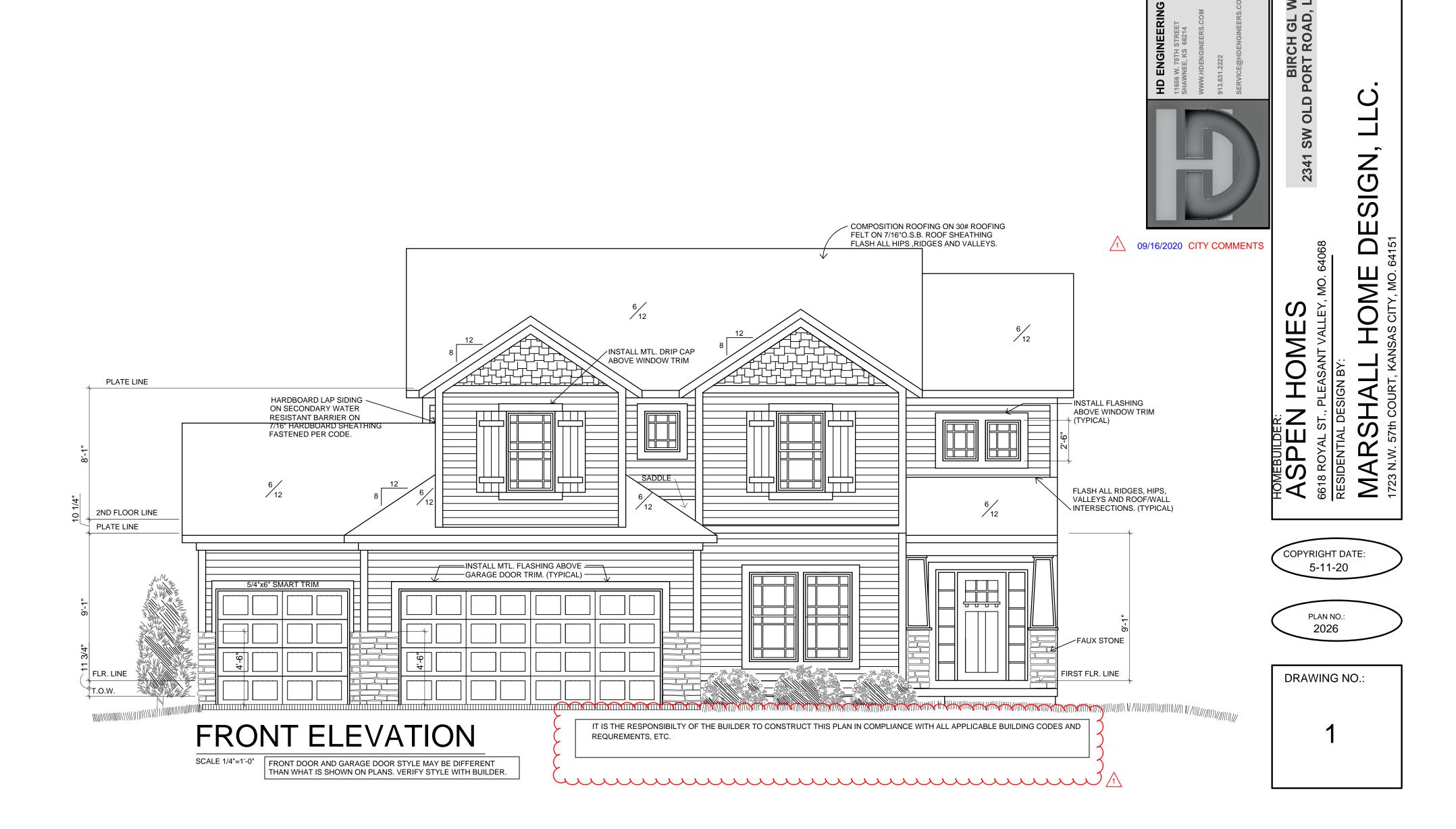
MARSHALL HOME DESIGN

"BUILDERS PLANS DEFINITION"

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

MARSHALL HOME DESIGN LLC., AND ITS CONSULTANTS OF ALL RESPONSIBILITIES OF THE CONSEQUENSES. STRUCTURAL DESIGN, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.



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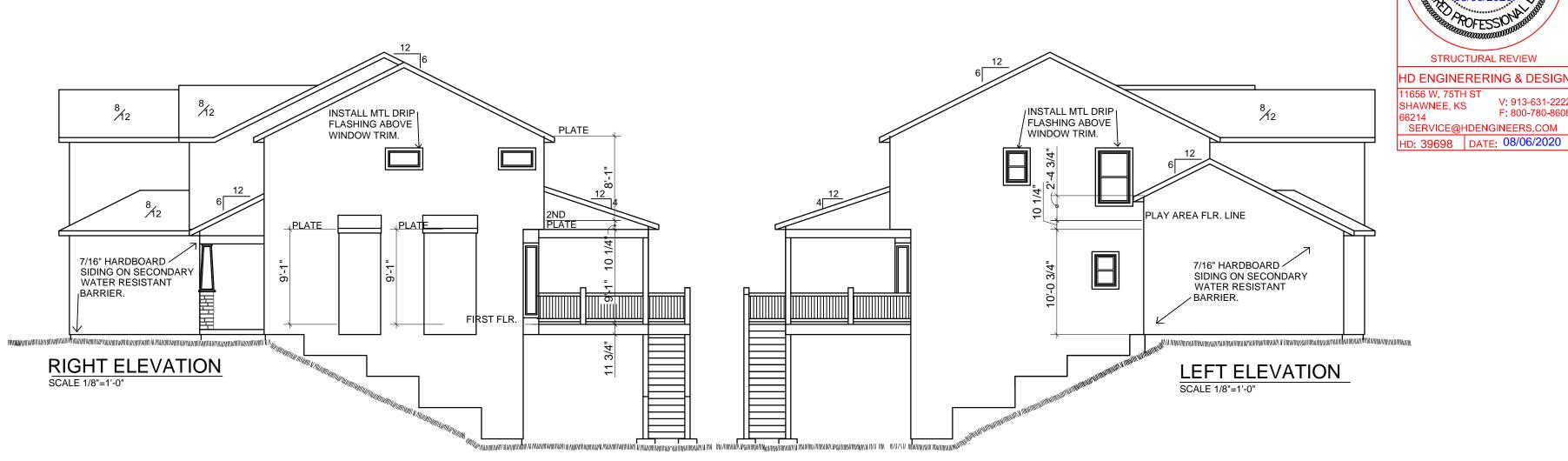
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DESIGN, INC

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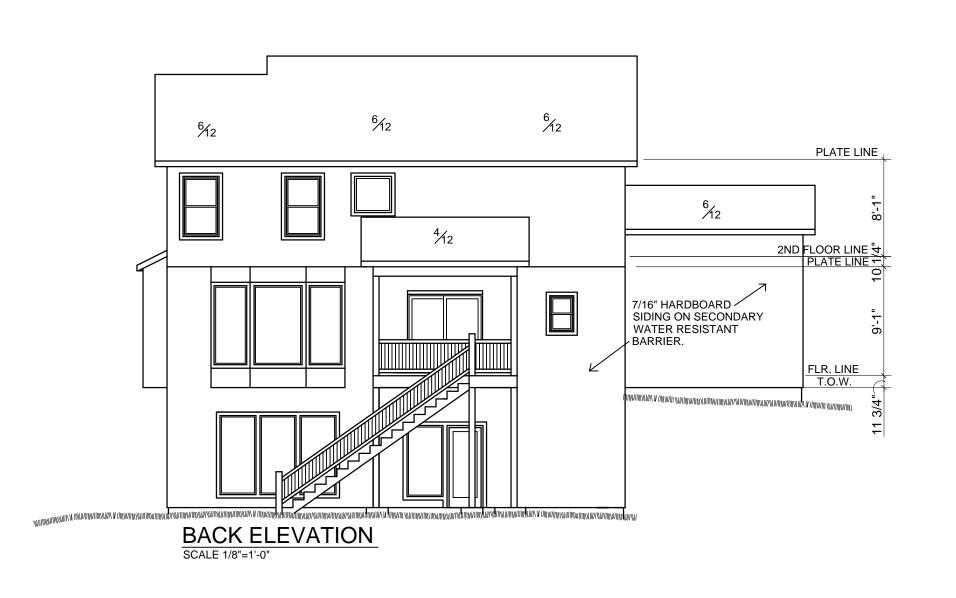


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STRUCTURAL DESIGN, SITE DESIGN, SOILS TESTING, MEP PLANS BY OTHERS.



