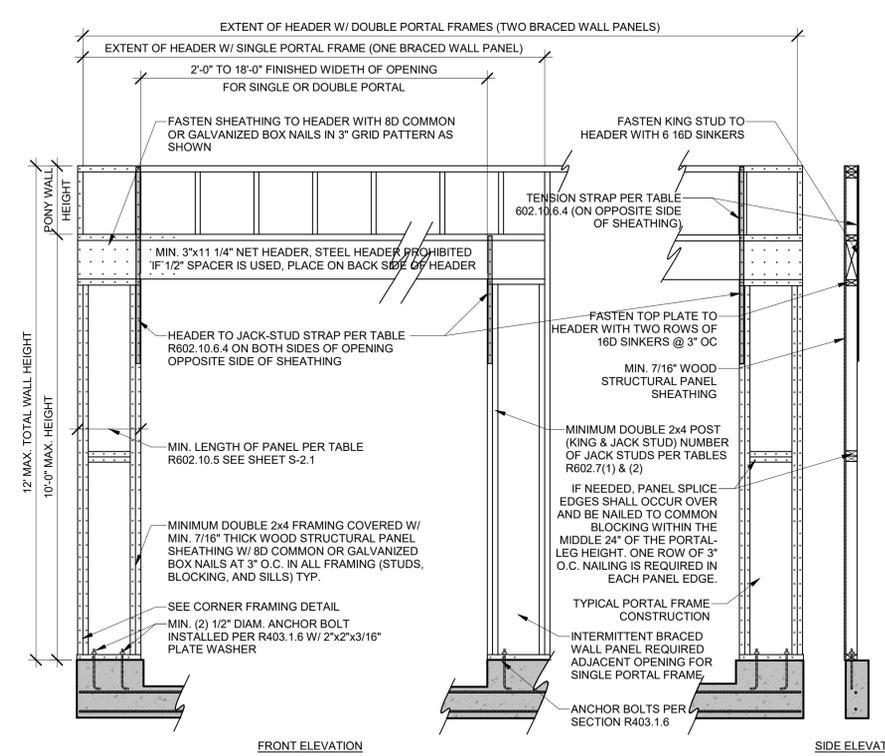
NOTE: SOIL SITE CLASS ASSUMED TO BE CLASS D. IF SITE CONDITIONS ARE DETERMINED TO BE CLASS E OR F, CONSULT ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION



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

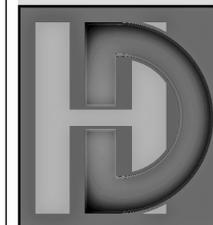


1 PFH PORTAL FRAME W/ HOLD DOWNS (R602.10.6.2)  
 1/2" = 1'-0"



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

HD ENGINEERING & DESIGN, INC  
 11656 W. 75TH STREET  
 SHAWNEE, KS 66214  
 WWW.HDENGINEERS.COM  
 913.631.2222  
 SERVICE@HDENGINEERS.COM



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 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

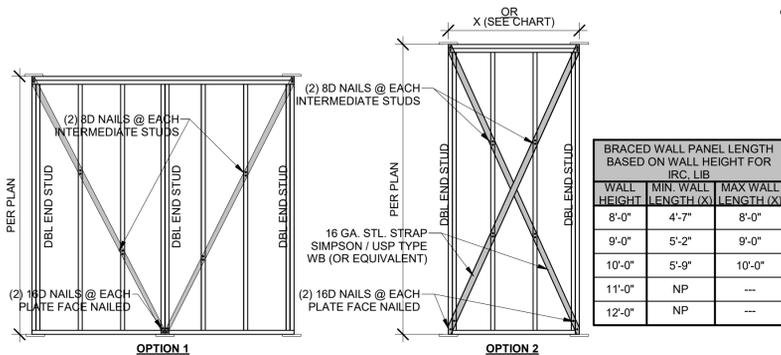
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 DATE: 06/27/2022  
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BRACED WALL NOTES & DETAILS

S-2.0  
 RELEASE FOR  
 DEVELOPMENT ONLY  
 AS NOTED ON PLANS REVIEW  
 Development Services  
 LEE'S SUMMIT, MISSOURI

