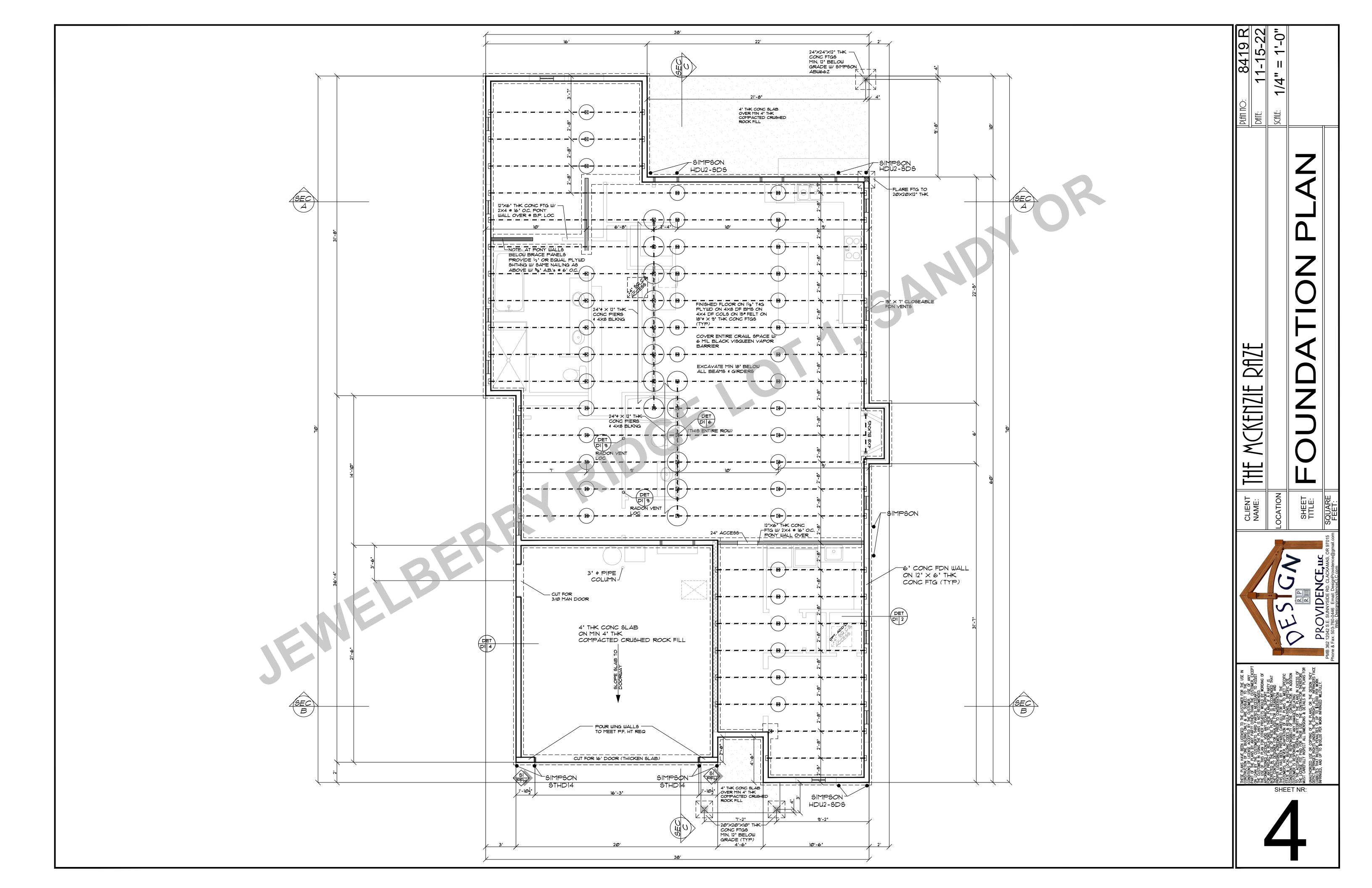
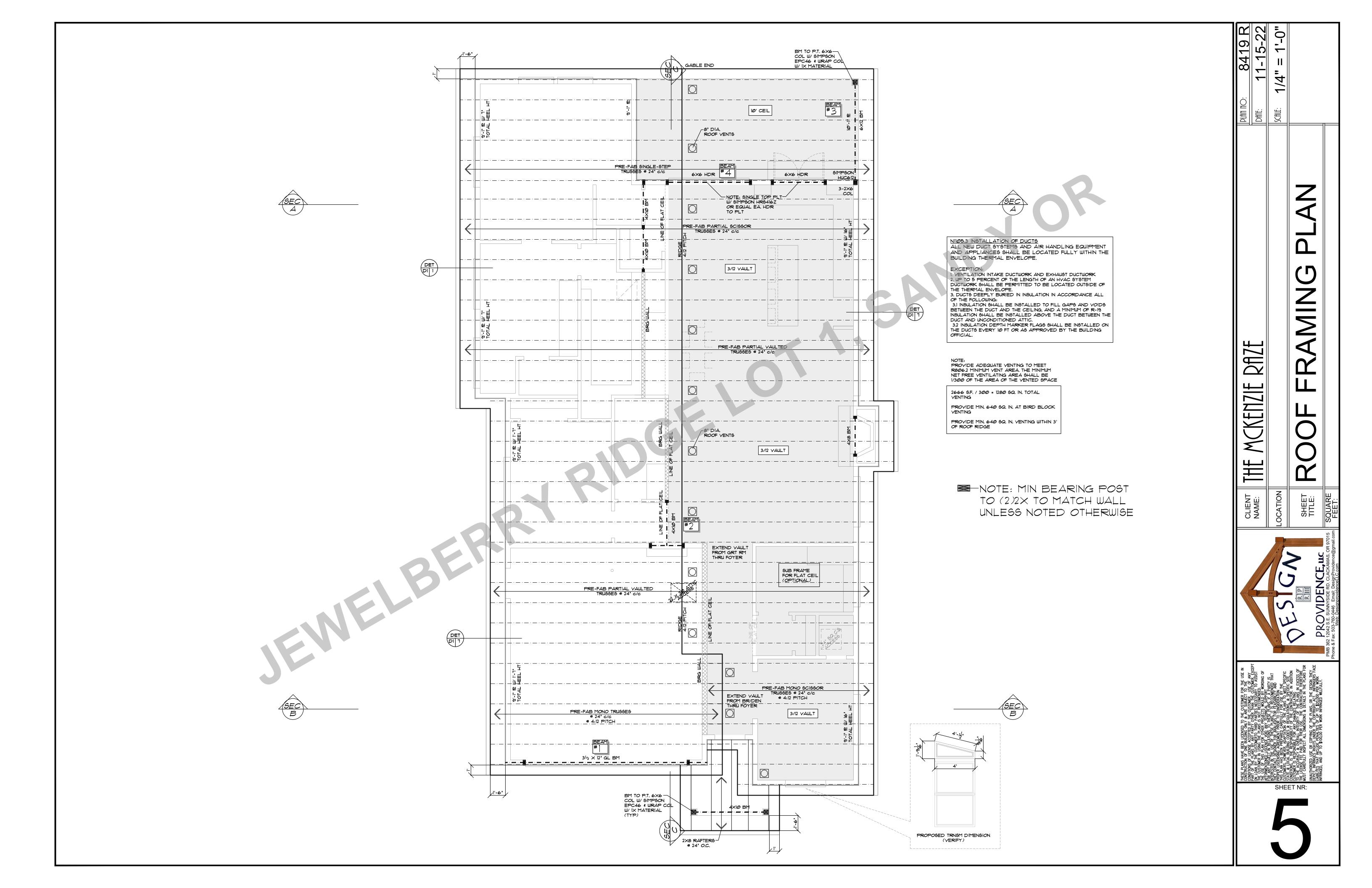
