COLUMN AND PAD SCHEDULE (BASED ON 1500 PSF SOIL BEARING CAPACITY)

A - 3" SCH. 40 STEEL COLUMN ON 30"x30"x12" CONCRETE PAD WITH (5) #4 BARS EACH WAY (9.4k)

B - 3" SCH. 40 STEEL COLUMN ON 36"x36"x12" CONCRETE PAD WITH (6) #4 BARS EACH WAY (13.5k)

C - 3" SCH. 40 STEEL COLUMN ON 42"x42"x14" CONCRETE PAD WITH (7) #4 BARS EACH WAY (18.4k)

D - 3" SCH. 40 STEEL COLUMN ON 48"x48"x16" CONCRETE PAD WITH (8) #4 BARS EACH WAY (24.0k)

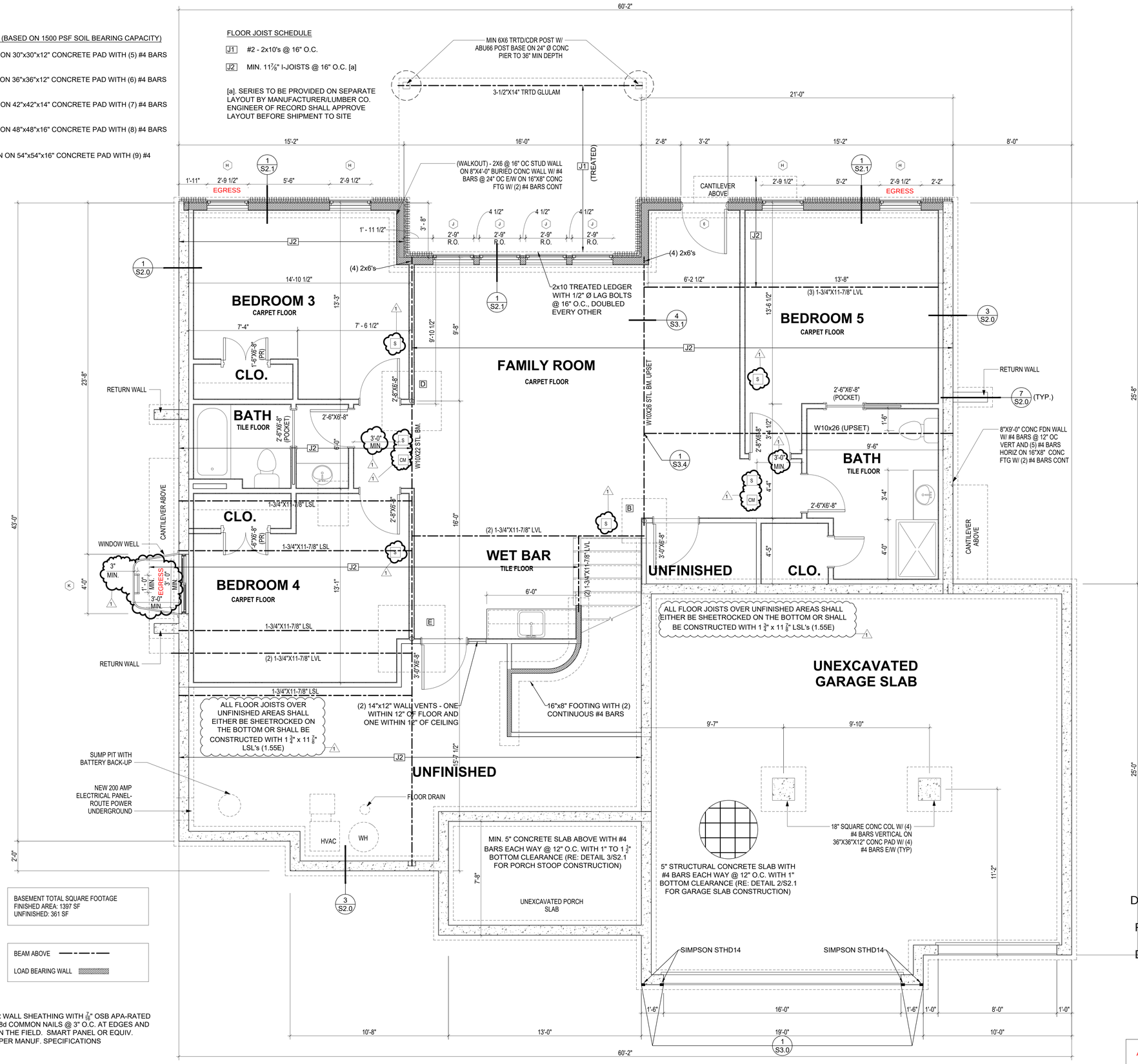
E - 3½" SCH. 40 STEEL COLUMN ON 54"x54"x16" CONCRETE PAD WITH (9) #4 BARS EACH WAY (30.4k)

FLOOR JOIST SCHEDULE

J1 #2 - 2x10's @ 16" O.C.

J2 MIN. 11⅞" I-JOISTS @ 16" O.C. [a]

[a]. SERIES TO BE PROVIDED ON SEPARATE LAYOUT BY MANUFACTURER/LUMBER CO. ENGINEER OF RECORD SHALL APPROVE LAYOUT BEFORE SHIPMENT TO SITE



BASEMENT TOTAL SQUARE FOOTAGE
FINISHED AREA: 1397 SF
UNFINISHED: 361 SF

BEAM ABOVE

LOAD BEARING WALL

= EXTERIOR WALL SHEATHING WITH 7/16" OSB APA-RATED PANELS W/ 8d COMMON NAILS @ 3" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD. SMART PANEL OR EQUIV. INSTALLED PER MANUF. SPECIFICATIONS

A11 BASEMENT
3/8" = 1'-0"

GENERAL INFORMATION NOTES:

1. BUILDING PERMIT WILL BE REQUIRED FOR THE PROJECT. THIS SET OF DOCUMENTS TO BE SUBMITTED AS A PERMIT SET OF DRAWINGS.
2. ALL CONTRACTORS SHALL VISIT THE JOB SITE AND SHALL REVIEW THE PERMIT DRAWINGS TO FAMILIARIZE HIMSELF WITH THE REQUIREMENTS AND INTENT OF THE SCOPE OF WORK. ANY DEFICIENCIES OR DISCREPANCIES DISCOVERED SHALL BE REPORTED FOR REVIEW AND CLARIFICATION PRIOR TO COMMENCING ANY WORK.
3. ALL NEW CONSTRUCTION SHALL MEET LATEST EDITIONS OF ALL APPLICABLE NATIONAL, STATE AND LOCAL BUILDING CODES- 2018 INTERNATIONAL RESIDENTIAL CODES.
4. WORKMANSHIP SHALL BE THE HIGHEST QUALITY. QUALITY MATERIALS SHALL BE USED THROUGHOUT. ALL WORK SHALL BE DONE IN A MANNER SO AS TO MATCH ADJACENT WORK AND FINISHES AND APPROVED BY OWNER.
5. CONTRACTORS SHALL REMOVE ALL CONSTRUCTION DEBRIS. ALL CONSTRUCTION DEBRIS SHALL BE CONTAINED PER CITY REQUIREMENTS.
6. AREAS FOR MATERIAL STORAGE, TRASH DISPOSAL, WORKMEN'S PARKING, ETC. SHALL BE COORDINATED WITH THE CITY.
7. ALL DIMENSIONS TO BE VERIFIED BY CONTRACTOR.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE WITH THE OWNER THE QUANTITY AND LOCATION FOR ALL LIGHTING, ELECTRICAL OUTLETS, TELEPHONE OUTLETS AND MECHANICAL AND PLUMBING SYSTEMS AS REQUIRED.
9. THE CONTRACTORS SHALL ADHERE TO THE STATE ONE CALL SYSTEM. 1-800-344-7233. THE PERSON OR FIRM DOING EXCAVATION ON PUBLIC RIGHT OF WAY MUST GIVE NOTICE TO, AND OBTAIN INFORMATION, UTILITY COMPANIES. THE CONTRACTORS SHALL NOTIFY THOSE COMPANIES WHICH HAVE FACILITIES IN THE NEAR VICINITY OF THE CONSTRUCTION TO BE PERFORMED WHEN WORK COMMENCES.
10. CONTRACTOR TO PROVIDE A TOILET FACILITY WITHIN 500 FT OF THE PROJECT SITE.

KEY NOTES: FLOOR PLAN

1 S SMOKE DETECTOR GENERAL LOCATION

CM CARBON MONOXIDE DETECTOR GENERAL LOCATION

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SCANNELL RESIDENCE

LOT 1472 WINTERSET VALLEY
3010 NW THOREAU PLACE
LEE'S SUMMIT, MO 64081

REVISION DATES:

1	City Comments	22 MARCH 2021

Digitally signed by Kim Brennan
Reason: Release for Construction
Date: 2021.03.24 09:43:53-05'00'

Kim Brennan

STATE OF MISSOURI — DENNIS HEIER — NUMBER PE-2010001772 — PROFESSIONAL ENGINEER

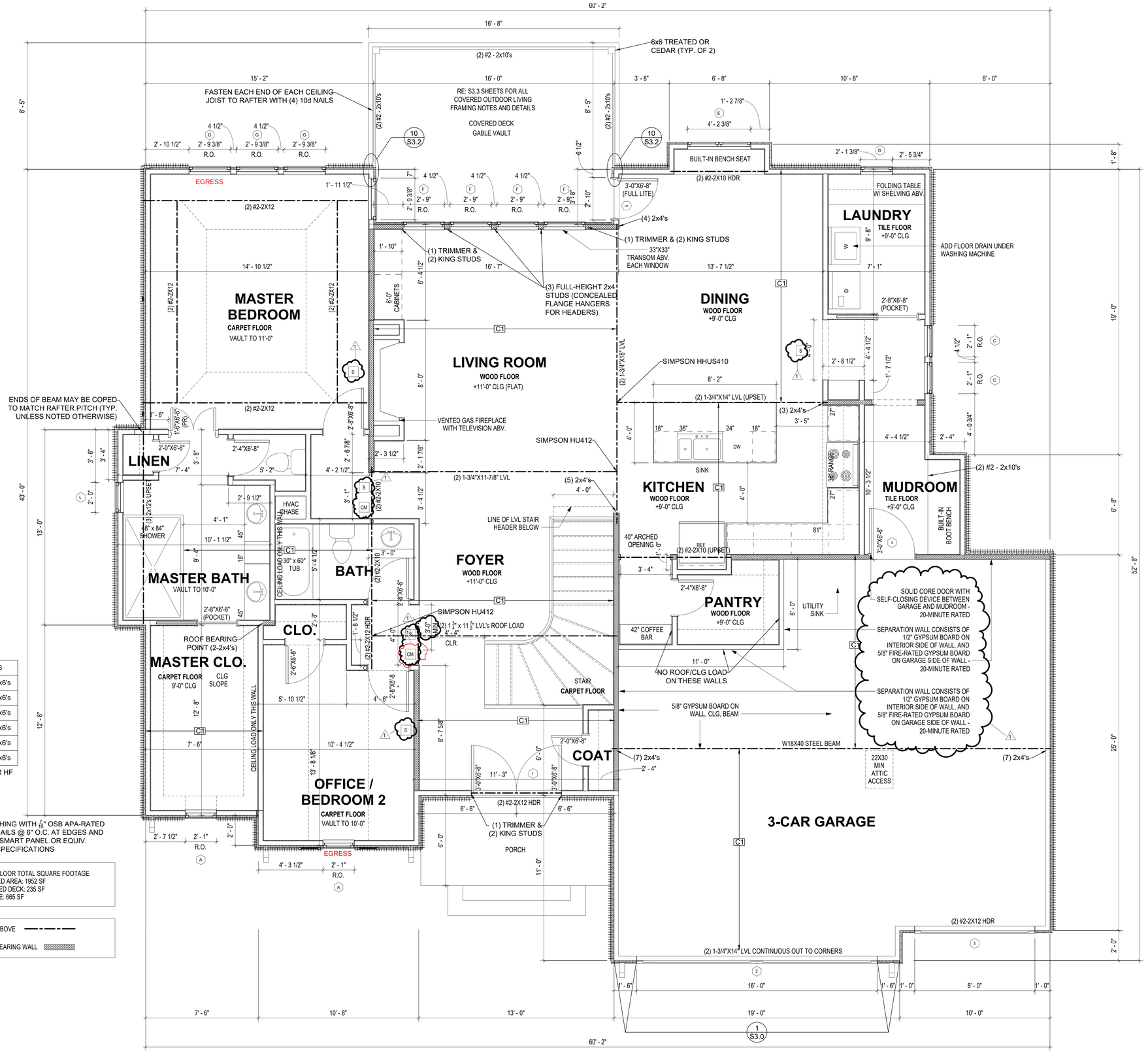
03/22/2021
PROFESSIONAL SEAL

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/24/2021

S0.1

ISSUE DATE: 08 MAR 2021
COLLINS WEBB #: 20096

BASEMENT PLAN



CEILING JOIST SCHEDULE

C1 #2 - 2x6's @ 16" O.C.

STUD SUPPORT COLUMN NOTATIONS			
3	(3) 2x4's	3	(3) 2x6's
4	(4) 2x4's	4	(4) 2x6's
5	(5) 2x4's	5	(5) 2x6's
6	(6) 2x4's	6	(6) 2x6's
7	(7) 2x4's	7	(7) 2x6's
8	(8) 2x4's	8	(8) 2x6's

NOTE: ALL STUDS SHALL BE #2 DFL OR HF

= EXTERIOR WALL SHEATHING WITH 7/16" OSB APA-RATED PANELS W/ 8d COMMON NAILS @ 6" O.C. AT EDGES AND @ 12" O.C. IN THE FIELD. SMART PANEL OR EQUIV. INSTALLED PER MANUF. SPECIFICATIONS

FIRST FLOOR TOTAL SQUARE FOOTAGE
FINISHED AREA: 1952 SF
COVERED DECK: 235 SF
GARAGE: 665 SF

BEAM ABOVE

LOAD BEARING WALL

A11 1ST FLOOR
3/8" = 1'-0"

GENERAL NOTES: FLOOR PLANS

1. ALL EXTERIOR PLATE HGTS TO BE 9'-0" UNLESS OTHERWISE NOTED. INTERIOR PLATE HGTS AS INDICATED IN ROOM CLG HEIGHTS NOTATION.
2. ALL STUD WALL FRAMING SHALL BE CONTINUOUS FROM THE FLOOR TO ROOF OR CEILING DIAPHRAGM, U.N.O. ALL WALLS OVER 10'-0" ARE TO BE 2X6 @ 16"c U.N.O.
3. NO HANDRAIL IS REQ'D FOR STEPS HAVING LESS 3 RISERS OR LESS.
4. PROVIDE WATER-RESISTANT EXTERIOR WALL COVERING ON ALL FRAMED WALLS TO COMPLY WITH 2018 IRC.
5. PROVIDE GFCI ELECTRICAL OUTLETS ON EXTERIOR, IN UNFINISHED BASEMENT, IN BATHROOMS, ABOVE KITCHEN COUNTERS, IN GARAGE, AND WITHIN 6'-0" OF ANY SINK.
6. MUST PROVIDE PROTECTION FOR OPEN WEB TRUSSES AND I-JOISTS BY ONE OF THE FOLLOWING METHODS:
   A. SHEETROCK- NO MUD AND TAPE REQ'D
   B. PLUMBER INSTALLED RESIDENTIAL SPRINKLER SYSTEM.
   C. FACTORY APPLIED, FIRE PROTECTING COATING BY I-JOIST MANUFACTURER
7. COORDINATE I-JOISTS LOCATIONS WITH PLUMBING DRAIN LINES AT ALL TOILET LOCATIONS.
8. INSTALL CARBON MONOXIDE DETECTORS PER 2018 IRC SECTION 315 OUTSIDE OF EACH SLEEPING AREA.
9. INSTALL SMOKE DETECTORS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA, WITH A MINIMUM OF ONE ON EACH FLOOR PER 2018 IRC SECTION 314.
10. PROVIDE A "UFER" GROUND PER 2018 IRC 3608.1.
11. REFER TO STRUCTURAL FOR ALL WALL BRACING DETAILS AND/OR CALCULATIONS.
12. INSTALL BLOCKING FOR TP HOLDERS, TOWEL BARS, AND TRIM BEAMS.
13. GARAGE DOOR H-FRAME: THE H-FRAME FOR ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x6 VERTICAL JAMBS RUNNING FROM FLOOR TO CEILING ATTACHED WITH 3 1/4"x.120 NAILS @ 7"c STAGGERED WITH (7) 3 1/4x.120 NAILS THRU JAMB INTO HEADER. MINIMUM 2x8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.
14. OVERHEAD GARAGE DOORS TO MEET 90 MPH WIND LOAD RESISTANCE REQUIREMENTS OF DASMA 108-5 AND ASTM E 330-02 PER 2018 IRC SECTION R 609.4.
15. MAXIMUM RISER HEIGHT OF STAIRWAYS SHALL NOT EXCEED 7 3/4" AND THE TREADS SHALL PROVIDE A MINIMUM TREAD DEPTH OF 10".
16. ALL EXTERIOR AND LOAD BEARING WINDOW AND DOOR HEADERS TO BE (2) 2x10 D.FIR #2 UNLESS NOTED OTHERWISE ON PLANS.
17. ALL HEADER BEARINGS (OTHER THAN WINDOWS) TO BE (2) 2x4 STUDS UNLESS NOTED OTHERWISE. WINDOW HEADER BEARING TO BE (1) 2x4 EA END UNLESS NOTED OTHERWISE.
18. ANY LUMBER IN DIRECT CONTACT WITH CONCRETE TO BE TREATED.
19. ALL EXTERIOR DOORS INCLUDING THE DOOR LEADING FROM THE GARAGE TO THE DWELLING UNIT SHALL MEET ALL PHYSICAL SECURITY REQUIREMENTS.