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



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

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

METHOD (SEE TABLE R602.10.4)	MINIMUM LENGTH (INCHES) <sup>a</sup>					CONTRIBUTING LENGTH (INCHES)
	WALL HEIGHT					
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET	
DWB,WSP,SFB,PBS,PCP,HPS,BV-WSP	48	48	48	53	58	ACTUAL <sup>b</sup>
GB	48	48	48	53	58	DOUBLE SIDED = ACTUAL SINGLE SIDED = .5xACTUAL
LIB	55	62	69	NP	NP	ACTUAL <sup>b</sup>
ABW	SDC A, B, AND C ULTIMATE DESIGN WIND SPEED <140	28	32	34	38	42
	SDC D, D <sub>1</sub> , D <sub>2</sub> ULTIMATE DESIGN WIND SPEED <140	32	32	34	NP	NP
PFH	SUPPORTING ROOF ONLY	16	16	16	NOTE C	NOTE C
	SPTNG. ONE STORY & ROOF	24	24	24	NOTE C	NOTE C
PFG	24	27	30	NOTE D	NOTE D	1.5 x ACTUAL <sup>b</sup>
CS-G	24	27	30	33	36	ACTUAL <sup>b</sup>
CS-PF	16	18	20	NOTE E	NOTE E	ACTUAL <sup>b</sup>
CS-WSP, CS-SFB	ADJACENT CLEAR OPENING HEIGHT (INCHES)					
	≤64	24	27	30	33	36
	68	26	27	30	33	36
	72	27	27	30	33	36
	76	30	29	30	33	36
	80	32	30	30	33	36
	84	35	32	32	33	36
	88	38	35	33	33	36
	92	43	37	35	35	36
	96	48	41	38	36	36
	100	-	44	40	38	38
	104	-	49	43	40	39
	108	-	54	46	43	41
	112	-	-	50	45	43
	116	-	-	55	48	45
	120	-	-	60	52	48
124	-	-	-	56	51	
128	-	-	-	61	54	
132	-	-	-	66	58	
136	-	-	-	-	62	
140	-	-	-	-	66	
144	-	-	-	-	72	

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

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

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

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

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

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

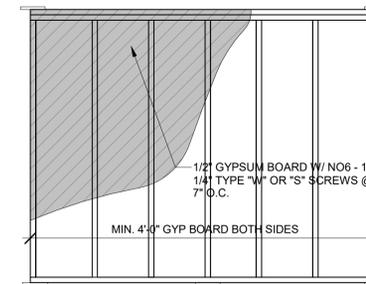
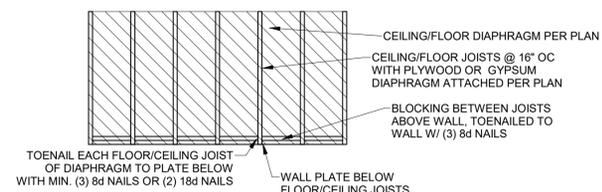
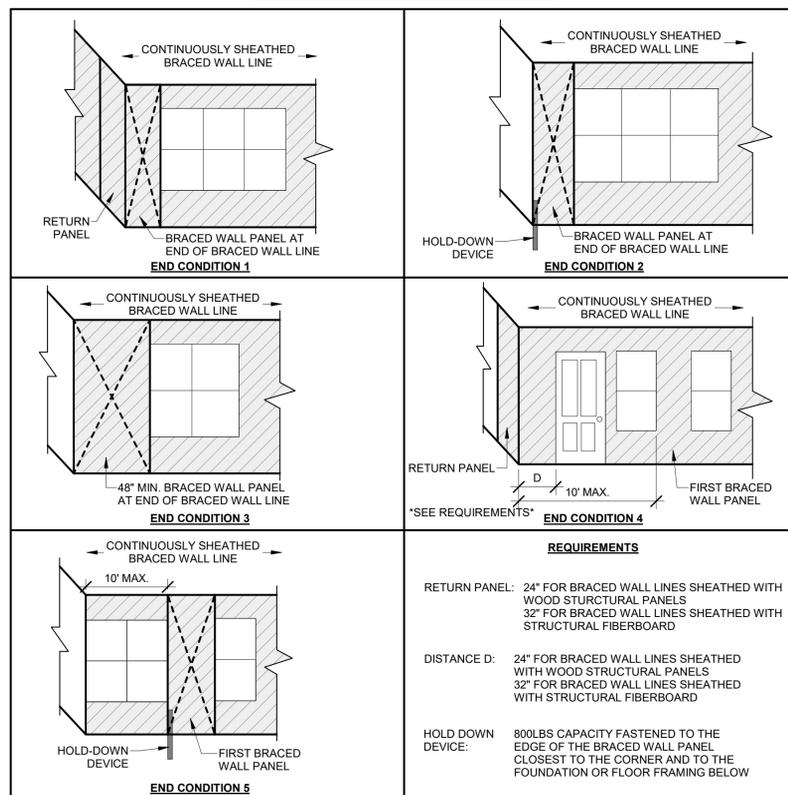
**LIB METHOD:**  
1x4 WOOD FASTENED W/ (3) 8d COMMON NAILS OR SIMPSON / USP 16 GA. TYPE WB (OR EQUIVALENT) STL. X-BRACE(S) @ 45° TO 60° ANGLES, MAXIMUM 16" O.C. STUDS FASTENED PER MANUF. SPECS.