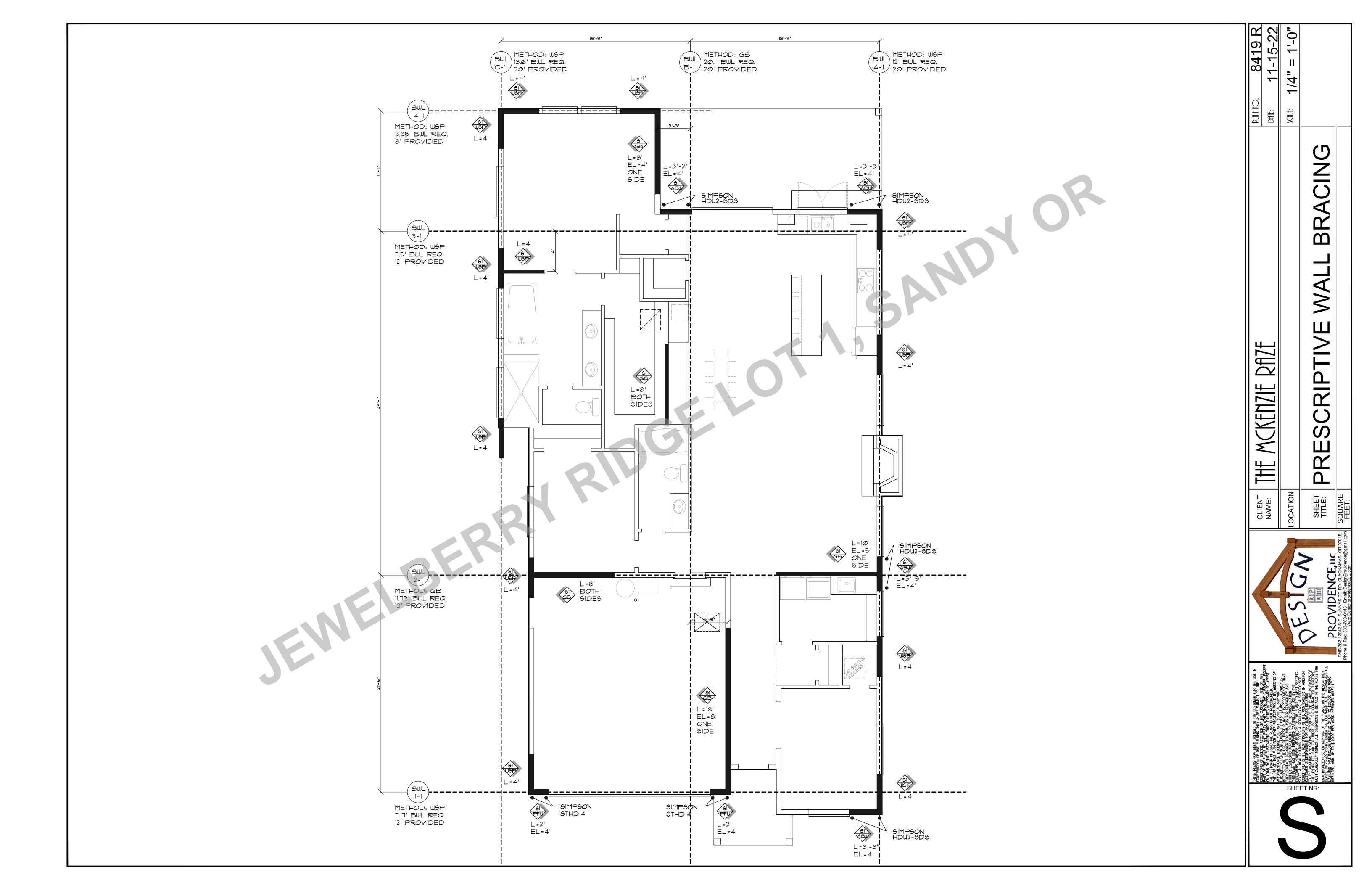


