BILL NO. 24-095 **ORDINANCE NO. 9920**

AN ORDINANCE APPROVING A PRELIMINARY DEVELOPMENT PLAN FOR AN ACCESSORY DWELLING UNIT ON LAND LOCATED AT 512 NE PROMISED VIEW DRIVE, ALL IN ACCORDANCE WITH THE PROVISIONS OF CHAPTER 33, THE UNIFIED DEVELOPMENT ORDINANCE, OF THE CODE OF ORDINANCES FOR THE CITY OF LEE'S SUMMIT, MISSOURI.

WHEREAS, Application #PL2024-064 submitted by Starr Homes., requesting approval of a Preliminary Development Plan in District R-1 on land located at 512 NE Promised View Drive was referred to the Planning Commission to hold a public hearing; and

WHEREAS, the Unified Development Ordinance provides for the approval of a Preliminary Development Plan by the City following public hearings by the Planning Commission and City Council; and

WHEREAS, after due public notice in the manner prescribed by law, the Planning Commission held public hearings for the consideration of the Preliminary Development Plan on May 9, 2024, and rendered a report to the City Council recommending that the Preliminary Development Plan be approved; and

WHEREAS, after due public notice in the manner prescribed by law, the City Council held a public hearing on June 6, 2024, and rendered a decision to approve the Preliminary Development Plan for said property.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF LEE'S SUMMIT, MISSOURI, as follows:

SECTION 1. That a Preliminary Development Plan is hereby approved on the following described property:

TIFFANY WOODS, LOTS 4C AND 7C -- LOT 4C

SECTION 2. That the following conditions of approval apply:

1. A modification shall be granted to the maximum allowable size of an Accessory Dwelling Unit (ADU), to allow for a 1,971 sq. ft. ADU.
2. Development shall be in accordance with the Preliminary Development Plan dated November 30, 2023.
3. Development shall be in accordance with the plot plan dated April 17, 2024.

SECTION 3. Development shall be in accordance with the Preliminary Development Plan dated November 30, 2023, and plot plan dated April 17, 2024, appended hereto as Attachments A and B, respectively.

SECTION 4. Nonseverability. All provisions of this ordinance are so essentially and inseparably connected with, and so dependent upon, each other that no such provision would be enacted without all others. If a court of competent jurisdiction enters a final judgment on the merits that is not subject to appeal and that declares any provision or part of this ordinance void, unconstitutional, or

unenforceable, then this ordinance, in its collective entirety, is invalid and shall have no legal effect as of the date of such judgment.

SECTION 5. That failure to comply with all of the provisions contained in this ordinance shall constitute violations of both this ordinance and Chapter 33, the City's Unified Development Ordinance, of the Code of Ordinances for the City of Lee's Summit.

SECTION 6. That this ordinance shall be in full force and effect from and after the date of its passage and adoption, and approval by the Mayor.

PASSED by the City Council of the City of Lee's Summit, Missouri, this 11th day of June, 2024.

Mayor *William A. Baird*

ATTEST:

City Clerk *Trisha Fowler Arcuri*

APPROVED by the Mayor of said city this 18th day of June, 2024.

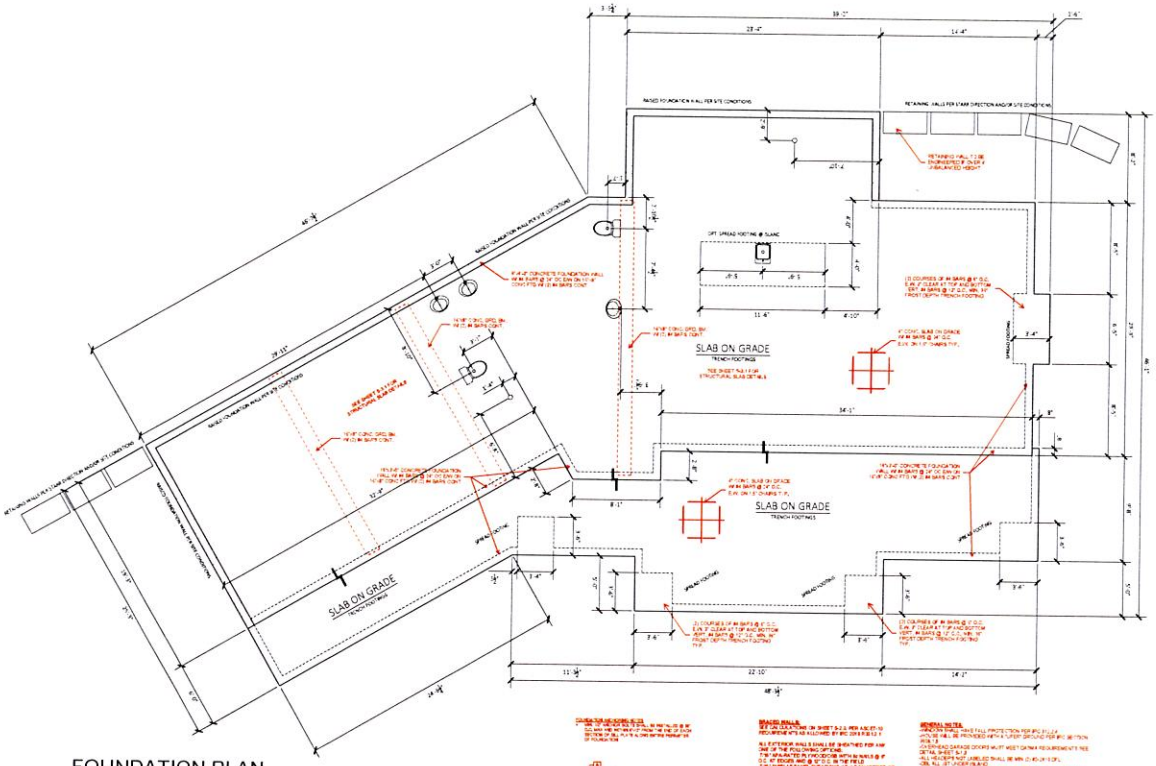
Mayor *William A. Baird*

ATTEST:

City Clerk *Trisha Fowler Arcuri*

APPROVED AS TO FORM:

City Attorney *Brian W. Head*



FOUNDATION PLAN
SCALE 1/4"=1'-0"

STARR HOMES LLC
PO BOX 23351
Overland Park, KS 66283

7228 W. 151st St.
Stilwell, KS 66083
Blue Valley Business Park

STARR HOMES

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HD ENGINEERING & DESIGN, INC

STRUCTURAL REVIEW
OK 4728

STATE OF MISSOURI
2023007669
2023100036

The Tyler and Erin Milligan Pool House
Lot 3A and 4A NE Promised View Dr
Lee's Summit, Missouri

CDG
Cushing Design Group

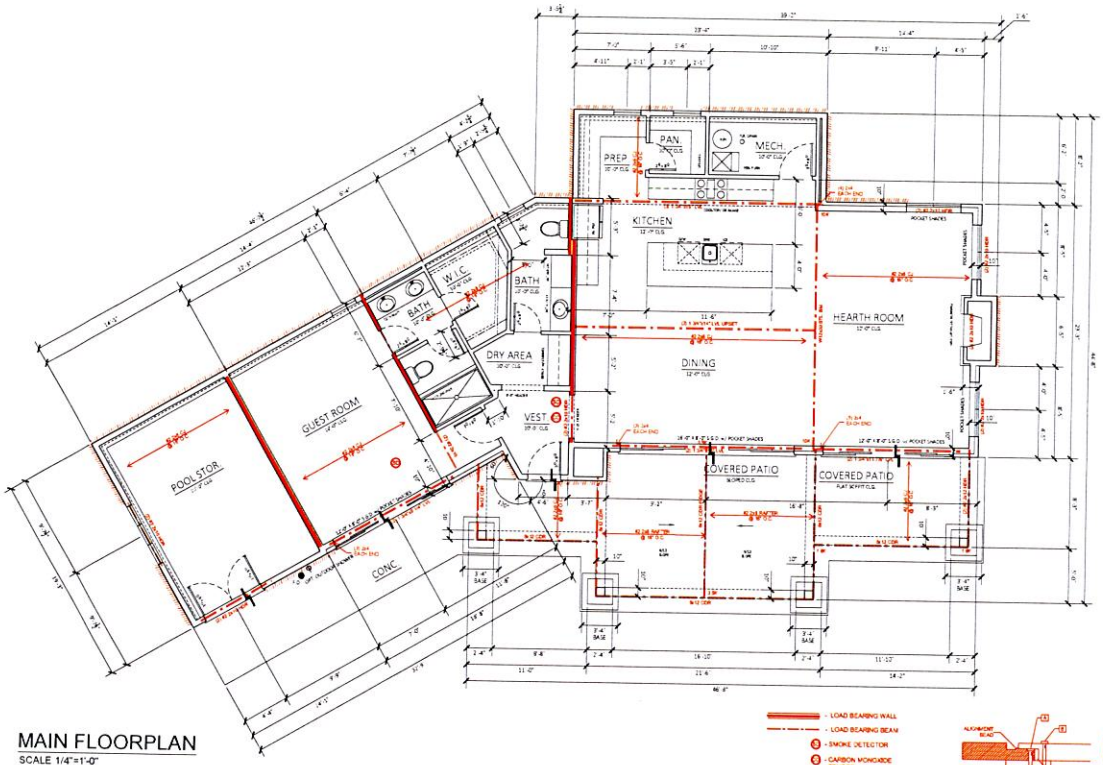
No.	Description	Date

CONSTRUCTION DOCUMENTS

Project Number	Milligan
Date	2023 Nov 30
Drawn By	MGS
Checked By	CDG

A 101

Scale 1/4" = 1'-0"

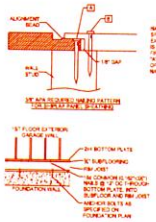


MAIN FLOORPLAN

SCALE 1/4"=1'-0"

Square Footage	SF
Main Floor	1971
Covered Porch	549

- LOAD BEARING WALL
- LOAD BEARING BEAM
- S - SMOKE DETECTOR
- C - CARBON MONOXIDE SENSOR



STATE OF MISSOURI
STEVEN M. HOLLIS
NUMBER PE-2004020898-E
PROFESSIONAL ENGINEER

STRUCTURAL REVIEW
IDR 4728

HD ENGINEERING & DESIGN, INC

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Blue Valley Business Park

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The Tyler and Erin Milligan Pool House
Lot 3A and 4A NE Promised View Dr
Lee's Summit, Missouri