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

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

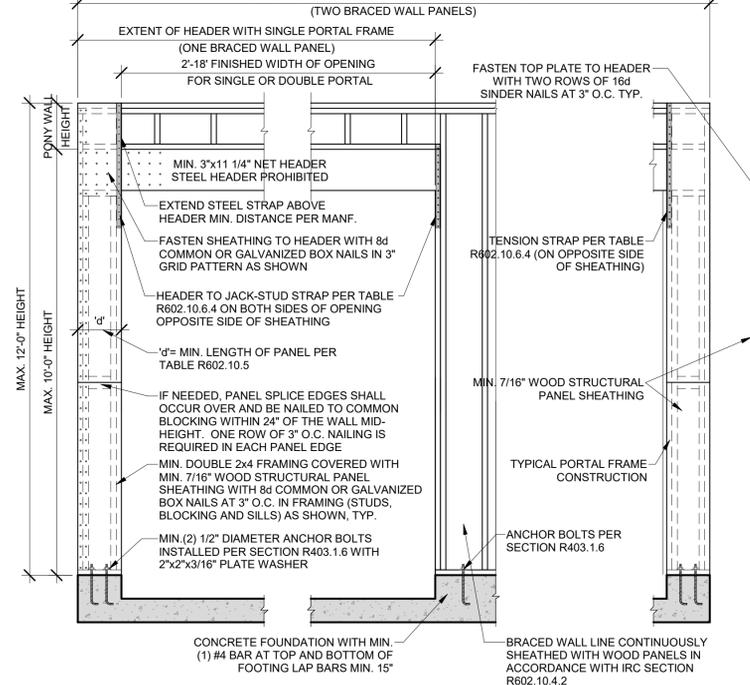
### END WALL CONDITIONS

FOR CONTINUOUSLY SHEATHED BRACED WALL LINES

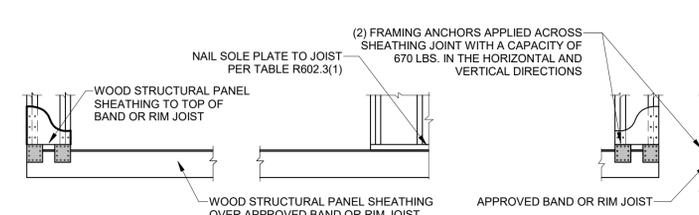


### FRONT ELEVATION

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

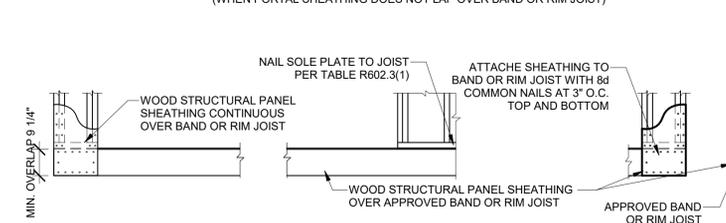


### OVER CONCRETE OR MASONRY BLOCK FOUNDATION



### OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

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

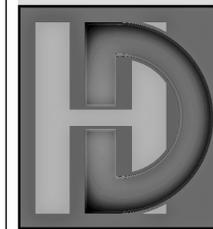


### OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

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

**HD ENGINEERING & DESIGN, INC**  
 11656 W. 75TH STREET  
 SHAWNEE, KS 66214  
 WWW.HDENGINEERS.COM  
 913.631.2222  
 SERVICE@HDENGINEERS.COM



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO  
 STRUCTURAL DETAILS & NOTES

HD#: 44261

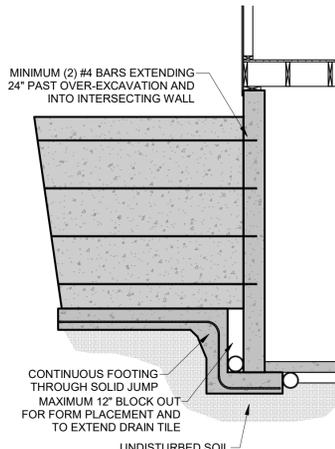
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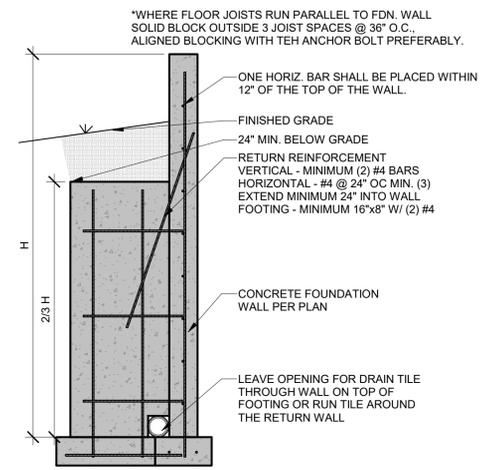
NO.	ISSUE/REVISION	Revision Date