S THE MCKENZIE RAZE SHEET NR:









<b>/</b> S1	Wood	3/	T	Table R002.3(3)	020-03-2000001188885
WSF	structural panel (See Section R604)	(1). <b>8</b> (		Interior sheathing per Table R602.3(1) or R602.3(2)	Varies by fastener
SI	GB	1672/4		Nails or screws per Table R602.3(1) for exterior locations	panel locations: 7"
GB	Gypsum board	'/2"		Nails or screws per Table R702.3.5 for interior locations	edges (including top and bottom plates) 7' field

### TABLE R602.3(3) REQUIREMENTS FOR WOOD STRUCTURAL PANEL WALL SHEATHING USED TO RESIST WIND PRESSURES<sup>a, b, c</sup>

Exterior sheathing per

6" edges 12" Field

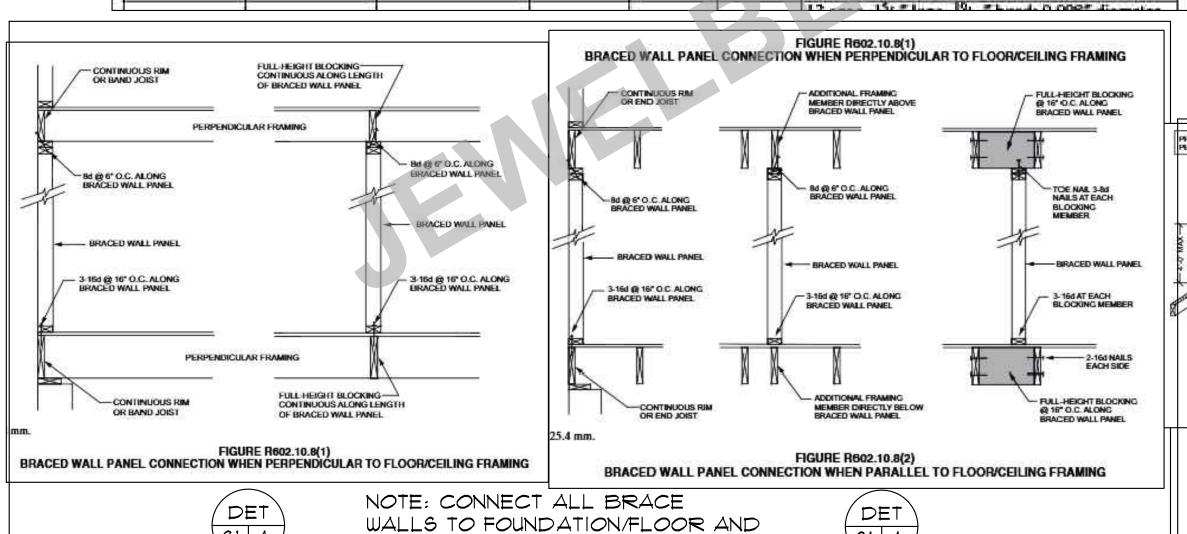
MINIMUM NAIL		MINIMUM WOOD STRUCTURAL	MINIMUM NOMINAL PANEL	MAXIMUM WALL STUD SPACING	PANEL NAIL SPACING		ULTIMATE DESIGN WIND SPEED V <sub>ult</sub> (mph)		
Size	Penetration (Inches)	PANEL SPAN RATING	THICKNESS (inches)	(Inches)	Edges (Inches o.c.)	Field (Inches o.c.)	Wind exposure category		
-2							В	C	D
6d Common (2.0" × 0.113")	1.5	24/0	3/ <sub>R</sub>	16	6	12	140	115	110
8d Common	19792	2444	7/16	16	6	12	170	140	135
(2.5"× 0.131")	1.75	24/16		24	6	12	140	115	110

For St: 1 inch = 25.4 mm, 1 mile per hour = 0.447 m/s.

- a. Panel strength axis parallel or perpendicular to supports. Three-ply plywood sheathing with study spaced more than 16 inches on center shall be applied with panel strength axis perpendicular to supports.
- h. Table is based on wind pressures acting toward and away from building surfaces in accordance with Section R301.2. Lateral bracing requirements shall be in accordance with Section R602.10.
- c. Wood structural panels with span ratings of Wall-16 or Wall-24 shall be permitted as an alternate to panels with a 24/0 span rating. Plywood siding rated 16 o.c. or 24 o.c. shall be permitted as an alternate to panels with a 24/16 span rating. Wall-16 and Plywood siding 16 o.c. shall be used with study spaced not more than 16 inches on center.

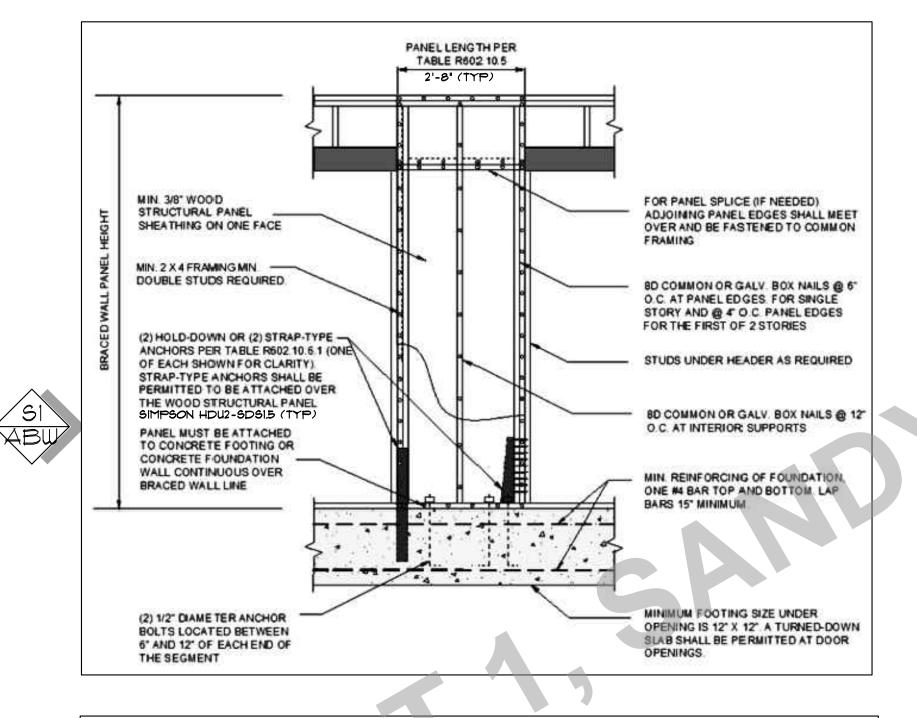
### TABLE R702.3.5 MINIMUM THICKNESS AND APPLICATION OF GYPSUM BOARD AND GYPSUM PANEL PRODUCTS