ENERGY REQUIREMENTS

1. CONTRACTOR TO PROVIDE ENERGY AUDIT USING THE HERS ENERGY RATING SYSTEM.
2. IN LIEU OF AN ENERGY AUDIT THE FOLLOWING PRESCRIPTIVE REQUIREMENTS MAY BE FOLLOWED:
   A. ALL DUCTS, AIR HANDLERS, FILTER BOXES, AND BUILDING CAVITIES TO BE SEALED PER 2018 IRC SECTION N1103.3.2.
   B. THE BUILDING THERMAL ENVELOPE IS REQUIRED TO BE SEALED PER 2018 IRC SECTION N1102.4.
   C. CONTRACTOR TO SUBMIT "MANUAL J" AND "MANUAL D" CALCULATIONS FOR THE HVAC SYSTEM.
   D. INSULATION TO COMPLY WITH IECC 2018 (and/or AMENDMENTS BY THE LOCAL JURISDICTION) AS FOLLOWS:
      WALLS: R-13
      CEILING (FLAT): R-49
      CEILING (VAULTED): R-38 (NOTE: VAULTED AREA NOT TO EXCEED 500sq ft OR 20% OF ROOF AREA, WHICHEVER IS LESS)
      FLOORS OVER UNCONDITIONED SPACE: R-19
      CRAWL SPACE WALLS: R-13 (or R-10 CONTINUOUS)
      BASEMENT WALLS: R-13 (or R-10 CONTINUOUS)
      SLABS: N/R
      DUCTWORK: R-8
      WINDOWS:
      U-FACTOR U 0.35 (MAX)
      SHGC 0.40 (MAX)
      SKYLIGHTS:
      U-FACTOR U 0.55 (MAX)
      SHGC 0.40 (MAX)

KEY NOTES: FLOOR PLAN

S	SMOKE DETECTOR GENERAL LOCATION
CM	CARBON MONOXIDE DETECTOR GENERAL LOCATION

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SCANNELL RESIDENCE

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3010 NW THOREAU PLACE
LEE'S SUMMIT, MO 64081

REVISION DATES:

1	City Comments	22 MARCH 2021

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
03/22/2021
PROFESSIONAL SEAL

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1ST FLOOR PLAN

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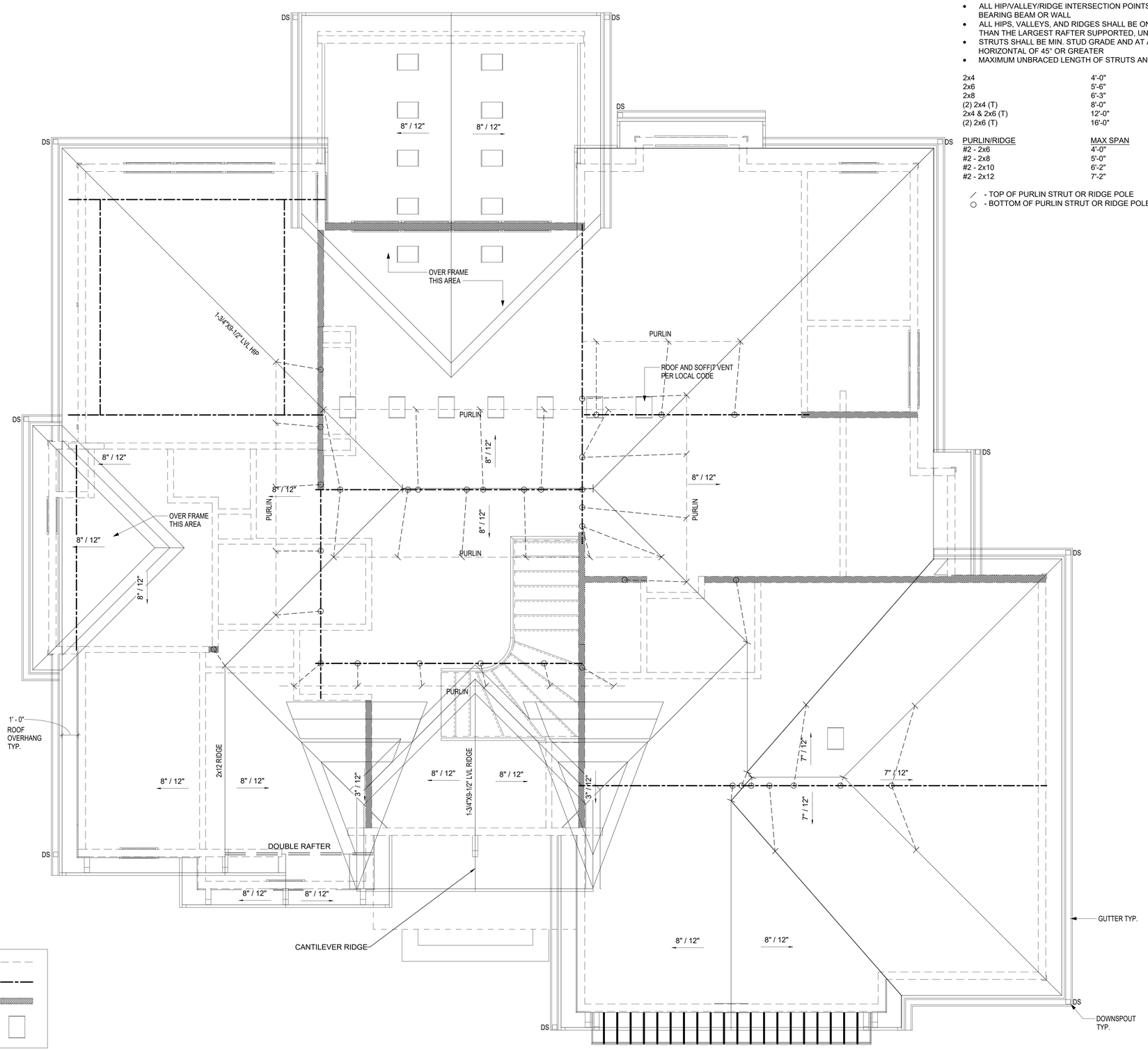
03/24/2021



A11 ROOF
3/8" = 1'-0"

ROOF CONSTRUCTION NOTES

- ALL RAFTERS ARE MIN. #2 DFL 2x6'S @ 16" O.C., UNLESS NOTED OTHERWISE
- ALL RIDGES SHALL BE BRACED AS LISTED IN TABLE BELOW
- ALL HIP/VALLEY/RIDGE INTERSECTION POINTS SHALL BE BRACED TO BEARING BEAM OR WALL
- ALL HIPS, VALLEYS, AND RIDGES SHALL BE ONE NOMINAL SIZE LARGER THAN THE LARGEST RAFTER SUPPORTED, UNLESS NOTED OTHERWISE
- STRUTS SHALL BE MIN. STUD GRADE AND AT AN ANGLE WITH THE HORIZONTAL OF 45° OR GREATER
- MAXIMUM UNBRACED LENGTH OF STRUTS AND RIDGE POLES:

2x4	4'-0"
2x6	5'-6"
2x8	6'-3"
(2) 2x4 (T)	8'-0"
2x4 & 2x6 (T)	12'-0"
(2) 2x6 (T)	16'-0"

PURLIN/RIDGE	MAX SPAN
#2 - 2x6	4'-0"
#2 - 2x8	5'-0"
#2 - 2x10	6'-2"
#2 - 2x12	7'-2"

⁄ - TOP OF PURLIN STRUT OR RIDGE POLE
○ - BOTTOM OF PURLIN STRUT OR RIDGE POLE

GENERAL NOTES: ROOF PLANS

1. ALL ROOFING TO BE ASPHALT COMPOSITION UNLESS NOTED OTHERWISE
2. EXACT GUTTER AND DOWNSPOUT LOCATION BY GUTTER INSTALLER.
3. ALL ROOF RAFTERS NOT CALLED OUT ARE TO BE 2x6 SPF #1/#2 @ 16"c
4. ALL CEILING JOISTS NOT CALLED OUT ARE TO BE 2x6 SPF #1/#2 @ 16"c
5. ALL VAULTS TO BE FURRED DOWN w/2x MATERIAL TO PROVIDE FOR R-38 INSULATION.
6. ALL EXTERIOR AND LOAD BEARING WINDOW AND DOOR HEADERS TO BE (2) 2x10 D.FIR #2 UNLESS NOTED OTHERWISE ON PLANS.
7. ALL RIDGES, HIPS, AND VALLEYS NOT MARKED SHALL BE (1) NOMINAL SIZE LARGER THAN THE INTERSECTING RAFTERS.
8. CEILING JOISTS AND RAFTERS SHALL BE NAILED TO EACH OTHER WITH (3) 16d COM (3 1/2"x0.162") NAILS AND THE RAFTER SHALL BE NAILED TO THE TOP WALL PLATE WITH (3) 8d COM (2 1/2"x0.131") NAILS. CEILING JOISTS SHALL BE CONTINUOUS OR SECURELY JOINED WITH (3) 16d COM (3 1/2"x0.162") NAILS WHERE THEY MEET OVER INTERIOR PARTITIONS AND ARE NAILED TO ADJACENT RAFTERS TO PROVIDE A CONTINUOUS TIE ACROSS THE BUILDING WHEN SUCH JOISTS ARE PARALLEL TO THE RAFTERS.
9. WHERE CEILING JOISTS ARE NOT CONNECTED TO THE RAFTERS AT THE TOP WALL PLATE (or AT LOCATIONS WHERE C.J. ARE PERPENDICULAR TO RAFTERS), INSTALL 2x4 RAFTER TIES @ 16"c WITH (3) 16d COM (3 1/2"x0.162") NAILS EA END, UNLESS NOTED OTHERWISE BY STRUCTURAL ENGINEER.
10. RAFTER CONNECTIONS DESIGNED TO RESIST UPLIFT FORCES PER 2018 IRC TABLE 802.4. ROOF HEADERS DO NOT HAVE NOTABLE UPLIFT TO REQUIRE HOLD DOWNS. REFER TO STRUCTURAL DETAIL SHEETS.
11. INSTALL 2x4 COLLAR TIES @ 48"c IN UPPER 1/3rd OF ROOF RAFTER.
12. PROVIDE METAL FLASHING AT ALL ROOF VALLEYS.
13. ROOF AND SOFFIT VENTS PER LOCAL CODES. WHERE POSSIBLE, PROVIDE ROOF VENTING ON BACK SIDE OF ROOF. BATH VENTS TO VENT DIRECTLY TO THE OUTSIDE.

ROOF BRACING

1. USE 2x6 STUD GRADE PURLIN PLACED PERPENDICULAR TO RAFTERS (UNLESS NOTED OTHERWISE ON PLANS).
2. STRUTS TO BE 2x4 STUD GRADE w/ MAXIMUM UNBRACED LENGTH OF 8'-0" AND AT A 45° ANGLE w/ HORIZONTAL OR GREATER (VERTICAL WHERE POSSIBLE).
3. BRACES LONGER THAN 8'-0" SHALL BE 2x4 STRONG BACK BRACES.

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SCANNELL RESIDENCE

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LEE'S SUMMIT, MO 64081

REVISION DATES:

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
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PROFESSIONAL SEAL

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ISSUE DATE: 08 MAR 2021
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ROOF PLAN

RELEASE FOR CONSTRUCTION
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LEE'S SUMMIT, MISSOURI
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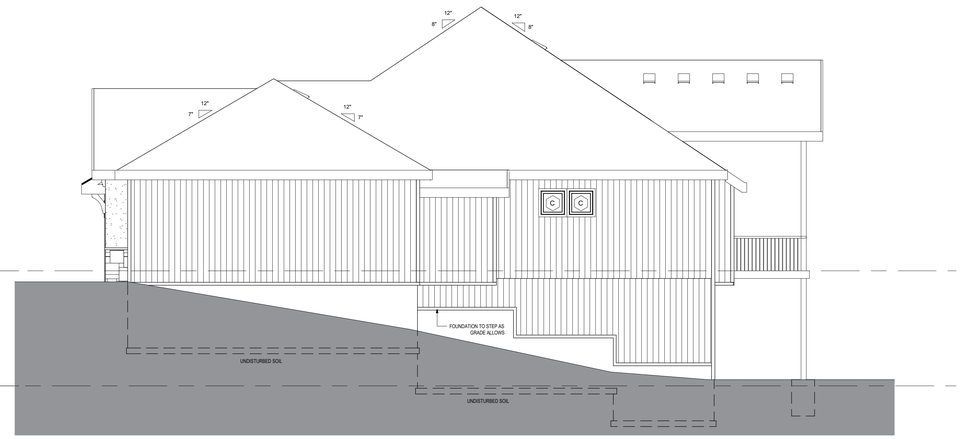
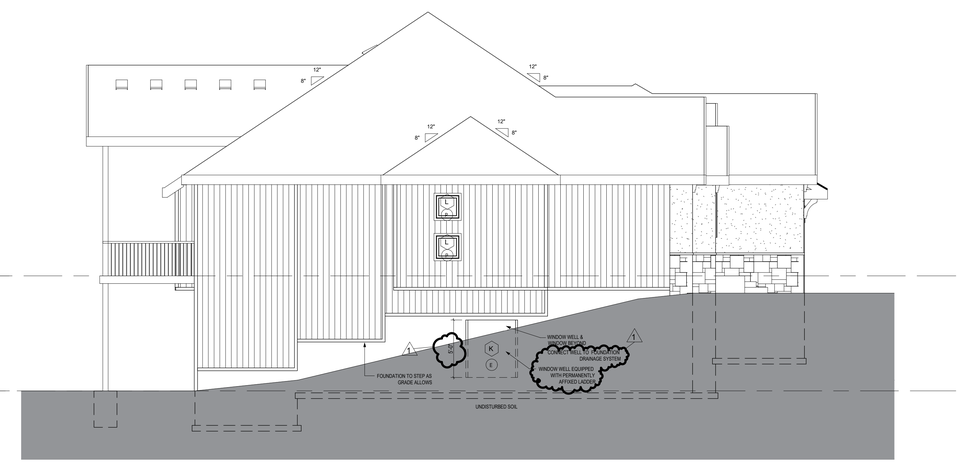
F11 FRONT ELEVATION
3/16" = 1'-0"



F5 SIDE RIGHT ELEVATION
3/16" = 1'-0"

B11 REAR ELEVATION
3/16" = 1'-0"



B5 SIDE LEFT ELEVATION
3/16" = 1'-0"

GENERAL NOTES EXTERIOR ELEVATIONS:

1. FINAL GRADE LINE MAY VARY EXISTING SITE CONDITIONS. REFER TO PLOT PLAN FOR SPECIFIC SITE GRADE CONDITIONS.
2. ALL ROOFING TO BE ASPHALT COMPOSITION UNLESS NOTED OTHERWISE.
3. ROOF AND SOFFIT VENTS PER LOCAL CODE. WHERE POSSIBLE, PROVIDE ROOF VENTING ON BACK SIDE OF ROOF.
4. GUTTER AND DOWNSPOUT LOCATIONS TO BE DETERMINED BY GUTTER INSTALLER.
5. SMART PANEL SIDING ON SIDE AND REAR ELEVATIONS UNLESS NOTED OTHERWISE.
6. REFER TO STRUCTURAL SHEETS FOR EXTERIOR DECK DETAILS.