BIRCH WALK-OUT **ADDRESS** CITY

LOT#

CHRIS SAATHOFF

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

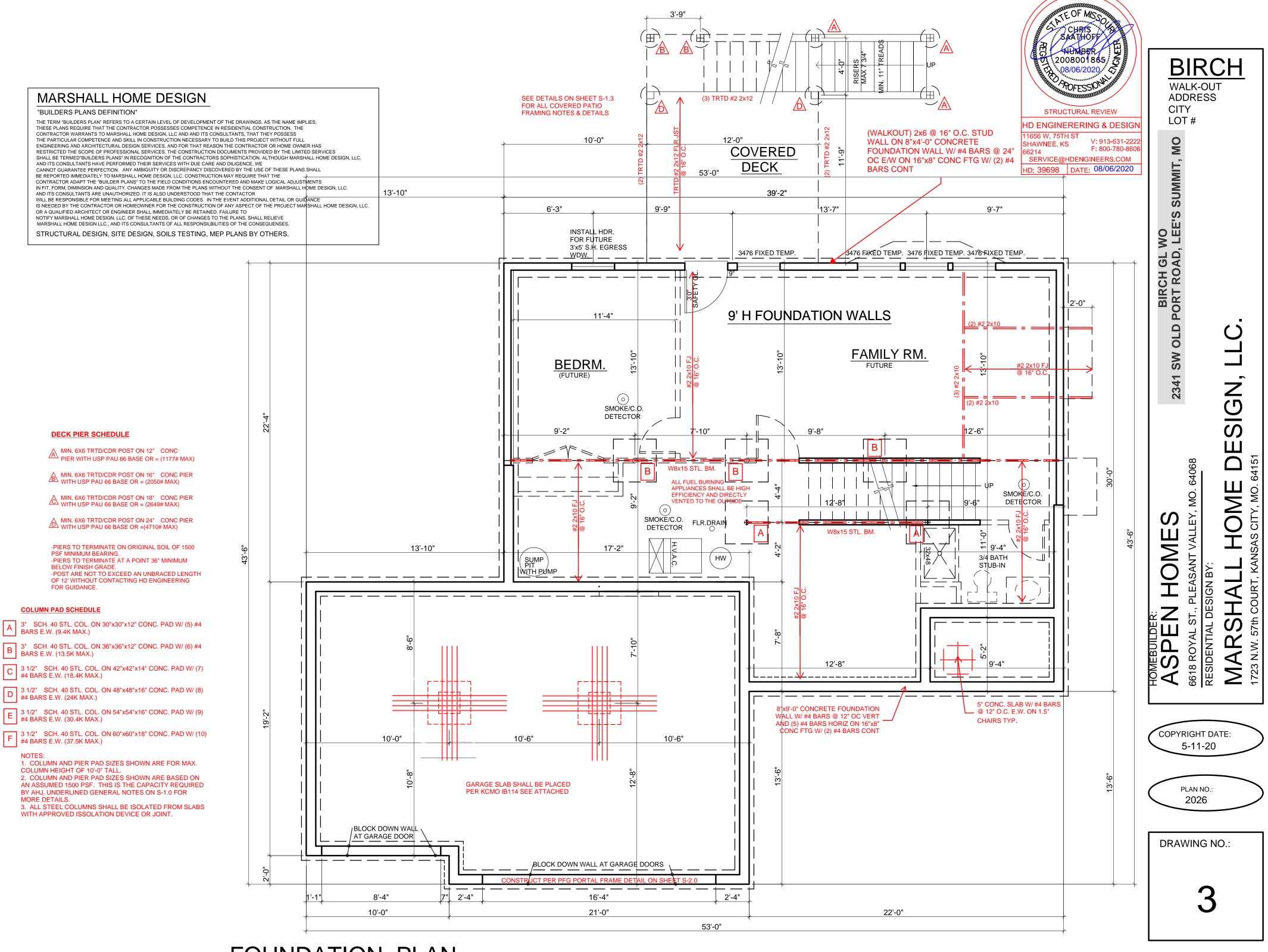
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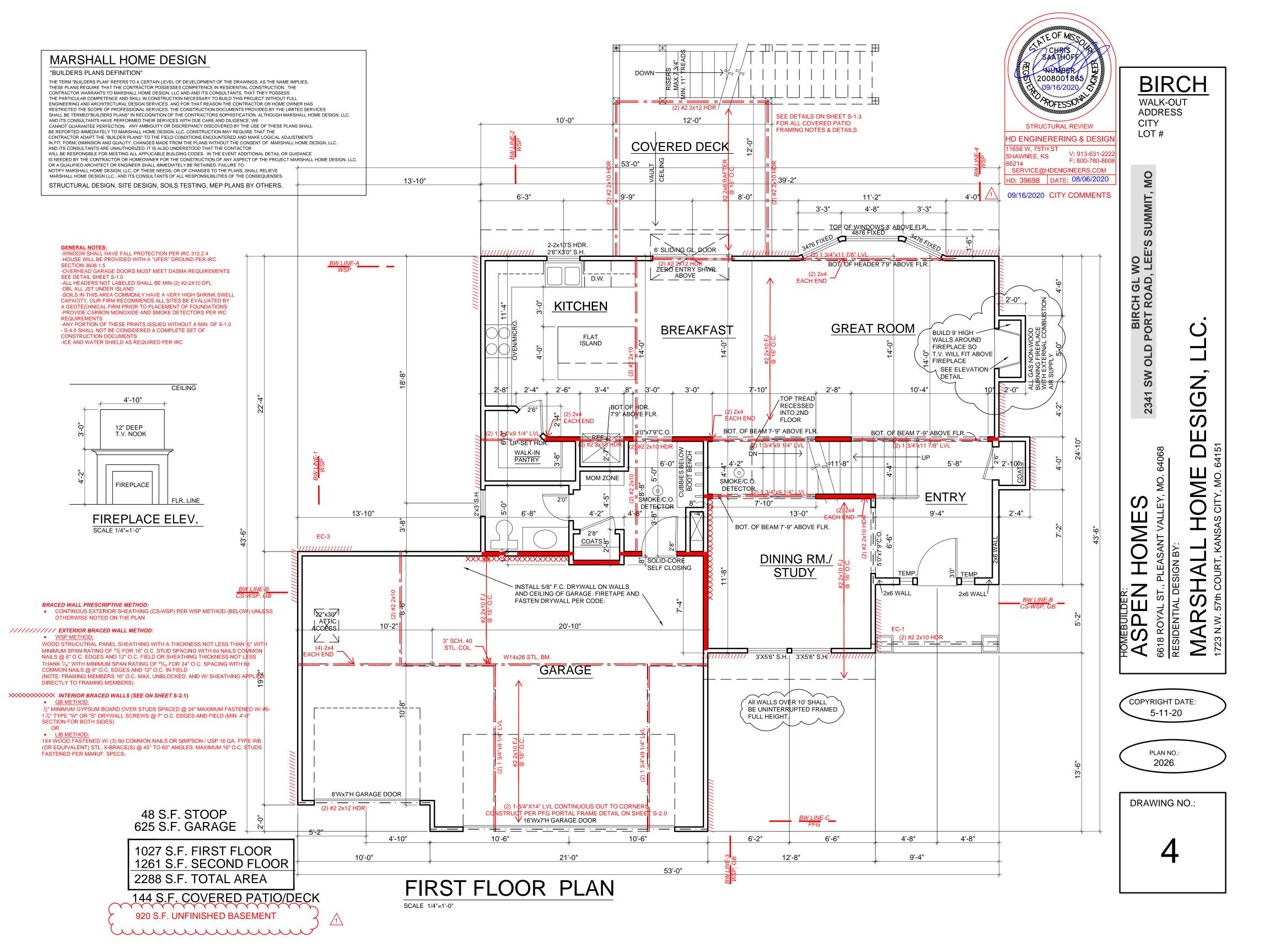
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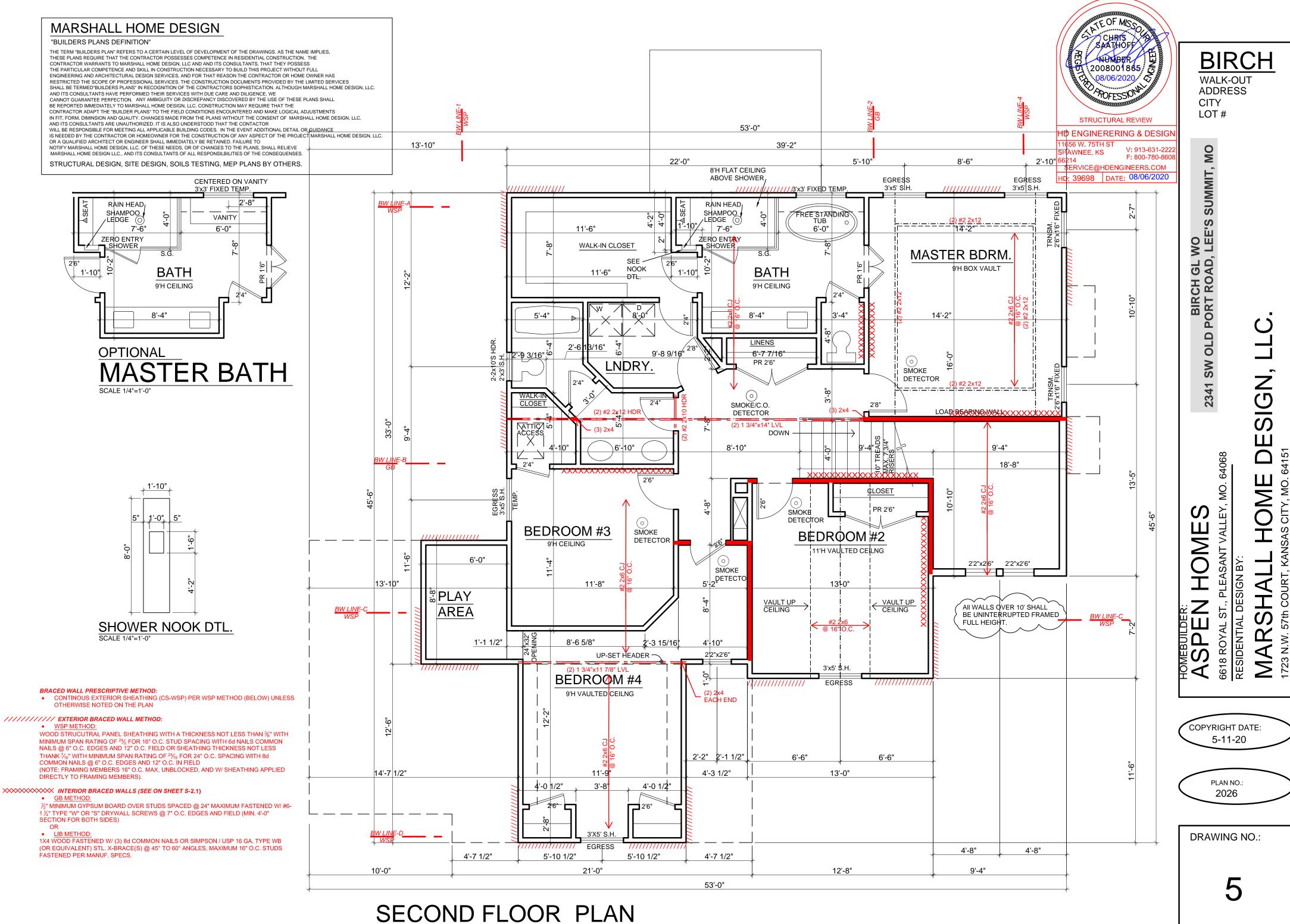
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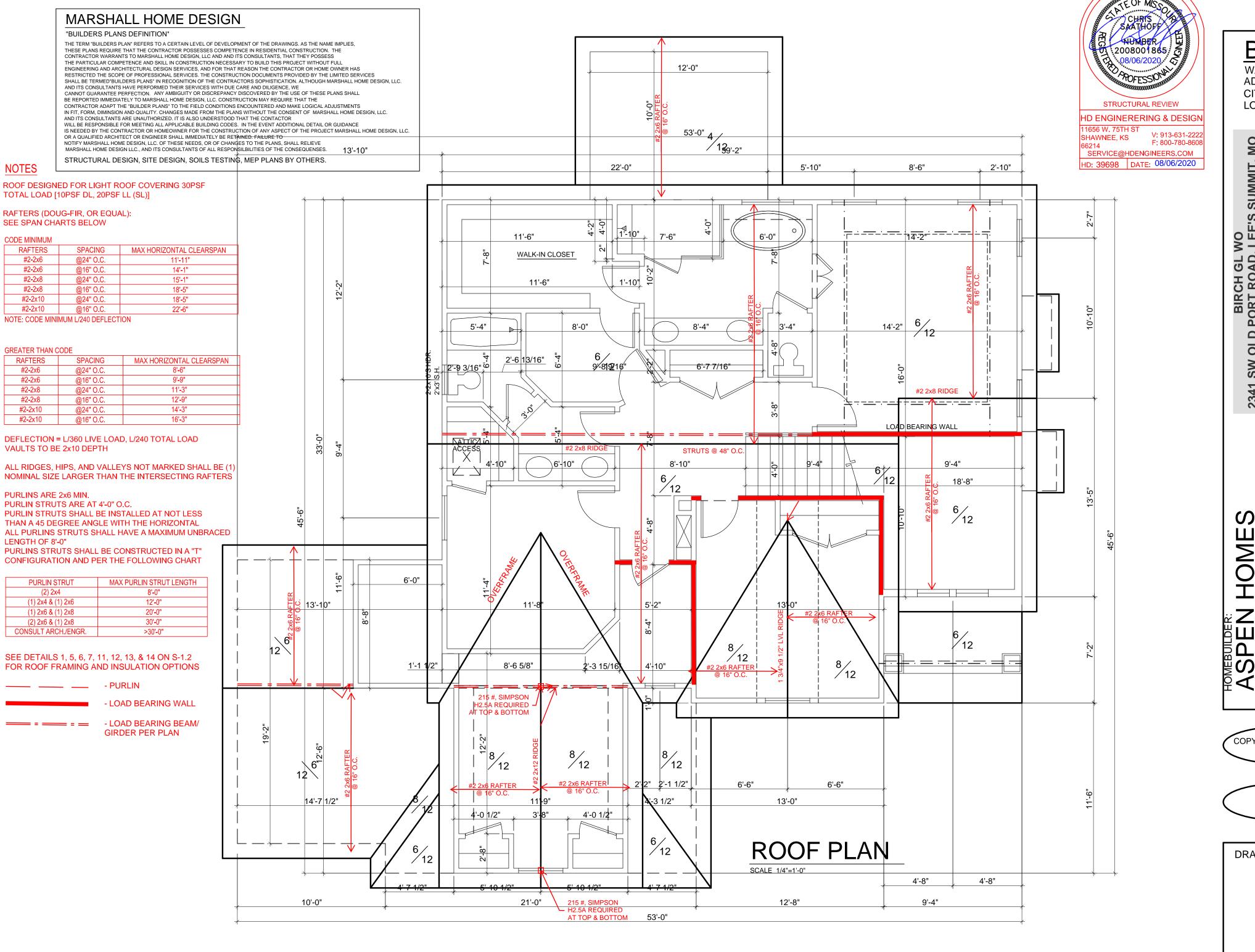
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ALLOWABLE LOADS FOR PNEUMATIC OR **MECHANICALLY DRIVEN NAILS AND STAPLES**

	NAIL GUN		PENETRATION	AL	LOWABLE LO	ADS (IN POUNI	OS)	
FASTENER DESCRIPTION	NAILS/	WIRE GA.	REQUIRED INTO MAIN MEMBER FOR LATERAL	LATERAL STRENGTH		WITHDRAWA	VAL STRENGTH	
	WIRE DIA.		STRENGTH (IN.)	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	.092	13	1	46		27	23	
6d SINKER NAIL	.002	10	'	40		21	25	
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	.120	11	1-3/8	89	81	41	32	
8d RING SHANK NAIL								
8d SCREW SHANK NAIL								
10d Cooler Nail	.128							
10d Sinker Nail		10-1/2	1-1/2	89	81	36	31	
12d Short								
10d Box Nails								
12d Box Nails	.128	10-1/2	1-1/2	101	93	40	31	
10d Casing Nails								
8d Common Nails	.131	10-1/4	1-1/2	106	97	41	32	
16d Short	.101	10 1/4	1 1/2	100		71	02	
12d Sinkers	.135	10	1-1/2	113	103	42	33	
16d Box Nails	.100	10	1-1/2	110	100	72	33	
10d Ring Shank Nails								
10d Screw Shank Nails	.135	10	1-5/8	113	103	46	36	
12d Ring Shank Nails								
12d Screw Shank Nails								
10d Common Nails								
12d Common Nails								
16d Sinker Nails	.148	9	1-5/8	128	118	46	36	
20d Box Nails								
30d Box Nails								
16d Ring Shank Nails	.148	9	1-3/4	128	118	50	40	
16d Screw Shank Nails	.170		. 5/7	120	. 10			
16d Common Nails	.162	8	1-3/4	154	141	50	40	
40d Box Nails			. 5		. 171	50	+0	
20d Ring Shank Nails	.177	7	2-1/8	178	163	59	47	
20d Screw Shank Nails				170		J a	71	
20d Sinker Nails	.177	7	2-1/8	178	163	54	43	
20d Common Nails	.148	9	2-1/8	170	166	59	47	
30d Sinker Nails		l	2 1/0	'''	.55]	