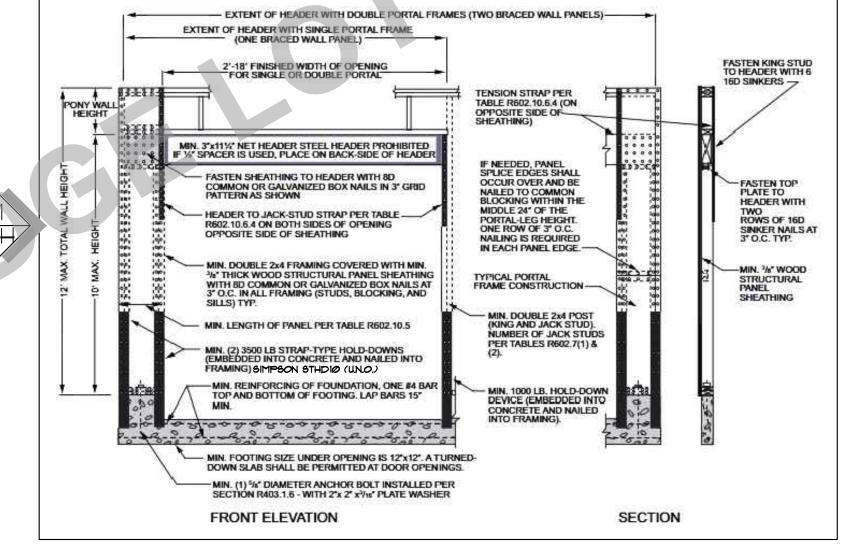
THICKNESS OF GYPSUM		ORIENTATION OF GYPSUM BOARD OR	MAXIMUM SPACING OF FRAMING MEMBERS (inches o.c.)	MAXIMUM SPACING OF FASTENERS (inches)			
BOARD OR GYPSUM PANEL PRODUCTS (inches)	APPLICATION	GYPSUM PANEL PRODUCTS TO FRAMING		Nails*	Scrows	SIZE OF NAILS FOR APPLICATION TO WOOD FRAMING*	
			Application	without adh	regive		
88	Ceiling	Perpendicular	16	7	12	13 gage, 11/4" long, 19/64" head; 0.098" diameter,	
3/8	Wall	Hither direction	16	8	16	1 <sup>1</sup> / <sub>4</sub> " long, annular-ringed; or 4d cooler nail, 0.080" diameter, 1 <sup>3</sup> / <sub>8</sub> " long, <sup>7</sup> / <sub>32</sub> " head.	
	Ceiling	Either direction	16	7	12	13 gage, 13/4" long, 19/64" head; 0.098" diameter,	
420	Ceiling	Perpendicular	24	7	12	11/4" long, annular-ringed; 5d cooler nail, 0.086"	
1/2	Wall	Either direction	24	8	12	diameter, 15/2" long, 15/4" head; or gypsum board, nail, 0.086" diameter, 15/2" long,	
	Wall	Either direction	16	8	16	% head.	
				-			