CDG

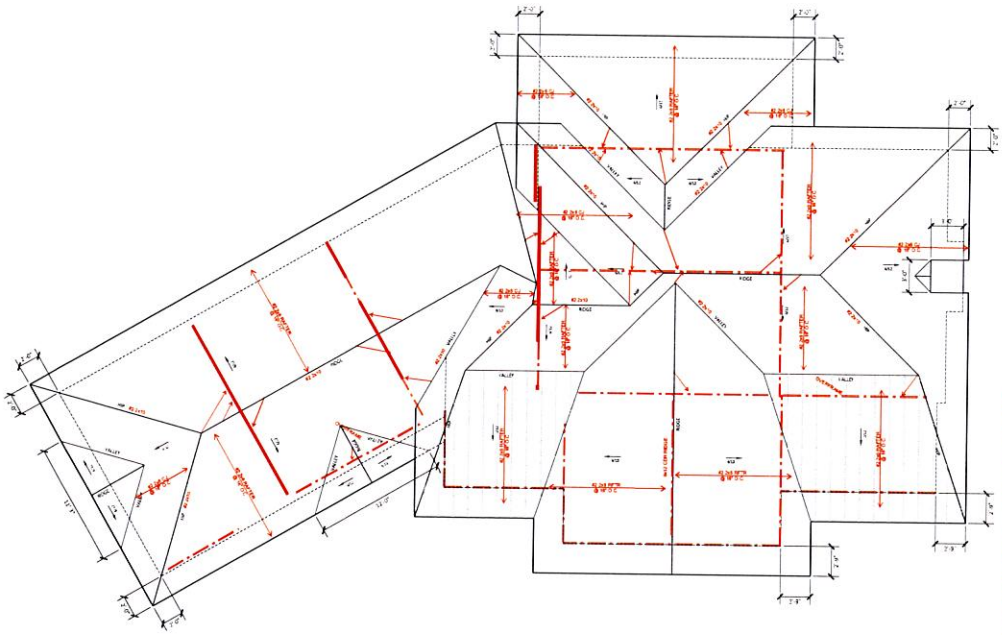
No.	Description	Date

CONSTRUCTION DOCUMENTS

Project Number	Milligan
Date	2023 Nov 30
Drawn By	MGS
Checked By	CDG

A 102

Scale 1/4" = 1'-0"



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

NOTES

ROOF DESIGNED FOR LIGHT ROOF COVERING 3#PSF
TOTAL LOAD [10PSF DL 20PSF LL SL]

RAFTERS DOUGFIR, OR EQUAL2
SEE SPAN CHARTS BELOW

CODE MINIMUM

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
4X4S	@24" O.C.	11'-0"
4X6S	@24" O.C.	14'-0"
4X8S	@24" O.C.	16'-0"
4X10S	@24" O.C.	18'-0"
4X12S	@24" O.C.	19'-0"
4X2-2S	@24" O.C.	19'-0"
4X2-3S	@24" O.C.	22'-0"

NO'S CODE MINIMUM LIVE DEFLECTOR

GREATER THAN CODE

RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
4X2S	@24" O.C.	8'-0"
4X3S	@24" O.C.	9'-0"
4X4S	@24" O.C.	11'-0"
4X6S	@24" O.C.	13'-0"
4X8S	@24" O.C.	15'-0"
4X10S	@24" O.C.	16'-0"
4X12S	@24" O.C.	17'-0"

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

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

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

PURLIN STRUT	MAX PURLIN STRUT LENGTH
2x3M	6'-0"
2x3M TO 2x4M	8'-0"
2x3M TO 2x6M	10'-0"
2x3M TO 2x8M	12'-0"
CONSULT ARCHITECT	OVER

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

STATE OF MISSOURI
JASON D. HOLLIS
2006007169
2023/12/04
PROFESSIONAL ENGINEER

STRUCTURAL REVIEW
HD# 17028

HD ENGINEERING & DESIGN, INC

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7229 W. 191st St.
Stilwell, KS 66085
Blue Valley Business Park

STARR HOMES
BUILDING BETTER LIVING HERE

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The Tyler and Erin Milligan Pool House
Lot 3A and 4A NE Promised View Dr
Lee's Summit, Missouri

CDG
Cathryn Design Group

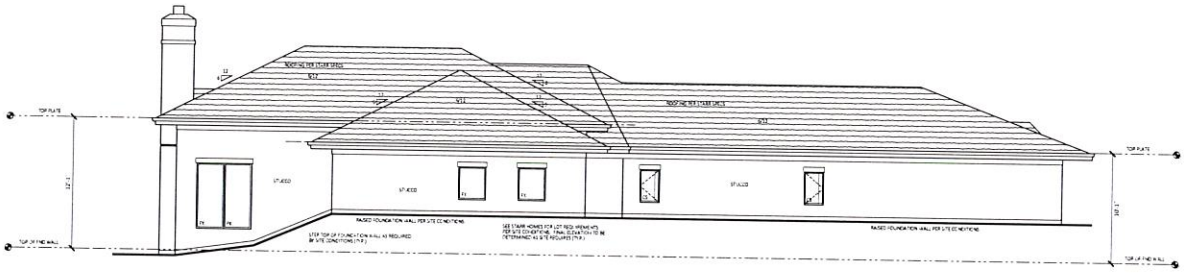
No.	Description	Date

CONSTRUCTION DOCUMENTS

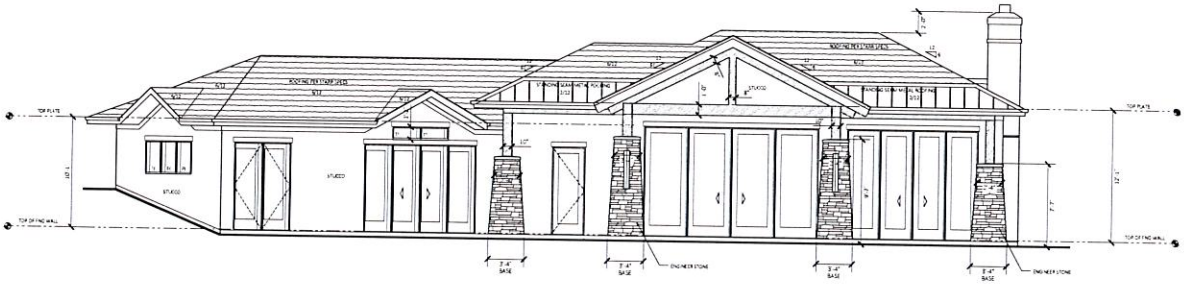
Project Number	Milligan
Date	2023 Nov 30
Drawn By	MGS
Checked By	CDG

A 103

Scale 1/4" = 1'-0"



REAR ELEVATION
SCALE 1/4"=1'-0"



FRONT ELEVATION
SCALE 1/4"=1'-0"

HD ENGINEERING & DESIGN, INC

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Overland Park, KS 66283

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Stilwell, KS 66083
Blue Valley Business Park

STARR HOMES

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The Tyler and Erin Milligan Pool House
Lot 3A and 4A NE Promised View Dr
Lee's Summit, Missouri

CDG

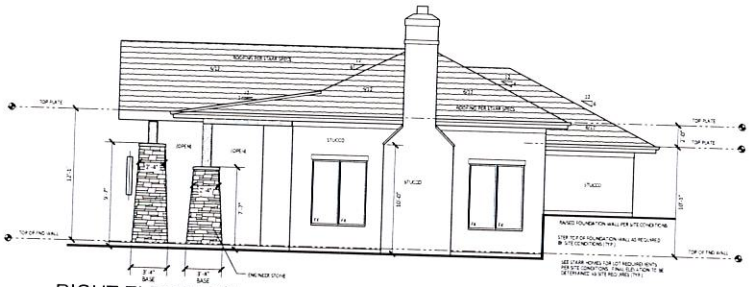
No.	Description	Date

CONSTRUCTION DOCUMENTS

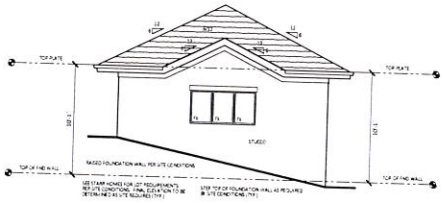
Project Number: Milligan
Date: 2023 Nov 30
Drawn By: MGS
Checked By: CDG

A 104

Scale: 1/4" = 1'-0"



RIGHT ELEVATION
SCALE 1/4"=1'-0"



LEFT ELEVATION
SCALE 1/4"=1'-0"

STRUCTURAL REVIEW FOR STOP

HD ENGINEERING & DESIGN, INC

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Stilwell, KS 66083
Blue Valley Business Park

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The Tyler and Erin Milligan Pool House
Lot 3A and 4A NE Promised View Dr
Lee's Summit, Missouri

CDG

No.	Description	Date

CONSTRUCTION DOCUMENTS

Project Number: Milligan
Date: 2023 Nov 30
Drawn By: MGS
Checked By: CDG

A 105

Scale: 1/4" = 1'-0"

ALLOWABLE LOADS FOR PNEUMATIC OR MECHANICALLY DRIVEN NAILS AND STAPLES

FASTENER DESCRIPTION	NAIL GUN NAIL'S WIRE DIAMETER	WIRE GAGE	PENETRATION REQUIRED INTO MAIN MEMBER FOR LATERAL STRENGTH (INCHES)	ALLOWABLE LOADS (POUNDS) LATERAL STRENGTH SP	LATERAL STRENGTH DFL	WITHDRAWAL STRENGTH SP	WITHDRAWAL STRENGTH DFL
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		48	41
6d COOLER NAIL	.092	13	1	46		27	23
6d SINKER NAIL							
6d BOX NAIL							
6d CASING NAIL	.099	13-1/2	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							
8d RING SHANK NAIL							
8d SCREW SHANK NAIL	.120	11	1-3/8	88	81	41	33
8d RING SHANK NAIL							
8d SCREW SHANK NAIL							
10d COOLER NAIL							
10d SINKER NAIL	.128	10-1/2	1-1/2	95	81	36	31
12d SHORT							
10d BOX NAIL							
12d BOX NAIL	.128	10-1/2	1-1/2	101	93	43	31
12d CASING NAIL							
8d COMMON NAIL							
16d SHORT	.131	10-1/4	1-1/2	106	97	41	32
12d SINKERS	.135	10	1-1/2	113	103	43	33
16d BOX NAIL							
12d RING SHANK NAIL							
16d SCREW SHANK NAIL	.135	10	1-5/8	113	103	48	38
12d RING SHANK NAIL							
12d SCREW SHANK NAIL							
16d COMMON NAIL							
12d COMMON NAIL							
16d SINKER NAIL	.148	9	1-5/8	128	118	48	38
20d BOX NAIL							
30d BOX NAIL							
16d RING SHANK NAIL	.148	9	1-3/4	128	118	50	40
16d SCREW SHANK NAIL							
16d COMMON NAIL	.162	8	1-3/4	154	141	50	40
40d BOX NAIL							
20d RING SHANK NAIL	.177	7	2-1/8	178	163	55	47
20d SCREW SHANK NAIL							
20d SINKER NAIL	.177	7	2-1/8	178	163	54	43
20d COMMON NAIL							
30d SINKER NAIL	.148	9	2-1/8	172	166	58	47

MINIMUM SHEATHING REQUIREMENTS

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

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

HIP/ VALLEY ALLOWABLE SPAN TABLE

TYPE	MAX. UNSUPPORTED SPAN 2x8	2x10	2x12	3 3/4"x9 1/2" LVL	3 3/4"x11 7/8" LVL
HIP RAFTER	11'-0"	13'-0"	15'-0"	15'-0"	19'-0"
VALLEY RAFTER	8'-11"	10'-4"	11'-9"	13'-2"	15'-2"

FRAME FASTENING SCHEDULE

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

JOIST HANGER NOTES
A. NO JOIST HANGER NAILS ALLOWED FOR TOENAILS.
B. NO GUN NAILS OR SCREWS ALLOWED IN CONNECTORS.
C. TOENAILS SHALL ALWAYS BE A FULL 8" 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. 1/0" x 2" BOLTS SHOULD THEN BE INSTALLED WITH A FLAT WASHER, LOCK WASHER, AND A NUT IN EACH OF THE HOLES. THE POST CAP MAY BE WELDED TO THE STEEL BEAM IN ACCORDANCE WITH AWS D1.1-92 AS AN ALTERNATIVE, AND WOULD NEED TO BE INSPECTED BY AN AWS-CERTIFIED INSPECTOR.