SHEATHING SCHEDULE

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

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

FRAME FASTENING SCHEDULE

BUILDING COMPONENT	FASTEN TO	FASTEN WITH	
	RIDGE / VALLEY / HIP	TOENAIL W/ (4) 16D, FACENAIL W/ (3) 16	
RAFTERS	PLATE	TOENAIL W/ (3) 10D	
1011 12110	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	
CEILING JOISTS	WHERE CLG JST RUN PARALLEL TO RAFTERS FAC	ENAIL TO RAFTERS W/ (3) 10D MINIMUM	
	LAPS OVER PARTITIONS	FACENAIL W/ (3) 10D	
	BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	TOENAIL W/ (3) 8D	
	BUILT-UP BEAMS, 2" LUMBER LAYERS, FACENAIL OPPOSITE SIDES, (2) @ EACH END PLUS	10D @ 32" OC STAGGERED, TOP & BOTTOM, OPPOSITE SIDES	
BEAMS	BUILT-UP BEAMS OF ENGINEERED LUMBER, FACE NAIL OPPOSITE SIDES	(2) ROWS @ 12" OC	
	BUILT-UP HEADER, TWO PIECES W/ 1/2" SPACER	16D @16" OC ALONG EDGES	
	BUILT-UP HEADER, TWO PIECES, NO 1/2" SPACER	3" x 0.131" NAILS @ 12" OC ALONG EDG	
	BEARING	TOENAIL W/ (2) 18D @ EACH END	
	RIM JOIST TO SILL OR TOP PLATE	TOENAIL W/ 8D COMMON OR 10D BOX NAILS @ 6" OC	
FLOOR JOISTS	JOIST TO SILL OR GIRDER	TOENAIL W/ (3) 8D	
120000000	JOIST TO RIM JOIST	FACENAIL W/ (3) 16D	
	BRIDGING TO JOIST	TOENAIL W/ (2) 8D	
	I-JOIST TO BEARING PLATE	TOENAIL W/ (2) 8D - ONE INTO EACH SIDE LEAST 1 1/2" FROM THE END	
	RIM JOIST TO I-JOIST	FACENAIL W/ (2) 10D BOX NAILS - ONE INTERCE	
	SOLE PLATE TO LSL RIM BOARD	16D BOX NAILS @ 12" OC	
	SINGLE JOIST HANGERS *	10D FACENAILS AND TOENAILS	
	DOUBLE JOIST HANGERS *	16D FACENAILS AND TOENAILS	
	TOP & SOLE PLATE TO STUD	END NAIL W/ (2) 16D	
	STUD TO SOLE AND TOP PLATE	TOENAIL W/ (4) 8D	
	DOUBLE TOP PLATES	FACENAIL W/ 16D @ 16" OC	
	DOUBLE TOP PLATE LAP SPLICE	FACENAIL W/ (8) 16D	
	TOP PLATE LAPS & INTERSECTIONS	FACENAIL W/ (2) 16D	
	DOUBLE STUDS	FACENAIL W/ 16D @ 24" OC	
	BUILT-UP CORNER STUDS	FACENAIL W/ 16D - 2 ROWS @ 24" OC	
	STEEL "X" BRACING	FACENAIL W/ (2) 16D IN EACH TOP & BOTTOM PLATE & (1) 8D PER STUD	
WALLS	SOLE PLATE TO JOIST OR BLOCKING	FACENAIL W/ 16D @ 16" OC	
	SOLE PLATES TO JOIST OR BLOCKING AT BRACED WALL LINES, PERPENDICULAR TO FRAMING	FACENAIL W/ (3) 16D @ 16" OC ALONG BRACED WALL PANEL	
	TOP PLATE TO JOIST OR BLOCKING AT BW LINES, PERPENDICULAR TO FRAMING	TOENAIL W/ 8D @ 6" OC ALONG BRACED WALL PANEL	
	SOLE PLATES TO JOIST OR BLOCKING AT BW LINES PARALLEL TO FRAMING, BLOCKING @ 16" OC	FACENAIL W/ (3) 16D @ 16" OC ALONG E PANEL & AT EACH BLOCK	
	TOP PLATE TO JOIST OR BLOCKING AT BW LINES, PARALLEL TO FRAMING, BLOCKING @ 16" OC	TOENAIL W/ 8D @ 6" OC ALONG BW PANEL & AT EACH BLOCK	
	NON-STRUCT. SIDING OVER STRUCT. SHEATHING	(1) 6D BOX NAIL IN EACH STUD	
	FIBER CEMENT PLANK SIDING	(1) 6D GALVANIZED NAIL IN EACH STU	
	WINDOW INSTALLATION NAILING	1 3/4" - 2" ROOFING NAILS @ 12" OC MA	

* JOIST HANGER NOTES: 1) NO JOIST HANGER NAILS ALLOWED FOR TOENAILS, 2) NO GUN NAILS OR SCREWS ALLOWED IN

CONNECTORS, 3) TOENAILS SHALL ALWAYS BE A FULL 3" OR 3.5" NAIL

COLUMN CONNECTION TO STEEL BEAMS SHALL BE WITH A CLIP POST CAP WITH ALL FOUR TAB 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"x2" BOLTS SHOULD THEN BE INSTALLED WITH A FLAT WASHER, LOCK WASHER, AND A NUT IN EACH OF THE HOLES. THE POST CAP MAY BE WELDED TO THE STEEL BEAM IN ACCORDANCE WITH AWS D1.1-92 AS AN ALTERNATIVE, AND WOULD NEED TO BE INSPECTED BY AN AWS-CERTIFIED INSPECTOR.

DUCT SEALING METHOD, PER IRC2018 W1103.3.2

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

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

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 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 100FT² (9.29m²) OF CONDITIONED FLOOR AREA. EXCEPTION: THE TOTAL LEAKAGE IS NOT REQUIRED FOR DUCTS AND AIR HANDLERS LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

1. PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE, 2018 IECC, AND ALL AMENDMENTS AS ADOPTED BY THE AHJ. IF ANY CHANGES OR DEVIATIONS ARE MADE FROM THESE PLANS THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND THE ENGINEER TO EVALUATE THE CHANGES AND MAKE ANY APPROPRIATE MODIFICATIONS TO THE PLANS 2. WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, NOTES FOR THE DESIGN PROFESSIONAL OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY.

3. 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. 4. 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.

5. 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 .

. THE FOUNDATION DESIGN SHALL COMPLY WITH THE ENFORCING JURISDICTION RESIDENTIAL FOUNDATION STANDARD IN LIEU OF ENGINEERING REPORT

REQUIREMENTS BASED ON ACTUAL SITE CONDITIONS 2. FOUNDATION WALLS SHALL BE DAMP-PROOFED PER IRC SECTION R406.

3. 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.

4. FOUNDATION DESIGN SHALL BE BASED ON A MINIMUM SOIL BEARING CAPACITY OF 1500 PSF. 5. FOOTINGS SHALL BE A MIN. OF 16" WIDE AND 8" DEEP W/ (2) #4 BARS CONTINUOUS, LOCATED A MIN. OF 3" CLEAR FROM BOTTOM. FOOTINGS SHALL BE A MINIMUM OF 36"

BELOW GRADE FOR FROST PROTECTION. 6. COLUMN PADS SHALL BE A MINIMUM OF 24"X24"X8" WITH (3) #4 BARS EACH WAY. 7. FOUNDATION WALLS SHALL BE A MINIMUM 8" THICK W/ MINIMUM #4 BARS @ 24" O.C. HORIZONTAL AND VERTICAL W/ THE TOP BAR WITHIN 8" OF THE TOP OF THE WALL

UNLESS NOTED OTHERWISE ON PLAN. 8. REINFORCEMENT SHALL LAP A MINIMUM OF 24"

9. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.

10. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE BY A SEPARATION

11. CONCRETE FLOOR SLABS ON GRADE, SHALL BE A MINIMUM 4" THICK OVER A MINIMUM 4" BASE OF SAND, GRAVEL, OR CRUSHED STONE. BASEMENT SLABS SHALL HAVE A MIN. 6 MIL POLYETHYLENE OR APPROVED VAPOR RETARDER WITH JOINTS LAPPED NOT LESS THAN 6" SHALL BE PLACED BETWEEN THE FLOOR SLAB AND THE BASE

13. BASEMENT FOUNDATION SILL PLATES SHALL BE BOLTED TO THE FOUNDATION W/ A MINIMUM OF 1/2" ANCHOR BOLTS EMBEDDED AT LEAST 7" INTO THE CONCRETE AND SPACED NOT MORE THAN 3' ON CENTER AND WITHIN 12" OF EACH END PIECE PER IRC SECTION R403.1.6.

12. FLOOR SLABS SUPPORTED BY FILL CONSISTING OF MORE THAN 24" OF GRANULAR FILL OR 8" OF EARTH SHALL BE REINFORCED PER A SEPARATE ENGINEERING

14. FOUNDATION WINDOW WELLS FOR SECONDARY MEANS OF EGRESS SHALL PROVIDE A MINIMUM 3'X3' HORIZONTAL AREA. 15. 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

16. IT IS RECOMMENDED THAT ALL FOOTING EXCAVATIONS BE EVALUATED AND TESTED BY A GEOTECHNICAL ENGINEER IMMEDIATELY PRIOR TO PLACEMENT OF FOUNDATION CONCRETE. UNSUITABLE AREAS IDENTIFIED AT THIS TIME SHOULD BE CORRECTED. CORRECTIVE PROCEDURES WOULD BE DEPENDENT UPON CONDITIONS ENCOUNTERED AND MAY INCLUDE DEEPENING OF FOUNDATION ELEMENTS, OR UNDERCUTTING OF UNSUITABLE MATERIALS AND REPLACEMENT WITH ENGINEERED FILL.

STAIRWAYS SHALL PROVIDE A MAXIMUM 7 3/4" RISE AND MIN. 10" RUN.

2. PROVIDE MINIMUM 36" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES AND BALCONIES. MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF STAIRWAYS LOCATED MORE THAN 30" ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERNS THAT DO NOT

3. 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 THREADS. 4. HANDRAILS SHALL HAVE A CIRCULAR CROSS-SECTION OF 1 1/4" MINIMUM TO 2" MAXIMUM OR OTHER APPROVED GRASPABLE SHAPE PER IRC SECTION R311.7.8.5 5. PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS.

6. ENCLOSED ACCESSIBLE SPACE UNDER STAIRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON

7. WINDERS SHALL PROVIDE A MINIMUM TREAD OF AT LEAST 6" AT ANY POINT WITHIN CLEAR WIDTH OF STAIRS. WINDER TREAD PROPORTION TO COMPLY WITH IRCR311.7.5.2.1.

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"

2. IN DWELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72 INCHES ABOVE THE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED, OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4 INCH DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 24 INCHES OF THE FINISHED FLOOR.

FRAMING NOTES: 1. ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS OTHERWISE NOTED.

2. ALL HEADERS TO BE A MINIMUM OF (2) #2-2X10'S UNLESS OTHERWISE NOTED. 3. BLOCK CANTILEVERS, DOOR JAMBS, AND OVER BEAMS.

4. ALL HEADERS/BEAMS TO BEAR ON A MINIMUM OF (2) 2X4 POSTS UNLESS NOTED OTHERWISE.

5. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE 6. WHERE JOISTS RUN PARALLEL TO FOUNDATION WALLS, SOLID BLOCKING FOR A MINIMUM OF (2) JOIST SPACES SHALL BE PROVIDED AT A MAXIMUM OF 4' CENTERS TO TRANSFER LATERAL LOADS ON THE WALL TO THE FLOOR DIAPHRAGM. THE BLOCKING SHALL BE SECURELY NAILED TO THE JOISTS AND FLOORING. NAIL JOISTS AND BLOCKING TO SILL PLATE WITH (4) 10D NAILS.

7. IF DUCTS ARE INSTALLED IN THE FIRST JOIST SPACE(S), NAIL 2X4'S FLAT AT 4' CENTERS WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING, INSTALLED UPRIGHT, IN THE NEXT TWO JOIST SPACES. SECURE THE 2X4'S TO THE SILL PLATE WITH (4) 10D NAILS. 8. ALL SILLS AND SLEEPERS SUPPORTED ON CONCRETE OR MASONRY AND FURRING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT

9. JOISTS UNDER BEARING PARTITIONS SHALL BE SIZED TO CARRY THE DESIGN LOAD IN ACCORDANCE WITH IRC SECTION R502.4.

10. JOISTS FRAMING FROM OPPOSITE SIDES OVER BEARING SUPPORTS SHALL LAP A MINIMUM OF 3" AND SHALL BE NAILED TOGETHER WITH A MINIMUM 10D FACE NAILS. 11. JOISTS FRAMING INTO A WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR ON MINIMUM 2"X2" LEDGER STRIPS. 12. 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. 13. JOISTS AT SUPPORTS SHALL BE SUPPORTED LATERALLY AT THE ENDS BY FULL-DEPTH SOLID BLOCKING NOT LESS THAN 2" NOMINAL THICKNESS OR BY ATTACHMENT TO A HEADER, BAND OR RIM JOIST OR TO AN ADJOINING STUD OR OTHERWISE PROVIDED WITH LATERAL SUPPORT TO PREVENT ROTATION. 14. ALL WALL COVERINGS TO COMPLY WITH IRC SECTION 702 AND 703

15. ALL RAFTER / COLLAR TIES TO COMPLY WITH IRC SECTIONS 804

16. ALL RAFTERS TO HAVE 2x4 COLLAR TIES @ 48" OC IN UPPER 1/3 OF DISTANCE BETWEEN CEILING AND ROOF

17. BLOCKING BETWEEN JOISTS UNDER A PERPENDICULAR LOAD-BEARING WALL IS NOT REQUIRED 18. BOTTOM OF ALL FLOOR ASSEMBLIES SHALL BE PROVIDED WITH A 1/2" GYPSUM WALLBOARD MEMBRANE (IF REQUIRED BY LOCAL CODE)

19. I-JOIST AND FLOOR TRUSS SYSTEMS SHALL BE FIRE PROTECTED PER IRC AS ADOPTED BY AHJ 20. STUDS SHALL BE CONTINUOUS FROM THE FLOOR TO THE ROOF/ CEILING DIAPHRAGM PER IRC 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.