BRACED WALLS NOTES & DETAILS

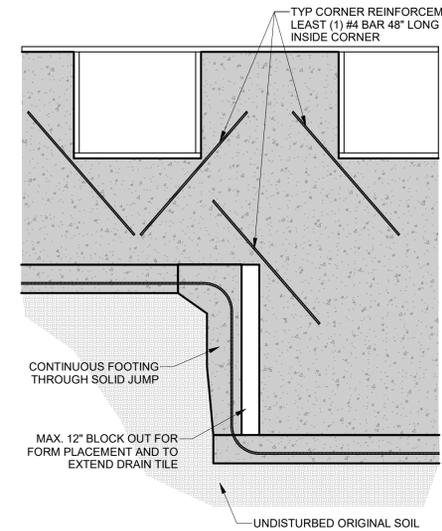
**S-2.1**



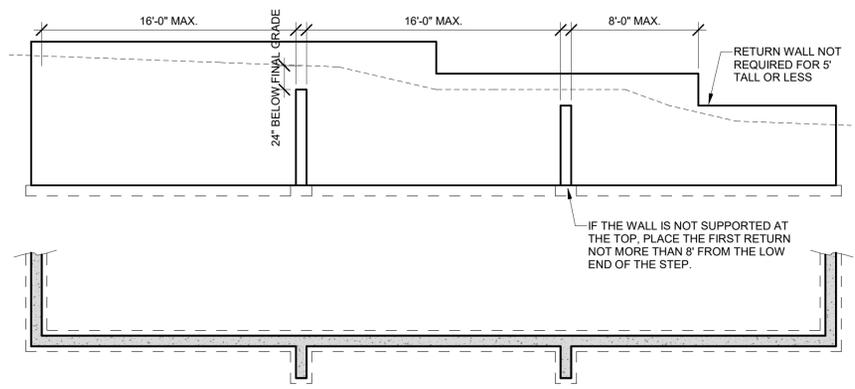
**1** SOLID FOOTING JUMP DETAIL  
3/8" = 1'-0"



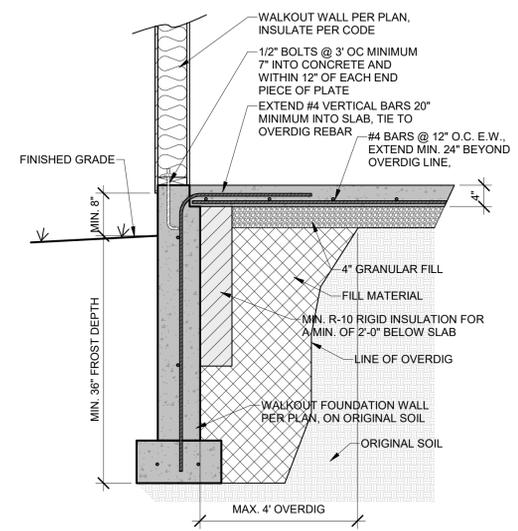
**2** RETURN WALL DETAIL  
1/2" = 1'-0"



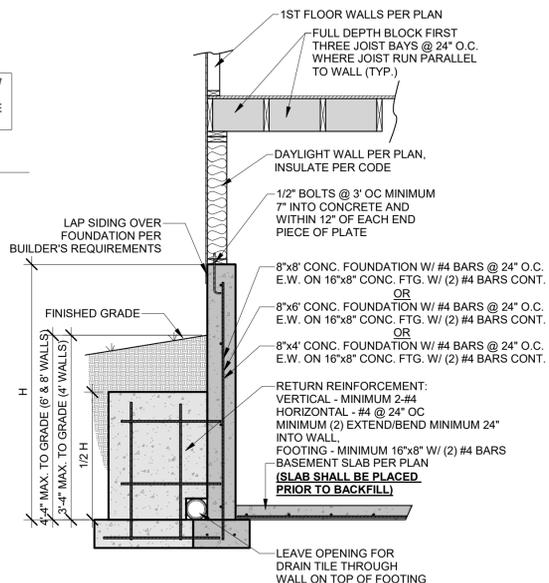
**3** REINFORCEMENT AT CORNERS AND STEPS  
1/2" = 1'-0"