DUCT SEALING METHOD, PER 2018 IRC W1103.3.2

W1103.3.2 (R403.3) SEALING (MANDATORY) DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION M1601.4.1 OF THIS CODE.

EXCEPTIONS:
1. AIRIMPERMEABLE SPRAY FOAM PRODUCTS SHALL BE PERMITTED TO BE APPLIED WITHOUT ADDITIONAL JOINT SEALS.
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 THE FOLLOWING:
1. POST CONSTRUCTION TEST: TOTAL LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CFM (113.3 LMIN) 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.
2. ROUGHIN TEST: TOTAL ARI LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CFM (113.3 LMIN) 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 LMIN) 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.

GENERAL NOTES:
1. THIS PLAN SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE. IECC AS ADOPTED BY AHJ, 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 CORRECTIONS 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. FOR A SINGLE SITE BUILT CONSTRUCTION PROJECT, UNLESS REQUESTED BY OUR CLIENT, CODE AHJ MINIMUM DESIGNS WILL BE UTILIZED. ALSO, UNLESS REQUESTED BY THE OWNER, OUR FIRM CANNOT, WILL NOT BE AUTHORIZED TO VISIT THE SITE TO EVALUATE THE SITE OR ANY CONSTRUCTION FOR THIS PROJECT, IMPLEMENTATION OF ALTERNATES TO THE DESIGN 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. FOR A PROPERLY DESIGNED FOUNDATION, OUR FIRM HIGHLY RECOMMENDS THAT ANY SITE WITH GRADE RISE OVER 15% GRADE, ANY SITE WHERE A PREVIOUS STRUCTURE WAS LOCATED, OR ANY SITE WITH POTENTIAL FILL MATERIAL OR A POTENTIAL SOIL BEARING CAPACITY LESS THAN 1500 PSF SHOULD BE EVALUATED BY OUR FIRM OR AHJ ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACING FOOTINGS. THE ATTACHED PLANS HAVE BEEN DESIGNED WITH THE UNDERSTANDING THAT OUR FIRM WAS NOT AND CAN NOT VISIT OR INSPECT THE SITE WITHOUT WRITTEN CONSENT/REQUEST OF THE OWNER. THE ATTACHED PLANS ARE DESIGNED WITH THE UNDERSTANDING THAT OUR FIRM CAN ONLY DESIGN THE ATTACHED PLANS TO SATISFY CODE REQUIREMENTS WHERE ARE DESIGNED THROUGHOUT THE PLAN AND THE ATTACHED 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 PLUS SOIT TYPE INDICES, AND SOIL BEARING CAPACITIES IN OUR AREA, OUR FIRM RECOMMENDS ALL SITES BE EVALUATED BY HD ENGINEERING OR AN HD ENGINEERING REFERRED GEOTECHNICAL FIRM PRIOR TO PLACEMENT OF ANY STANDARD FOUNDATIONS.

FOUNDATION NOTES:
1. FOUNDATION DESIGN SHALL COMPLY WITH THE ENFORCING JURISDICTION RESIDENTIAL FOUNDATION STANDARD IN LIEU OF ENGINEERING REPORT REQUIREMENTS BASED ON ASSUMED SITE CONDITIONS.
2. FOUNDATION WALLS SHALL BE WATERPROOFED 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 12" 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 MINIMUM OF 12" WIDE AND 12" DEEP WITH (2) #4 BARS CONTINUOUS. LOCATED A MINIMUM OF 3" CLEAR FROM THE BOTTOM. FOOTINGS SHALL BE A MINIMUM OF 18" BELOW GRADE FOR FROST PROTECTION.
6. COLUMN PADS SHALL BE A MINIMUM OF 24"x24"x12" WITH (3) #4 BARS EACH WAY.
7. FOUNDATION WALLS SHALL BE A MINIMUM OF 8" THICK WITH MINIMUM #4 BARS @ 24" O.C. HORIZONTAL AND VERTICAL WITH THE TOP BAR WITHIN 8" OF THE TOP OF THE WALL UNLESS NOTED OTHERWISE ON PLAN.
8. REINFORCEMENT SHALL LAP A MINIMUM OF 24".
9. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.
10. INTERIOR NONBEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE BY A SEPARATION OF 1/2".
11. CONCRETE FLOOR SLABS ON GRADE SHALL BE A MINIMUM OF 4" THICK OVER A MINIMUM 4" BASE OF SAND, GRAVEL, OR CRUSHED STONE. BASEMENT SLABS SHALL BE A MINIMUM OF 4" THICK. 10 MIL POLYETHYLENE OR APPROVED VAPOR RETARDER WITH JOINTS LAPPED NOT LESS THAN 6" AND SHALL BE PLACED BETWEEN THE FLOOR SLAB AND THE BASE GRAVEL.
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 DESIGN.
13. CONCRETE AND SPACES NOT MORE THAN 2" ON CENTER AND WITHIN 12" OF EACH END OF THE PLATE SECTION PER IRC SECTION R403.1.6.
14. FOUNDATION WINDOW WELLS FOR SECONDARY MEANS OF EGRESS SHALL PROVIDE A MINIMUM 7'x3' HORIZONTAL AREA.
15. THE BASE OF ALL FOOTING EXCAVATIONS SHOULD BE FREE OF ANY LOOSE MATERIAL PRIOR TO PLACING CONCRETE. CONCRETE SHOULD BE PLACED AS SOON AS POSSIBLE AFTER EXCAVATING SO THAT EXCESSIVE CAVING OR DISTURBANCE OF BEARING MATERIAL DOES NOT OCCUR. SHOULD THE MATERIALS AT FTG BEARING LEVEL BECOME EXCESSIVELY DRY OR SATURATED, ARE REDISTURBED, OR UNSUITABLE MATERIAL BE REMOVED PRIOR TO PLACING CONCRETE, IT IS RECOMMENDED THAT ALL FOOTING EXCAVATIONS BE EVALUATED AND TESTED BY A GEOTECHNICAL ENGINEER IMMEDIATELY PRIOR TO PLACEMENT OF FOUNDATION CONCRETE. UNSUITABLE AREAS IDENTIFIED AT THIS TIME SHOULD BE CORRECTED. CORRECTIVE PROCEDURES WOULD BE DEPENDENT UPON CONDITIONS ENCOUNTERED AND MAY INCLUDE THE DEEPENING OF FOUNDATION ELEMENTS, OR THE UNDERCUTTING OF UNSUITABLE MATERIALS AND REPLACEMENT WITH ENGINEERED FILL.

STAIRWAY NOTES:
1. STAIRWAYS SHALL PROVIDE A MAXIMUM 7 ¾" RISE AND A MINIMUM 10" RUN.
2. PROVIDE MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES AND BALCONIES. PROVIDE MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF THAT DO NOT LOCATED MORE THAN 30" ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERNS THAT DO NOT ALLOW PASSAGE OF A 4" DIAMETER SPHERE.
3. EACH STAIRWAY OF THE BUILDING SHALL PROVIDE A HANDRAIL.
4. HANDRAILS SHALL HAVE A CIRCULAR CROSS-SECTION OF 1 1/4" MINIMUM TO 2" MAXIMUM OR AND THEIR APPROVED GRASPABLE SHAPE PER IRC SECTION R311.7.8.3.
5. PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS.
6. ENCLOSED ACCESSABLE SPACE UNDER STAIRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH ½" GYPSUM BOARD ON THE ENCLOSURE SIDE.
7. WINDERS SHALL PROVIDE A MINIMUM TREAD OF 6" AT ANY POINT WITHIN CLEAR WIDTH OF STAIRS. WINDER TREAD PROPORTIONS TO COMPLY WITH IRC SECTION R311.7.3.2.1.

GLAZING NOTES:
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 WALL ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 36" OF THE TOP OR BOTTOM OF THE STAIR, ABOVE THE FLOOR OR ADJACENT SURFACE WITHIN 36".
2. IN DWELLING UNITS WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 72" ABOVE THE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. OPERABLE SECTIONS OF WINDOWS SHALL NOT PERMIT OPENINGS THAT ALLOW PASSAGE OF A 4" DIAMETER SPHERE WHERE SUCH OPENINGS ARE LOCATED WITHIN 24" OF THE FINISHED FLOOR.

FRAMING NOTES:
1. ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE.
2. ALL HEADERS ARE TO BE A MINIMUM OF (3) #2 2x12S UNLESS NOTED OTHERWISE.
3. BLOCK CAN FLEERS, DOOR JAMBS AND OVER BEAMS.
4. ALL HEADERS/BEAMS ARE TO BEAR ON A MINIMUM OF (3) 2x4 POSTS UNLESS NOTED OTHERWISE.
5. INTERIOR NONBEARING 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 (3) JOIST SPACES SHALL BE PROVIDED AT A MAXIMUM OF 4' ON CENTER TO TRANSFER LATERAL LOADS ON THE WALL TO THE FLOOR DIAPHRAGM. THE BLOCKING SHALL BE SECURELY NAILED TO THE JOISTS AND FLOORING. NAIL JOISTS AND BLOCKING TO SILL PLATE WITH (4) 16D NAILS.
7. IF DUCTS ARE INSTALLED IN THE FIRST JOIST SPACE(S), NAIL 2x4 S FLAT AT 4' ON CENTER WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING INSTALLED UPRIGHT IN THE NEXT TWO JOIST SPACES. SECURE THE 2x4'S TO THE SILL PLATE WITH (4) 16D NAILS.
8. ALL SILLS AND BEARERS SUPPORTED ON CONCRETE OR MASONRY AND FURRING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT MATERIALS.
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 MINIMUM (10) FACE NAILS.
11. JOISTS FRAMING INTO A WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR ON MINIMUM 2"x3" LEDGER STRIPS.
12. HEADER AND TRIMMER JOISTS SHALL BE OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR FRAMING. TRIMMER JOISTS SHALL BE DOUBLED WHEN THE HEADER IS SUPPORTED MORE THAN 6' FROM THE TRIMMER JOIST BEARING. WHEN THE HEADER SPAN EXCEEDS 4', THE HEADER AND TRIMMER SHALL BE DOUBLED.
13. JOISTS AT SUPPORTS SHALL HAVE A FULL BEARING OF 1.5" MINIMUM AT THE ENDS BY FULL-DEPTH SOLID BLOCKING NOT LESS THAN 2" IN NOMINAL THICKNESS OR BY ATTACHMENT TO A HEADER, BAND, OR RIM JOIST OR TO AN ADJOINING STUD OR OTHERWISE PROVIDED WITH LATERAL SUPPORT TO PREVENT ROTATION.
14. ALL WALL COVERINGS ARE TO COMPLY WITH IRC SECTIONS 702 AND 703.
15. ALL RAFTER CEILING TIES ARE TO COMPLY WITH IRC SECTIONS 702 AND 703.
16. ALL RAFTERS ARE TO HAVE 2x4 COLLAR TIES @ 48" O.C. IN THE UPPER 1/3 OF DISTANCE BETWEEN THE CEILING AND ROOF.
17. BLOCKING BETWEEN JOISTS UNDER A PERPENDICULAR LOADBEARING WALL IS NOT REQUIRED.
18. THE BOTTOM OF ALL FLOOR ASSEMBLIES SHALL BE PROVIDED WITH A ½" GYPSUM WALLBOARD MEMBRANE (IF REQUIRED BY LOCAL CODE).
19. IJ-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 SECTION 602.2

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

EMERGENCY EGRESS AND RESCUE NOTES:
1. PROVIDE AT LEAST ONE EXIT FROM 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. FUEL-FIRED APPLIANCES ARE LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM. A CARBON MONOXIDE ALARM SHALL BE INSTALLED IN THE BEDROOM.