1. 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. 2. 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. 3. 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.

1. 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.

2. DOORS BETWEEN THE GARAGE AND DWELLING - MINIMUM 1 3/8" SOLID WOOD, SOLID OR HONEY-COMBED CORE STEEL DOOR NOT LESS THAN 1 3/8" THICK, OR 20 -MINUTE FIRE - RATED EQUIPPED WITH SELF CLOSING DEVICE PER IRC2018 R302.5.1.. 3. GARAGE VEHICLE DOORS AND FRAMES SHALL BE DESIGNED AND INSTALLED TO MEET THE 115-MPH 3-SECOND GUST LOADING PER DASMA 108 AND ASTM E 330-96 PER

IRC2018 R301.2.1 4. THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY MINIMUM 5/8" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE HABITABLE SPACE OCCURS ABOVE THE GARAGE, THE FLOOR CEILING ASSEMBLY SHALL BE PROTECTED WITH MINIMUM 5/8" TYPE X GYPSUM BOARD ON THE GARAGE CEILING. WHERE A FLOOR/CEILING SPACE IS PROVIDED ABOVE THE GARAGE COLUMNS AND BEAMS SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED WITH 5/8" GYPSUM BOARD

5. GARAGE DOOR H-FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x6 VERTICAL JAMBS RUNNING FROM FLOOR TO CEILING ATTACHED WITH 1 3/4"X.120" NAILS AT 7" CENTERS STAGGERED WITH (7) 3 1/4"X.120" NAILS THRU THE JAMB INTO THE HEADER, MINIMUM 2X8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.

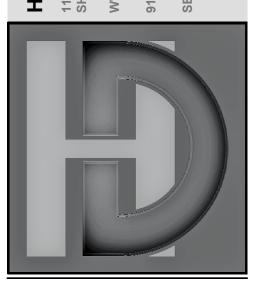
6. ANY ATTACHED GARAGE TO THE MAIN HOUSE SHALL BE PROVIDED WITH A SINGLE HEAT DETECTOR. HEAT DETECTOR SHALL BE HARDWIRED AND INTERCONNECTED WITH THE HOUSEHOLD SMOKE ALARM SYSTEM. HEAT DETECTOR SHALL BE LISTED FOR THE AMBIENT ENVIRONMENT AND INSTALLED PER MANF. INSTRUCTIONS.

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

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

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08/06/2020 DATE: CHECKED BY: CLS

NO.	ISSUE/REVISION	Revision Date

GENERAL NOTES

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

TEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF ^{a,b,c} FASTENER	SPACING OF FASTENERS	ITEM
1	DI OCIVINO DETIVEENI JOICTE OD DAFTEDO TO TOD DI ATE, TOE NAIL	ROOF 4-8D BOX (2 1/2" X 0.113")	TOE NAIL	
2	BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOE NAIL CEILING JOISTS TO PLATE, TOE NAIL	3-8D (2 1/2" X 0.113") 3-10D (3"X0.128")	PER JOIST, TOE NAIL	
3	CEILING JOISTS NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (SEE SECTION R802.5.2 AND TABLE R802.52	3-16D COMMON (3 1/2"X 0.162")	FACE NAIL	30
4	CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT)	4-3"X 0.131"NAILS TABLE R802.5.2	FACE NAIL	31
	SEE SECTION R802.5.2 AND TABLE R802.5.2) COLLAR TIE TO RAFTER, FACE NAIL OR 1 1/4" X 20GA. RIDGE	4-10D BOX (3" X 0.128")		32
5	STRAP TO RAFTER	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" X0.135") 3-10D COMMON NAILS (3" X 0.148" 4-10D BOX (3" X 0.128" 4-3" X0.131" NAILS	2 TOE NAILS ON ONE SIDE AND 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS ¹	33
	ROOF RAFTERS TO RIDGE, VALLEY OR HIP RAFTERS OR ROOF	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		34
7	RAFTER TO MINIMUM 2" RIDGE BEAM	3-16D(3 1/2" X0.135"); OR 2-16D COMMON (3 1/2" X0.162") 3-10D BOX (3" X 0.128"); OR 3-3" X 0.131" NAILS	TOE NAIL	35
		WALL		36
		16D (3 1/2" X 0.162")	24" OC FACE NAIL	
8	STUD TO STUD (NOT BRACED WALL PANELS)	10D BOX (3" X 0.128"); OR 3" X 0.131" NAILS	16" OC FACE NAIL	
	STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL	16D BOX (3 1/2" X 0.135"); OR 3" X 0.131" NAILS	12" OC FACE NAIL	37
9	CORNERS (AT BRACED WALL PANELS)	16D COMMON (3 1/2" X 0.162")	16" OC FACE NAIL	
	BUILT-UP HEADER (2" TO 2" HEADER WITH 1/2" SPACER)	16D COMMON (3 1/2" X 0.162")	16" OC EACH EDGE FACE NAIL	38
0	DOILL OF THE ADEIN (Z. TO Z. TILADLIN WITH 1/2 SPACEN)	16D BOX (3 1/2" X 0.135")	12" OC EACH EDGE FACE NAIL	
1	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	39
		16D COMMON (3 1/2" X 0.162")	16" OC FACE NAIL	For SI:
2	TOP PLATE TO TOP PLATE	10D BOX (3" X 0.128") OR 3" X 0.131" NAILS	12" OC FACE NAIL	
3	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)	
	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING	16D COMMON (3 1/2" X 0.162")	16" OC FACE NAIL	
4	(NOT AT BRACED WALL PANELS	16D BOX (3 1/2" X 0.135"); OR 3" X 0.131" NAILS	12" OC FACE NAIL	STUE
5	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" X0.162"); or 4-3" X 0.131" NAILS	3, 2, OR 4 EACH 16" OC FACE NAIL	(1
		4-8D BOX (2 1/2" X 0.113"); or 3-16D BOX (3 1/2" X0.135"); or 4-8D COMMON (2 1/2" X0.131");or 4-10D BOX (3" X0.128"); or 3-3" X 0.131" NAILS	TOE NAIL	
16	TOP OR BOTTOM PLATE TO STUD	3-16D BOX (3 1/2" X 0.135"); or 2-16D COMMON (3 1/2" X0.162"); or 3-10D BOX (3" X0.128");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 1/2" X0.162"); or 3-3" X 0.131" NAILS	FACE NAIL	2
8	1" BRAVE TO EACH STUD AND PLATE	3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X0.131") or 2-10D BOX (3" X 0.128"); or 2 STAPLES 1 3/4"	FACE NAIL	2
9	1" X 6" SHEATHING TO EACH BEARING	3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X0.131") or 2-10D BOX (3" X 0.128"); or 2 STAPLES 1"	FACE NAIL	2
		CROWN, 16GA., 1 3/4" LONG 3-8D BOX (2 1/2" X 0.113"); or 3-8D COMMON (2 1/2" X0.131") or 3-10D BOX (3" X 0.128"); or 3 STAPLES, 1"		FOR SI: a. LISTI
20	1" X 8" AND WIDER SHEATHING TO EACH BEARING	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" X0.131") or 3-10D BOX (3" X 0.128"); or 4	FACE NAIL	ON NOT UNSUPF PRACTION b. SHA
		STAPLES, 1" CROWN, 16GA., 1 3/4" LONG FLOOR		c. A HA INCREA
1	JOIST TO SILL, TOP PLATE OR GIRDER	4-8D BOX (2 1/2" X 0.113"); or 3-8D COMMON (2 1/2" X0.131") or 3-10D BOX (3" X 0.128"); or 3-3" X 0.131: NAILS	TOE NAIL	MI
.2	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" X0.128")	4" OC TOE NAIL	VA
 !3	1" X 6" SUBFLOOR OR LESS TO EACH JOIST	or 3-3" X 0.131" NAILS 3-8D BOX (2 1/2" X 0.113"); or 2-8D COMMON (2 1/2" X 0.131") or 3-10D BOX (3" X 0.128"); or 2 STAPLES, 1"	6" OC TOE NAIL FACE NAIL	
24	2" SUBFLOOR TO JOIST OR GIRDER	CROWN, 16GA., 1 3/4" LONG 3-16D BOX (3 1/2" X 0.135"); or	BLIND AND FACE NAIL	
<u></u> 25		2-16D COMMON (3 1/2" X0.162") 3-16D BOX (3 1/2" X 0.135"); or	AT EACH BEARING,	
	2" PLANKS (PLANK & BEAM-FLOOR AND ROOF)	2-16D COMMON (3 1/2" X0.162") 3-16D COMMON (3 1/2" X 0.162"); or 4-10D BOX	FACE NAIL	
26	BAND OR RIM JOIST TO JOIST	(3" X0.128") or 4-3" X 0.131" NAILS; or 4-3" X 14GA. STAPLES, 7/16" CROWN 20D COMMON (4" X 0.192"); or	END NAIL NAIL EACH LAYER AS FOLLOWS: 32" OC	N
27	BUILT-UP GIRDERS AND BEAMS, 2-INCH LUMBER LAYERS	10D BOX (3" X 0.128"); or 3" X 0.131" NAILS AND: 2-20D COMMON (4" X 0.192"); or	AT TIP AND BOTTOM AND STAGGERED 24" OC FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES	<u> </u>
28	LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	3-10D BOX (3" X 0.128; or 3-3" X 0.131" NAILS 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	CLIMAT 4 EXCEPT
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	NOTES: 1
		(2 1/2 A U. 131 UI 2-3 A U. 131") NAILS	·	3

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, 8D DEFORMED (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

SHEATHING TO INTERMEDIATE SUPPORTS SHALL BE SPACED 6 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.

HEIGHT IS MORE THAN 25 FEET, UP TO 35 FEET MAXIMUM.
g. FOR REGIONS HAVING BASIC WIND SPEED OF 100 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

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 FLOOR SHEATHING PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING, BLOCKING OF ROOF OR FLOOR SHEATHING 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 CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE

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

		NUMBER AND TYPE OF a,b,c	SPACING OF FASTENERS		
ITEM	DESCRIPTION OF BUILDING ELEMENTS	FASTENER	EDGES (INCHES) _h	INTERMEDIATE c, e SUPPORTS (INCHES)	
	WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF AND INTERIOR ([SEE TABLE R602.3(3) FOR WOOD STRUCT	WALL SHEATHING TO FRAMING AND PARTICLEBOARD W URAL PANEL EXTERIOR WALL SHEATHING TO WALL FRA			
30	3/8"- 1/2"	6D COMMON (2"X 0.113" NAIL (SUBFLOOR, WALL) i 8D COMMON (2 1/2" X 0.131 NAIL (ROOF); or RSRS-01 (2 3/8" X 0.113" NAIL (ROOF) j	6	12 f	
31	19/32" - 1"	8D COMMON NAIL (2 1/2" X 0.131; or RSRS-01; 2 3/8" X 0.113) NAIL ROOF ;	6	12 f	
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	
	ОТ	HER WALL SHEATHING ⁹			
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 ^d	1 1/2" GALVANIZED ROOF NAIL, STAPLE GALVANIZED, 11/2" LONG; 1 1/4" SCREWS, TYPE W or S	7	7	
36	5/8" GYPSUM SHEATHING ^d	1 3/4" GALVANIZED ROOF NAIL; STAPLE GALVANIZED, 1 5/8" LONG; 1 5/8" SCREWS, TYPE W or S	7	7	
	WOOD STRUCTURAL PANELS, CO	MBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
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

	BEARING WALLS			NON-BEARING WALLS			
STUD SIZE (IN)	LATERALLY UNSUPPORTED STUD HEIGHT a (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 a (inches)	LATERALLY UNSUPPORTED STUD HEIGHT a (feet)	LATERALLY UNSUPPORTED STUD HEIGHT (feet)
2x3 ^b						10	16
2x4	10	24 _c	16 c		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 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 ACCEPTED ENGINEERING

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.