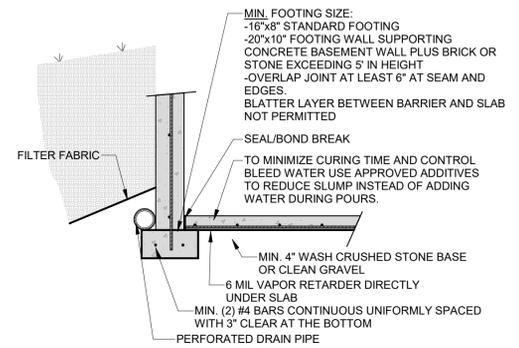
**4** RETURN WALL PLACEMENT  
3/16" = 1'-0"



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



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



**7** FOUNDATION FOOTINGS  
1/2" = 1'-0"

**IMPORTANT NOTE:**  
ANY SLAB WITH GREATER THAN 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.

CONCRETE STRENGTH	8" THICK WALL		10" THICK WALL		
	8'	9'	8'	9'	10'
3000 PSI/ 40 KSI	16	12	24	16	12
3500 PSI/ 40 KSI	16	12	24	24	12
3000 PSI/ 60 KSI	24	16	24	20	16
3500 PSI/ 60 KSI	24	16	24	24	16

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

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

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**HD ENGINEERING & DESIGN, INC.**  
 11656 W. 75TH STREET  
 SHAWNEE, KS 66214  
 WWW.HDENGINEERS.COM  
 913.631.2222  
 SERVICE@HDENGINEERS.COM



**SAB HOMES INC.**  
 SOLAIA II HFR030  
 2043 SW HOOK FARM DR. LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

HD#: 44261  
 DATE: 06/27/2022  
 CHECKED BY: CLS

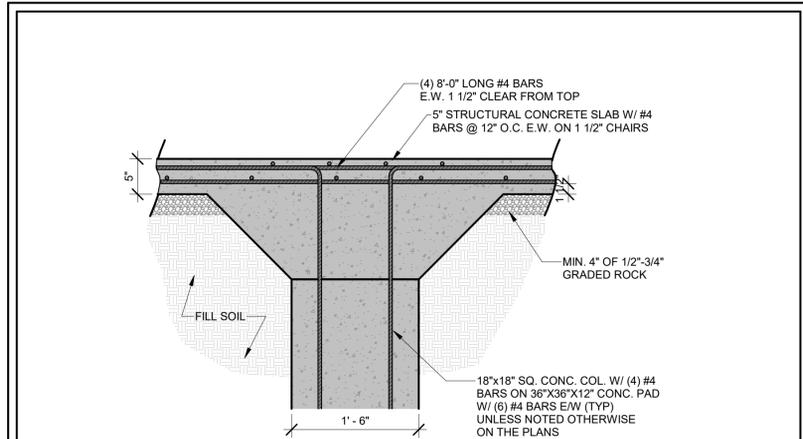
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CONCRETE DETAILS

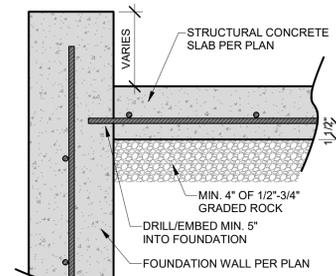
**S-3.0**

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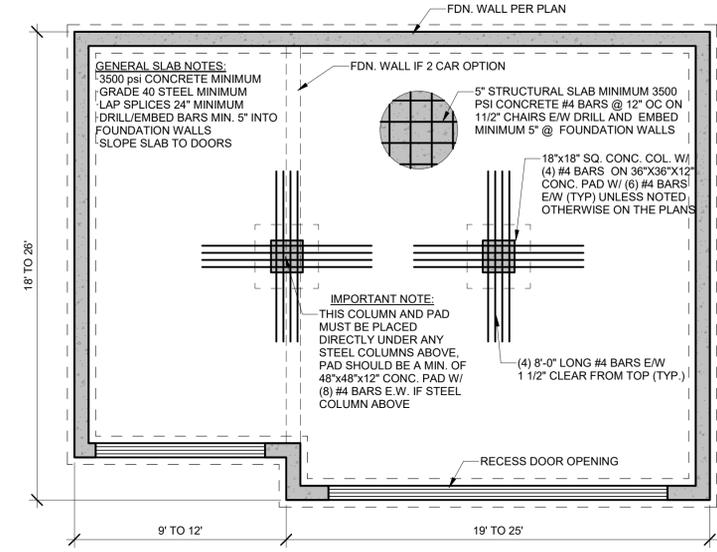
RELEASE FOR DEVELOPER'S REVIEW AS NOTED ON PLANS REVIEW Development Services LEE'S SUMMIT, MISSOURI