GARAGE NOTES:
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 ⅜" THICK SOLID OR HONEYCOMB-CORE STEEL DOOR, OR 20-MINUTE FIRE-RATED EQUIPPED WITH A SELF-CLOSING DEVICE PER IRC SECTION R302.5.1.
3. GARAGE VEHICLE DOORS AND FRAMES SHALL BE DESIGNED AND INSTALLED TO MEET THE 115-MPH 3-SECOND GUST LOADING PER ASMA 108 AND ASTM E 330-96 PER IRC SECTION R301.2.
4. THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY MINIMUM ½" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE HABITABLE SPACE OCCURS ABOVE THE GARAGE, THE FLOOR/CEILING ASSEMBLY SHALL BE PROTECTED WITH MINIMUM ½" TYPE X GYPSUM BOARD ON THE GARAGE CEILING.
5. GYPSUM BOARD OR EQUIVALENT SHALL BE PROVIDED ABOVE THE GARAGE. COLUMNS AND BEAMS SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED WITH ½" GYPSUM BOARD OR EQUIVALENT.
6. FOOTING OR FOUNDATION FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x8 VERTICAL JAMBS RUNNING FROM FLOOR TO DOOR HEADER, FASTENED WITH 4 TOTAL 10d NAILS AT 7" ON CENTER STAGGERED WITH (5) 3 ½ NAILS 120° NAILS THROUGH THE JAMB INTO THE HEADER, MINIMUM 2x8 HEADER, AND 2x8 SILL. THE COUNTER BALANCE SYSTEM.
7. ANY ATTACHED GARAGE TO THE MAIN HOUSE SHALL BE PROVIDED WITH A SINGLE HEAT DETECTOR. THE HEAT DETECTOR SHALL BE HARDWIRED AND INTERCONNECTED WITH THE HOUSEHOLD SMOKE ALARM SYSTEM. THE HEAT DETECTOR SHALL BE LISTED FOR THE AMBIENT ENVIRONMENT AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

MECHANICAL INSULATION:
1. BUILDING ENVELOPE INSULATION SHALL COMPLY WITH IRC TABLE N1102.1.2 OR THE 2018 IECC. (SEE S-6.3 FOR MORE DETAILS)

VENTILATION:
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 ¼" TO ½" OPENINGS. THE TOTAL FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF SPACE VENTILATED. WHERE THE VENTILATORS ARE LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED, THE REQUIRED AREA MAY BE REDUCED TO 1/300.

HD ENGINEERING & DESIGN, INC

STATE OF MISSOURI
2006007166
01/31/2024
PROFESSIONAL ENGINEER

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

HD# 47226
DATE 01/31/2024
CHECKED BY CLS

NO.	ISSUE/REVISION	Revision Date

GENERAL NOTES

S-1.0

TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a,b,c]	SPACING AND LOCATION
	ROOF		
1	BLOCKING BETWEEN CEILING JOISTS OR RAFTERS TO TOP PLATE	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
2	CEILING JOISTS TO PLATE		PER JOIST, TOE NAIL
3	CEILING JOISTS NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS (SEE SECTION R802.5.2 AND TABLE R802.5.2)	4-10D BOX (3" x 0.128"); OR 3-16D COMMON (3 1/2" x 0.162"); OR 4-3" x 0.131" NAILS	FACE NAIL
4	CEILING JOIST ATTACHED TO PARALLEL RAFTER (HEEL JOINT) (SEE SECTION R802.5.2 AND TABLE R802.5.2)	TABLE R802.5.2	FACE NAIL
5	COLLAR TIE TO RAFTER, FACE NAIL OR 1 1/4" x 20 GA. RIDGE STRAP TO RAFTER	4-10D BOX (3" x 0.128"); OR 3-10D COMMON (3" x 0.148"); OR 4-3" x 0.131" NAILS	FACE NAIL EACH RAFTER
6	RAFTER OR ROOF TRUSS TO PLATE	3-16D BOX NAILS (3 1/2" x 0.135"); OR 3-10D COMMON NAILS (3" x 0.148"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS	2 TOE NAILS ON ONE SIDE AND 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS[i]
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"); OR 4-10D BOX (3" x 0.128"); OR 4-3" x 0.131" NAILS	TOE NAIL
		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	END NAIL
	WALL		
8	STUD TO STUD (NOT BRACED WALL PANELS)	16D COMMON (3 1/2" x 0.162")	24" O.C. FACE NAIL
		10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	16" O.C. FACE NAIL
9	STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16D BOX (3 1/2" x 0.135"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
		16D COMMON (3 1/2" x 0.162")	16" O.C. FACE NAIL
10	BUILT-UP HEADER (2" TO 2" HEADER WITH 1/2" SPACER)	16D COMMON (3 1/2" x 0.162")	16" O.C. EACH EDGE FACE NAIL
		16D BOX (3 1/2" x 0.135")	12" O.C. 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"); OR 4-10D BOX (3" x 0.128")	TOE NAIL
12	TOP PLATE TO TOP PLATE	16D COMMON (3 1/2" x 0.162")	16" O.C. FACE NAIL
		10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
13	DOUBLE TOP PLATE SPLICE	8-16D COMMON (3 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")	16" O.C. FACE NAIL
		16D BOX (3 1/2" x 0.135"); OR 3" x 0.131" NAILS	12" O.C. FACE NAIL
15	BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST OR BLOCKING (AT BRACED WALL PANEL)	3-16D BOX (3 1/2" x 0.135"); OR 2-16D COMMON (3 1/2" x 0.162"); OR 4-3" x 0.131" NAILS	3 EACH 16" O.C. FACE NAIL 2 EACH 16" O.C. FACE NAIL 4 EACH 16" O.C. FACE NAIL
16	TOP OR BOTTOM PLATE TO STUD	4-8D BOX (2 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 4-3" x 0.131" NAILS	TOE NAIL
		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	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" BRACE 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"	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, 16 GA., 1 3/4" LONG	FACE NAIL
20	1" x 8" 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, 16 GA., 1 3/4" LONG	FACE NAIL
		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, 16 GA., 1 3/4" LONG	
	FLOOR		
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")	4" O.C. TOE NAIL
		8D COMMON (2 1/2" x 0.131"); OR 10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	6" O.C. 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 3-10D BOX (3" x 0.128"); OR 2 STAPLES, 1" CROWN, 16 GA., 1 3/4" LONG	FACE NAIL
	FLOOR		
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; OR 4-3" x 14 GA. STAPLES, 7/16" CROWN	END NAIL
27	BUILT-UP GIRDERS AND BEAMS, 2-INCH LUMBER LAYERS	20D COMMON (4" x 0.192"); OR	NAIL EACH LAYER AS FOLLOWS: 32" O.C. AT TOP AND BOTTOM AND STAGGERED.
		10D BOX (3" x 0.128"); OR 3" x 0.131" NAILS	24" O.C. FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
		AND: 2-20D COMMON (4" x 0.192"); OR 3-10D BOX (3" x 0.128"); OR 3-3" x 0.131" NAILS	FACE NAIL AT ENDS AND AT EACH SPLICE
28	LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	4-16D BOX (3 1/2" x 0.135"); OR 3-16D 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

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

a. 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: [illegible]
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 8-FOOT OR 4-FOOT BY 9-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 WOOD STRUCTURAL PANEL ROOF SHEATHING ATTACHED TO GABLE END ROOF FRAMING AND TO INTERMEDIATE SUPPORTS WITHIN 48 INCHES OF ROOF EDGES AND RIDGES, NAILS SHALL BE SPACED AT 6 INCHES ON CENTER WHERE THE ULTIMATE DESIGN WIND SPEED IS LESS THAN 130 MPH AND SHALL BE SPACED 4 INCHES ON CENTER WHERE THE ULTIMATE DESIGN WIND SPEED IS 130 MPH OR GREATER BUT LESS THAN 140 MPH.
g. GYPSUM SHEATHING SHALL CONFORM TO ASTM C1396 AND SHALL BE INSTALLED IN ACCORDANCE WITH GA 253. FIBERBOARD SHEATHING SHALL CONFORM TO ASTM C208.
h. SPACING OF FASTENERS ON FLOOR SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING AND AT FLOOR PERIMETERS ONLY. SPACING OF FASTENERS ON ROOF SHEATHING PANEL EDGES APPLIES TO PANEL EDGES SUPPORTED BY FRAMING MEMBERS AND REQUIRED BLOCKING. BLOCKING OF ROOF OR FLOOR SHEATHING PANEL EDGES PERPENDICULAR TO THE FRAMING MEMBERS NEED NOT BE PROVIDED EXCEPT AS REQUIRED BY OTHER PROVISIONS OF THIS CODE. FLOOR PERIMETER SHALL BE SUPPORTED BY FRAMING MEMBERS OR SOLID BLOCKING.
i. WHERE A RAFTER IS FASTENED TO AN ADJACENT PARALLEL CEILING JOIST IN ACCORDANCE WITH THIS SCHEDULE, PROVIDE TWO TOE NAILS ON ONE SIDE OF THE RAFTER AND TOE NAILS FROM THE CEILING JOIST TO TOP PLATE IN ACCORDANCE WITH THIS SCHEDULE. THE TOE NAIL ON THE OPPOSITE SIDE OF THE RAFTER SHALL NOT BE REQUIRED.
j. RSRS-01 IS A ROOF SHEATHING RING SHANK NAIL MEETING THE SPECIFICATIONS IN ASTM F1667.