KEY NOTES EXTERIOR ELEVATIONS:

- (X) WINDOW CALLOUT (RE: WINDOW SCHEDULE)
- (E) EGRESS WINDOW
- (T) TEMPERED GLASS ON DOOR OR WINDOW
- (P) PATTERNED RAIN GLASS

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EXTERIOR ELEVATIONS

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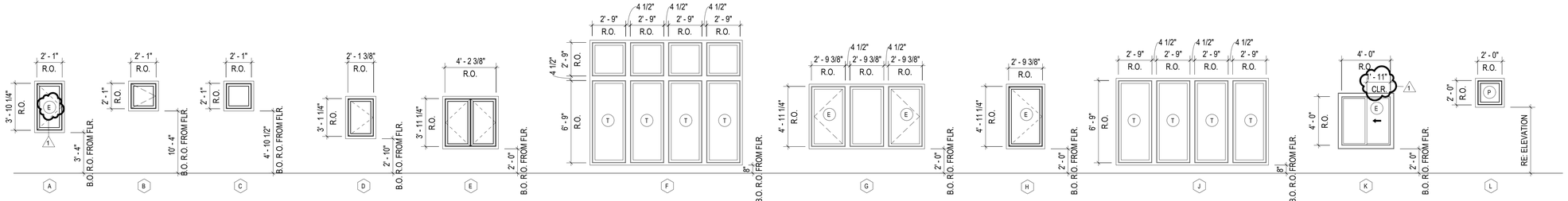

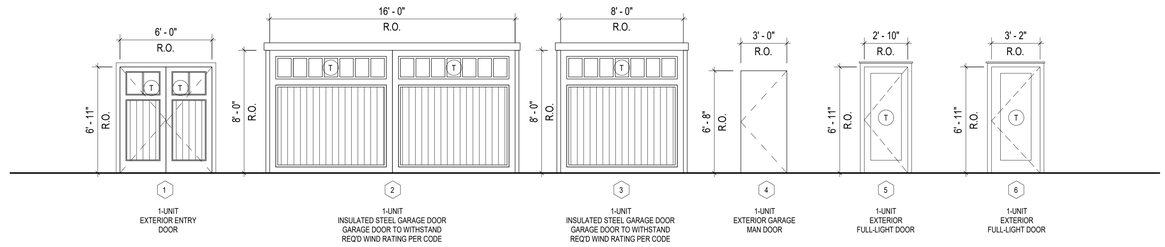

WINDOW NOTES:

1. VERIFY WINDOW AND DOOR SIZE WITH SUPPLIER PROVIDED CUT SHEET PRIOR TO FRAMING.
2. WINDOW SUPPLIER TO CONFIRM EXACT SAFETY AND EGRESS WINDOW LOCATIONS PER LOCAL CODES
3. ALL WINDOWS TO BE LOW-E GLASS TO MEET ALL LOCAL ENERGY CODE REQUIREMENTS.
4. ALL WINDOWS TO BE FRAMED TIGHT TO HEADERS UNLESS NOTED OTHERWISE ON ELEVATIONS
5. PROVIDE EGRESS WINDOW IN ALL SLEEPING ROOMS. WINDOWS SHALL COMPLY WITH THE FOLLOWING:
   A. MINIMUM OPEN AREA 5.7 SF
   B. MINIMUM OPENING HEIGHT 24 INCHES
   C. MINIMUM OPENING WIDTH 20 INCHES
   D. SILL HEIGHT 44" MAX ABOVE FLOOR
6. WINDOW SILLS ARE TO BE 24" MIN FIN FLOOR, OR SHALL BE FIXED / INOPERABLE
7. ALL WINDOWS AND GLAZED DOORS SHALL COMPLY WITH 2018 IRC SECTION R308. IRC SECTION R308.4: GLAZING IN HAZARDOUS LOCATIONS 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" ARC 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 STAIR, ENCLOSURES FOR TUBS, SHOWERS AND WHIRLPOOLS, GLAZING IN FIXED OR OPERABLE PANELS EXCEEDING 9 SF AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".
8. ALL OPERABLE WINDOWS SHALL HAVE FALL PROTECTION PER IRC R312.
9. ALL GLAZING IN WINDOWS AND DOORS SHALL COMPLY WITH THE TEST CRITERIA OR CATEGORY II IN ACCORDANCE WITH CPSC 16 CFR 1201.

(E) EGRESS WINDOW

(T) TEMPERED GLASS ON DOOR OR WINDOW

(P) PATTERNED RAIN GLASS

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WINDOW & DOOR SCHEDULES

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03/24/2021

FASTENER SCHEDULE FOR STRUCTURAL MEMBERS		
DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER	SPACING AND LOCATION
ROOF [1]		
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE, TOE NAIL	4-8d (2½" x 0.113")	TOENAIL
CEILING JOISTS TO PLATE, TOE NAIL	4-8d (2½" x 0.113")	PER JOIST, TOENAIL
CEILING JOISTS NOT ATTACHED TO PARALLEL RAFTER, LAPS OVER PARTITIONS, FACE NAIL	4-10d (3" x 0.128")	FACE NAIL
CEILING JOIST TO PARALLEL RAFTER (HEEL JOINT)	TBLE R802.5.2	FACE NAIL
COLLAR TIE TO RAFTER, FACE NAIL OR 1 ¼" x 20 GA. RIDGE STRAP TO RAFTER	4-10d (3" x 0.128")	FACE NAIL, EACH RAFTER
RAFTER OR ROOF TRUSS TO PLATE	3-16d BOX NAILS (3½" x 0.135") OR 3-10d COMMON NAILS (3" x 0.148")	2 TOE NAILS ON ONE SIDE AND 1 TOE NAIL ON OPPOSITE SIDE OF EACH RAFTER OR TRUSS
ROOF RAFTERS TO RIDGE, VALLEY, OR HIP RAFTERS OR ROOF RAFTER TO MINIMUM 2" RIDGE BEAM	4-16d (3 ½" x 0.135") - TOENAIL; 3-16d BOX (3 ½" x 0.135") - END NAIL [1]	TOENAIL, END NAIL
WALL		
STUD TO STUD (NOT AT BRACED WALL PANELS)	10d (3" x 0.128")	16" O.C. FACE NAIL
STUD TO STUD AND ABUTTING STUDS AT INTERSECTING WALL CORNERS (AT BRACED WALL PANELS)	16d (3½" x 0.135")	12" O.C. FACE NAIL
BUILT-UP HEADER, TWO PIECES WITH ½" SPACER	16d (3½" x 0.135")	12" O.C. EACH EDGE FACE NAIL
CONTINUOUS HEADER TO STUD	4-8d (2½" x 0.131")	TOENAIL
TOP PLATE TO TOP PLATE	10d (3" x 0.128")	12" O.C. FACE NAIL
DOUBLE TOP PLATE SPLICE	8-16d COMMON (3 ½" x 0.162")	FACE NAIL ON EACH SIDE OF END JOINT (MIN. 24" LAP SPLICE LENGTH EACH SIDE OF END JOINT)
BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING (NOT AT BRACED WALL PANELS)	16d COMMON (3 ½" x 0.162")	16" O.C. FACE NAIL
BOTTOM PLATE TO JOIST, RIM JOIST, BAND JOIST, OR BLOCKING (AT BRACED WALL PANEL)	3-16d BOX (3 ½" x 0.135")	3 EACH 16" O.C. FACE NAIL
TOP OR SOLE PLATE TO STUD, END NAIL	4-8d BOX (2 ½" x 0.113") - TOENAIL; 3-16d BOX (3 ½" x 0.135") - END NAIL	TOENAIL, END NAIL (SEE LEFT)
TOP PLATES, LAPS AT CORNERS AND INTERSECTIONS	3-10d BOX (3" x 0.128")	FACE NAIL
1" BRACE TO EACH STUD AND PLATE	3-8d BOX (2 ½" x 0.113")	FACE NAIL
1"x6" SHEATHING TO EACH BEARING	3-8d BOX (2 ½" x 0.113")	FACE NAIL
1"x8" SHEATHING TO EACH BEARING	3-8d BOX (2 ½" x 0.113") - FACE NAIL; WIDER THAN 1"x8" - 4-8d BOX (2 ½" x 0.113")	FACE NAIL
FLOOR		
JOIST TO SILL, TOP PLATE, OR GIRDER	4-8d BOX (2 ½" x 0.113")	TOE NAIL
RIM JOIST, BAND JOIST, OR BLOCKING TO SILL OR TOP PLATE (ROOF APPLICATIONS ALSO)	8d BOX (2 ½" x 0.113")	4" O.C. TOE NAIL
1" x 6" SUBFLOOR OR LESS TO EACH JOIST	3-8d BOX (2 ½" x 0.113")	FACE NAIL
2" SUBFLOOR TO JOIST OR GIRDER	3-16d BOX (3 ½" x 0.135")	BLIND AND FACE NAIL
2" PLANKS (PLAN & BEAM - FLOOR AND ROOF)	3-16d BOX (3 ½" x 0.135")	AT EACH BEARING, FACE NAIL
BAND OR RIM JOIST TO JOIST	3-16d COMMON (3 ½" x 0.162")	END NAIL
BUILT-UP GIRDERS AND BEAMS, 2-INCH LUMBER LAYERS	10d BOX (3" x 0.128")	24" O.C. FACE NAIL AT TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES
LEDGER STRIP SUPPORTING JOISTS OR RAFTERS	4-16d BOX (3 ½" x 0.135")	AT EACH JOIST OR RAFTER, FACE NAIL
BRIDGING OR BLOCKING TO JOIST	2-10d BOX (3" x 0.128")	EACH END, TOENAIL

FASTNER SCHEDULE FOR STRUCTURAL MEMBERS			
DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER	EDGE SPACING (INCHES)	INTERMEDIATE SUPPORTS (INCHES)
WOOD STRUCTURAL PANELS, SUBFLOOR, ROOF AND INTERIOR WALL SHEATHING TO FRAMING AND PARTICLEBOARD WALL SHEATHING TO FRAMING [1]			
⅜" - ½"	6d COMMON (2" x 0.113") NAIL (SUBFLOOR, WALL) 8d COMMON NAIL (ROOF)	6	12
19/32" - 1"	8d COMMON NAIL (2½" x 0.131")	6	12
1⅛" - 1¼"	10d COMMON (3" x 0.148") NAIL OR 8d (2½" x 0.131") DEFORMED NAIL	6	12
OTHER WALL SHEATHING [1]			
½" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 ½" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1 ½" LONG 16 GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
25/32" STRUCTURAL CELLULOSIC FIBERBOARD SHEATHING	1 ¾" GALVANIZED ROOFING NAIL, 7/16" HEAD DIAMETER, OR 1 ½" LONG 16 GA. STAPLE WITH 7/16" OR 1" CROWN	3	6
½" GYPSUM SHEATHING	1½" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1½" LONG; 1¼" SCREWS, TYPE W OR S	7	7 [1]
⅝" GYPSUM SHEATHING	1¾" GALVANIZED ROOFING NAIL; STAPLE GALVANIZED, 1⅝" LONG; 1⅝" SCREWS, TYPE W OR S	7	7
WOOD STRUCTURAL PANELS, COMBINATION SUBFLOOR UNDERLAYMENT TO FRAMING			
¾" AND LESS	6d DEFORMED (2" x 0.120") NAIL OR 8d COMMON (2½" x 0.131") NAIL	6	12
⅞" - 1"	8d COMMON (2½" x 0.131") NAIL OR 8d DEFORMED (2½" x 0.120") NAIL	6	12
1⅛" - 1¼"	10d COMMON (3" x 0.148") NAIL OR 8d DEFORMED (2½" x 0.120") NAIL	6	12

1. IF INFORMATION LISTED ON PLAN SHEETS CONTRADICTS INFORMATION IN THIS TABLE, INFORMATION ON PLANS TAKES PRECEDENCE OVER INFORMATION

FOUNDATION NOTES

1. CONCRETE SHALL BE AIR-ENTRAINED BETWEEN 5%-7% WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2500 PSI FOR BASEMENT AND INTERIOR FLOOR SLABS-ON-GRADE, 3000 PSI FOR FOUNDATION WALLS, AND 3500 PSI FOR PORCHES AND GARAGE FLOOR SLABS
2. THE FOUNDATION DESIGN SHALL COMPLY WITH THE ENFORCING JURISDICTION'S RESIDENTIAL FOUNDATION STANDARDS
3. PROVIDE A MINIMUM 4"-DIAMETER PERFORATED DRAIN PIPE ALONG PERIMETER OF USABLE SPACE AT FOOTING LEVEL OR OTHER EQUIVALENT MATERIALS PER IRC SECTION R405.1. THE PIPE SHALL BE COVERED WITH A MINIMUM OF 6" OF GRAVEL OR CRUSHED ROCK. THE DRAIN SHALL DAYLIGHT BELOW FOOTING LEVEL OR TERMINATE IN A MINIMUM 20 GALLON SUMP PIT.
4. FOUNDATION SHALL BE DESIGNED FOR A BEARING CAPACITY OF 1500 PSF AND FOUNDED ON COMPETENT ORIGINAL SOIL AS DETERMINED AND CONFIRMED BY A LICENSED GEOTECHNICAL ENGINEER OR ENGINEERING GEOLOGIST. ENGINEER OF RECORD ASSUMES NO RESPONSIBILITY FOR CONSTRUCTION NOT VERIFIED TO BE FOUNDED ON ANY SOIL WITH THE AFOREMENTIONED MINIMUM PROPERTIES.
5. FOOTINGS SHALL BE A MINIMUM OF 16" WIDE x 8" DEEP AND SHALL HAVE A MINIMUM OF (2) CONTINUOUS GRADE 40 #4 BARS WITH 3" BOTTOM CLERANCE. BOTTOM OF FOOTING SHALL BE LOCATED A MINIMUM OF 3'-0" BELOW GRADE FOR FROST PROTECTION.
6. CONCRETE PADS SUP0PORTING COLUMN LOADS SHALL BE NO SMALLER THAN 2'-0" x 2'-0" x 1'-0" DEEP WITH A MINIMUM OF (4) GRADE 40 #4 BARS EACH WAY WITH 3" BOTTOM CLEARANCE
7. FOUNDATION WALLS SHALL BE A MINIMUM OF 8" NOMINAL WIDTH AND SHALL HAVE HOIZONTAL GRADE 40 #4 BARS AT 2'-0" O.C. MAX. WITH VERTICAL #4 BARS AS REQUIRED ON FOUNDATION CROSS SECTION ON SHEET S2.0
8. REINFORCEMENT SHALL LAP A MINIMUM OF 2'-0" (CLASS B SPLICE)
9. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB
10. BASEMENT FLOOR SLAB SHALL BE A MINIMUM OF 4" THICK ON A MINIMUM BASE COURSE OF 4" TO 6" OF SAND, GRAVEL OR CRUSHED ROCK. BETWEEN THE BASE COURSE AND FLOOR SLAB SHALL BE PLACED A 6-MIL POLY VAPOR RETARDER WITH MINIMUM OVERLAP OF 6" AT DISCONTINUITIES
11. IF A FLOOR IS TO BE SUPPORTED BY A MINIMUM OF 2'-0" OF GRANULAR FILL OR 8" OF EARTH, BASEMENT SLAB SHALL BE DESIGNED BY A LICENSED ENGINEER
12. SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WALL WITH ½" Ø ANCHOR BOLTS EMBEDDED A MINIMUM OF 7" INTO CENTER OF WALL STEM AND SHALL BE INSTALLED AT A MAXIMUM OF 6'-0" O.C. (OR AS NOTED ON PLANS) AND SHALL BE INSTALLED WITHIN 6" TO 12" OF EACH END OF EACH SILL PLATE LENGTH, PER IRC SECTION R403.1.6
13. FOUNDATION WINDOW WELLS SHALL BE PROVIDED WITH MINIMUM DIMENSIONS AS SHOWN IN DETAIL ON SHEET S2.0
14. THE GARAGE FLOOR SHALL SLOPE TOWARD THE VEHICLE DOORS OR TO A TRENCH OR UNTRAPPED DRAIN THAT DISCHARGES TO THE EXTERIOR, ABOVE GRADE

FRAMING NOTES

15. ALL DIMENSIONAL LUMBER SHALL BE DOUGLAS-FIR-LARCH GRADE #2, UNLESS NOTED OTHERWISE ON PLANS
16. ALL INTERIOR LOAD-BEARING AND EXTERIOR WALL HEADERS SHALL BE (2) #2 - 2x10's, UNLESS NOTED OTHERWISE ON PLANS
17. BLOCK OVER BEAMS AND AT CANTILEVERS AND DOOR JAMBS
18. INTERIOR NON-BEARING WALLS RESTING ON BASEMENT SLAB SHALL BE ISOLATED FROM ABOVE FRAMING BY A MINIMUM OF ½"
19. ALL HEADERS/BEAMS SHALL BEAR ON A MINIMUM OF (2) 2x4 POSTS (KING AND JACK STUDS), UNLESS NOTED OTHERWISE
20. WHERE JOISTS SPAN PARALLEL TO FOUNDATION, BLOCKING SHALL BE PROVIDED IN THE TWO SPACES MOST ADJACENT TO THE FOUNDATION WALL AT 4'-0" O.C. FOR THE PURPOSE OF TRANSFERRING LATERAL FOUNDATION WALL LOAD TO THE FLOOR DIAPHRAGM. FASTEN JOISTS AND BLOCKING TO SILL PLATE WITH (4) 10d NAILS. IF MECHANICAL DUCTWORK IS INSTALLED IN ONE OF THESE FIRST TWO BAYS, FASTEN 2x4's FLAT AT 4'-0" O.C. BETWEEN JOIST(S) AND/OR SILL AND PROVIDE BLOCKING AS PRESCRIBED ABOVE IN THE NEXT TWO JOIST BAYS. SECURE 2x4's TO JOIST(S)/SILL PLATE WITH (4) 10d NAILS.
21. ALL WOOD MATERIAL SUPPORTED ON CONCRETE OR MASONRY SHALL BE TREATED OR OF DECAY-RESISTANT MATERIAL
22. JOISTS UNDER BEARING PARTITIONS ON PLANS HAVE BEEN SIZED TO SUPPORT THE DESIGN LOAD.
23. JOISTS FRAMING INTO THE FACE OF A STEEL OR WOOD BEAM SHALL BE SUPPORTED WITH APPROPRIATE COLD-FORMED STEEL JOIST HANGERS
24. JOISTS FRAMED ON TOP OF STRUCTURAL MEMBER SHALL BE SUPPORTED AT EN DS BY FULL-DEPTH SOLID BLOCKING MIN. 1⅛" IN THICKNESS OR BY FASTENING RIM TO JOISTS PER FASTENING TABLE TO LEFT
25. ALL WALL COVERINGS SHALL COMPLY WITH IRC SECTION R702.3
26. ALL RAFTERS AND COLLAR TIES SHALL COMPLY WITH IRC SECTION R802.3.
27. ALL RAFTERS SHALL HAVE 2x4 COLLAR TIES @ 4'-0" O.C. IN UPPER ⅓ OF VERTICAL DISTANCE BETWEEN CEILING AND ROOF
28. BLOCKING BETWEEN JOISTS UNDER A LOAD-BEARING WALL IS NOT REQUIRED
29. PER IRC SECTION 501.3, BOTTOM OF ALL FLOOR ASSEMBLIES ABOVE UNFINISHED AREAS SHALL BE PROVIDED WITH A ½" GYPSUM BOARD MEMBRANE OR RESIDENTIAL FIRE SPRINKLER SYSTEM WHEN FLOOR SYSTEM IS CONSTRUCTED OF OTHER THAN DIMENSION LUMBER OR STRUCTURAL COMPOSITE LUMBER EQUAL TO OR GREATER THAN 2x10 NOMINAL DIMENSION(WHERE REQUIRED BY ENFORCING JURISDICTION)
30. ENGINEERED LVL's SHALL HAVE MINIMUM PROPERTIES OF Fb = 2600 psi, E=1900 ksi, AND Fv=285 psi
31. ENGINEERED PARALLAMS SHALL HAVE MINIMUM PROPERTIES OF Fb = 2600 psi, E = 2000 ksi, AND Fv = 290 psi
32. 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. ½" x 2" BOLTS SHALL 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.
33. WHEN MECHANICAL EQUIPMENT IS LOCATED IN AN ENCLOSED ROOM, THERE SHALL BE (2) 14"x12" VENTS LOCATED IN A WALL COMMON WITH ADDITIONAL LIVING AREA. ONE VENT SHALL BE LOCATED SUCH THAT THE BOTTOM OF THE VENT BEGINS 12" FROM THE FLOOR AND THE OTHER VENT SHALL BE LOCATED SUCH THAT THE TOP OF THE VENT BEGINS 12" FROM THE CEILING.
34. ALL ROOF SHEATHING SHALL BE 7/16" OSB WITH 8d COMMON NAILS @ 6" O.C. AT PANEL EDGES AND @ 12" O.C. IN FIELD

GLAZING NOTES

35. 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 OPENABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 2'-0" ARC OF THE DOOR IN A CLOSED POSITION AND FOR WHICH THE BOTTOM EDGE IS WITHIN 5'-0" OF THE FLOOR, WALLS ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 5'-0" OF THE TOP OR BOTTOM OF THE STAIR, ENCLOSURES FOR SPAS, TUBS, SHOWERS, AND WHIRLPOOLS, GLAZING IN FIXED OR OPENABLE PANELS EXCEEDING NINE SQUARE FEET AND FOR WHICH THE BOTTOM EDGE IS LESS THAN 1'-6" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 3'-0"
36. ALL OPERABLE WINDOWS SHALL HAVE FALL PROTECTION PER IRC SECTION R612.2

ATTIC VENTILATION

37. 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 ⅛" TO ¼" OPENINGS. THE TOTAL FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/150 OF THE AREA OF SPACE VENTILATED, EXCEPT WHERE THE VENTILATORS ARE LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED - THE REQUIRED AREA MAY BE REDUCED TO 1/300.