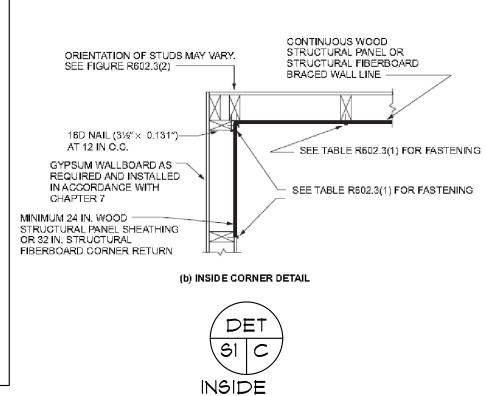


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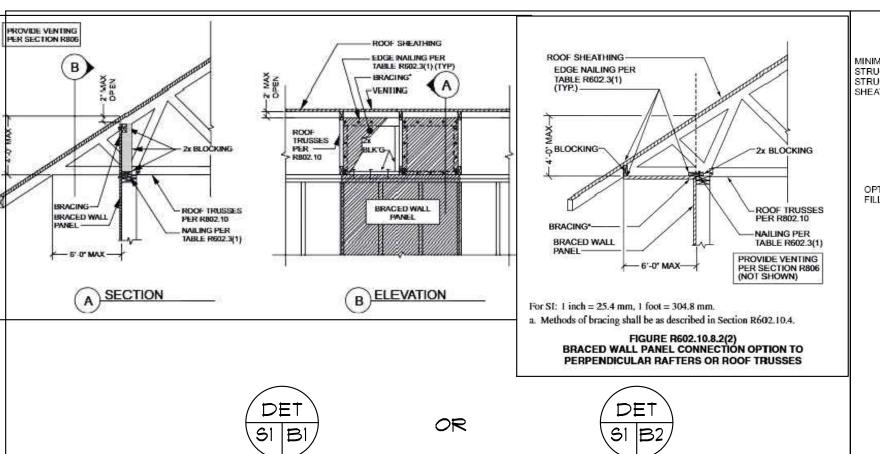
APPLICABLE TO THAT LOCATION