CONTINUED TABLE R602.3(1) FASTENING SCHEDULE

ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a,b,c]	SPACING OF FASTENERS: EDGES (INCHES)[h]	SPACING OF FASTENERS: INTERMEDIATE SUPPORTS[c,e] (INCHES)
	WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING [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)[j]; 8D COMMON (2 1/2" x 0.131") NAIL (ROOF); OR RSRS-01 (2 3/8" x 0.113") NAIL (ROOF)	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)[j]	6	12[f]
32	1 1/8" - 1 1/4"	10D COMMON (3" x 0.148") NAIL; OR 8D (2 1/2" x 0.131") DEFORMED NAIL	6	12
	OTHER WALL SHEATHING[g]			
33	1/2" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 1/2" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1 1/4" LONG 16 GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
34	25/32" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 3/4" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1 1/2" LONG 16 GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
35	1/2" GYPSUM SHEATHING[d]	1 1/2" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1 1/2" LONG; 1 1/4" SCREWS, TYPE W OR S	7	7
36	5/8" GYPSUM SHEATHING[d]	1 3/4" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1 5/8" LONG; 1 5/8" SCREWS, TYPE W OR S	7	7
	WOOD STRUCTURAL PANELS, COMBINATION 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

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

NOMINAL MATERIAL THICKNESS (INCHES)	DESCRIPTION[a,b] OF FASTENER AND LENGTH (INCHES)	SPACING[c] OF FASTENERS: EDGES (INCHES)	SPACING[c] OF FASTENERS: INTERMEDIATE SUPPORTS (INCHES)
WOOD STRUCTURAL PANELS SUBFLOOR, ROOF[d] AND WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING[f]			
UP TO 1/2	STAPLE 15 GA. 1 3/4	4	8
	0.097 - 0.099 NAIL 2 1/4	3	6
	STAPLE 16 GA. 1 3/4	3	6
19/32 AND 5/8	0.113 NAIL 2	3	6
	STAPLE 15 AND 16 GA. 2	4	8
	0.097 - 0.099 NAIL 2 1/4	4	8
23/32 AND 3/4	STAPLE 14 GA. 2	4	8
	STAPLE 15 GA. 1 3/4	3	6
	0.097 - 0.099 NAIL 2 1/4	4	8
	STAPLE 16 GA. 2	4	8
1	STAPLE 14 GA. 2 1/4	4	8
	0.113 NAIL 2 1/4	3	6
	STAPLE 15 GA. 2 1/4	4	8
	0.097 - 0.099 NAIL 2 1/2	4	8

NOMINAL MATERIAL THICKNESS (INCHES)	DESCRIPTION[a,b] OF FASTENER AND LENGTH (INCHES)	SPACING[c] OF FASTENERS: EDGES (INCHES)	SPACING[c] OF FASTENERS: BODY OF PANEL[d] (INCHES)
FLOOR UNDERLAYMENT; PLYWOOD-HARDBOARD-PARTICLEBOARD[f]-FIBER-CEMENT[h]			
FIBER-CEMENT			
1/4	3D, CORROSION-RESISTANT, RING SHANK NAILS (FINISHED FLOORING OTHER THAN TILE)	3	6
	STAPLE 18 GA., 7/8 LONG, 1/4 CROWN (FINISHED FLOORING OTHER THAN TILE)	3	6
	1 1/4 LONG x .121 SHANK x .375 HEAD DIAMETER CORROSION-RESISTANT (GALVANIZED OR STAINLESS STEEL) ROOFING NAILS (FOR TILE FINISH)	8	8
	1 1/4 LONG, NO. 8 x .375 HEAD DIAMETER, RIBBED WAFER-HEAD SCREWS (FOR TILE FINISH)	8	8
PLYWOOD			
1/4 AND 5/16	1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER	3	6
	STAPLE 18 GA., 7/8, 3/16 CROWN WIDTH	2	5
11/32, 3/8, 15/32 AND 1/2	1 1/4 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER	6	8[e]
19/32, 5/8, 23/32 AND 3/4	1 1/2 RING OR SCREW SHANK NAIL-MINIMUM 12 1/2 GA. (0.099") SHANK DIAMETER	6	8
	STAPLE 16 GA. 1 1/2	6	8
HARDBOARD[f]			
0.200	1 1/2 LONG RING-GROOVED UNDERLAYMENT NAIL	6	6
	4D CEMENT-COATED SINKER NAIL	6	6
	STAPLE 18 GA., 7/8 LONG (PLASTIC COATED)	3	6
PARTICLEBOARD			
1/4	4D RING-GROOVED UNDERLAYMENT NAIL	3	6
	STAPLE 18 GA., 7/8 LONG, 3/16 CROWN	3	6
3/8	6D RING-GROOVED UNDERLAYMENT NAIL	6	10
	STAPLE 16 GA., 1 1/8 LONG, 3/8 CROWN	3	6
1/2, 5/8	6D RING-GROOVED UNDERLAYMENT NAIL	6	10
	STAPLE 16 GA., 1 5/8 LONG, 3/8 CROWN	3	6

For SI: 1 inch = 25.4 mm.

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

DESIGN LOADS (PSF)

THE DWELLING SHALL COMPLY WITH THE FOLLOWING LOAD CONDITIONS

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

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

COLUMN SCHEDULE

BASED ON FOOTING SIZE (ASSUME 1500 PSF SOIL)

PAD SIZE	REINFORCEMENT	COL. MIN.	COL. TYPE	MAX. LOAD
24"x24"x12"	(4) #4 BARS E/W	3"	SCH40	6K
30"x30"x12"	(5) #4 BARS E/W	3"	SCH40	8.4K
36"x36"x12"	(6) #4 BARS E/W	3"	SCH40	13.5K
42"x42"x14"	(7) #4 BARS E/W	3 1/2"	SCH40	18.4K
48"x48"x16"	(8) #4 BARS E/W	3 1/2"	SCH40	24.2K
54"x54"x16"	(9) #4 BARS E/W	3 1/2"	SCH40	30.4K
60"x60"x18"	(10) #4 BARS E/W	3 1/2"	SCH40	37.5K

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

ENGINEERED LUMBER

MIN. DESIGN REQUIREMENTS

	F_b (psi)	E (psi)	F_v (psi)
LVL	2600	1.8x10	285
GLULAM	2400	1.8x10	190
PARALAM	2600	2.0x10	290

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

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HD ENGINEERING & DESIGN, INC

STATE OF MISSOURI — PROFESSIONAL ENGINEER — 01/31/2024

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO

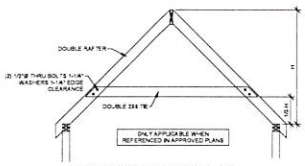
STRUCTURAL DETAILS & NOTES

HD#	47226
DATE	01/31/2024
CHECKED BY	CLS

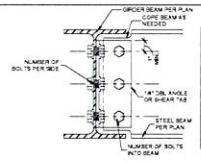
NO.	ISSUE/REVISION	Revision Date

GENERAL NOTES

S-1.1



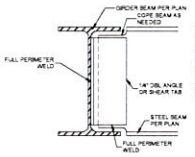
11 HIP SUPPORT FRAME
3/8" = 1'-0"



BEAM CONNECTION SCHEDULE		
BEAM SIZE	# OF BOLTS PER SIDE	ANGLE
W8, W10	2	(4" LONG)
W12, W14	3	(8" LONG)
W16, W18	4	(12" LONG)

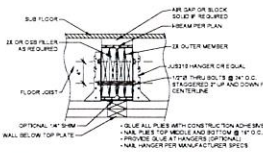
NOTES
1. NUMBER OF BOLTS DETERMINED BY SMALLER OF TWO BEAMS being CONNECTED
2. ALL BOLTS, 3/4" DIAMETER A325-N, UNO
3. BOLTS SHALL BE EVENLY SPACED TOP TO BOTTOM

EITHER METHOD ACCEPTABLE

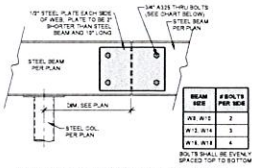


BEAM CONNECTION SCHEDULE	
BEAM SIZE	ANGLE
W8, W10	1.5x1.5x1/4 (4" LONG)
W12, W14	3x3x1/8 (8" LONG)
W16, W18	3.5x3.5x1/8 (12" LONG)

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



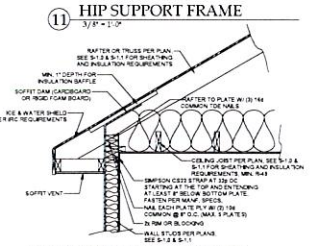
8 UPSET STEEL BEAM DETAIL
1 1/2" = 1'-0"



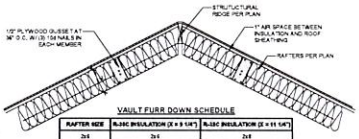
BEAM SIZE	# BOLTS PER SIDE
W8, W10	2
W12, W14	3
W16, W18	4

BOLTS SHALL BE EVENLY SPACED TOP TO BOTTOM

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



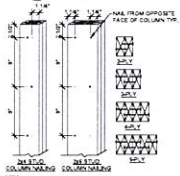
7 OPTION 4 RAFTER BEARING
1" = 1'-0"



VAULT FURR DOWN SCHEDULE		
RAFTER SIZE	R-38C INSULATION (X = 9 1/4")	R-13C INSULATION (X = 11 1/4")
2x6	2x4	2x6
2x8	2x4	2x8
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	2x2

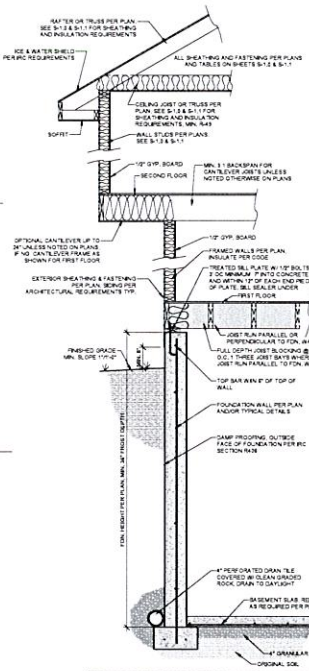
NOTES
1. ALL VAULTS SHALL BE FURRED DOWN WITH 2x FRAMING TO TEH REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.
2. R-38C REQUIRED 1.11" WITH AIR SPACE.
3. ALL VAULTED RAFTERS SHALL BE MIN. #2 2x6 DFL @ 16" O.C. OR PER ROOF PLAN.

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



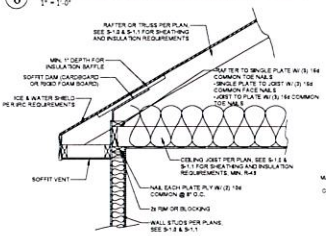
NOTES
1. EACH 2x PLY SHALL BE FASTENED WITH (1) ROW OF 16d "NAILS AT 8" O.C. ALTERNATING SIDE TO SIDE
2. 1 1/4" MIN. EDGE DISTANCE, AND STAGGING 2 1/2" FROM EACH END.
3. EXTEND FULL AREA OF COLUMN AS SOLID BLOCKING THROUGH JOIST BAYS AND WALLS TO LOAD-BEARING BEAM/WALL BELOW.