EMERGENCY EGRESS

38. PROVIDE A MINIMUM OF ONE WINDOW FOR EACH BEDROOM THAT HAS A MINIMUM OPENABLE AREA OF 5.7 SQUARE FEET WITH A MINIMUM OPENABLE HEIGHT OF 2'-0" AND A MINIMUM WIDTH OF 1'-9". IN ADDITION, THE OPENABLE PORTION OF EGRESS WINDOWS SHALL NOT EXCEED 3'-8" ABOVE THE ADJOINING FLOOR OR PERMANENT STEP.
39. PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA AND ON EACH FLOOR, INCLUDING BASEMENT (IF APPLICABLE). ALARMS SHALL BE HARDWIRED TOGETHER SO THAT THE ACTIVATION OF ONE SMOKE ALARM WILL ACTIVATE ALL SMOKE ALARMS IN THE DWELLING. PROVIDE CARBON MONOXIDE DETECTORS OUTSIDE EACH SLEEPING AREA.

MASONRY VENEER

40. MASONRY VENEER SHALL BE ANCHORED TO THE SUPPORTING WALL STUDS WITH CORROSION-RESISTANT METAL TIES EMBEDDED IN MORTAR OR GROUT AND EXTENDING INTO THE VENEER A MINIMUM OF 1½", WITH NOT LESS THAN ⅝" MORTAR OR GROUT COVER TO OUTSIDE FACE.
41. VENEER TIES, IF STRAND WIRE, SHALL NOT BE LESS IN THICKNESS THAN NO. 9 U.S. GAGE WIRE AND SHALL HAVE A HOOK EMBEDDED IN THE MORTAR JOINT, OR IF SHEET METAL, SHALL BE NOT LESS THAN NO. 22 U.S. GAGE BY ⅞" CORRUGATED.
42. EACH TIE SHALL SUPPORT NOT MORE THAN 2.67 SQUARE FEET OF WALL AREA AND SHALL BE SPACED NOT MORE THAN 32 INCHES ON CENTER HORIZONTALLY AND 24 INCHES ON CENTER VERTICALLY.
43. VENEER TIES AROUND WALL OPENINGS: ADDITIONAL METAL TIES SHALL BE PROVIDED AROUND ALL WALL OPENINGS GREATER THAN 16 INCHES IN EITHER DIMENSION. METAL TIES AROUND THE PERIMETER OF OPENINGS SHALL BE SPACED NOT MORE THAN 3 FEET ON CENTER AND PLACED WITHIN 12 INCHES OF THE WALL OPENING.

GARAGE NOTES

44. DOOR(S) BETWEEN THE GARAGE AND DWELLING SHALL BE MINIMUM 1⅜" SOLID CORE OR HONEY-COMBED STEEL DOOR WITH 20-MINUTE FIRE RATING EQUIPPED WITH A SELF-CLOSING DEVICE
45. 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 IRC 2018

GARAGE NOTES (CONTINUED)

44. THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY MINIMUM ⅝" GYP. BOARD APPLIED TO THE GARAGE SIDE OF FRAMING. WHERE HABITABLE SPACE OCCURS ABOVE THE GARAGE, THE GARAGE CEILING ASSEMBLY SHALL BE PROTECTED WITH A MINIMUM ⅝" TYPE X GYP. BOARD. WHERE A FLOOR/CEILING SPACE IS PROVIDED ABOVE THE GARAGE COLUMNS AND BEAMS SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED WITH ⅝" GYP. BOARD.
45. 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 AND SHALL BE FASTENED WITH 2½"" x 0.120" NAILS AT 7" O.C. STAGGERED WITH (7) 3¼" x 0.120" NAILS THROUGH THE JAMB INTO THE HEADER. MINIMUM 2x8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.

DESIGN LOADING (PER TABLE R301.5)

MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS (PSF)		
USE	LIVE LOAD	DEAD LOAD
UNINHABITABLE ATTICS WITHOUT STORAGE	10	10
UNINHABITABLE ATTICS WITH LIMITED STORAGE	20	10
HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS	30	10
BALCONIES (EXTERIOR) AND DECKS	40	10 [d]
FIRE ESCAPES	40	10
GUARDRAILS AND HANDRAILS [a]	200 [c]	-
GUARDRAIL IN-FILL COMPONENTS [b]	50 [c]	-
PASSENGER VEHICLE GARAGES	50	DEPENDENT UPON SLAB CONSTRUCTION
ROOMS OTHER THAN SLEEPING ROOM	40	10 [d]
SLEEPING ROOM	30	10 [d]
STAIRS	40	10 [d]

a. A single concentrated load applied in any direction at any point along the top.
b. Guard in-fill components (all those except the handrail), ballusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds on an area equal to one square foot. This load need not be assumed to act concurrently with any other live load requirement.
c. Glazing used in handrail assemblies and guards shall be designed with a safety factor of 4. The safety factor shall be applied to each of the concentrated loads applied to the top of the rail, and to the load on the infill components. These loads shall be determined independently of one another, and loads are assumed not to occur with any other live load.
d. An additional dead loading of 10 psf shall be applied where thinset tile floor is to be installed. An additional dead loading of 50 psf shall be applied where mudset tile floor is to be installed.

INSULATION/EFFICIENCY

1. BUILDING ENVELOPE INSULATION SHALL COMPLY WITH IRC TABLE N1102.1.1 OR THE 2012 IECC (SEE SHEET S3.1 FOR FRAMING DETAILS AND TABLES ON THIS SHEET FOR MORE INFORMATION)
2. CATHEDRAL -VAULTED CEILING FRAMING SHALL BE FRAMED WITH A MINIMUM INSULATION VALUE OF R-38. IF VAULTED RAFTERS DO NOT PROVIDE REQUIRED DEPTH TO ACHIEVE R-38 INSULATION BUILDER SHALL FUR DOWN RAFTERS PER DETAILS PROVIDED ON SHEET S3.1.

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT (TABLE N1102.1.1)	
CLIMATE ZONE	4-A
FENESTRATION U-FACTOR	0.35
SKYLIGHT U-FACTOR	0.55
GLAZED FENSTRATION SHGC	0.40
CEILING R-VALUE	49
WOOD FRAME WALL R-VALUE	15
MASS WALL R-VALUE	8 / 13
FLOOR R-VALUE	19
BASEMENT WALL R-VALUE	10-CONTINUOUS OR 13-CAVITY
SLAB R-VALUE AND DEPTH	10 AT 2'-0"
CRAWL SPACE WALL R-VALUE	10-CONTINUOUS OR 13-CAVITY
DUCTWORK EXPOSED TO OUTSIDE AIR R-VALUE	8
DUCTWORK NOT EXPOSED TO OUTSIDE AIR R-VALUE	6
CATHEDRAL VAULTED CEILING R-VALUE	38

DUCT SEALING

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 2018 IRC.

EXCEPTIONS:

1. AIR-IMPERMEABLE 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 PRESSURES LESS THAN 2 INCHES OF WATER COLUMN 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 BE LESS THAN OR EQUAL TO 4 CFM PER 100 SQUARE FEET OF CONDITIONED FLOOR AREA WHEN TESTED AT A PRESSURE DIFFERENTIAL OF 0.1 INCHES W.G. 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 LEAKAGE SHALL BE LESS THAN OR EQUAL TO 4 CFM PER 100 SQUARE FEET OF CONDITIONED FLOOR AREA WHEN TESTED AT A PRESSURE DIFFERENTIAL OF 0.1 INCHES W.G. ACROSS THE 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 LEAKAGE SHALL BE LESS THAN OR EQUAL TO 3 CFM PER 100 SQUARE FEET OF CONDITIONED FLOOR AREA.

EXCEPTION: THE TOTAL LEAKAGE TEST IS NOT REQUIRED FOR DUCTS AND AIR HANDLERS LOCATED ENTIRELY WITHIN THE BUILDING THERMAL ENVELOPE.

MECHANICAL VENTILATION SYSTEM FAN EFFICACY			
FAN LOCATION	AIR FLOW RATE MINIMUM (CFM)	MINIMUM EFFICACY (CFM/WATT)	AIR FLOW RATE MAXIMUM (CFM)
RANGE HOODS	ANY	2.8	ANY
IN-LINE FAN	ANY	2.8	ANY
BATHROOM, UTILITY ROOM	10	1.4	90
BATHROOM, UTILITY ROOM	90	2.8	ANY

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CLIENT: JFE CONSTRUCTION
JOB TITLE: 3010 NW THOREAU PLACE
LOT 1472, WINTERSET VALLEY
LOCATION: LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
3-1-2021

NO.	DATE	REVISION	BY

DRAWING TITLE

STRUCTURAL NOTES

ENGINEER: DMH | CHECKED BY: DMH
JOB NO. 3148 | DRAWN BY: DMH
DATE: 03-01-21

SHEET NUMBER

S1.0

RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/24/2021

RESIDENTIAL SEISMIC & WIND ANALYSIS

DETERMINE WEIGHT OF HOUSE:			INPUT / CALCULATED VALUE
LOCATION	DEAD LOAD (psf)	AREA (ft^2)	WEIGHT (lbs.)
ROOF	10	2998	29980
CEILING	10	2998	29980
FIRST FLOOR	10	2998	29980
WALL LENGTH (ft)	WALL HEIGHT (ft)	WALL UNIT WT. (psf)	WEIGHT (lbs)
FIRST FLOOR EXT. WALL DL 238.66	10	10	23866
	DEAD LOAD (psf)	AREA (ft2)	WEIGHT (lbs)
FIRST FLOOR INT. PARTITION WALL DL	6	2998	17988

PROJECTED AREAS (WIND DESIGN PER 115 MPH 3-SECOND GUST, EXPOSURE C AND MEAN ROOF HEIGHT <= 30 FT ASSUMED)							
FRONT-TO-BACK				SIDE-TO-SIDE			
	AREA	LOAD			AREA	LOAD	
SLOPED ROOF	342	2867		SLOPED ROOF	582	4852	
VERT. ROOF	219	2681	CUMULATIVE	VERT. ROOF	0	0	CUMULATIVE
1ST	715	8754	14375	1ST	597.63	7430	12455
BSMT[a]	0	0	0	BSMT[a]	128	1812	8040
PRESSURE (PSF) - PER ASCE CH. 6							
SLOPED ROOF	ZONE B	9.7		ZONE C	11.3	2a (FIG. 28.6-1, ASCE7)	
WALL/VERT. ROOF	ZONE A	14.2		ZONE D	7.7	10.866	
MEAN ROOF HT., *h*	21						

a) If there is a walkout wall to be sheathed, determine tributary wind area and enter here. If no walkout, enter 0 for area.

$q_{z10}=0.00256K_zK_{zt}K_dV^2$ (ASCE7-10 Velocity Pressure) $q_{z10\_ASD}=0.6q_{z10}$ (Design Velocity Pressure for ASD analysis under ASCE7-10 and IRC/IBC 2012)

1ST FLOOR TRIBUTARY WEIGHT	71893
BASEMENT TRIBUTARY WEIGHT	71893
S_S (SITE GROUND MOTION - %g - FROM ASCE7 SEISMIC MAP)	12.0%
F_a (from ASCE7 Table 11.4-1)	1.6
S_{DS} (= 2/3 * S_S * F_a)	0.128
R (from ASCE7 Table 12.2-1)	6.5

SEISMIC SHEAR		
LOCATION	From ASCE7 (Eq. 12.8-1):	V (= 1.2 * S_{DS} * W / R) (lbs.)
1ST FLOOR		1699
BASEMENT		1699

Sheathing Location	Min. Sheathing Schedule	Fastening Schedule	Allowable Shear (#/LF)	Code Reference
Exterior *(Option #1)*	7/16" APA Rated Plywood/OSB	1-1/2" 18ga. Staples w/ 1" penetration@ 6" OC Edges, 6" OC Field For 24" stud spacing, 12" OC Field For 16" stud spacing	155	per IBC, Table 2306.3(1)
Exterior *(Option #2)*	7/16" APA Rated Plywood/OSB	1-1/2" 18ga. Staples w/ 1" penetration@ 4" OC Edges, 8" OC Field For 24" stud spacing, 12" OC Field For 16" stud spacing	230	per IBC, Table 2306.3(1)
Exterior *(Option #3)*	7/16" APA Rated Plywood/OSB	1-1/2" 18ga. Staples w/ 1" penetration@ 3" OC Edges, 6" OC Field For 24" stud spacing, 12" OC Field For 16" stud spacing	310	per IRC, Table 2306.3(1)
Exterior ***(Option #4)***	7/16" APA Rated Plywood/OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing	8d Common Nails w/ 1-3/8" penetration @ 6" O.C. Edges, 12" O.C. Field for 7/16" APA-rated plywood/OSB or shiplap panel sheathing OR @ 4" O.C. Edges, 12" O.C. Field for 3/8" shiplap panel sheathing	220	AF&PA SDPWS Table 4.3A
Exterior ***(Option #5)***	7/16" APA Rated Plywood/OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing	8d Common Nails w/ 1-3/8" penetration @ 4" O.C. Edges, 12" O.C. Field for 7/16" APA-rated plywood/OSB or shiplap panel sheathing OR @ 3" O.C. Edges, 12" O.C. Field for 3/8" shiplap panel sheathing	320	AF&PA SDPWS Table 4.3A
Exterior ***(Option #6)***	7/16" APA Rated Plywood/OSB or shiplap panel sheathing, or 3/8" shiplap panel sheathing with tighter nail spacing and double studs at each panel edge	8d Common Nails w/ 1-3/8" penetration @ 3" O.C. Edges, 12" O.C. Field	410	AF&PA SDPWS Table 4.3A
Interior	1/2" Gypsum Board	No. 6- 1 1/4" Type W or S Screws @ 8" O.C. Edges, 12" O.C. Field	60	per IBC, Table 2306.4.4
Interior	16 Ga. Simpson/USP Type WB Steel X-Brace (or equal)	(3) 16d @ end studs & (1) 8d @ intermediate studs (per manufacturer specifications - see detail on sheet S3)	325	

EXTERIOR SHEATHING OPTION FOR FIRST FLOOR	4
EXTERIOR SHEATHING OPTION FOR BASEMENT WALLS	6

WIDTH OF 1ST STORY (FT.)	65
DEPTH OF 1ST STORY (FT.)	54.33
BACK WALL OF GARAGE (FT.)	0
GAR. WALL: 1=F-B, 2=S-S	2

WIDTH OF 2ND STORY (FT.) 1
DEPTH OF 2ND STORY (FT.) 1

EXTERIOR STRUCTURAL WALL LENGTHS (ft.) & RESISTANCES								
	SEISMIC				WIND			
	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)	FRONT-TO-BACK	RESISTANCE (lbs.)	SIDE-TO-SIDE	RESISTANCE (lbs.)
1ST FLOOR	77	21560	41	11480	77	30184	41	16072
BASEMENT	0	0	13.5	6345	0	0	13.5	8883

	ADDITIONAL RESISTANCE REQUIRED	
	SEISMIC	WIND
1ST FLOOR FRONT-TO-BACK	0	0
1ST FLOOR SIDE-TO-SIDE	0	0
BASEMENT FRONT-TO-BACK	0	0
BASEMENT SIDE-TO-SIDE	0	0