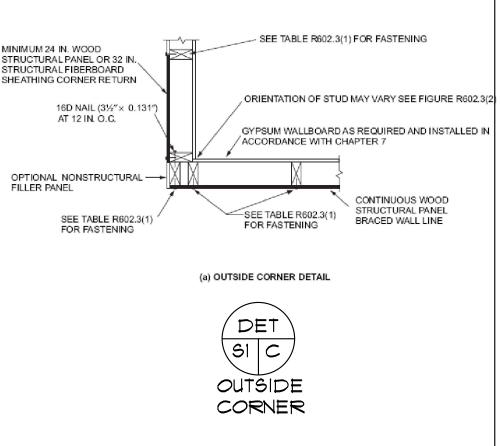


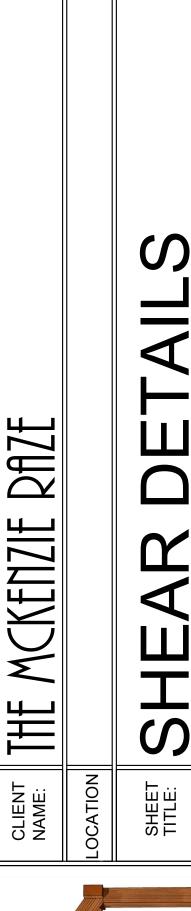




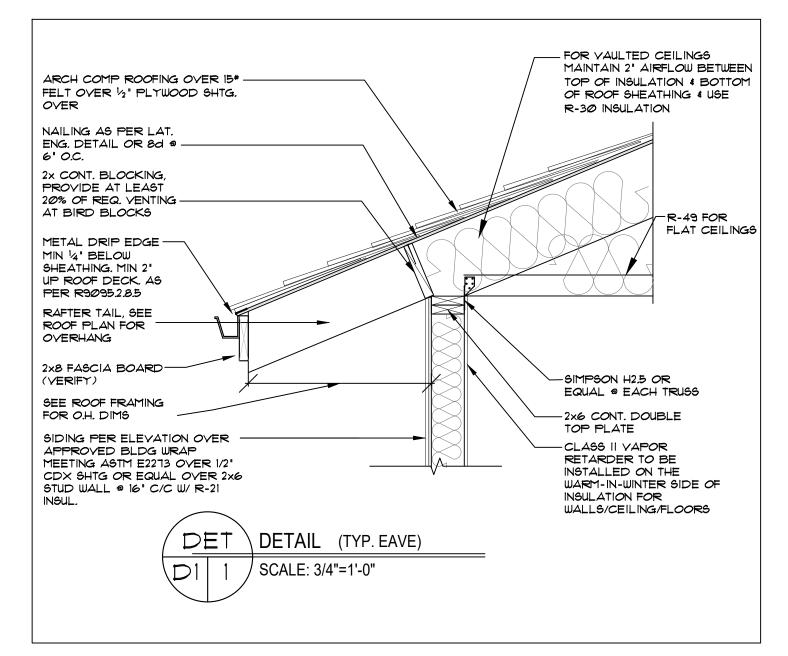
CORNER

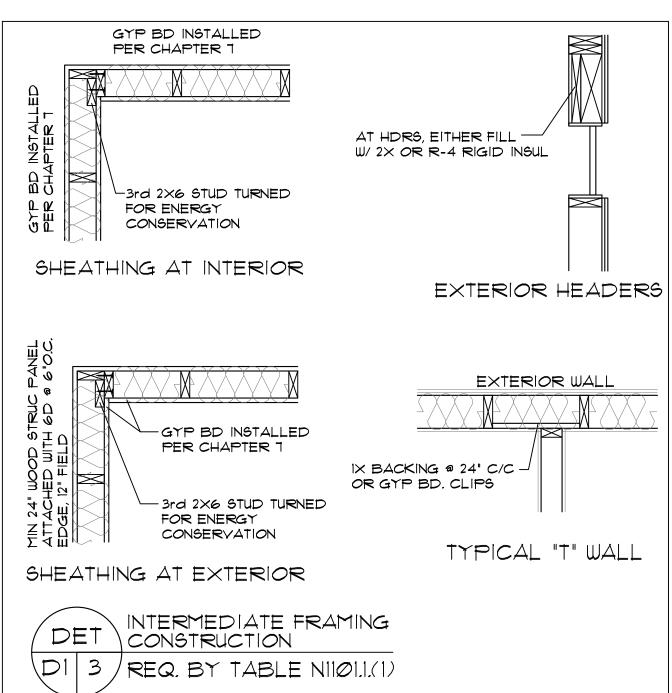