3 BUILT-UP STUD COLUMN
1 1/2" = 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.

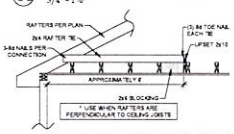
1 TYPICAL WALL SECTION
3/4" = 1'-0"



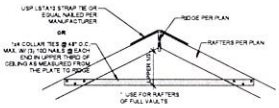
6 OPTION 3 RAFTER BEARING
1" = 1'-0"

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

THIS OPTION NOT AVAILABLE IN KC, MO



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



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

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STATE OF MISSOURI
JASON D. HAMILTON
NUMBER PE-2004020114
02/01/24

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO
STRUCTURAL DETAILS & NOTES

HD# 47226
DATE 01/31/2024
CHECKED BY CLS

NO.	ISSUE/REVISION	Revision Date

FRAMING SECTIONS

S-1.2

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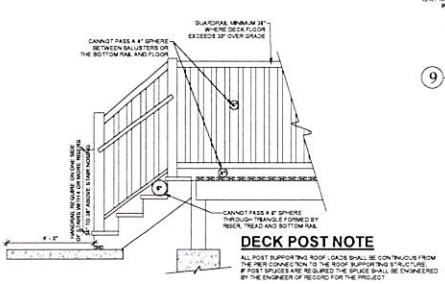
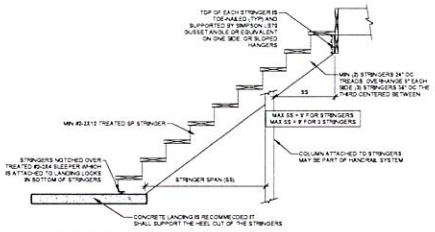


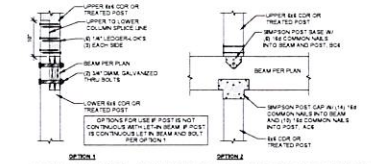
DECK POST NOTE

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

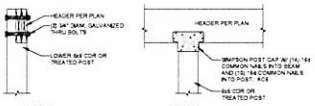
8 GUARD RAIL
1/2" = 1'-0"



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



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



7 ROOF LEVEL INTERIOR BEAM TO COLUMN
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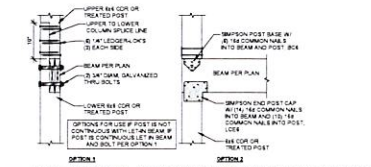
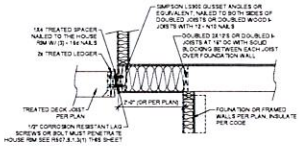


5 DECK LEVEL EXTERIOR BEAM TO COLUMN
1" = 1'-0"



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

TABLE IRC2018 R507.9.1.3(1)
DECK LEDGER CONNECTION TO BAND JOIST [a]
(DECK LIVE LOAD = 40 PSF, DECK HEAD LOAD = 10 PSF, SNOW LOAD ≤ 40 PSF)

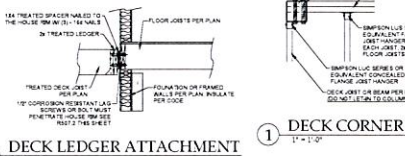
JOIST SPAN	8' AND LESS	8'-1" TO 9'	9'-1" TO 10'	10'-1" TO 11'	11'-1" TO 12'	12'-1" TO 13'	13'-1" TO 14'
CONNECTION DETAILS	ON-CENTER SPACING OF FASTENERS [b,c]						
1/2" LAG SCREW WITH 15/32" MAX. SHEATHING [d,e]	30	23	18	15	13	11	10
1/2" DIAM. BOLT WITH 15/32" MAX. SHEATHING [e]	36	36	34	29	24	21	18
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 = 0.2478 kPa
a. Ledgers shall be fastened in accordance with Section R703.4 to prevent water from contacting the house sand 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 one 1/2" of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

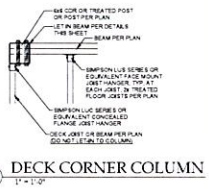
TABLE IRC2018 R507.9.1.3(2)
PLACEMENT OF LAG SCEWS AND BOLT IN DECK LEDGERS AND BAND JOISTS

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

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



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



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

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STATE OF MISSOURI
JASON D. SCHMIDT
NUMBER PE-2004020144
01/31/2024

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO
STRUCTURAL DETAILS & NOTES

HD#: 47226
DATE: 01/31/2024
CHECKED BY: CLS

NO.	ISSUE/REVISION	REVISION DATE

DECK DETAILS

S-1.3

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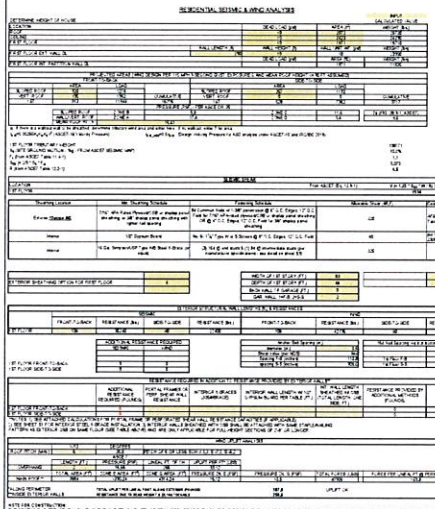
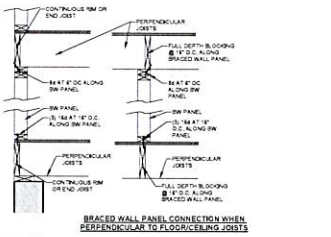
TABLE R602.3(5) SIZE, HEIGHT AND SPACING OF WOOD STUDS[a]

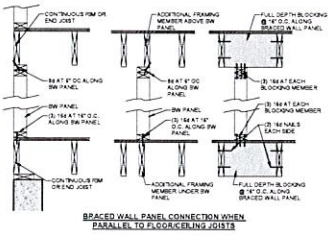
STUD SIZE (INCHES)	BEARING WALLS: LATERALLY UNSUPPORTED STUD HEIGHT[b] (FEET)	BEARING WALLS: MAXIMUM SPACING WHERE SUPPORTING A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY ONLY (INCHES)	BEARING WALLS: MAXIMUM SPACING WHERE SUPPORTING ONE FLOOR, PLUS A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY (INCHES)	BEARING WALLS: MAXIMUM SPACING WHERE SUPPORTING TWO FLOORS, PLUS A ROOF-CEILING ASSEMBLY OR A HABITABLE ATTIC ASSEMBLY (INCHES)	BEARING WALLS: MAXIMUM SPACING WHERE SUPPORTING ONE FLOOR HEIGHT[c] (INCHES)	NONBEARING WALLS: LATERALLY UNSUPPORTED STUD HEIGHT[b] (FEET)	NONBEARING WALLS: MAXIMUM SPACING (INCHES)
2 x 3[e]	—	—	—	—	—	10	16
2 x 4	10	24[d]	16[d]	—	24	14	24
3 x 4	10	24	24	16	24	14	24
2 x 5	10	24	24	—	24	16	24
2 x 6	10	24	24	16	24	20	24

a. Where stud sizes or heights are not specified in this table, they shall be as specified in Table R602.3(1).
b. Unsupported stud height is measured between floor or roof diaphragms. Where a wall stud is laterally supported at its mid-height by a wall girt, bridging, or other equivalent bracing meeting the requirements of Section R602.8, the unsupported stud height shall be permitted to be measured to the wall girt, bridging, or other equivalent bracing.
c. Stud spacing of 24 inches shall be permitted where the ceiling joists are lapped or tie beams are installed over the top plates of the stud walls and are nailed to the top plate in accordance with the applicable provisions in Section R602.3(1) and Table R602.3(1).
d. Where the ceiling joists are lapped or tie beams are installed over the top plates of the stud walls and are nailed to the top plate in accordance with the applicable provisions in Section R602.3(1) and Table R602.3(1), the maximum spacing of 24 inches shall be permitted.
e. Where a 2 x 3 is used in an exterior wall, the minimum depth of bracing in the stud bay shall be 4 inches.
f. Where the ceiling joists are not attached to the top plate of the stud walls, the unsupported stud height shall be measured to the top of the ceiling joists. Where the wall stud spans exceed 10 feet, the wall shall be designed in accordance with the applicable provisions in Section R602.3(1) or R602.3(2) or in accordance with accepted engineering practice.



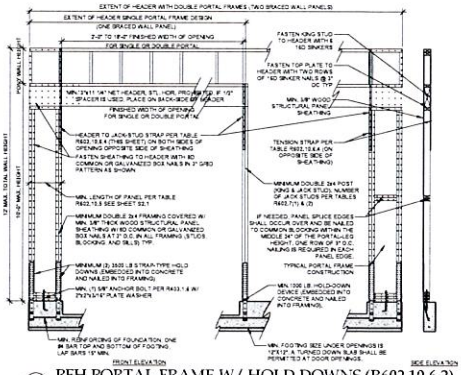


BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING JOISTS

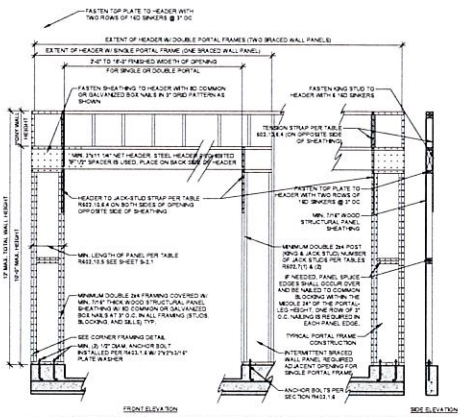


BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING JOISTS

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

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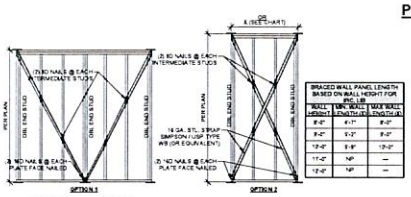
BRACED WALL NOTES & DETAILS

S-2.0



BRACED WALL PANEL LENGTH BASED ON WALL HEIGHT FOR WSP, LIB		
WALL HEIGHT	MIN. WALL LENGTH (FEET)	MAX. EDGE LENGTH (FEET)
8'-0"	4'-1"	8'-0"
9'-0"	5'-2"	9'-0"
10'-0"	6'-9"	10'-0"
11'-0"	NP	—
12'-0"	NP	—

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)[a] WALL HEIGHT 8 FEET	9 FEET	10 FEET	11 FEET	12 FEET	CONTRIBUTING LENGTH (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=ACTUAL
LIB		55	62	69	NP	NP	ACTUAL[b]
ABW	SDC A, B, AND C ULTIMATE DESIGN WIND SPEED (MPH)	28	32	34	38	42	48
	SDC D, ULTIMATE DESIGN WIND SPEED (MPH)	32	32	34	NP	NP	
PFH	SUPPORTING ROOF ONLY	16	16	16	NOTE C	NOTE C	48
	SPTNG, ONE STORY & ROOF	24	24	24	NOTE C	NOTE C	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	18	20	NOTE E	NOTE E	ACTUAL[b]
CS-WSP, CS-SFB	ADJACENT CLEAR OPENING HEIGHT (INCHES)						
	064	24	27	30	33	36	ACTUAL[b]
	68	24	27	30	33	36	
	72	27	27	30	33	36	
	76	30	29	30	33	36	
	80	33	30	30	33	36	
	84	36	32	32	33	36	
	88	38	35	33	33	36	
	92	43	37	35	36	36	
	96	48	41	38	36	36	
	100	-	44	40	38	36	
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	108	-	54	46	43	41	
	112	-	-	50	46	43	
	116	-	-	55	49	45	
	120	-	-	60	53	49	
	124	-	-	-	58	51	
	128	-	-	-	61	54	
	132	-	-	-	66	58	
	136	-	-	-	-	62	
	140	-	-	-	-	66	
	144	-	-	-	-	72	

a. LENGTH OF PANEL PER WALL (IN INCHES).
b. USE 16 x 16 x 1/4" CONCRETE WEDGE IF SHIM SIZE EXCEEDS 1/2" (IN THICKNESS).
c. MAX. OPENING HEIGHT FOR 8'-0" WALL IS 64" (MAX. OPENING HEIGHT MUST BE INCREASED TO 72" WITH FOR WALL.
d. MAX. OPENING HEIGHT FOR 8'-0" IS IN ACCORDANCE WITH IRC 602.11 WALL HEIGHT MUST BE INCREASED TO 12'-0" WITH FOR WALL.
e. MAX. OPENING HEIGHT FOR 8'-0" IS IN ACCORDANCE WITH IRC 602.11 WALL HEIGHT MUST BE INCREASED TO 12'-0" WITH FOR WALL.