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 I	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

ALL FOUR TAB EARS BENT AROUND THE BOTTOM FLANGE OF THE BEAM. FOR A 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 _b (psi)	E (psi)	F _v (psi)
LVL	2600	1.8x10	285
GLULAM	2400	1.8x10	190
PARALAM	2600	2.0x10	290

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

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 (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"

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

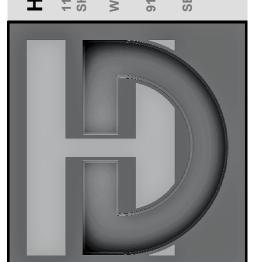
CLIMATE ZONE	FENSTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED SHGC FENSTRATION	INSULATED METAL DOOR U-VALUE	INSULATED WOOD DOOR U-VALUE	CEILING R-VALUE	WOOD FRAMED WALL R-VALUE				DUCTWORK OVER OUTSIDE R-VALUE	•
4 EXCEPT MARINE	0.32	0.55	0.40	0.60	0.50	49	15	19	10 CONTINUOUS OR 13 CAVITY	10 CONTINUOUS OR 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

RESIDENTIAL CONSTRUCTION AND A THOROUGH UNDERSTANDING OF THE INTERNATIONAL RESIDENTIAL CODE (IRC). THE CONTRACTOR WARRANTS TO HD ENGINEERING & DESIGN THAT HE POSSESSES THE PARTICULAR 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 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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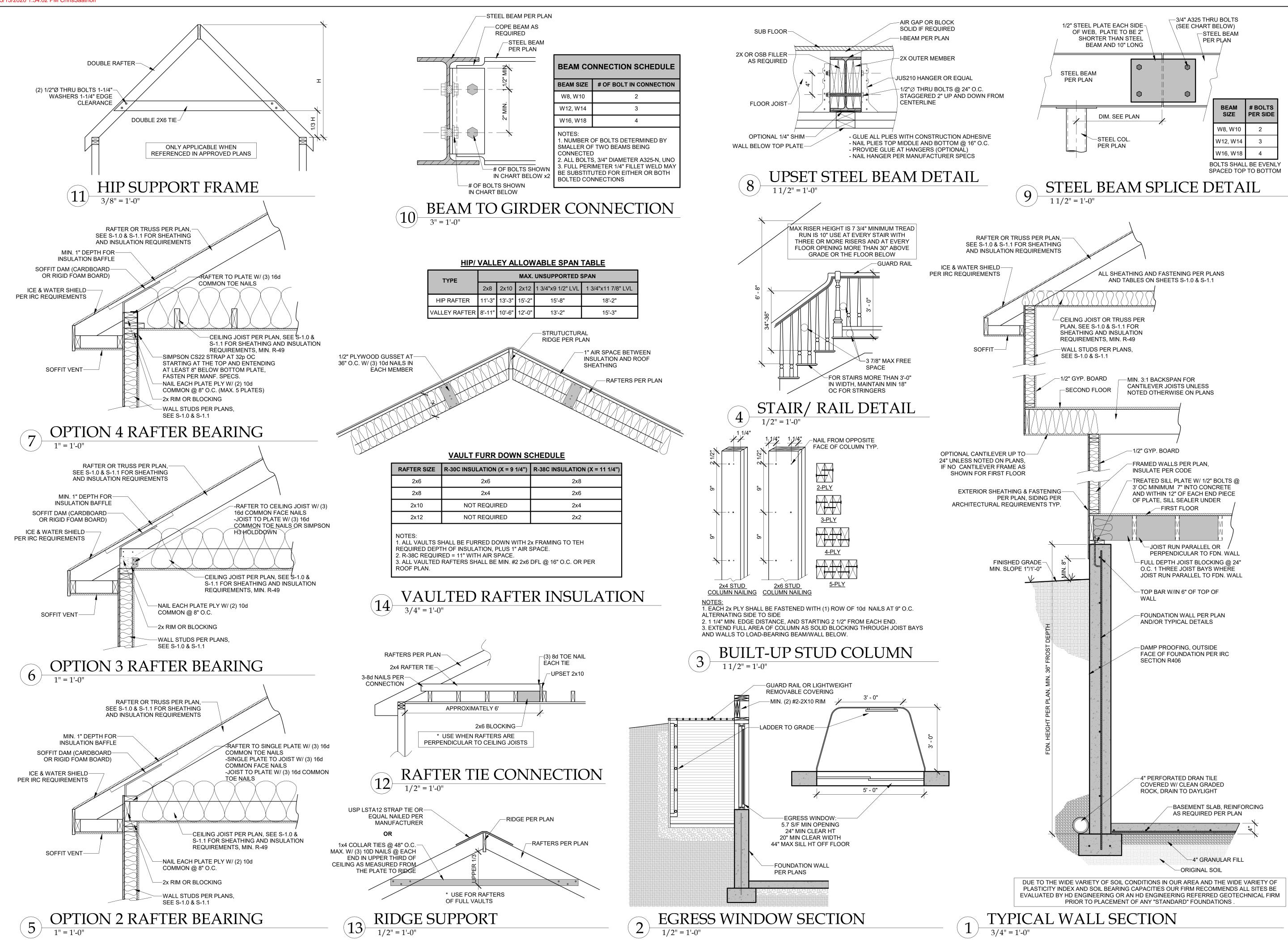




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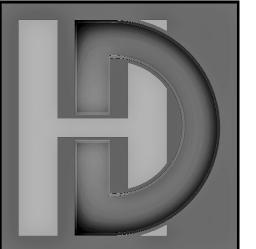
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SPEN HOMES, INC.

BIRCH GL WO
OLD PORT ROAD, LEE'S SUMMIT, MC

)#: 39698

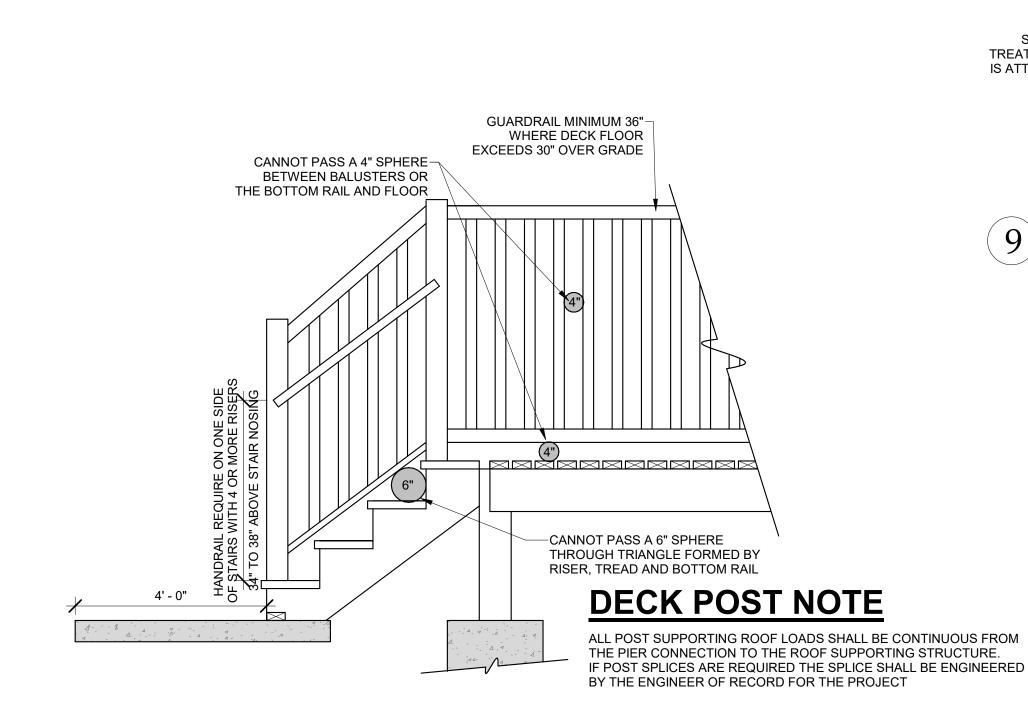
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FRAMING SECTIONS

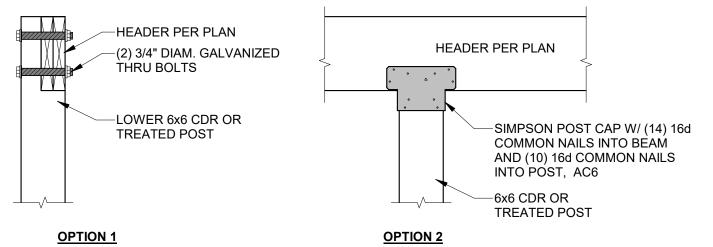
S-1.2



TOP OF EACH STRINGER IS-TOE-NAILED (TYP) AND SUPPORTED BY SIMPSON LS70 GUSSET ANGLE OR EQUIVALENT ON ONE SIDE, OR SLOPED -MIN (2) STRINGERS 24" OC TREÀÓS OVERHANGE 5" EACH SIDE (3) STRINGERS 36" OC THE THIRD CENTERED BETWEEN MAX SS = 5' FOR STRINGERS MAX SS = 9' FOR 3 STRINGERS MIN #2-2X12 TREATED SP STRINGER- COLUMN ATTACHED TO STRINGERS MAY BE PART OF HANDRAIL SYSTEM STRINGERS NOTCHED OVER-TREATED #2-2X4 SLEEPER WHICH IS ATTACHED TO LANDING LOCKS IN BOTTOM OF STRINGERS STRINGER SPAN (SS) CONCRETE LANDING IS RECOMMECDED IT SHALL SUPPORT THE HEEL CUT OF THE STRINGERS

STAIR STRINGER DETAIL

1/2" = 1'-0"



ROOF LEVEL INTERIOR BEAM TO COLUMN

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 d, e							
1/2" LAG SCREW WITH 15/32" MAX. SHEATHING ^{c,d}	30	23	18	15	13	11	10	
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING ^d	36	36	34	29	24	21	19	
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING & 1/2" STACKED WASHERS ^e	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 ^a	2 inches ^d	3/4 inches	2 inches ^b	1 5/8 inches ^b				
BAND JOIST ^c	3/4 inches	2 inches	2 inches	1 5/8 inches ^b				

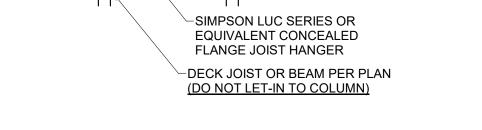
For SI: 1 inch = 25.4mm. a. Lag screws of bolts shal lbe staggered from the top to the bottom along the horizontal run of the deck

ledger in accordance with Figure R507.9.1.3(1) b. Maximum 5 inces

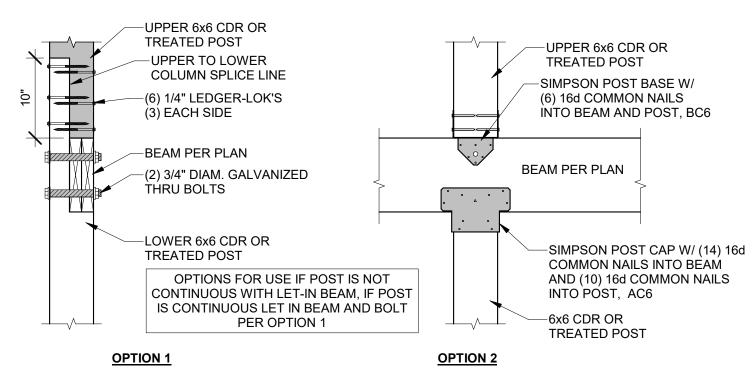
c. For engineered rim joists, the manufacturer's recommendations shall govern. d. The minimum distances from bottom row of lag screws or bolts to the top of the ledger shall be in accordance with Figure R507.9.1.3(1)

DECK LEDGER ATTACHMENT

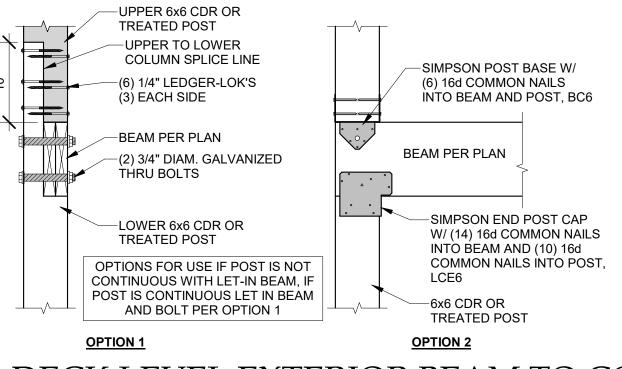
1X4 TREATED SPACER NAILED TO--FLOOR JOISTS PER PLAN 2x TREATED LEDGER-TREATED DECK JOIST--FOUNATION OR FRAMED PER PLAN WALLS PER PLAN, INSULATE PER CODE 1/2" CORROSION RESISTANT LAG-SCREWS OR BOLT MUST PENETRATE HOUSE RIM SEE R507.2 THIS SHEET