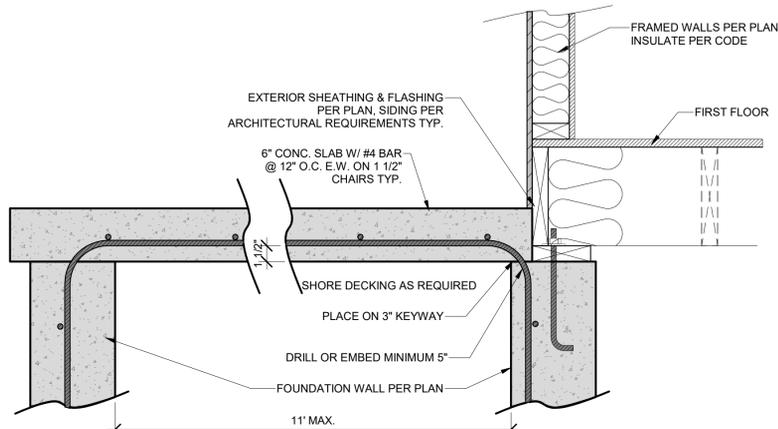
**7 GARAGE SLAB COLUMN DETAIL**  
1" = 1'-0"



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

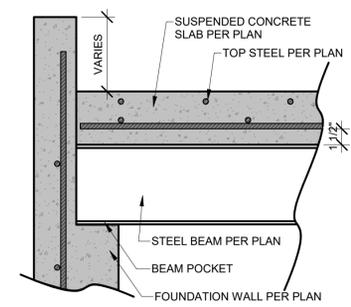


**9 TYPICAL GARAGE SLAB**  
1/4" = 1'-0"

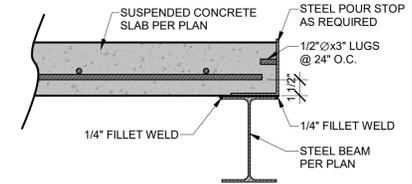


**6 SUSPENDED PORCH STOOP SLAB**  
1 1/2" = 1'-0"

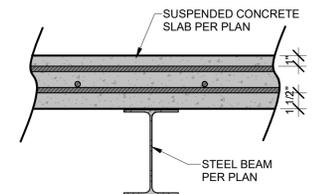
FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW: TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C./#2-2X4 STUDS AT 16' O.C. W/ TOP AND BOTTOM PLATE. WALL TO HAVE CONTINUOUS DIAGONAL BRACING. LATERAL BRACING TO BE RUN FROM WALL TO WALL AT MID HEIGHT 4' ON CENTER. SHORING TO REMAIN IN PLACE FOR AT LEAST 21 DAYS.



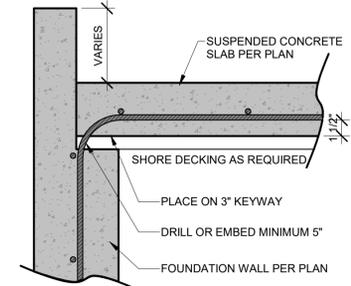
**1 SUSPENDED SLAB BEAM/WALL CONNECTION**  
1 1/2" = 1'-0"



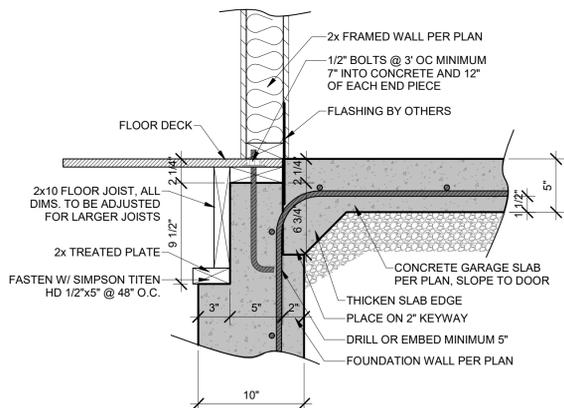
**2 SUSPENDED SLAB POUR STOP**  
1 1/2" = 1'-0"