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

EXTERIOR BRACED WALL METHOD: (SEE ON THIS SHEET)
WSP METHOD:
WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" O.C. STUD SPACING WITH 8d NAILS 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-#6" 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. K-BRACE(S) @ 45° TO 60° ANGLES. MAXIMUM 16" O.C. STUDS FASTENED PER MANUF. SPECS.

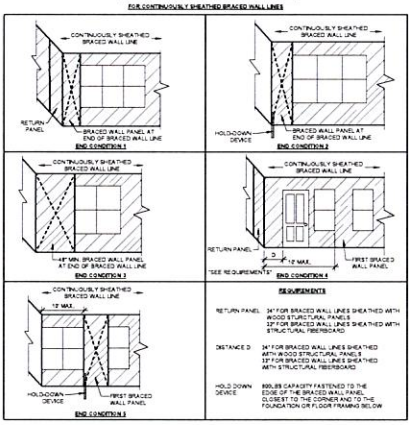
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO METHOD PFH, PFG AND CS-PF BRACED WALL PANELS IRC2018 TABLE R602.10.6.4

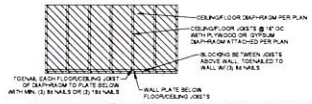
MINIMUM WALL STUD FRAMING NOMINAL SIZE & GRADE	MAX. PONY WALL HEIGHT (FEET)	MAX. TOTAL WALL HEIGHT (FEET)	MAX. OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQUIRED (POUNDS)[a] ULTIMATE DESIGN WIND SPEED V (MPH) 115 EXPOSURE B	115 EXPOSURE C
2X4 NO. 2 GRADE	0	10	16	1,300	1,000
	1	10	8	1,300	1,000
			16	1,325	2,500
			18	1,275	2,850
	2	10	8	1,300	1,875
			16	2,175	4,125
			18	2,500	OR
	2	12	8	1,500	3,175
			16	3,375	OR
			18	3,875	OR
	4	12	8	2,750	OR
			12	3,775	OR
2X6 STUD GRADE	2	12	8	1,000	2,025
			16	2,150	3,675
			18	2,550	OR
	4	12	8	1,750	3,125
			16	3,400	OR
			18	3,900	OR

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

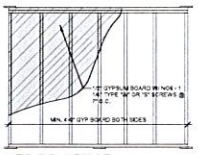
END WALL CONDITIONS

FOR CONTINUOUSLY SHEATHED BRACED WALL LINES



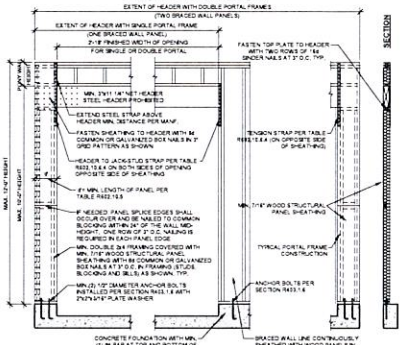


1 DIAPHRAGM CONNECTION TO INTERIOR WALL
3/8" = 1'-0"

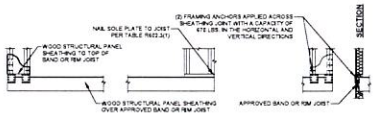


5 GB BRACING
1/2" = 1'-0"

FRONT ELEVATION

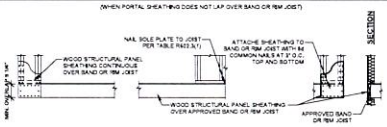


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

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



OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

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

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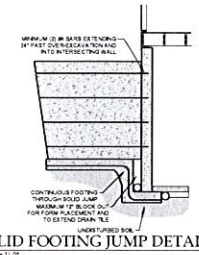
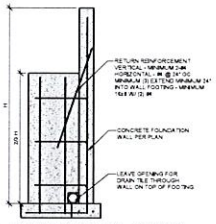
BRACED WALLS NOTES & DETAILS

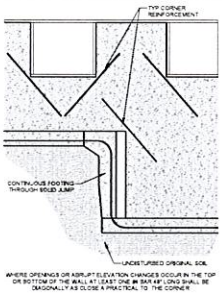
S-2.1



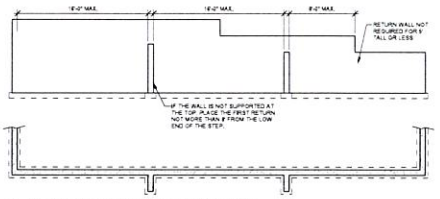
1 SOLID FOOTING JUMP DETAIL
3/8" = 1'-0"



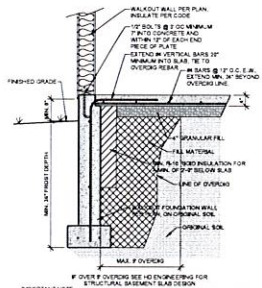
2 RETURN WALL DETAIL
1/2" = 1'-0"



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

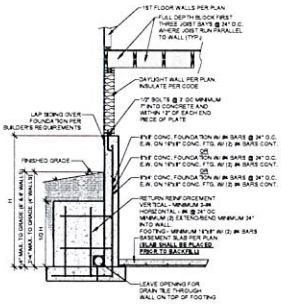


4 RETURN WALL PLACEMENT
3/16" = 1'-0"



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

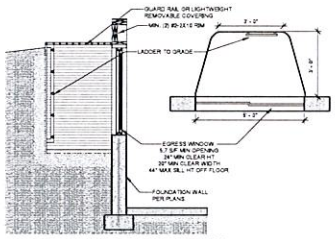
10 WALKOUT DETAIL
3/4" = 1'-0"



FULL FOR 8" AND 8"x8" DAYLIGHT FOUNDATION

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

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



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

VERTICAL REINFORCEMENT SPACING* 60 PSF SOIL, 60 & 60 KSI STEEL					
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**					
ONE BAR 12" FROM TOP OF WALL MAX. SPACING 24" O.C.	5-#4	5-#4	5-#4	5-#4	5-#4

* CONCRETE SHALL HAVE AIR ENTRAINMENT OF 5-7%.
* MINIMUM REQUIREMENT FOR VERTICAL REBAR IN PLAIN CONCRETE WALLS IS #4 @ 24" ON CENTER (ACI 332).
* VERTICAL BARS SHALL BE CONTINUED UP TO WITHIN 6" 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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STATE OF MISSOURI
JASON D. HOTZ
NUMBER 2003037148
2025/12/31.24
REGISTERED PROFESSIONAL ENGINEER

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO

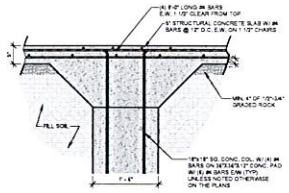
STRUCTURAL DETAILS & NOTES

HD#: 4399000
DATE: 09/19/2024
CHECKED BY: CLS

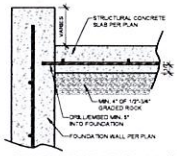
NO.	ISSUE/REVISION	Revision Date

CONCRETE DETAILS

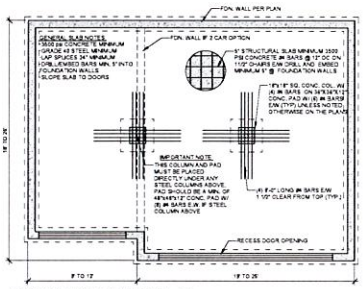
S-3.0



8 GARAGE SLAB COLUMN DETAIL
1" = 1'-0"

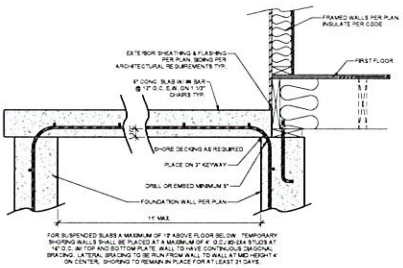


9 STRUCTURAL SLAB/ WALL
1 1/2" = 1'-0"

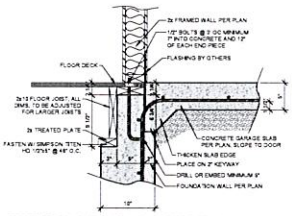


10 TYPICAL GARAGE SLAB
1/4" = 1'-0"

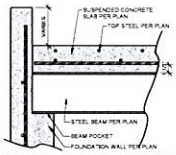
HD ENGINEERING STRUCTURAL GARAGE SLAB DETAILS



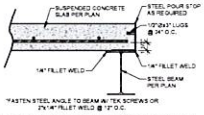
6 SUSPENDED PORCH STOOP SLAB
1 1/2" = 1'-0"



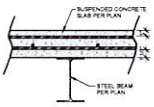
7 ZERO ENTRY GARAGE DETAIL
1 1/2" = 1'-0"



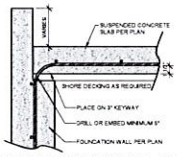
1 SUSPENDED SLAB BEAM/WALL CONNECTION
1 1/2" = 1'-0"



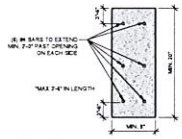
2 SUSPENDED SLAB POUR STOP
1 1/2" = 1'-0"



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



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



5 CONCRETE HEADER DETAIL
1 1/3" = 1'-0"

IMPORTANT NOTE:
FOR SUSPENDED SLABS A MAXIMUM OF 12' ABOVE FLOOR BELOW. TEMPORARY SHORING WALLS SHALL BE PLACED AT A MAXIMUM OF 4' O.C. W/ 2X8 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 12' 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 COLLAPSE AND/OR CATASTROPHIC FAILURE.