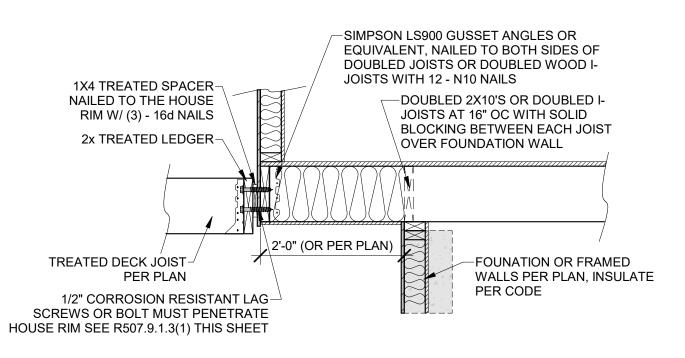
DECK CORNER COLUMN



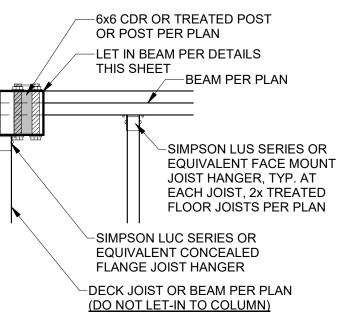
DECK LEVEL INTERIOR BEAM TO COLUMN



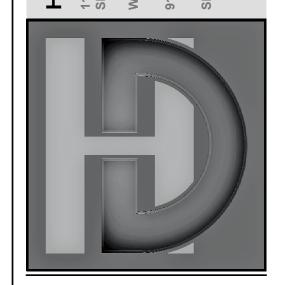
DECK LEVEL EXTERIOR BEAM TO COLUMN



DECK LEDGER TO CANTILEVER



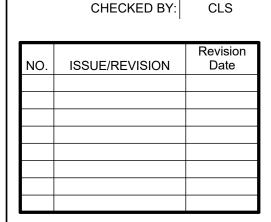
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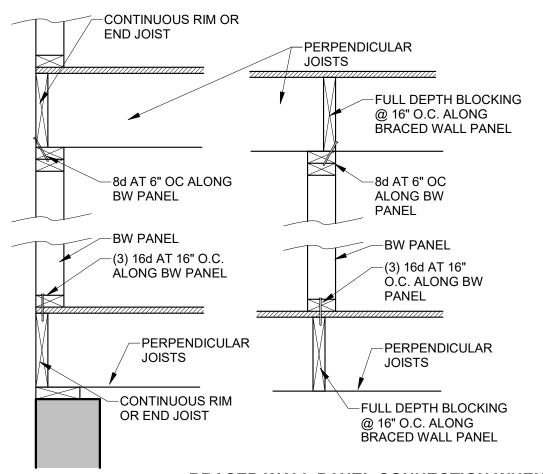


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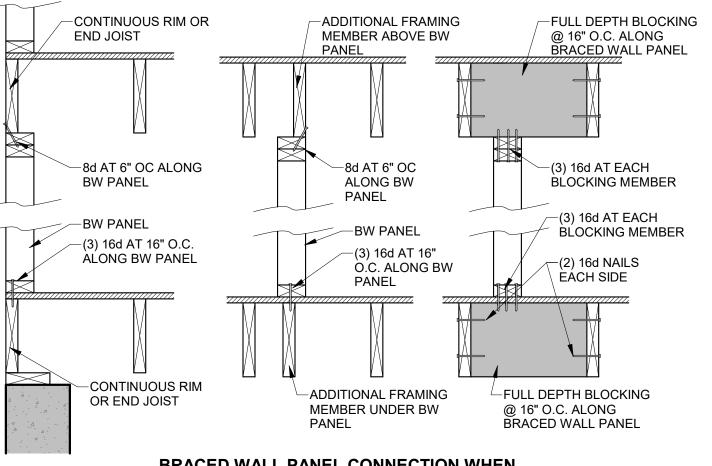
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DECK DETAILS



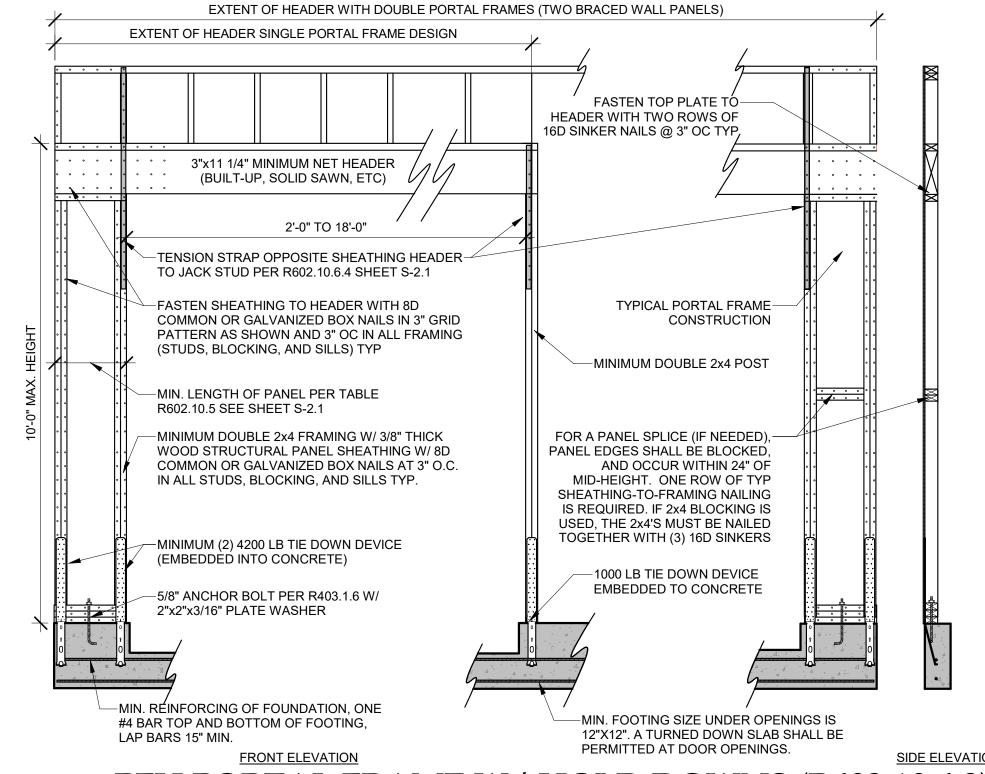
BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING JOISTS



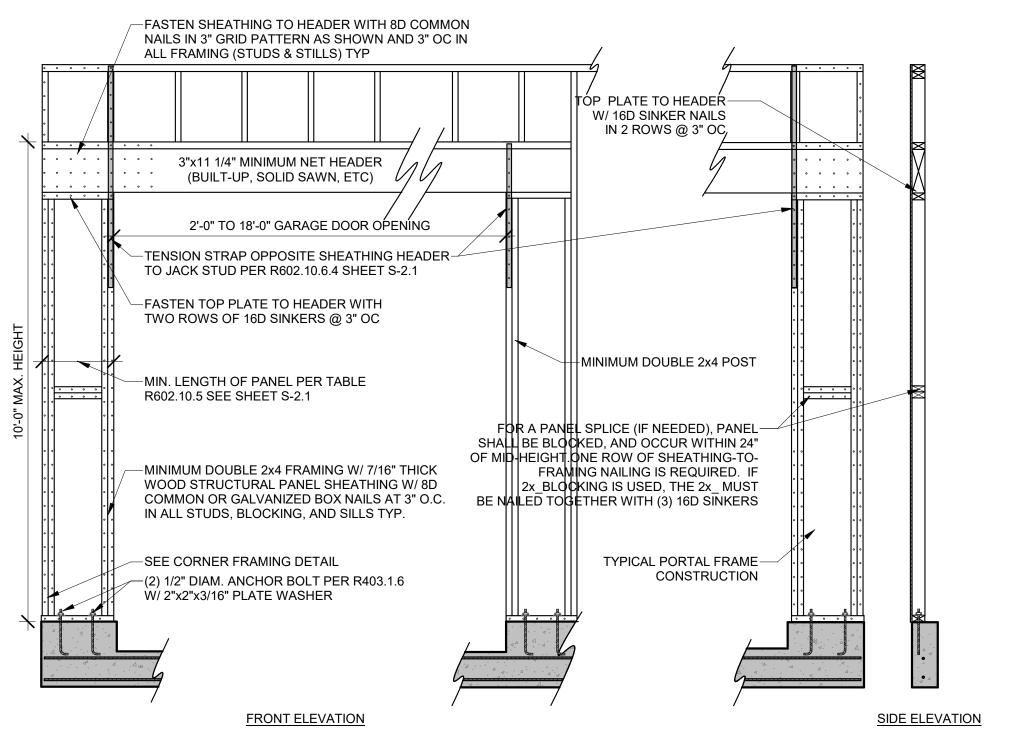
BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING JOISTS

BRACED WALL PANEL CONNECTIONS

1" = 1'-0"



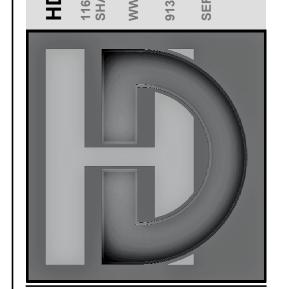
SIDE ELEVATION PFH PORTAL FRAME W/ HOLD DOWNS (R602.10.6.2)



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

1/2" = 1'-0"

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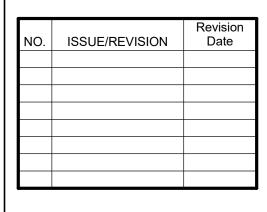




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BRACED WALL NOTES & DETAILS

(2) 16 NAIL\$ @ EACH

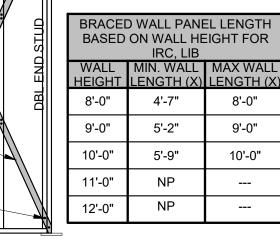
PLATE FACE NAILED

(2) 8D NAILS @ EACH— INTERMEDIATE STUDS INTÉRMEDIAITE STUDS 16 GA. STL. STRAP

SIMPSON / USP TYPE WB (OR EQUIVALENT)

(2) 16D NAILS @ EACH-

PLATE FACE NAILED



LIB BRACING

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

MINIMUM LENGTH (INCHES) a								
METHOD				ALL HEIGI	CONTRIBUTING LENGTH			
	(SEE TABLE R602.10.4)	8 FEET		10 FEET		12 FEET	(INCHES)	
DWB,WSP,SFB,PBS,PCP,HPS,BV-WSP		48	48	48	53	58	ACTUAL ^b	
GB		48	48	48	53	58	DOUBLE SIDED = ACTUAL SINGLE SIDED=.5xACTUAL	
	LIB		62	69	NP	NP	ACTUAL ^b	
	SDC A, B, AND C ULTIMATE DESIGN WIND SPEED<140	28	32	34	38	42		
ABW	SDC D ₀ ,D ₁ ,D ₂ ULTIMATE DESIGN WIND SPEED<140	32	32	34	NP	NP	48	
	SUPPORTING ROOF ONLY	16	16	16	NOTE C	NOTE C	48	
PFH	SPTNG. ONE STORY & ROOF	24	24	24	NOTE C	NOTE C	48	
	PFG	24	27	30	NOTE D	NOTE D	1.5 x ACTUAL ^b	
	CS-G	24	27	30	33	36	ACTUAL ^b	
	CS-PF		18	20	NOTE E	NOTE E	ACTUAL ^b	
	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 ^b	
CS-SFB	100	-	44	40	38	38	HOTOKE	
	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		

a. LINEAR INTERPOLATION SHALL BE PERMITTED b. USE THE ACTUAL LENGTH WHEN IT IS GREATER THAN OR EQUAL TO THE MINIMUM LENGTH

 d. 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

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 MEMBERS).

INTERIOR BRACED WALLS (SEE ON THIS SHEET)

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)

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.