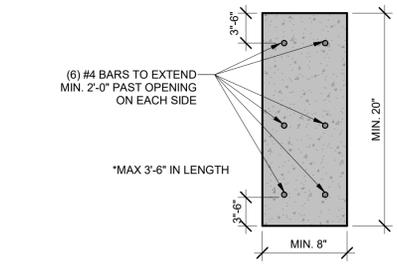
**3 SUSPENDED SLAB/STEEL BEAM CROSS SECTION**  
1 1/2" = 1'-0"



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



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



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

**IMPORTANT NOTE:**  
FOR SUSPENDED SLABS A MAXIMUM OF 10' ABOVE FLOOR BELOW: TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C./#2-2X4 STUDS AT 16' O.C. W/ TOP AND BOTTOM PLATE. WALL TO HAVE CONTINUOUS DIAGONAL BRACING. LATERAL BRACING TO BE RUN 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 FIRM SHOULD BE CONSULTED FOR THIS DESIGN ONCE FOUNDATION WALLS ARE IN PLACE TO EVALUATE ALL FIELD CONDITIONS. IT SHOULD BE NOTED THAT FAILURE TO HAVE AN ADEQUATE SHORING DESIGN CAN RESULT IN FORM COLAPSE AND/OR CATASTROPHIC FAILURE.

**HD ENGINEERING STRUCTURAL GARAGE SLAB DETAILS**

**HD ENGINEERING & DESIGN, INC.**  
11666 W. 75TH STREET  
SHAWNEE, KS 66214  
WWW.HDENGINEERS.COM  
913.631.2222  
SERVICE@HDENGINEERS.COM



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SOLAIA II HFR030  
2043 SW HOOK FARM DR. LEE'S SUMMIT, MO  
STRUCTURAL DETAILS & NOTES

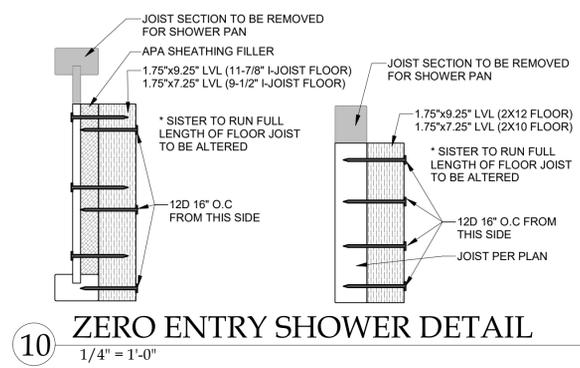
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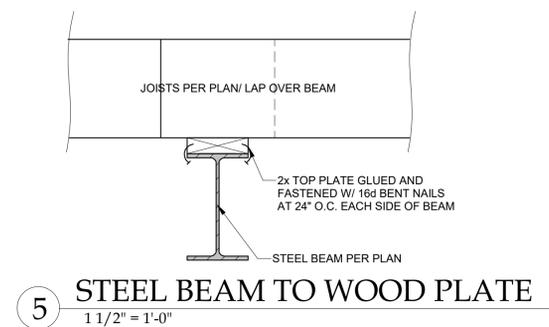
SUSPENDED SLAB DETAILS

**S-3.1**

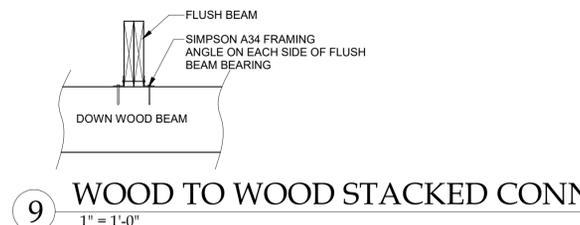
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LEE'S SUMMIT, MISSOURI



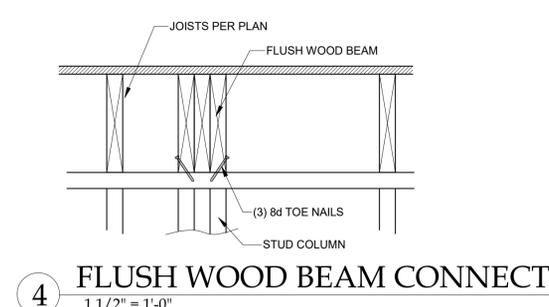
10 ZERO ENTRY SHOWER DETAIL  
1/4" = 1'-0"



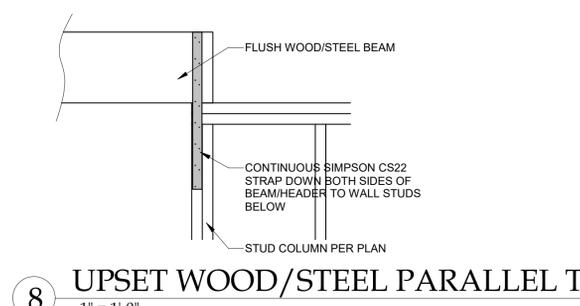
5 STEEL BEAM TO WOOD PLATE  
1 1/2" = 1'-0"