Anchor Bolt Spacing (in.)	
diameter (in.)	0.5
Shear value (per NDS)	944
Spacing F-B (inches)	137.0
spacing S-S (inches)	189.2

16d Nail Spacing req'd at bottom plate (in.)	
1st Floor F-B	20
1st Floor S-S	28

RESISTANCE REQUIRED IN ADDITION TO RESISTANCE PROVIDED BY EXTERIOR WALLS**							
	ADDITIONAL RESISTANCE REQUIRED (POUNDS)	PORTAL FRAMES OR PERF. SHEAR WALL RESISTANCE	INTERIOR X-BRACES (325#/BRACE)	INTERIOR WALL LENGTH W/ 1/2" GYPSUM BOARD PER TABLE (FT.)	INT. WALL LENGTH SHEATHED W/ OSB (TOTAL LENGTH, ONE SIDE, FT.)	RESISTANCE PROVIDED BY ADDITIONAL METHODS (POUNDS)	OK?
1ST FLOOR FRONT-TO-BACK	0					0	YES
1ST FLOOR SIDE-TO-SIDE	0					0	YES
BASEMENT FRONT-TO-BACK	0					0	YES
BASEMENT SIDE-TO-SIDE	0					0	YES

**NOTES: 1) SEE ATTACHED CALCULATIONS FOR PORTAL FRAME OR PERFORATED SHEAR WALL RESISTANCE CAPACITIES (IF APPLICABLE),
2) SEE SHEET S1 FOR INTERIOR STEEL X-BRACE INSTALLATION, 3) INTERIOR WALLS SHEATHED WITH OSB SHALL BE ATTACHED WITH SAME STAPLE/NAILING PATTERN AS EXTERIOR OSB ON SAME FLOOR (SEE TABLE ABOVE) AND ARE ONLY APPLICABLE FOR FULL-HEIGHT SECTIONS OF 2'-8" OR LONGER
ALL LATERAL BRACING ACHIEVED AT EXTERIOR WALLS AND WALLS DIRECTLY ON FOUNDATIONS; THEREFORE, NO INTERIOR BRACING PER 2012 IRC SECTION R502.2.1 IS REQUIRED

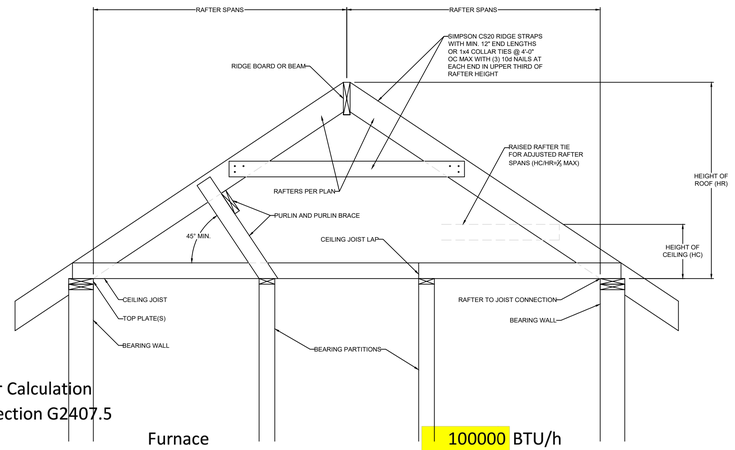
WIND UPLIFT ANALYSIS							
	X/12	DEGREES					
ROOF PITCH (MAX)	8	33.7	PITCH OF 6 OR LESS: EOH -13.3, E -7.2, G -5.2				
		ASCE 7					
	LENGTH (FT.)	PRESSURE (PSF)	LINEAL FT. OF OH	UPLIFT PER FT* (LBS)			
OVERHANG	1	-1.08	240.66	-1.08			
	TOTAL AREA (FT^2)	ZONE E AREA (FT^2)	ZONE G AREA (FT^2)	PRESSURE ZN. E (PSF)	PRESSURE ZN. G (PSF)	TOTAL FORCE (LBS)	FORCE PER LINEAL FT @ PERIMETER (LBS)
MAIN ROOF**	3531.45	-428.815824	3960.265824	-1.08	-0.36	-963	-4.0

*ALONG PERIMETER — **TOTAL UPLIFT PER LINEAL FOOT ALONG EXTERIOR (POUNDS)** — **-5.1** — UPLIFT OK
INSIDE EXTERIOR WALLS — **RESISTANCE DUE TO DEAD WEIGHT & (3) 10d TOENAILS — **251.6**

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

NOTE FOR DESIGN:
ALL WALLS USED IN THE CALCULATION OF THE RESISTANCE FOR THIS STRUCTURE SHALL HAVE A MINIMUM UNINTERRUPTED HEIGHT OF 8'-0" AND LENGTH OF 2'-8". ALLOWABLE RESISTANCES HAVE BEEN #/FT AND INCREASED BY 40% FOR WIND LOADS, PER VALUES IN 2012 IBC SECTION 2306 AND AF&PA SDPWS TABLE 4.3A. FOR EXAMPLE, 7/16" APA-RATED SHEATHING WITH 8d @ 6" & 12" HAS A SEISMIC SHEAR VALUE OF 240 A WIND SHEAR VALUE OF 335#/FT - 40% GREATER THAN THAT OF SEISMIC)

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



1 S1.1 BRACED RAFTER CONSTRUCTION
SCALE: 1" = 1'-0" (18x24) OR 3/8" = 1'-0" (24x36)

Combustion Air Calculation
Per 2012 IRC Section G2407.5

Appliance #1	Furnace	100000	BTU/h
Appliance #2			BTU/h
Appliance #3	Water Heater	50000	BTU/h
Total BTU/hr		150000	BTU/h
Area of Combined Space (floor where appliances are located)		1033	ft^2
Ceiling Height in Usable Space		8.5	ft

Note: Per 2012 IRC Section G2407.5.3.2, The volumes of spaces in different stories shall be considered as communicating spaces where such spaces are connected by one or more openings in doors or floors having a total minimum free area of 2 square inches per 1,000 BTU/h of total input rating of all appliances

Is floor where appliances are located open to adjacent level?	Yes
If Yes, what is the area of open space adjacent to appliance area?	0

Per 2012 IRC Section G2407.5.1 (Standard Method), the minimum required volume shall be 50 cubic feet per 1,000 BTU/hr
(Total BTU/hr / 1,000 BTU/hr x 50 ft^3)

Required air space in combined areas:	7500	ft^3
Required combined area:	882	ft^2
Area of Combined Space > Required combined area?	OK	

Per Section G2407.5.3.1, each opening shall have a minimum free area of 1 square inch per 1,000 BTU/hr of the total input rating of all appliances in the space, but not less than 100 square inches. One opening shall commence within 12 inches of the top and one opening shall commence within 12 inches of the bottom of the enclosure.
The minimum dimension of air openings shall be not less than 3 inches.

Minmum required opening area:	150	in^2
Minimum grill size:	14 x 11	(inches)

Note: two grills required - one within 12" of floor, one within 12" of clg.

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CLIENT: JFE CONSTRUCTION
JOB TITLE: 3010 NW THOREAU PLACE
LOT 1472, WINTERSET VALLEY
LOCATION: LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
3-1-2021

NO.	DATE	REVISION	BY

DRAWING TITLE
STRUCTURAL CALCULATIONS

ENGINEER: DMH	CHECKED BY: DMH
JOB NO. 3148	DRAWN BY: DMH
DATE: 03-01-21	

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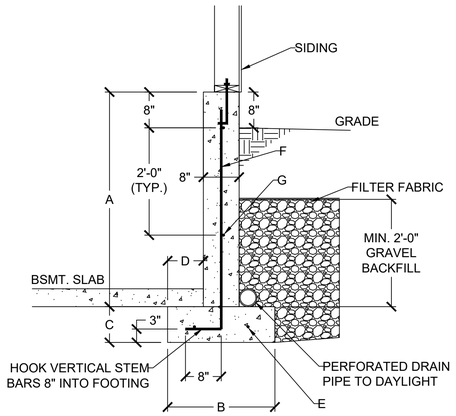
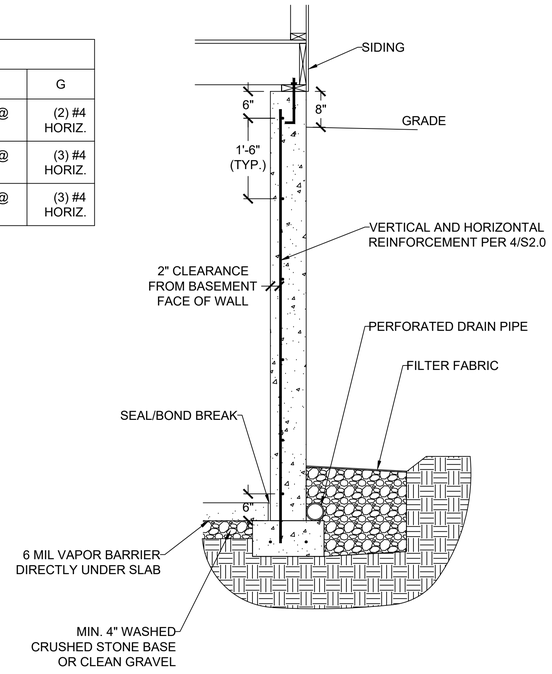
03/24/2021



DAYLIGHT BASEMENT WALL SCHEDULE						
A	B	C	D	E	F	G
4'-0"	1'-6"	0'-8"	0'-5"	(2) #4	#4 VERT. @ 12" O.C.	(2) #4 HORIZ.
5'-0"	2'-0"	0'-8"	0'-7"	(2) #4	#4 VERT. @ 12" O.C.	(3) #4 HORIZ.
6'-0"	2'-6"	0'-8"	0'-10"	(3) #4	#4 VERT. @ 12" O.C.	(3) #4 HORIZ.

1 S2.0 DAYLIGHT WALL CONSTRUCTION
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

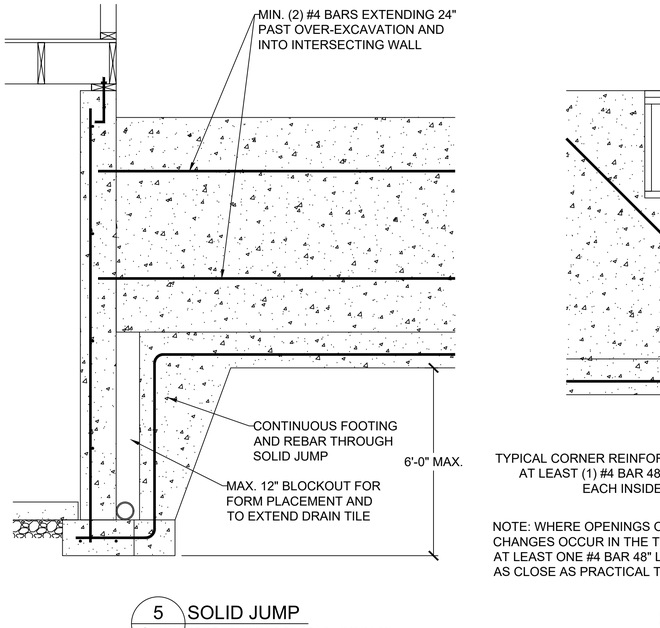


3 S2.0 CONCRETE WALL SECTION
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

VERTICAL REINFORCEMENT SPACING						
CONCRETE STRENGTH/GRADE REINFORCEMENT (#4 BARS)	8" THICK WALL			10" THICK WALL		
	8'	9'	10'	8'	9'	10'
3,000 PSI/ GRADE 40	24	24	16	24	24	18
3,500 PSI/ GRADE 40	24	24	16	24	24	18
3,000 PSI/ GRADE 60	24	24	16	24	24	18
3,500 PSI/ GRADE 60	24	24	16	24	24	18
HORIZONTAL REINFORCEMENT - MINIMUM GRADE 40 STEEL						
ONE BAR 12" FROM TOP OF WALL; MAX. SPACING 24" OC	6-#4	7-#4	7-#4	6-#4	7-#4	7-#4

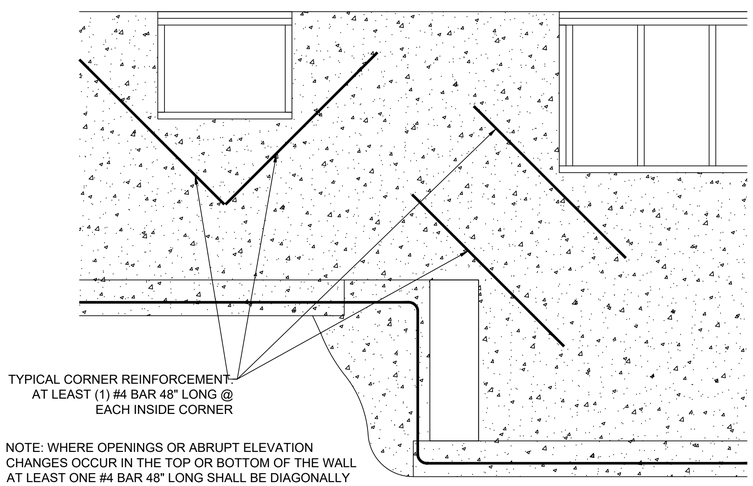
FOOTNOTES:
1) WALL HEIGHT IS MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE FLOOR SLAB
2) VERTICAL REINFORCEMENT FOR CONCRETE WALLS THAT ARE NOT FULL HEIGHT, AND FOR REINFORCEMENT SPACING 24" OC, REINFORCEMENT MAY BE PLACED IN THE MIDDLE OF THE WALL. OTHER WALLS SHALL HAVE VERTICAL REINFORCEMENT AS FOLLOWS:
   A) 8" WALL - MINIMUM 5" FROM THE OUTSIDE FACE
   B) 10" WALL - MINIMUM 6¾" FROM THE OUTSIDE FACE
   C) EXTEND BARS TO WITHIN 8" OF THE TOP OF THE WALL
3) REINFORCEMENT CLEARANCES:
   A) CONCRETE EXPOSED TO EARTH - MINIMUM 1½"
   B) NOT EXPOSED TO WEATHER (INTERIOR SIDE OF WALLS) -¾"
   C) CONCRETE EXPOSED TO WEATHER (TOP CLEARANCE IN GARAGE AND DRIVEWAY SLABS) - 1½"
4) HORIZONTAL REINFORCEMENT:
   A) ONE BAR SHALL BE PLACED WITHIN 12" OF THE TOP OF THE WALL
   B) OTHER BARS SHALL BE EQUALLY SPACED WITH SPACING NOT TO EXCEED 24" OC
   C) HORIZONTAL BARS SHOULD BE AS CLOSE TO THE TENSION FACE AS POSSIBLE (INTERIOR) AND BEHIND THE VERTICAL REINFORCEMENT (I.E. 2" TOWARD THE INSIDE)
   D) SUPPLEMENTAL REINFORCEMENT AT CORNERS - PLACE (1) #4 BAR 48" LONG AT 45 DEGREE ANGLE AT CORNERS OF OPENINGS. PLACE REINFORCEMENT WITHIN 6" OF THE EDGE OF INSIDE CORNERS.
5) REINFORCEMENT SHALL BE LAPPED A MINIMUM 24" AT ENDS, SPLICES, AND AROUND CORNERS.
6) AT MASONRY LEDGES THE MINIMUM WALL THICKNESS SHALL BE 3½". LEDGES SHALL NOT EXCEED A DEPTH OF MORE THAN 24" BELOW THE TOP OF THE WALL. FOR WALL THICKNESSES LESS THAN 4" PROVIDE #4 BARS AT MAX. 24" OC TO WITHIN 8" OF THE TOP OF THE WALL.
7) STRAIGHT WALLS MORE THAN 5' TALL AND MORE THAN 16 FEET LONG SHALL BE PROVIDED WITH EXTERIOR BRACED RETURN WALLS. WALL LENGTH SHALL BE MEASURED USING INSIDE THE SHORTEST DIMENSION BETWEEN INTERSECTING WALLS
8) WALL SHALL NOT BE BACKFILLED UNTIL FLOOR SYSTEM AND DIAPHRAGM ARE IN PLACE

4 S2.0 FOUNDATION WALL REINFORCEMENT TABLE
NO SCALE



2 S2.0 COLUMN AND BEARING PAD SCHEDULE
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

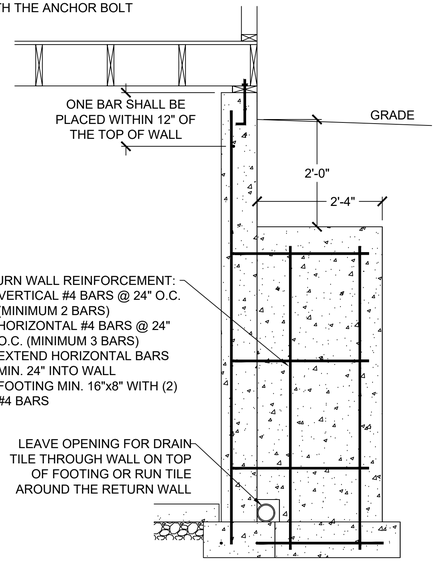
5 S2.0 SOLID JUMP
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



NOTE: WHERE OPENINGS OR ABRUPT ELEVATION CHANGES OCCUR IN THE TOP OR BOTTOM OF THE WALL AT LEAST ONE #4 BAR 48" LONG SHALL BE DIAGONALLY AS CLOSE AS PRACTICAL TO THE CORNER

6 S2.0 REINFORCEMENT AT OPENING CORNERS AND STEP CORNERS @ INSIDE CORNERS
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