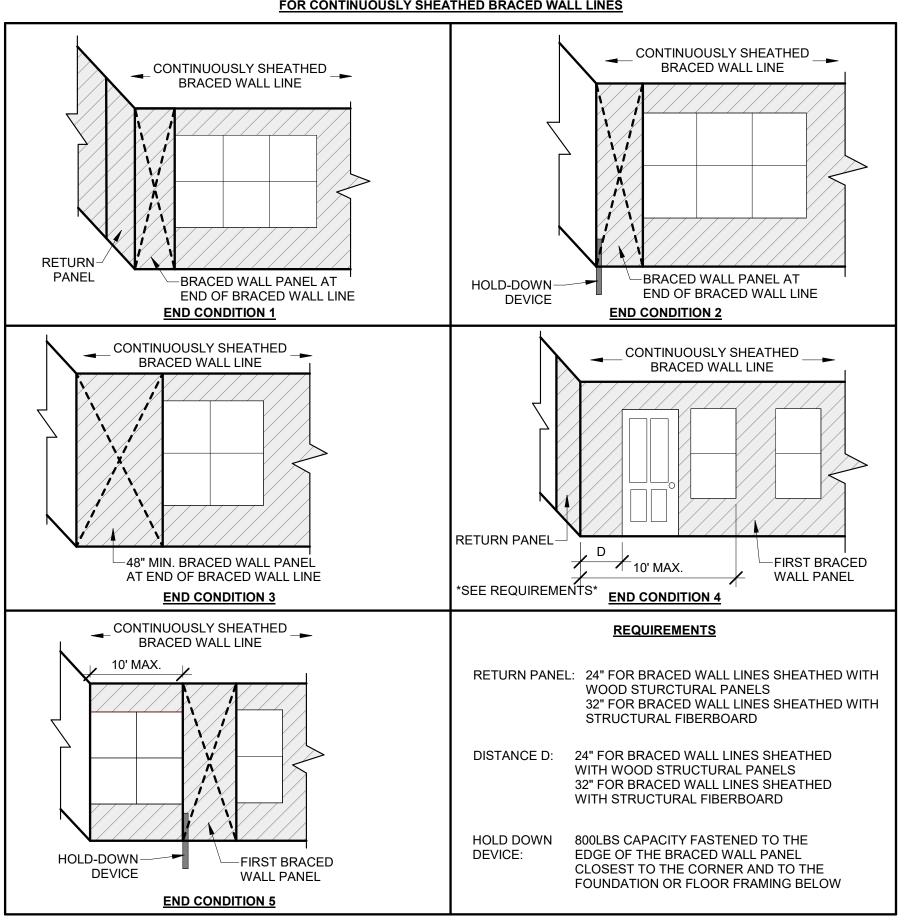
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO METHOD PFH, PFG AND CS-PF BRACED WALL PANELS IRC2018 TABLE R602.10.6.4

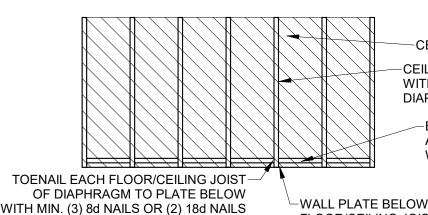
		MAX. TOTAL WALL HEIGHT (FEET)		TENSION STRAP CAPACITY REQUIRED (POUND ULTIMATE DESIGN WIND SPEED V (MPH)			
MINIMUM WALL STUD FRAMING	MAX. PONY		MAX. OPENING				
NOMINAL SIZE & GRADE	WALL HEIGHT (FEET)		WIDTH (FEET)	115	115		
				EXPOSURE B	EXPOSURE C		
	0	10	18	1,000	1,000		
			9	1,000	1,000		
	1	10	16	1,025	2,500		
			18	1,275	2,850		
			9	1,000	1,875		
2X4 NO. 2 GRADE	2	10	16	2,175	4,125		
			18	2,500	DR		
			9	1,500	3,175		
	2	12	16	3,375	DR		
			18	3,975	DR		
	4	40	9	2,750	DR		
	4	12	12	3,775	DR		
			9	1,000	2,025		
	2	12	16	2,150	3,675		
OVE STUD CRADE			18	2,550	DR		
2X6 STUD GRADE			9	1,750	3,125		
	4	12	16	2,400	DR		
			18	3,800	DR		

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

END WALL CONDITIONS

FOR CONTINUOUSLY SHEATHED BRACED WALL LINES



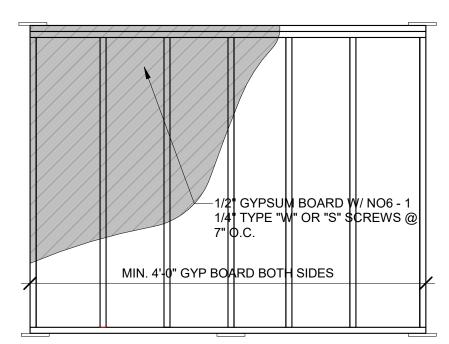


CEILING/FLOOR DIAPHRAGM PER PLAN CEILING/FLOOR JOISTS @ 16" OC WITH PLYWOOD OR GYPSUM DIAPHRAGM ATTACHED PER PLAN

-BLOCKING BETWEEN JOISTS ABOVE WALL, TOENAILED TO WALL W/ (3) 8d NAILS

FLOOR/CEILING JOISTS

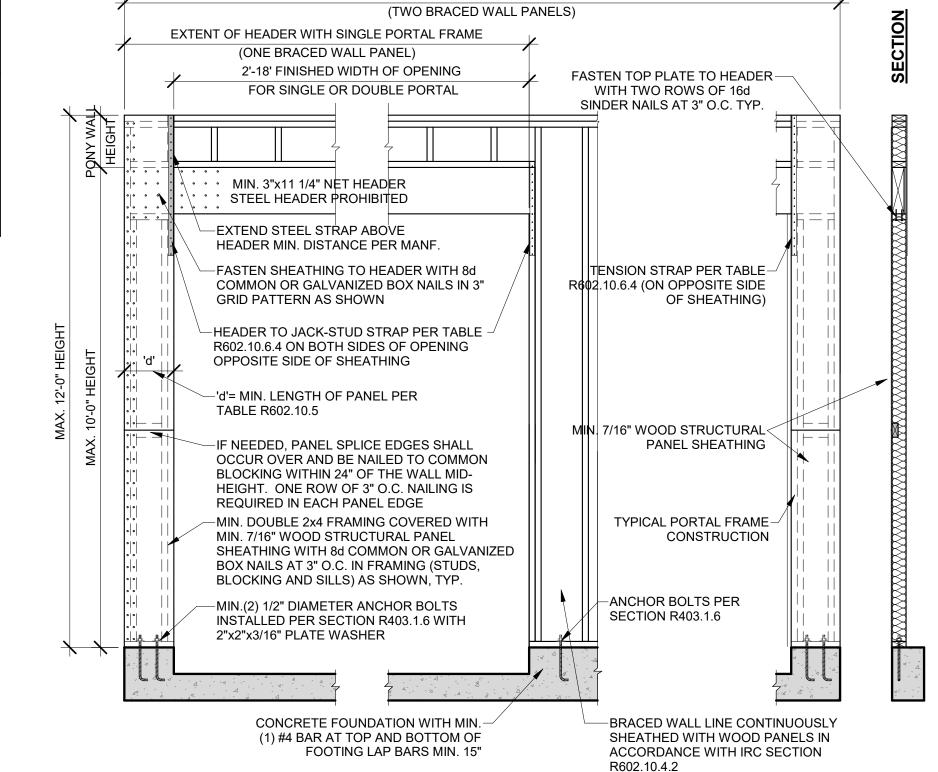
DIAPHRAGM CONNECTION TO INTERIOR WALL



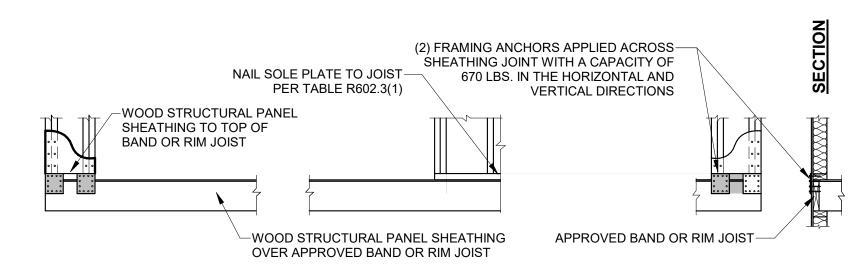
GB BRACING

FRONT ELEVATION

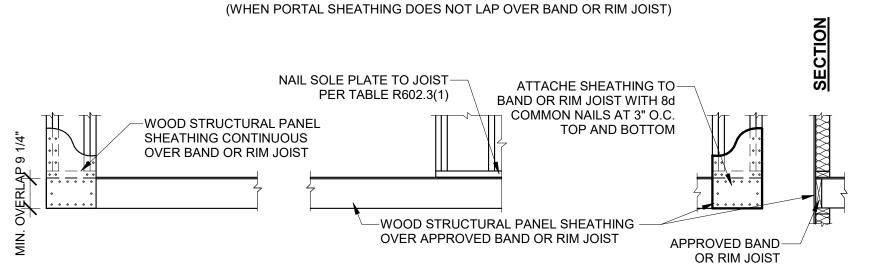
EXTENT OF HEADER WITH DOUBLE PORTAL FRAMES



OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

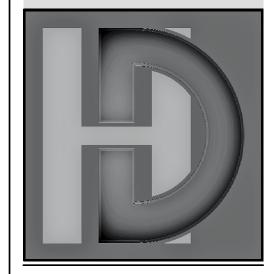


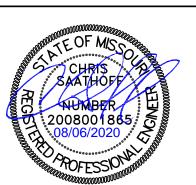
OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

CS-PF

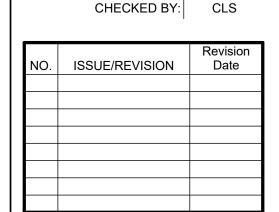
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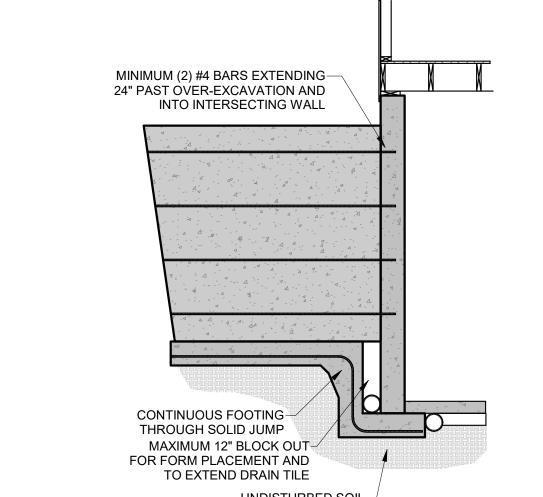


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39698 08/06/2020 DATE:



BRACED WALLS NOTES & DETAILS

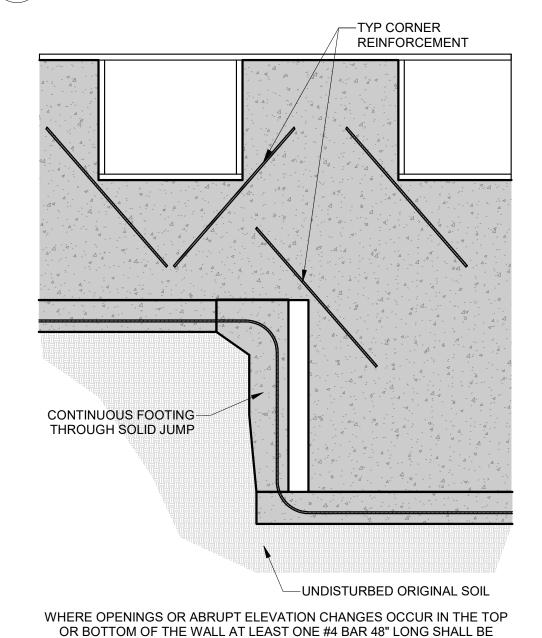


16'-0" MAX. 16'-0" MAX. -RETURN WALL NOT **REQUIRED FOR 5'** TALL OR LESS ☐ IF THE WALL IS NOT SUPPORTED AT THE TOP, PLACE THE FIRST RETURN NOT MORE THAN 8' FROM THE LOW END OF THE STEP. RETURN WALL PLACEMENT

-2x FRAMED WALL PER PLAN -1/2" BOLTS @ 3' OC MINIMUM 7" INTO CONCRETE AND 12" OF EACH END PIECE -FLASHING BY OTHERS FLOOR DECK-2x10 FLOOR JOIST, ALL-DIMS. TO BE ADJUSTED FOR LARGER JOISTS 2x TREATED PLATE--CONCRETE GARAGE SLAB FASTEN W/ SIMPSON TITEN-PER PLAN, SLOPE TO DOOR HD 1/2"x5" @ 48" O.C. THICKEN SLAB EDGE -PLACE ON 2" KEYWAY -DRILL OR EMBED MINIMUM 5" -FOUNDATION WALL PER PLAN

ZERO ENTRY GARAGE DETAIL

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



DIAGONALLY AS CLOSE A PRACTICAL TO THE CORNER

·3500 psi CONCRETE MINIMUM

DRILL/EMBED BARS MIN. 5" INTO

GRADE 40 STEEL MINIMUM ·LAP SPLICES 24" MINIMUM

9' TO 12'

TYPICAL GARAGE SLAB

FOUNDATION WALLS

SLOPE SLAB TO DOORS

REINFORCEMENT AT CORNERS AND STEPS

IMPORTANT NOTE:

-THIS COLUMN AND PAD

DIRECTLY UNDER ANY

STEEL COLUMNS ABOVE,

PAD SHOULD BE A MIN. OF

48"x48"x12" CONC. PAD W/

(8) #4 BARS E.W. IF STEEL

MUST BE PLACED

COLUMN ABOVE

-FDN. WALL IF 2 CAR OPTION

—5" STRUCTURAL SLAB MINIMUM 3500 PSI CONCRETE #4 BARS @ 12" OC ON 11/2" CHAIRS E/W DRILL AND EMBED

MINIMUM 5" @ FOUNDATION WALLS

-18"x18" SQ. CONC. COL. W/

(4) #4 BARS ON 36"X36"X12"

CONC. PAD W/ (6) #4 BARS

OTHERWISE ON THE PLANS

E/W (TYP) UNLESS NOTED

-(4) 8'-0" LONG #4 BARS E/W

-RECESS DOOR OPENING

19' TO 25'

1 1/2" CLEAR FROM TOP (TYP.)