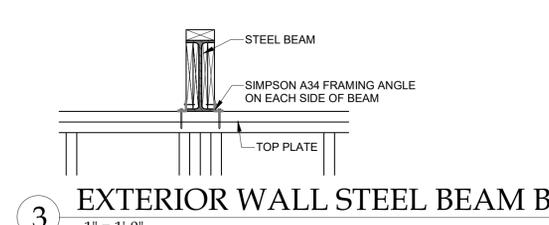
9 WOOD TO WOOD STACKED CONNECTION  
1" = 1'-0"



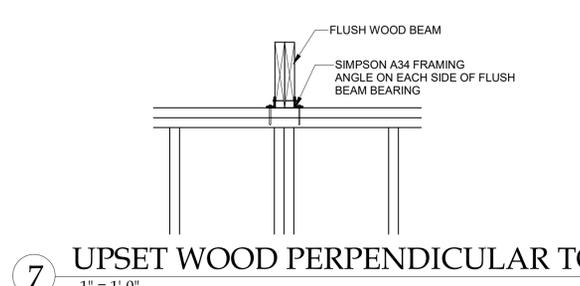
4 FLUSH WOOD BEAM CONNECTION  
1 1/2" = 1'-0"



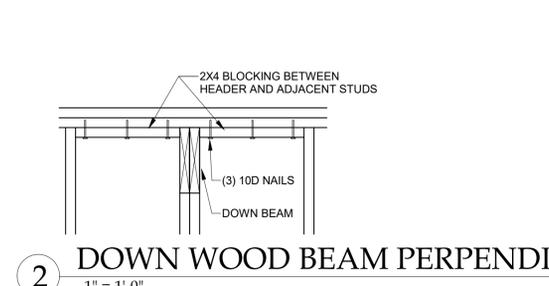
8 UPSET WOOD/STEEL PARALLEL TO WALL  
1" = 1'-0"



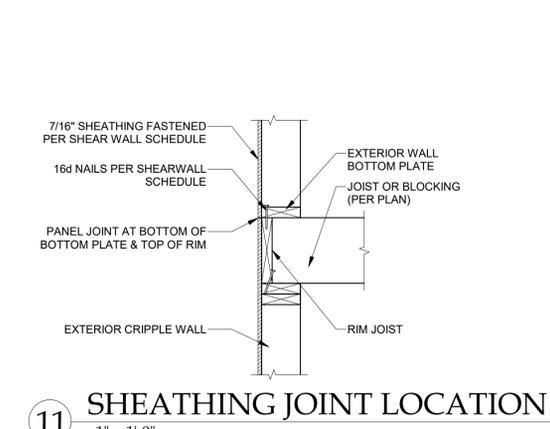
3 EXTERIOR WALL STEEL BEAM BEARING  
1" = 1'-0"



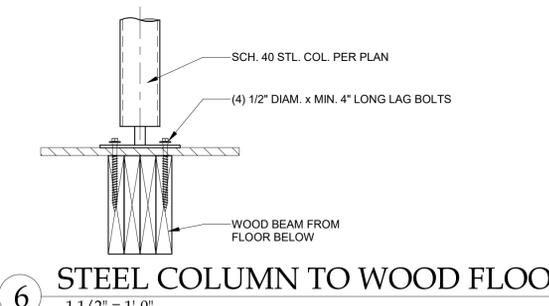
7 UPSET WOOD PERPENDICULAR TO WALL  
1" = 1'-0"



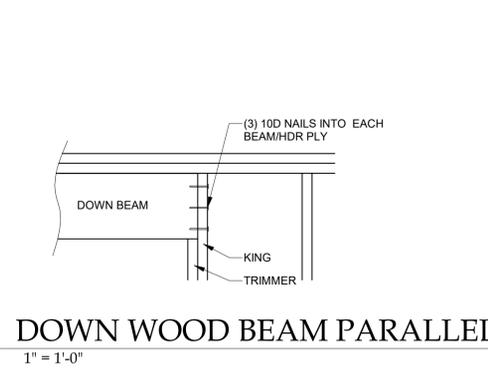
2 DOWN WOOD BEAM PERPENDICULAR  
1" = 1'-0"



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



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



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

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SHAWNEE, KS 66214  
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GENERAL DETAILS

S-4.0

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