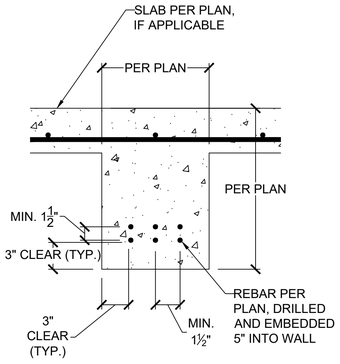
NOTE: WHERE FLOOR JOIST RUNS PARALLEL TO FDN WALL, SOLID BLOCK OUTSIDE 3 JOIST SPACES @ 36" OC ALIGNING BLOCKING WITH THE ANCHOR BOLT



RETURN WALL REINFORCEMENT:
- VERTICAL #4 BARS @ 24" O.C. (MINIMUM 2 BARS)
- HORIZONTAL #4 BARS @ 24" O.C. (MINIMUM 3 BARS)
- EXTEND HORIZONTAL BARS MIN. 24" INTO WALL
- FOOTING MIN. 16"x8" WITH (2) #4 BARS

LEAVE OPENING FOR DRAIN TILE THROUGH WALL ON TOP OF FOOTING OR RUN TILE AROUND THE RETURN WALL

7 S2.0 RETURN WALL DETAIL
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



8 S2.0 CONCRETE GRADE BEAM
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)

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DENNIS HEHER
NUMBER PE-2010001972
PROFESSIONAL ENGINEER
3-1-2021

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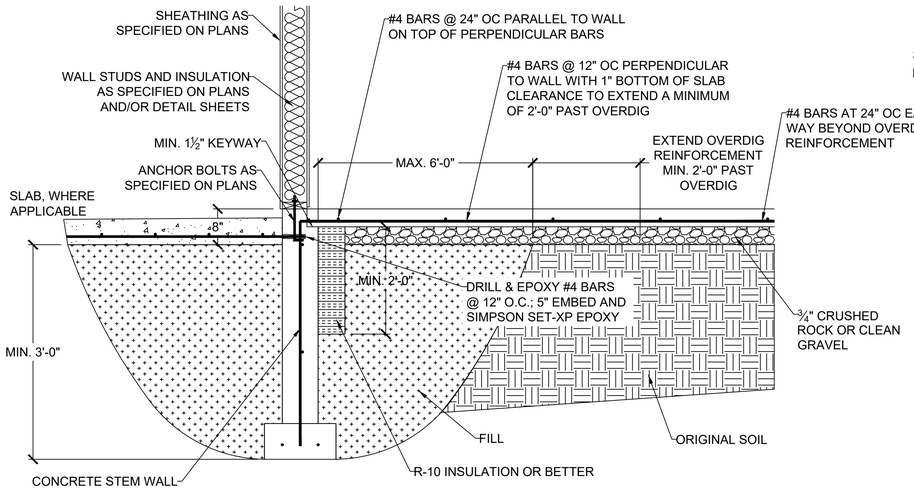
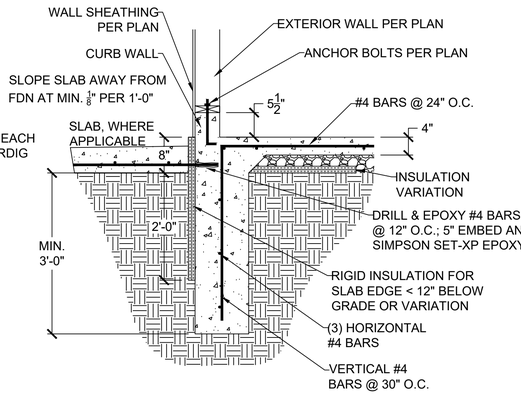
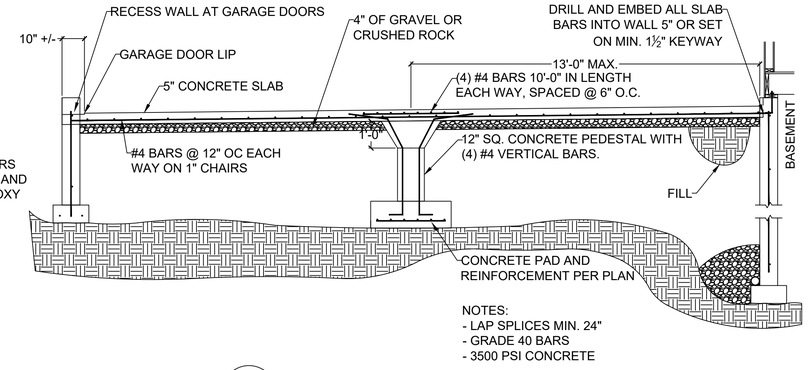


1 S2.1 WALKOUT WALL DETAIL
SCALE: ½" = 1'-0"



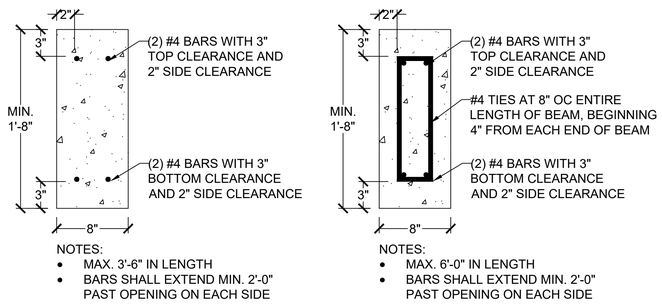
1 S2.1 WALKOUT FOUNDATION DETAIL
SCALE: ½" = 1'-0"

(ALTERNATE)



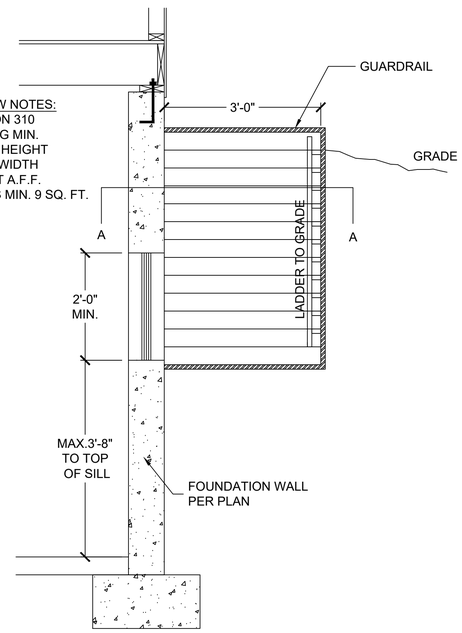
2 S2.1 GARAGE SLAB ON FILL
SCALE: ¼" = 1'-0" (18x24) OR ⅜" = 1'-0" (24x36)

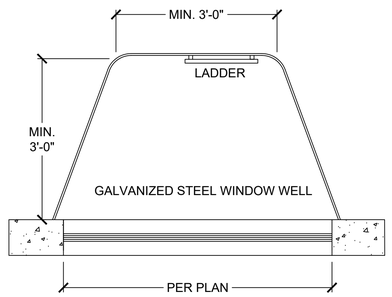
3 S2.1 PORCH SLAB DETAIL
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



4 S2.1 CONCRETE HEADER DETAILS
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

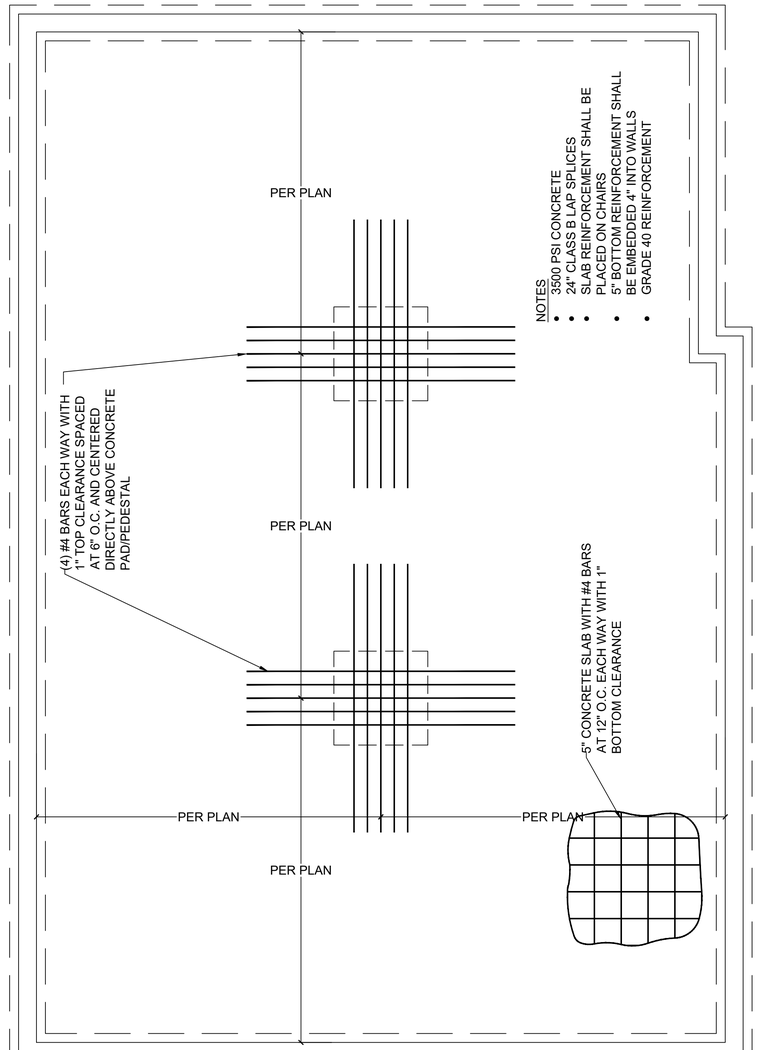
EGRESS WINDOW NOTES:
-PER IRC SECTION 310
- 5.7 S.F. OPENING MIN.
- 24" MIN. CLEAR HEIGHT
- 20" MIN CLEAR WIDTH
- 44" MAX HEIGHT A.F.F.
-WINDOW WELLS MIN. 9 SQ. FT.





SECTION A-A

5 S2.1 EGRESS WINDOW WELL ELEVATION AND PLAN DETAILS
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



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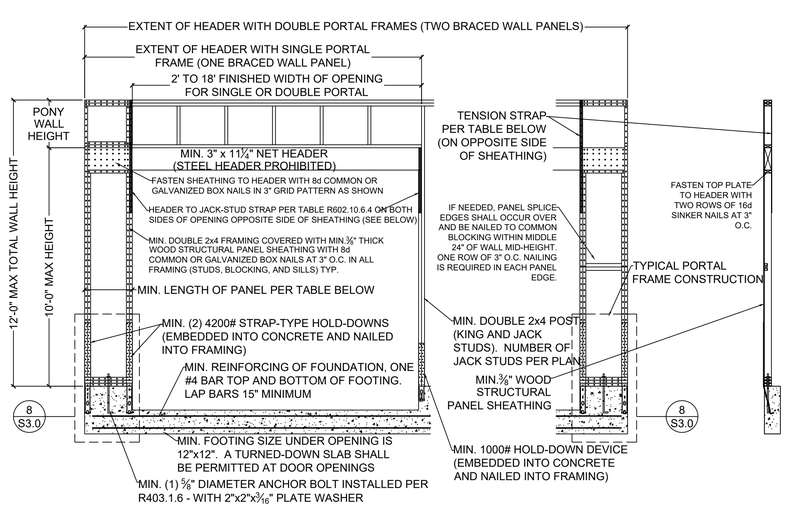
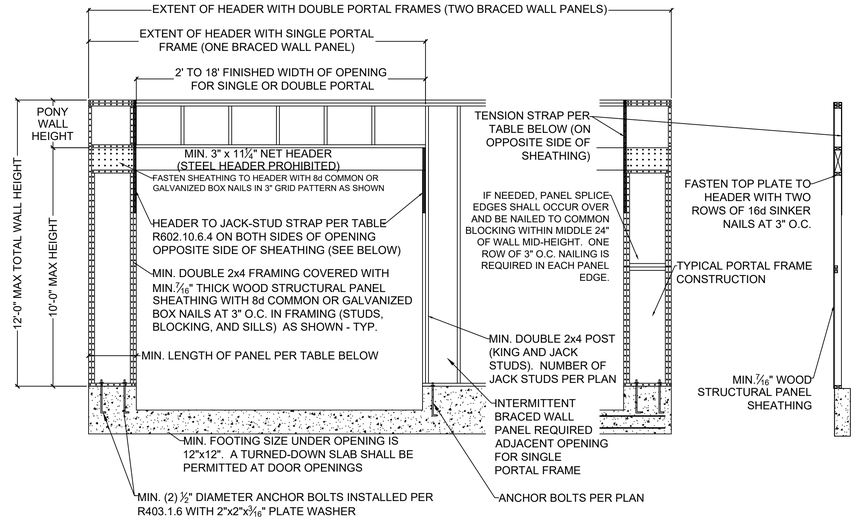


1 S3.0 METHOD PFH (PORTAL FRAME WITH HOLD-DOWNS) - PER FIGURE IRC R602.10.6.2

SCALE: ¼" = 1'-0" (18x24) OR ⅜" = 1'-0" (24x36)



2 S3.0 METHOD PFG (PORTAL FRAME AT GARAGE DOOR) - PER FIGURE IRC R602.10.6.3

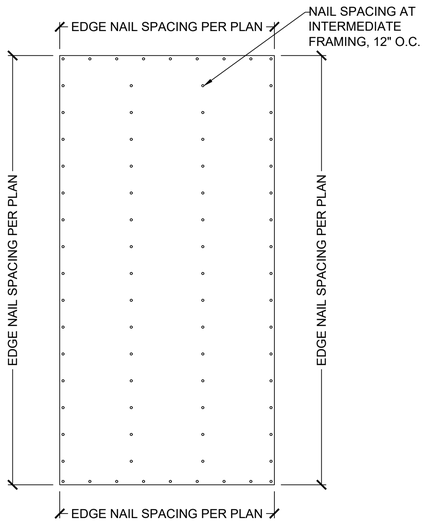
SCALE: ¼" = 1'-0" (18x24) OR ⅜" = 1'-0" (24x36)

MINIMUM PANEL LENGTH FOR DETAIL 1/S3.0 (INCHES)					
	WALL HEIGHT				
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET
SUPPORTING ROOF ONLY	16	16	16	18	20
SUPPORTING ONE STORY AND ROOF	24	24	24	27	29

TENSION STRAP REQUIRED FOR HEADER TO JACK STUD FOR DETAILS 1/S3.0 AND 2/S3.0 (FROM TABLE R602.10.6.4)				
MAX GARAGE OPENING (FT.)	PONY WALL WALL HT. (FT.)	REQUIRED SIMPSON STRAP	MIN. STRAP END LENGTH	NAILS REQUIRED IN EACH STRAP END LENGTH
18'-0"	0'-0"	CS20	0'-9"	(7) 8d
9'-0"	1'-0"	CS20	0'-9"	(7) 8d
18'-0"	1'-0"	CS14	1'-4"	(15) 8d
9'-0"	2'-0"	CS18	0'-11"	(9) 8d
18'-0"	2'-0"	CMSTC16	1'-8"	(25) 16d SINKER
9'-0"	4'-0"	CMSTC16	1'-8"	(25) 16d SINKER
16'-0"	4'-0"	CMST14	2'-6"	(33) 10d

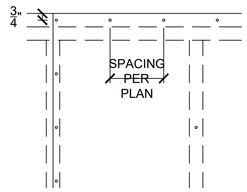
MINIMUM PANEL LENGTH FOR DETAIL 2/S3.0 (INCHES)				
WALL HEIGHT				
8 FEET	9 FEET	10 FEET	11 FEET	12 FEET
24	27	30	33[a]	36[a]

a. Maximum opening height for PFG is 10 feet in accordance with Figure R602.10.6.3, but wall height may be increased to 12 feet with pony wall

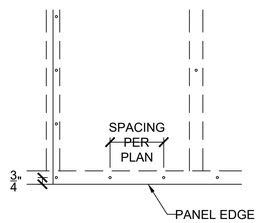


3 S3.0 EXTERIOR WALL SHEATHING PANEL ATTACHMENT

SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



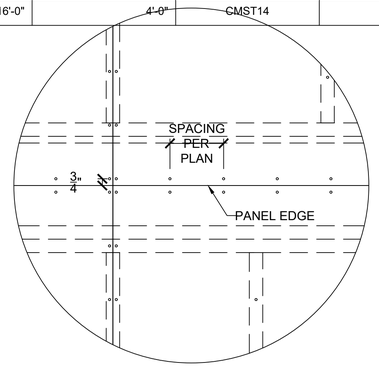
SHEATHING EDGE AT TOP PLATE (SINGLE ROW OF FASTENERS)



SHEATHING EDGE AT BOTTOM PLATE (SINGLE ROW OF FASTENERS)

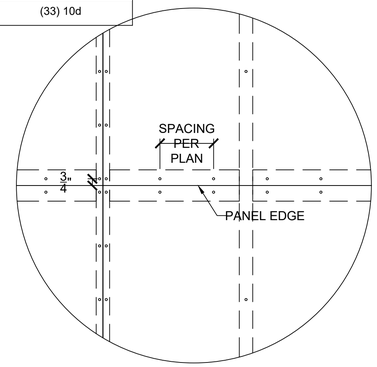
4 S3.0 SHEATHING EDGE AT TOP AND BOTTOM PLATES

SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



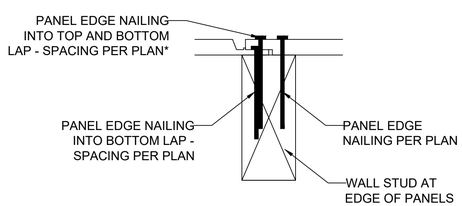
5 S3.0 SHEATHING EDGE AT HORIZONTAL FRAMING MEMBER

SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



6 S3.0 SHEATHING EDGE AT PANEL SPLICE ACROSS STUDS

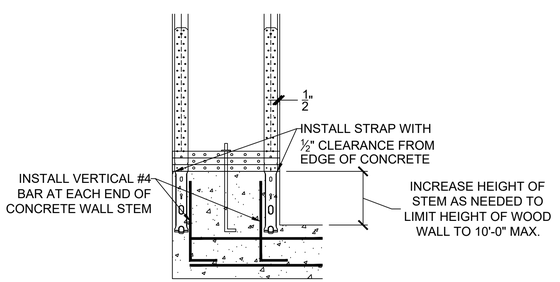
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



*NOTE: NAILING INTO TOP AND BOTTOM LAP IS IN ADDITION TO NAILING REQUIRED INTO BOTTOM LAP. FOR EXAMPLE, IF PLAN CALLS FOR NAILS @ 6" O.C. AT EDGES, BOTTOM LAP SHALL BE FASTENED AT 6" O.C AND, IN ADDITION, NAILING SHALL ALSO BE INSTALLED THROUGH TOP AND BOTTOM LAP @ 6" O.C. STAGGERED 3" FROM BOTTOM LAP NAILING

7 S3.0 FASTENING INSTRUCTIONS FOR SHIPLAP PANEL SHEATHING

SCALE: 4" = 1'-0" (18x24) OR 6" = 1'-0" (24x36)



8 S3.0 GARAGE HOLD-DOWN STRAP INSTALLATION

SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

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CLIENT: JFE CONSTRUCTION

JOB TITLE: 3010 NW THOREAU PLACE
LOT 1472, WINTERSET VALLEY

LOCATION: LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
3-1-2021

NO.	DATE	REVISION	BY

DRAWING TITLE

FRAMING DETAILS

ENGINEER: DMH	CHECKED BY: DMH
JOB NO. 3148	DRAWN BY: DMH
DATE: 03-01-21	

SHEET NUMBER

S3.0

RELEASE FOR CONSTRUCTION
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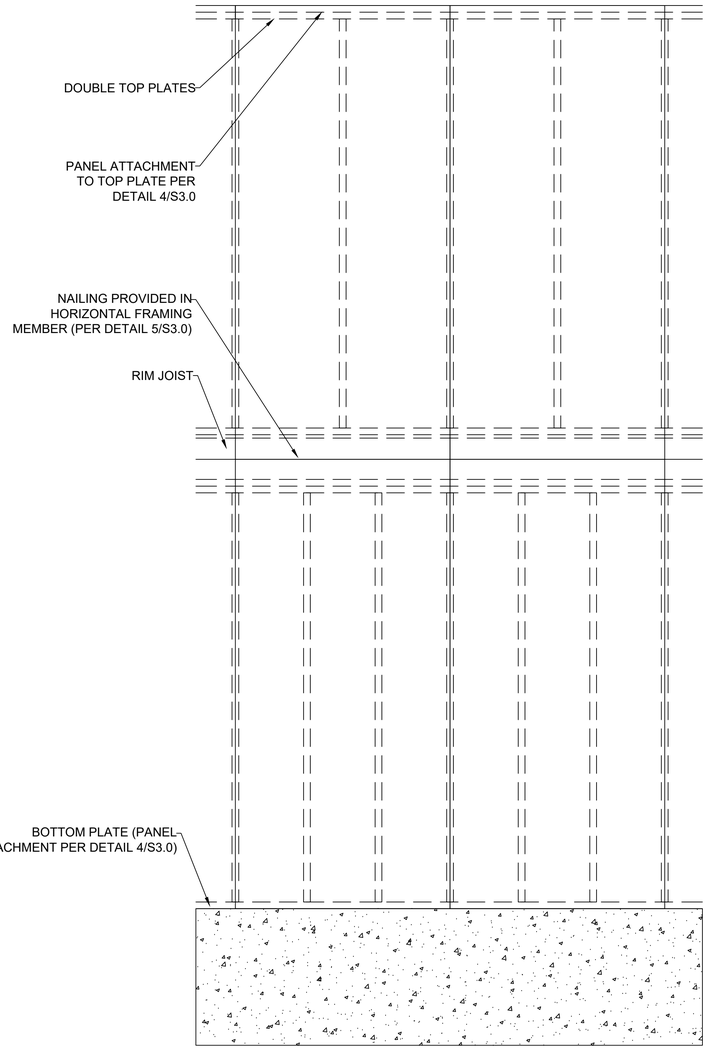
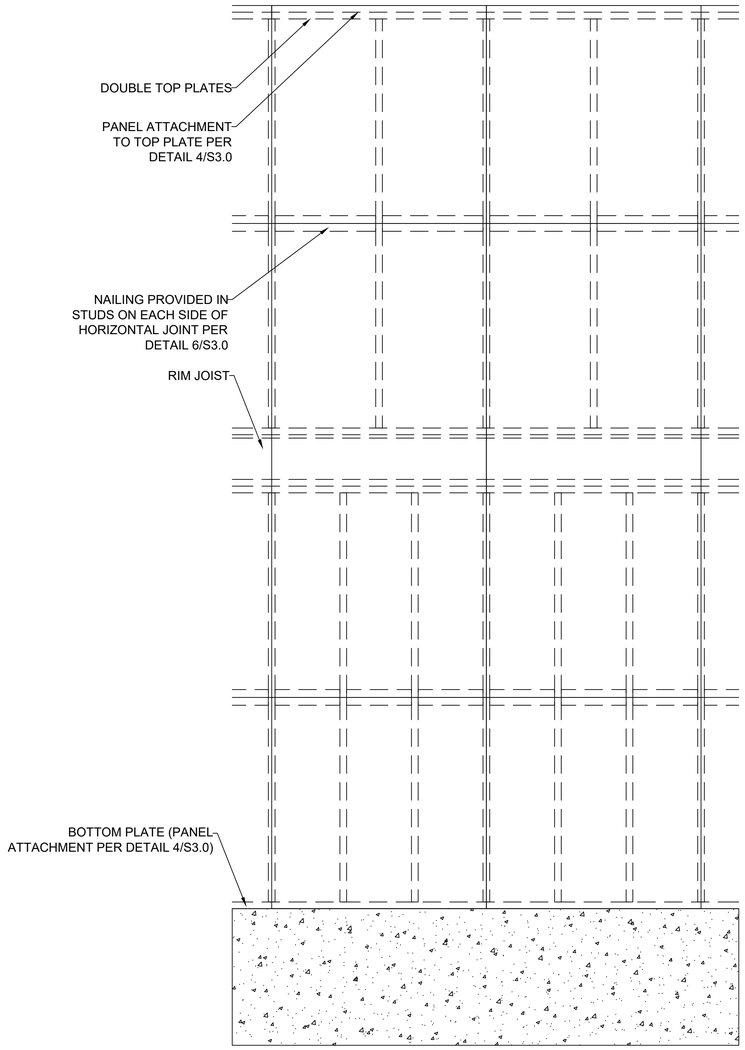
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/24/2021



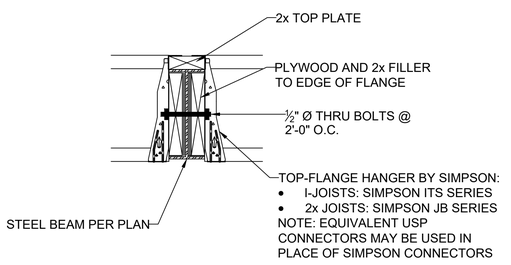
1 S3.1 EXTERIOR WALL SHEATHING PANEL ATTACHMENT PANEL SPLICE OVER HORIZONTAL FRAMING MEMBER

SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



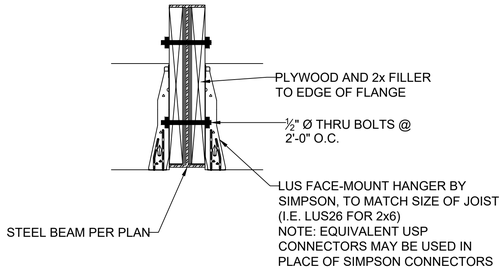
2 S3.1 EXTERIOR WALL SHEATHING PANEL ATTACHMENT PANEL SPLICE OCCURRING ACROSS STUDS

SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



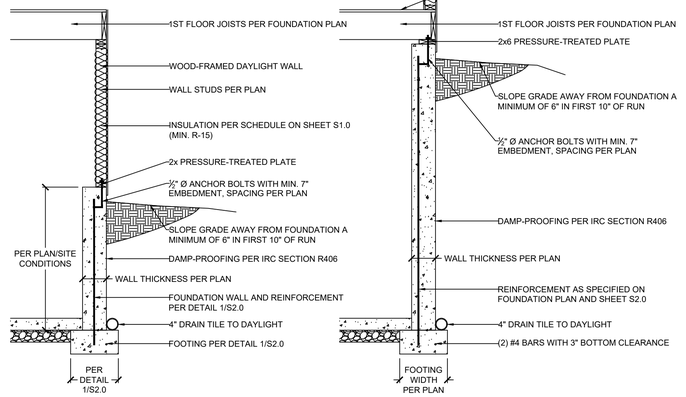
4 S3.1 FLOOR JOIST TO FLUSH STEEL BEAM DETAIL

SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



5 S3.1 CEILING JOIST TO FLUSH STEEL BEAM DETAIL

SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



3 S3.1 EXTERIOR WALL SECTION

SCALE: ½" = 1'-0"

DAYLIGHT BASEMENT OPTION

FULL-HEIGHT CONCRETE WALL OPTION

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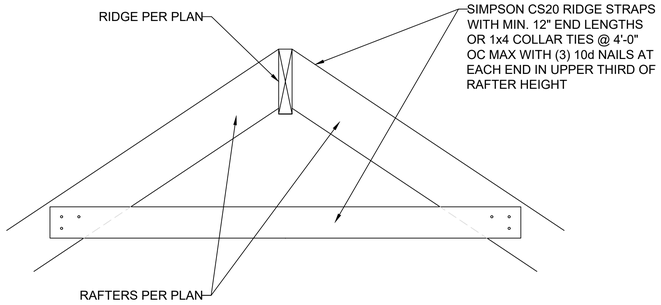
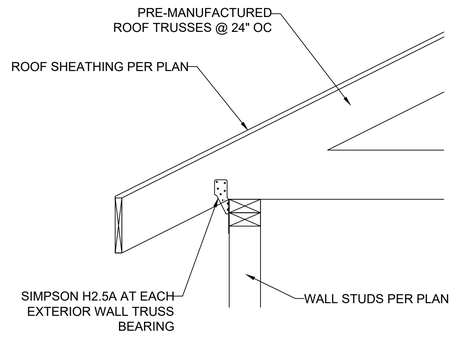
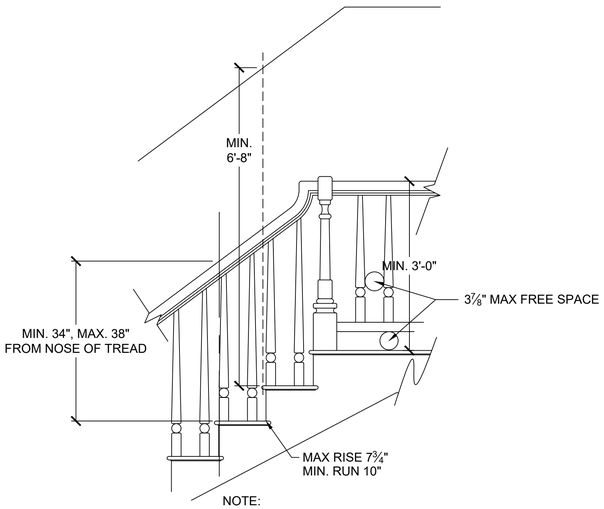


1 S3.2 RIDGE FRAMING DETAIL
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)

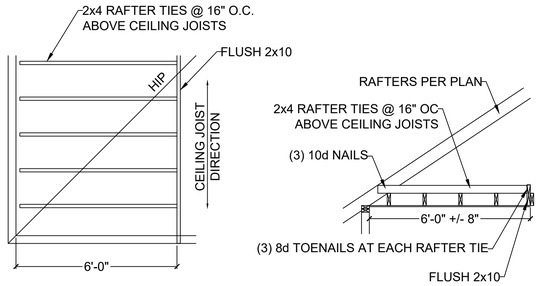


2 S3.2 TRUSS CONNECTION TO EXT. WALL BEARING
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)

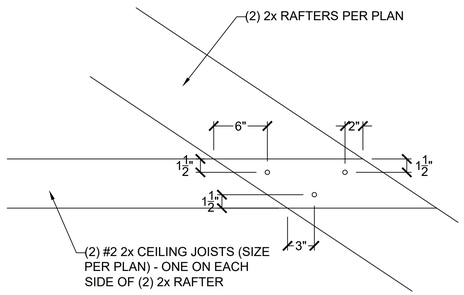


NOTE:
USE AT ALL FLOOR OPENINGS GREATER THAN 30" ABOVE GRADE OR THE FLOOR BELOW AND/OR STAIRS WITH THREE OR MORE RISERS

4 S3.2 STAIR AND HANDRAIL/GUARDRAIL DETAIL
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



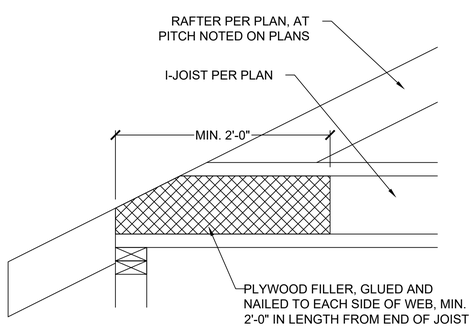
5 S3.2 RAFTER TIES AT CEILING JOISTS PERP. TO RAFTERS
SCALE: ¼" = 1'-0" (18x24) OR ⅜" = 1'-0" (24x36)



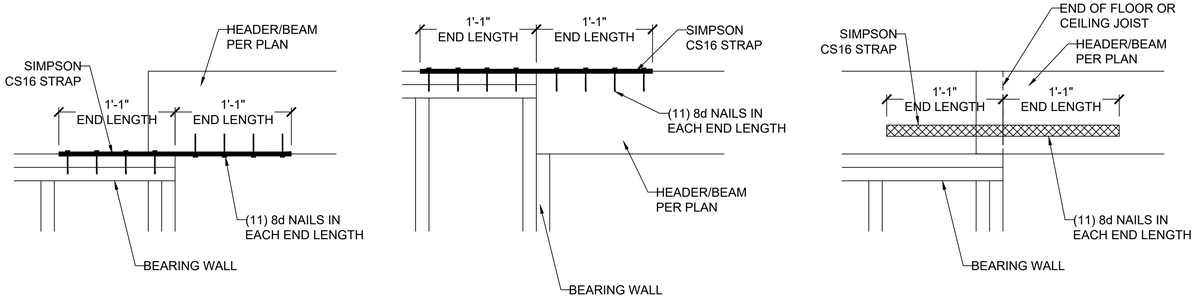
6 S3.2 FIELD-CONSTRUCTED A-FRAME DETAIL
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)

NOT USED

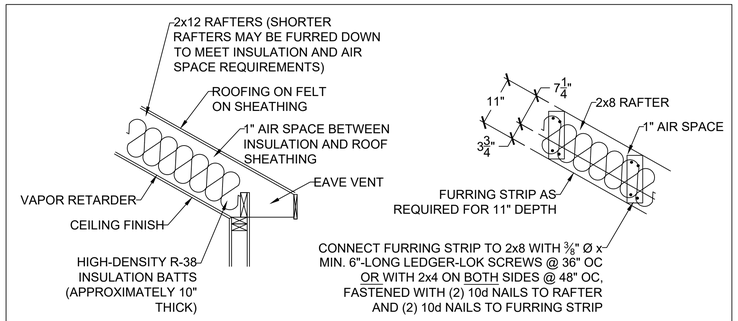
7 S3.2 DETAIL
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



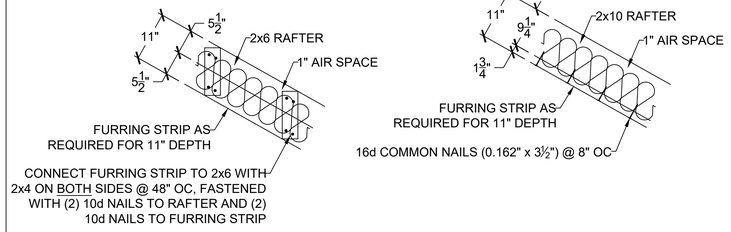
9 S3.2 COPED I-JOIST REINFORCEMENT
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



10 S3.2 HEADER/BEAM CONNECTION OPTIONS AT OUTDOOR/OPEN SPACE
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



VAULTED RAFTER INSULATION INSTALLATION AND OPTIONAL CONNECTION DETAILS



3 S3.2 VAULTED RAFTER INSULATION DETAILS
SCALE: ¾" = 1'-0"

HEIGHT (FT.)	SPACING (INCHES O.C.)			
	24	16	12	8
SUPPORTING A ROOF ONLY				
10 OR LESS	2x4	2x4	2x4	2x4
12	2x6	2x4	2x4	2x4
14	2x6	2x6	2x6	2x4
16	2x6	2x6	2x6	2x4
18	DR	2x6	2x6	2x6
20	DR	DR	2x6	2x6
SUPPORTING ONE FLOOR AND A ROOF				
10 OR LESS	2x6	2x4	2x4	2x4
12	2x6	2x6	2x6	2x4
14	2x6	2x6	2x6	2x6
16	DR	2x6	2x6	2x6
18	DR	2x6	2x6	2x6
20	DR	DR	2x6	2x6
SUPPORTING TWO FLOORS AND A ROOF				
10 OR LESS	2x6	2x6	2x4	2x4
12	2x6	2x6	2x6	2x6
14	2x6	2x6	2x6	2x6
16	DR	2x6	2x6	2x6
18	DR	DR	2x6	2x6
20	DR	DR	DR	2x6