È.W. 1 1/2" CLEAR FROM TOP -5" STRUCTURAL CONCRETE SLAB W/ #4 BARS @ 12" O.C. E.W. ON 1 1/2" CHAIRS -MIN. 4" OF 1/2"-3/4" GRADED ROCK FILL SOIL-18"x18" SQ. CONC. COL. W/ (4) #4 BARS ON 36"X36"X12" CONC. PAD W/ (6) #4 BARS E/W (TYP) UNLESS NOTED OTHERWISE ON THE PLANS

(4) 8'-0" LONG #4 BARS

3 GARAGE SLAB COLUMN DETAIL

1" = 1'-0"

INSULATE PER CODE -1/2" BOLTS @ 3' OC MINIMUM 7" INTO CONCRETE AND WITHIN 12" OF EACH END PIECE OF PLATE -EXTEND #4 VERTICAL BARS 20" MINIMUM INTO SLAB, TIE TO OVERDIG REBAR __#4 BARS @ 12" O.C. E.W., EXTEND MIN. 24" BEYOND FINISHED GRADE-OVERDIG LINE, 4" GRANULAR FILL -FILL MATERIAL MMN. R-10 RIGID INSULATION FOR MIN. OF 2'-0" BELOW SLAB LINE OF OVERDIG WALKOUT FOUNDATION WALL PER PLAN, ON ORIGINAL SOIL ORIGINAL SOIL MAX. 9' OVERDIG IF OVER 9' OVERDIG SEE HD ENGINEERING FOR

STRUCTURAL BASEMENT SLAB DESIGN 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.

8" THICK WALL

24

24

4- #4

12

12

16

16

5- #4

24

24

4- #4

20

5- #4

WALKOUT WALL PER PLAN,

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

VERTICAL REINFORCEMENT SPACING*

60 PSF SOIL; 40 & 60 KSI STEEL

HORIZONTAL REINFORCEMENT**

ONE BAR 12" FROM TOP OF WALL;

MAX. SPACING 24" O.C.

CONCRETE STRENGTH

3000 PSI/ 40 KSI

3500 PSI/ 40 KSI

3000 PSI/ 60 KSI

3500 PSI/ 60 KSI

A	STRUCTURAL CONCRETE SLAB PER PLAN
A A A A A A A A A A A A A A A A A A A	
A A A A A A A A A A A A A A A A A A A	MIN. 4" OF 1/2"-3/4" GRADED ROCK
4 4	DRILL/EMBED MIN. 5" INTO FOUNDATION FOUNDATION WALL PER PLAN

8 STRUCTURAL SLAB/ WALL
11/2" = 1'-0"

4'4 ' 1	
44 4	STRUCTURAL CONCRETE SLAB PER PLAN
4 4 4	
4,7	MIN. 4" OF 1/2"-3/4" GRADED ROCK
4	URILL/EMBED MIN. 5" INTO FOUNDATION
1. 1. 1.	FOUNDATION WALL PER PLAN

10" THICK WALL BUILDER'S REQUIREMENTS

* CONCRETE SHALL HAVE AIR ENTRAINMENT OF 5-7%. * MINIMUM REQUIREMENT FOR VERTICAL REBAR IN PLAIN CONCRETE WALLS IS #4 @ 36" ON * 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

* REINFORCEMENT SHALL LAP A MINIMUM OF 24 INCHES AT ENDS, SPLICES, AND AROUND

** #4 BARS @ 24" ON CENTER. ** #4 BAR WITHIN 12 OF TOP AND BOTTOM OF WALL ** MINIMUM GRADE 40 (40ksi) STEEL (PER ACI 332). ** HORIZONTAL REINFÒRCEMENT SHALL BE INSTALLED ON THE COMPRESSION SIDE (SOIL SIDE) OF THE VERTICAL REINFORCEMENT

-RETURN REINFORCEMENT VERTICAL - MINIMUM 2-#4 HORIZONTAL - #4 @ 24" OC MINIMUM (3) EXTEND MINIMUM 24" INTO WALL FOOTING - MINIMUM 16x8 W/ (2) #4 -CONCRETE FOUNDATION WALL PER PLAN LEAVE OPENING FOR DRAIN TILE THROUGH WALL ON TOP OF FOOTING RETURN WALL DETAIL

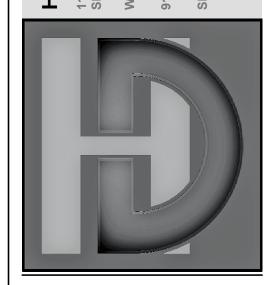
1/2" = 1'-0"

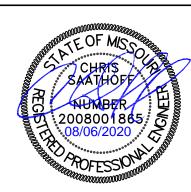
-1ST FLOOR WALLS PER PLAN -FULL DEPTH BLOCK FIRST THREE JOIST BAYS @ 24" O.C. WHERE JOIST RUN PARALLEL TO WALL (TYP.) DAYLIGHT WALL PER PLAN, INSULATE PER CODE -1/2" BOLTS @ 3' OC MINIMUM 7" INTO CONCRETE AND WITHIN 12" OF EACH END LAP SIDING OVER-PIECE OF PLATE FOUNDATION PER —8"x8' CONC. FOUNDATION W/ #4 BARS @ 24" O.C. E.W. ON 16"x8" CONC. FTG. W/ (2) #4 BARS CONT. $\frac{\mathsf{OR}}{\mathsf{-8}^\mathsf{"}\mathsf{x6}^\mathsf{'}}$ CONC. FOUNDATION W/ #4 BARS @ 24" O.C. FINISHED GRADE-E.W. ON 16"x8" CONC. FTG. W/ (2) #4 BARS CONT. -8"x4' CONC. FOUNDATION W/ #4 BARS @ 24" O.C. E.W. ON 16"x8" CONC. FTG. W/ (2) #4 BARS CONT. -RETURN REINFORCEMENT VERTICAL - MINIMUM 2-#4 HORIZONTAL - #4 @ 24" OC MINIMUM (2) EXTEND/BEND MINIMUM 24" INTO WALL, FOOTING - MINIMUM 16"x8" W/ (2) #4 BARS -BASEMENT SLAB PER PLAN (SLAB SHALL BE PLACED PRIOR TO BACKFILL) LEAVE OPENING FOR DRAIN TILE THROUGH WALL ON TOP OF FOOTING

8"x4', 8"x6', AND 8"x8' DAYLIGHT FOUNDATION IF SLAB IS NOT PLACED PRIOR TO BACKFILL CONTRACTOR IS RESPONSIBLE FOR BRACING THE FOUNDATION AS REQUIRED

UNRESTRAINED FOUNDATION WALL

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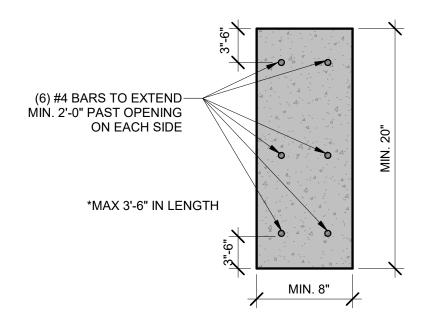
CONCRETE DETAILS

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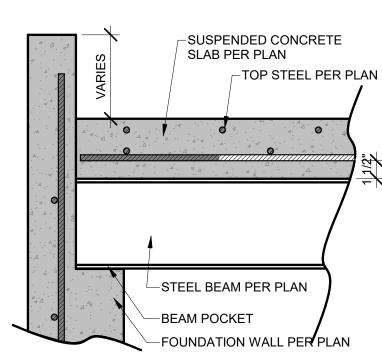
6 SUSPENDED PORCH STOOP SLAB

1 1/2" = 1'-0"



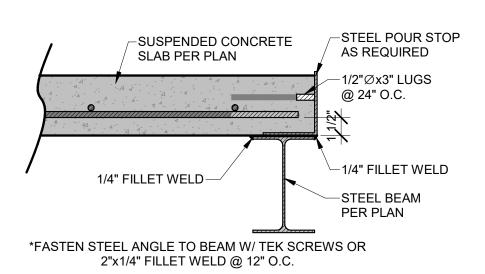
5 CONCRETE HEADER DETAIL

1 1/2" = 1'-0"



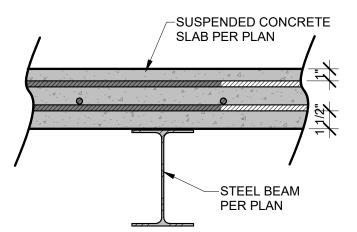
SUSPENDED SLAB BEAM/WALL CONNECTION

1 1/2" = 1'-0"



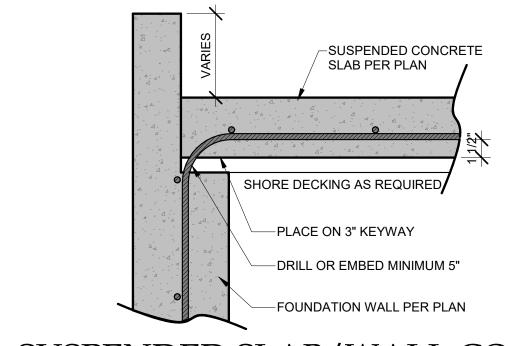
2 SUSPENDED SLAB POUR STOP

1 1/2" = 1'-0"



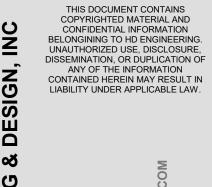
3 SUSPENDED SLAB/STEELBEAM CROSS SECTION

1 1/2" = 1'-0"

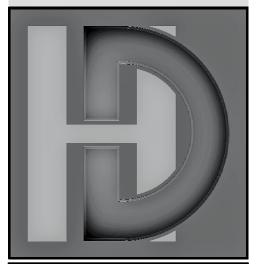


SUSPENDED SLAB/WALL CONNECTION

11/2" = 1'-0"



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ASPEN HOMES, INC.

BIRCH GL WO

N OLD PORT ROAD, LEE'S SUMMIT

HD#: 39698

DATE: 08/06/2020
CHECKED BY: CLS

NO.	ISSUE/REVISION	Revision Date

SUSPENDED SLAB DETAILS

S-3.1

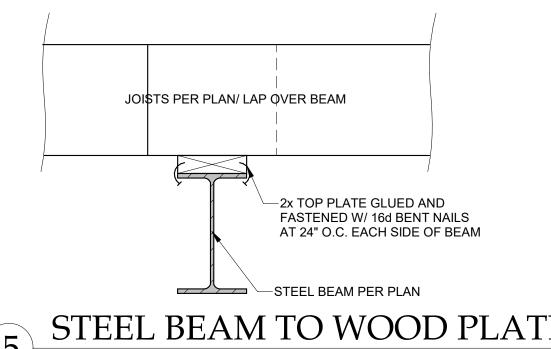
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IMPORTANT NOTE:

-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.

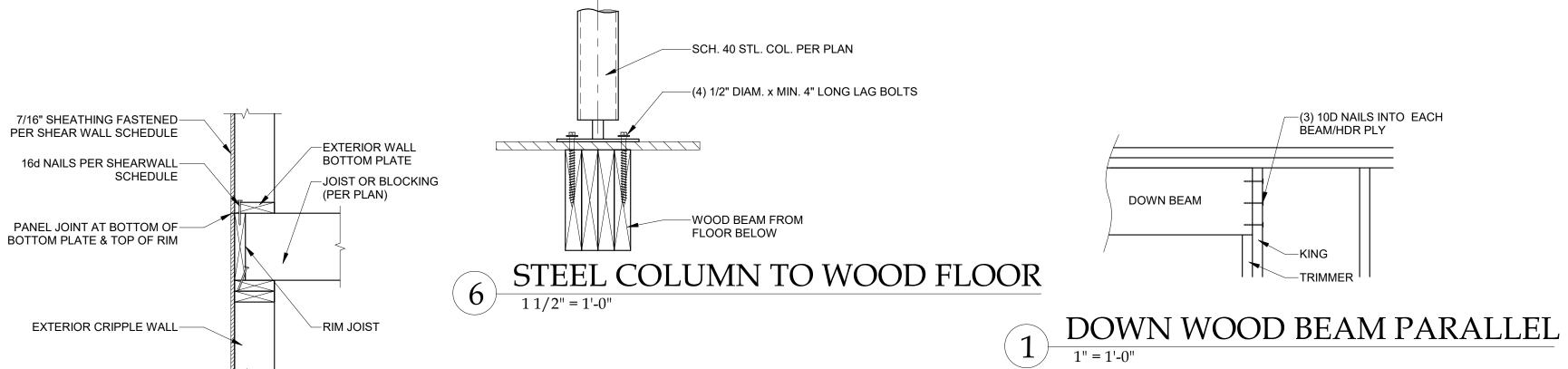


STEEL BEAM TO WOOD PLATE

FLUSH WOOD BEAM CONNECTION

EXTERIOR WALL STEEL BEAM BEARING

DOWN WOOD BEAM PERPENDICULAR



SHEATHING JOINT LOCATION

1" = 1'-0"

GENERAL DETAILS

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