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STATE OF MISSOURI
2006007866
01/31/2024
PROFESSIONAL ENGINEER

STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO

STRUCTURAL DETAILS & NOTES

HD# 47226

DATE	01/31/2024
CHECKED BY	CLS

NO.	ISSUE/REVISION	Revision Date

SUSPENDED SLAB DETAILS

S-3.1

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

PLUS BELOW AIR FOR (FLAT) METAL PLATE (AIR BARRIER) (ALTERNATE ENERGY COMPLIANCE PATH REQUIRED FOR ALTERNATE PATH AND HVAC INSTALL)

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	0.40	0.50	49	20 OR 13 CAV. +5	19	15 CONTINUOUS OR 13 CAVITY	R-10 2 FT.	15 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

CATHEDRAL / VAULTED CEILING FRAMING AND INSULATION

MINIMUM R-30 INSULATION REQUIRED. SEE DETAIL 16/S-1.2

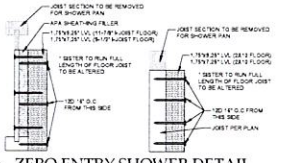
WHERE THE CEILING IS APPLIED DIRECTLY TO THE BOTTOM OF THE RAFTERS, A MINIMUM 1" AIR SPACE SHALL BE PROVIDED BETWEEN THE TOP OF THE INSULATION AND THE SHEATHING FOR VENTILATION. (R806.3)
NOTE: RAFTER SIZES SPECIFIED ON PLANS ARE THE MINIMUM REQUIRED FOR STRUCTURAL PURPOSES ONLY.
BUILDER TO VERIFY
IF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

MAXIMUM INSULATION VALUE 1" AIR SPACE (FIBERGLASS)	2x6	2x8	2x10	2x12
	R-19: 3 1/2"	R-19: 5 1/4"	CONDENSED R-38: 8 1/4"	R-38: 10 1/4"

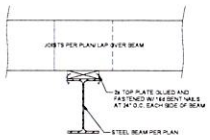
TABLE N1103.6.1 (R403.6.1) WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM FAN EFFICACY[a]

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

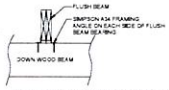
For SI: 1 cubic foot per minute = 28.3 L/min.
a. When tested in accordance with HVI Standard 916.



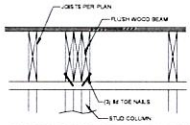
10 ZERO ENTRY SHOWER DETAIL
1/4" = 1'-0"



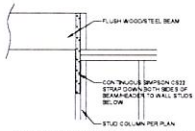
5 STEEL BEAM TO WOOD PLATE
1 1/2" = 1'-0"



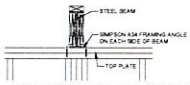
9 WOOD TO WOOD STACKED CONNECTION
1" = 1'-0"



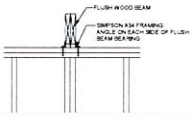
4 FLUSH WOOD BEAM CONNECTION
1 1/2" = 1'-0"



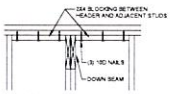
8 UPSET WOOD / STEEL PARALLEL TO WALL
1" = 1'-0"



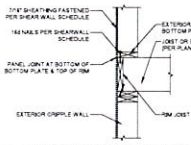
3 EXTERIOR WALL STEEL BEAM BEARING
1" = 1'-0"



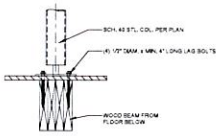
7 UPSET WOOD PERPENDICULAR TO WALL
1" = 1'-0"



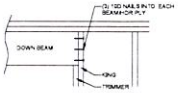
2 DOWN WOOD BEAM PERPENDICULAR
1" = 1'-0"



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"

HD ENGINEERING & DESIGN, INC

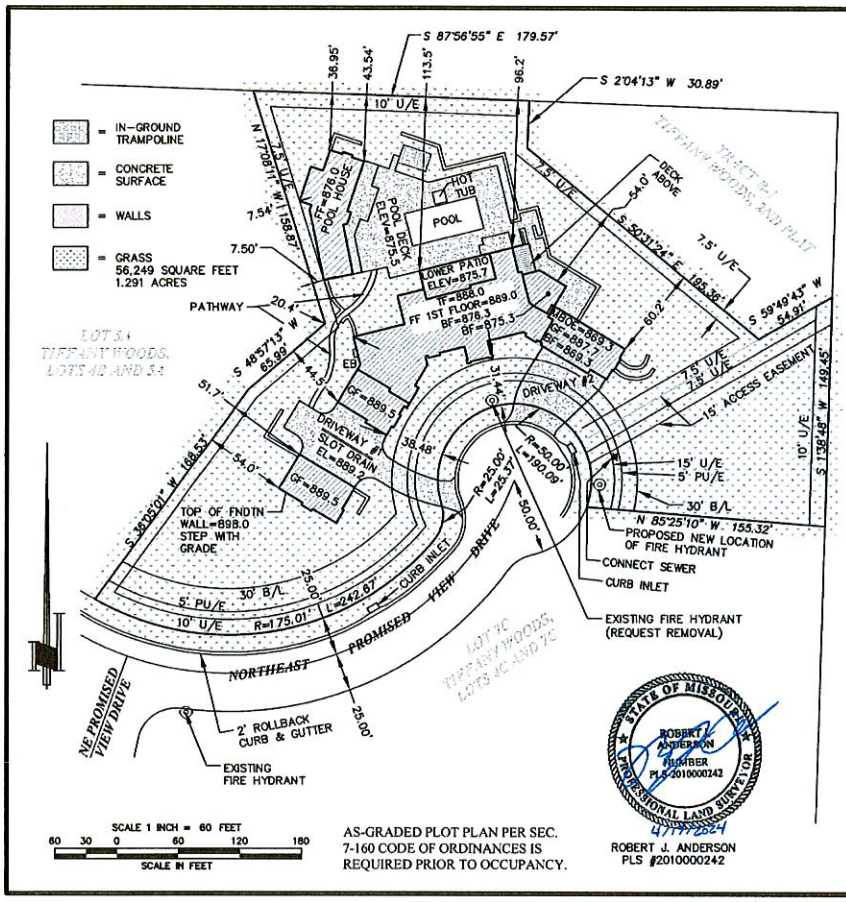
STARR HOMES., LLC.
MILLIGAN POOL HOUSE
512 NE PROMISED VIEW DR., LEE'S SUMMIT, MO
STRUCTURAL DETAILS & NOTES

HD# 47226
DATE 01/31/2024
CHECKED BY CLS

NO.	ISSUE/REVISION	Revision Date

GENERAL DETAILS

S-4.0



AS-GRADED PLOT PLAN PER SEC. 7-160 CODE OF ORDINANCES IS REQUIRED PRIOR TO OCCUPANCY.

STATE OF MISSOURI
ROBERT J. ANDERSON
NUMBER PLS-2010000242
PROFESSIONAL LAND SURVEYOR
4/17/2024

ROBERT J. ANDERSON
PLS #2010000242

DESCRIPTION:

LOT 4C, *TIFFANY WOODS, LOTS 4C AND 7C*, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI.

ADDRESS: 512 NE PROMISED VIEW DRIVE, LEE'S SUMMIT, MISSOURI 64064

LEGEND

B/L	BUILDING SETBACK LINE
PU/E	PRIVATE UTILITY EASEMENT
U/E	UTILITY EASEMENT (PUBLIC)
BF	BASEMENT FLOOR ELEVATION
EB	ELECTRICAL BOX
FF	FINISHED FLOOR ELEVATION
GF	GARAGE FLOOR ELEVATION
SP	SUPPORT POST
TF	TOP OF FOUNDATION ELEVATION
MBOE	MINIMUM BUILDING OPENING ELEVATION
➡	DRAINAGE DIRECTION ARROW

AREAS

TOTAL LOT AREA:
86,375 SQUARE FEET
1.983 ACRES

IMPERVIOUS AREA:
30,126 SQUARE FEET
0.692 ACRES

UNDEVELOPED AREA:
56,249 SQUARE FEET
1.291 ACRES

DRIVEWAYS

DRIVEWAY #1
WIDTH AT CURB 26.9'
WIDTH AT GARAGES 40.0'

DRIVEWAY #2
WIDTH AT CURB (WEST) 34.0'
WIDTH AT GARAGE 46.0'

BASEMENT TYPE: WALKOUT

BUILDING & PROPERTY ELEVATIONS

THE BUILDING CORNER AND PROPERTY CORNER ELEVATIONS ARE EXISTING AND FINISHED, UNLESS NOTED OTHERWISE (EX = EXISTING, FN = FINISHED)

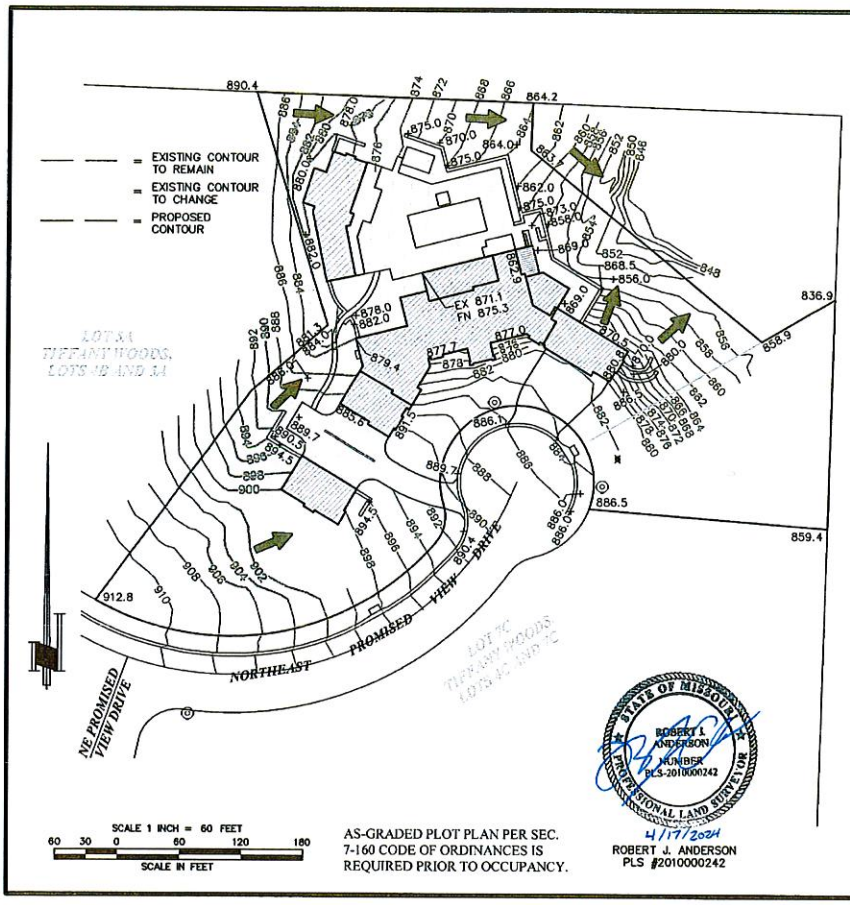
NOTE: THE CONTOUR LINES SHOWN HEREON WERE TAKEN FROM A SURVEY BY PHELPS ENGINEERING, INC. DATED MARCH 20, 2020 WITH MODIFICATIONS FROM A SKETCH BY STARR DEVELOPMENT.

PLOT PLAN

SHEET 1 OF 2

ANDERSON
SURVEY COMPANY
1270 NE DELTA SCHOOL ROAD
LEE'S SUMMIT, MISSOURI 64064
(816) 246-5050

MISSOURI STATE CERTIFICATE OF AUTHORITY, 000076



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ROBERT J. ANDERSON
NUMBER PLS-2010000242
PROFESSIONAL LAND SURVEYOR

4/17/2024

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PLOT PLAN

SHEET 2 OF 2

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