NOTES:
1) DR = DESIGN REQUIRED
2) UTILITY, STANDARD, STUD AND #3 GRADE LUMBER OF ANY SPECIES ARE NOT PERMITTED
3) THIS TABLE DOES NOT APPLY FOR STUDS SUPPORTING MEMBERS WITH A TRIB. LENGTH GREATER THAN 6'-0"

8 S3.2 MAXIMUM ALLOWABLE LENGTH OF WOOD WALL STUDS (IRC TABLE 602.3.1)

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STATE OF MISSOURI
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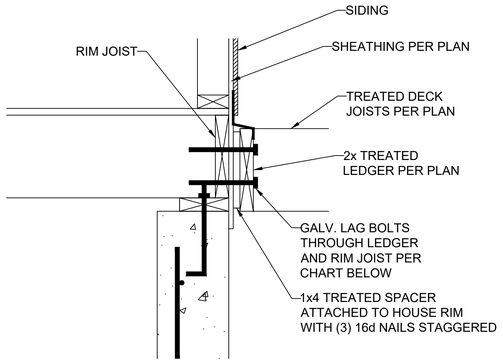
SHEET NUMBER
S3.2

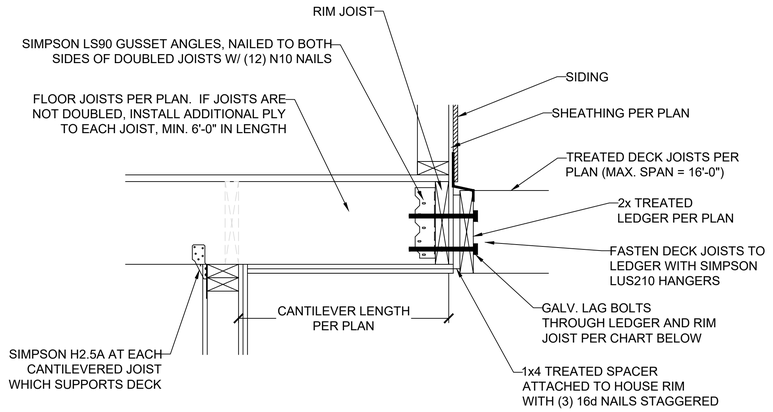
RELEASE FOR CONSTRUCTION
AS NOTED ON PLANS REVIEW
PLEASE COMMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/24/2021



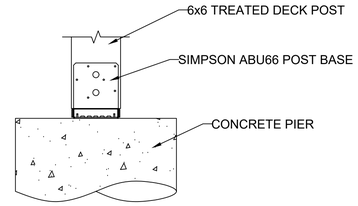
DECK LEDGER ATTACHMENT GUIDE

DECK JOIST SPAN	½" Ø GALV. LAG OR ⅜" Ø LEDGER-LOK SPACING
10'-0" OR LESS	16" OC
10'-0" - 13'-11"	12" OC OR @ 16" OC DOUBLED EVERY OTHER
14'-0" - 18'-0"	8" OC OR @ 16" OC DOUBLED

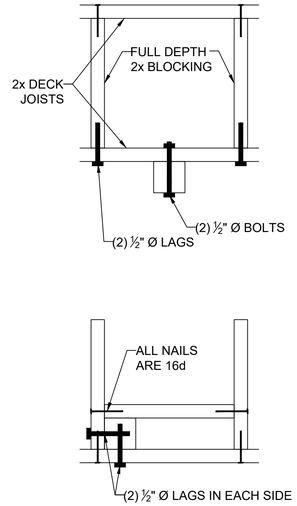
1 S3.3 LEDGER ATTACHMENT
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



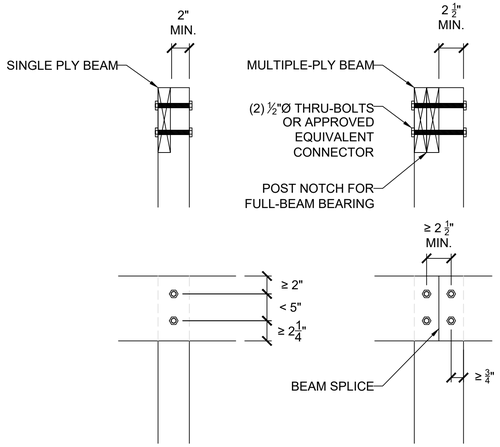
2 S3.3 CANTILEVER WITH DECK ATTACHMENT
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



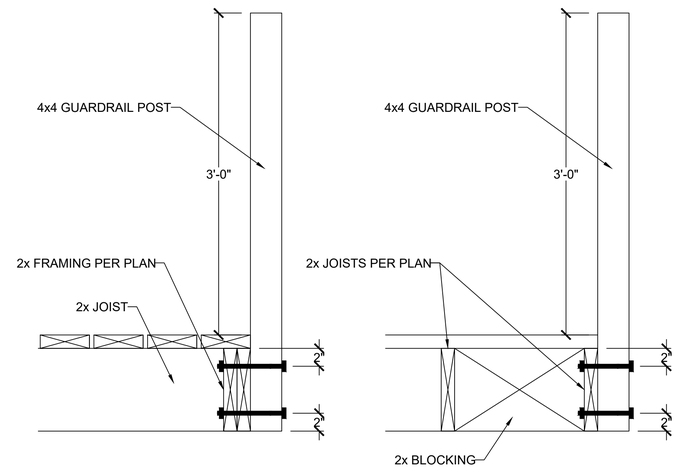
3 S3.3 DECK POST BASE
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



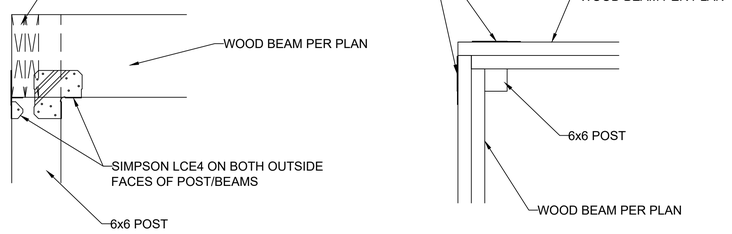
4 S3.3 REINF. POST CONNECTIONS
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



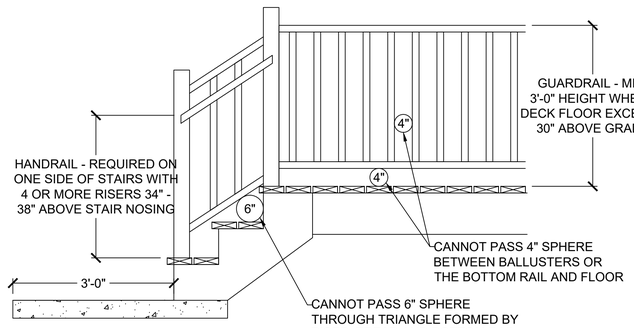
5 S3.3 LET-IN (COVERED) DECK BEAM CONNECTION
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



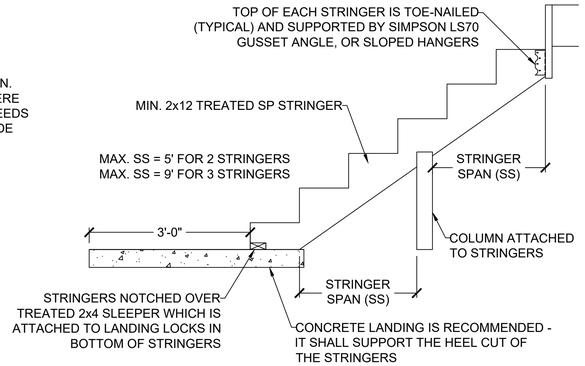
6 S3.3 GUARDRAIL CONNECTION
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



7 S3.3 ALTERNATE COVERED DECK/PORCH INTERSECTION
CORNER BEAM CONNECTION
SCALE: 1" = 1'-0" (18x24) OR 1½" = 1'-0" (24x36)



8 S3.3 GUARDRAIL DETAIL
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)



9 S3.3 STAIR STRINGER DETAIL (MAX. 5' STAIR WIDTH)
SCALE: ½" = 1'-0" (18x24) OR ¾" = 1'-0" (24x36)

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SHEET NUMBER
S3.3

RELEASE FOR CONSTRUCTION
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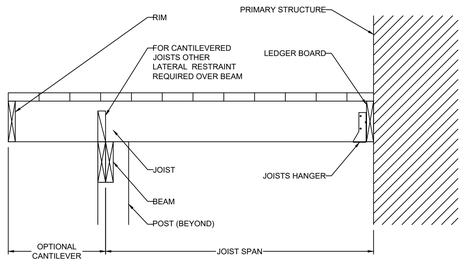
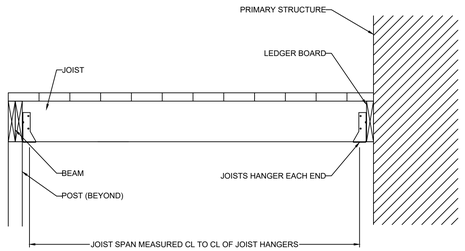
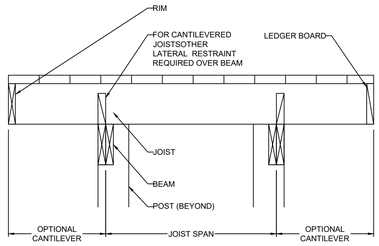
LEE'S SUMMIT, MISSOURI
03/24/2021



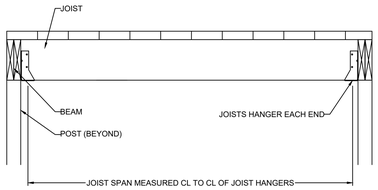
CANTILEVERED JOISTS
WITH DROPPED BEAM



JOISTS WITH FLUSH BEAM

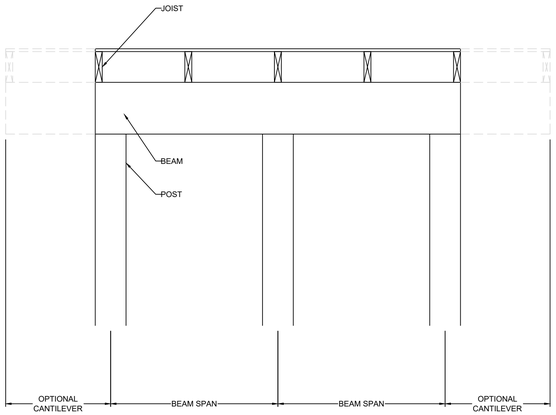


JOISTS ON FREE-STANDING
DECK WITH DROPPED BEAM

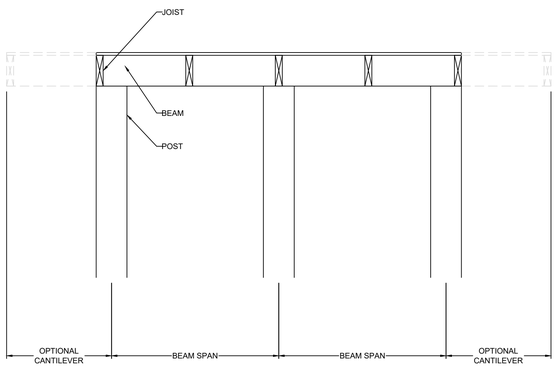


JOISTS WITH FLUSH BEAM

10 S3.3 TYP. DECK JOIST SPANS
SCALE: 1" = 1'-0" (18x24) OR ½" = 1'-0" (24x36)



DROPPED BEAM



FLUSH BEAM

11 S3.3 TYP. DECK JOIST SPANS
SCALE: 1" = 1'-0" (18x24) OR ½" = 1'-0" (24x36)

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CLIENT: JFE CONSTRUCTION

JOB TITLE: 3010 NW THOREAU PLACE
LOT 1472, WINTERSET VALLEY

LOCATION: LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
DENNIS HEIER
NUMBER PE-2010001772
PROFESSIONAL ENGINEER
3-1-2021

NO.	DATE	REVISION	BY

DRAWING TITLE

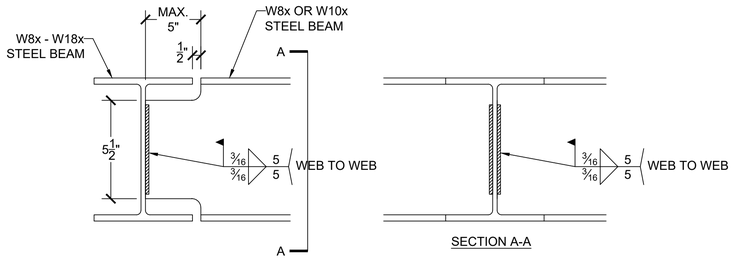
FRAMING DETAILS

ENGINEER: DMH	CHECKED BY: DMH
JOB NO. 3148	DRAWN BY: DMH
DATE: 03-01-21	

SHEET NUMBER

S3.3

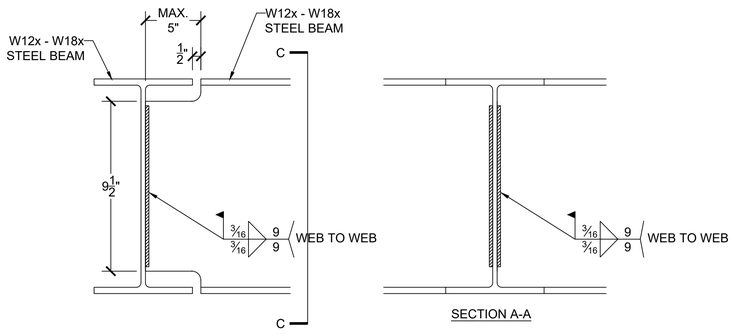
RELEASE FOR CONSTRUCTION
AS NOTED ON PLAN REVIEW
DEVELOPMENT SERVICES
LEE'S SUMMIT, MISSOURI
03/24/2021



1 S3.4 WELDED T-BEAM CONNECTION FOR W8x AND W10x BEAMS

SCALE: 2" = 1'-0" (18x24) OR 3" = 1'-0" (24x36)

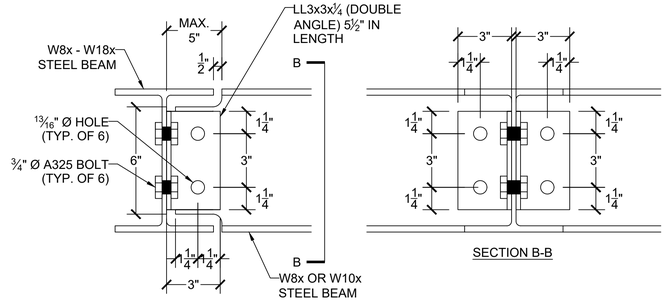
(OPTION #1)



2 S3.4 WELDED T-BEAM CONNECTION FOR W12x, W14x, W16x & W18x BEAMS

SCALE: 2" = 1'-0" (18x24) OR 3" = 1'-0" (24x36)

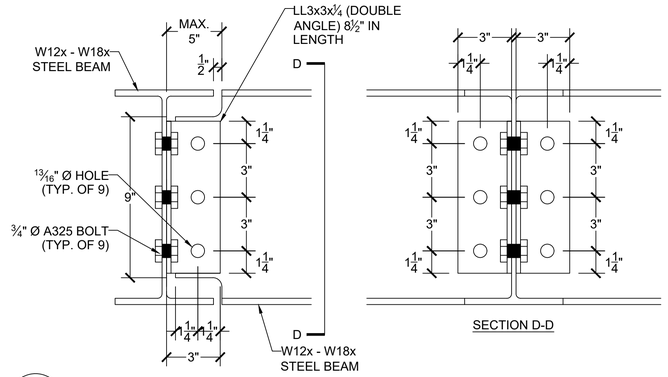
(OPTION #1)



1 S3.4 BOLTED T-BEAM CONNECTION FOR W8x AND W10x BEAMS

SCALE: 2" = 1'-0" (18x24) OR 3" = 1'-0" (24x36)

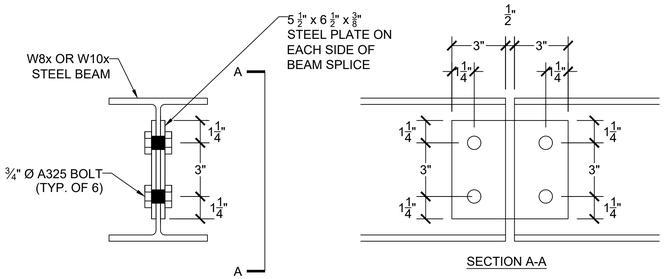
(OPTION #2)



2 S3.4 BOLTED T-BEAM CONNECTION FOR W12x, W14x, W16x & W18x BEAMS

SCALE: 2" = 1'-0" (18x24) OR 3" = 1'-0" (24x36)

(OPTION #2)



ALTERNATE SPLICE: COMPLETE JOINT PENETRATION WELD

3 S3.4 BEAM SPLICE CONNECTION FOR W8x AND W10x BEAMS

SCALE: 2" = 1'-0" (18x24) OR 3" = 1'-0" (24x36)

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