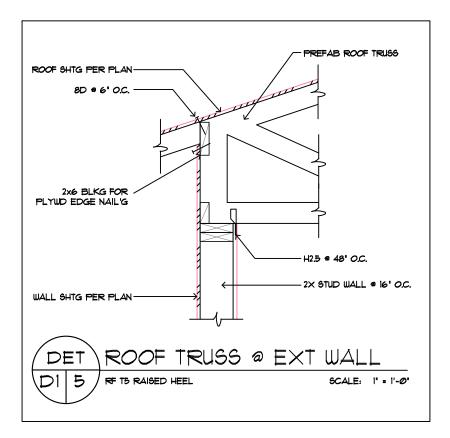


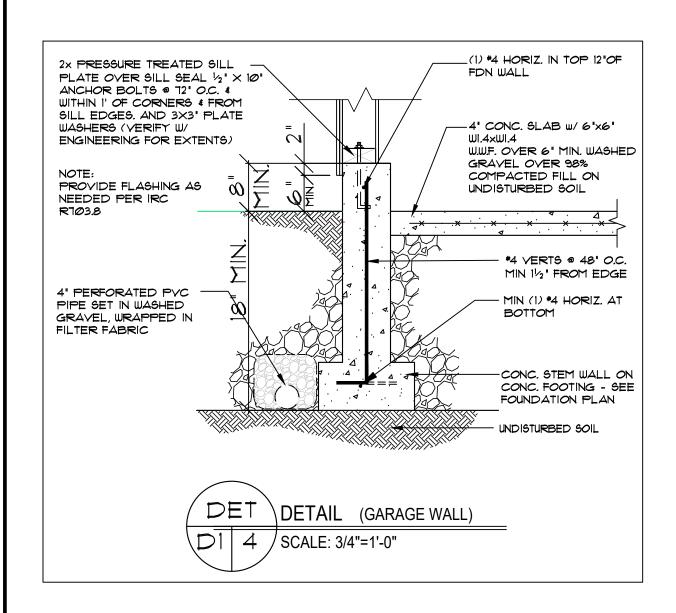


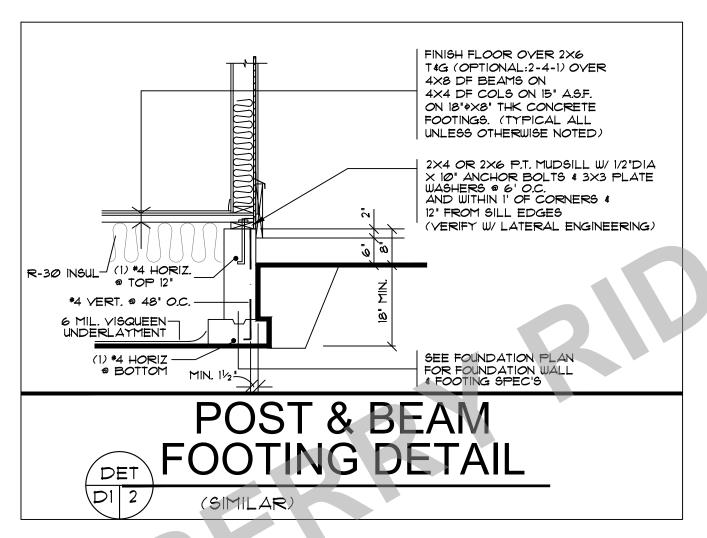
SHEET NR:

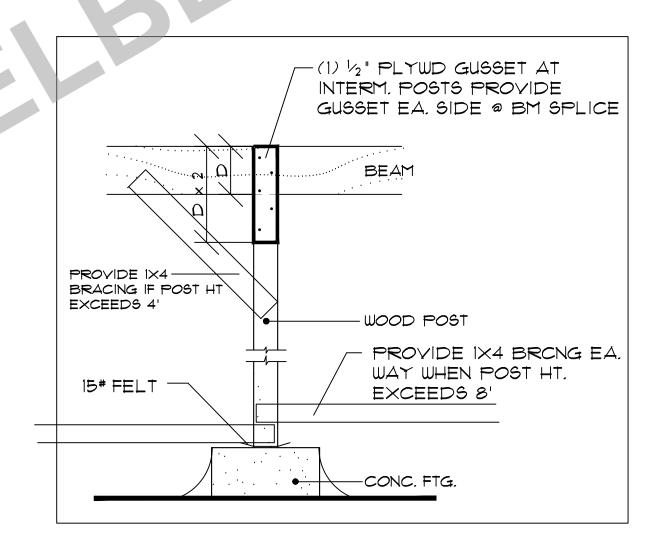




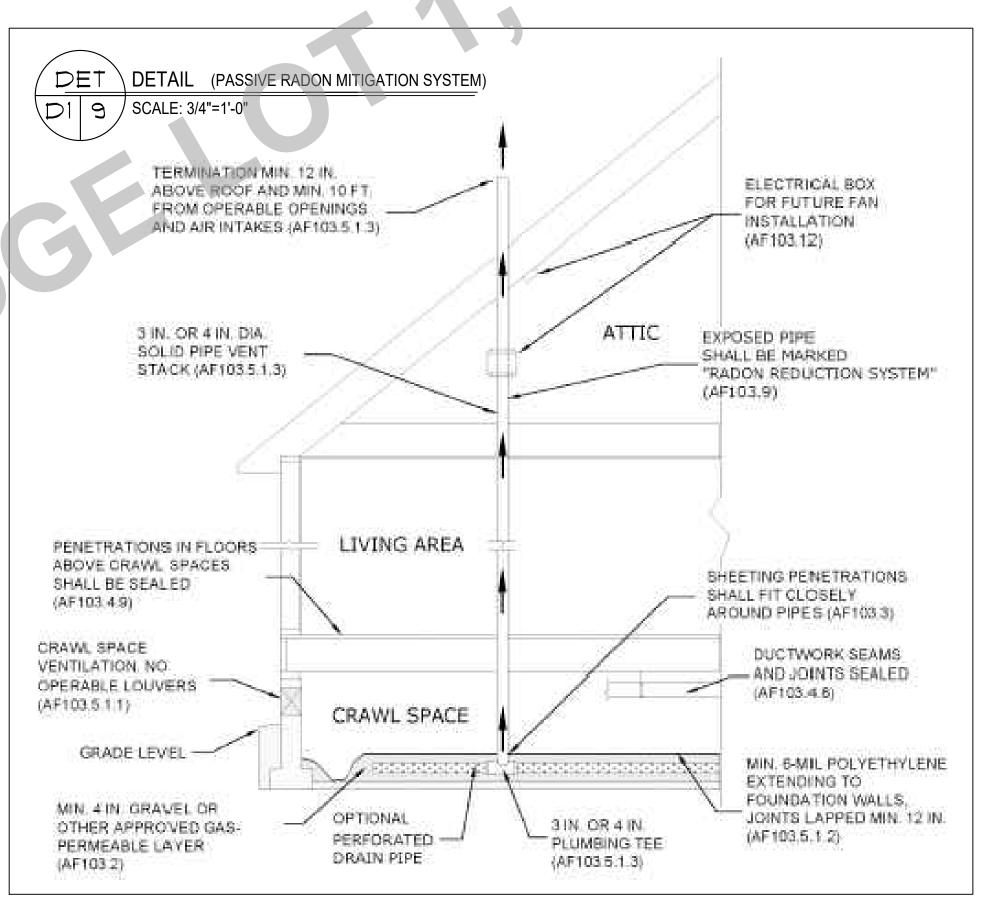












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### GENERAL NOTES

BETWEEN RAFTERS.

- ALL WORK IS TO COMPLY WITH THE LATEST ADOPTED VERSION OF THE ORSC CODE (2021) AND ANY APPLICABLE
- STATE, COUNTY OR LOCAL REGULATIONS.
  THE CONTRACTOR IS RESPONSIBLE TO CHECK THE PLANS AND IS TO NOTIFY THE DESIGNER OF ANY ERRORS OR OMISSIONS PRIOR TO THE START OF CONSTRUCTION. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED
- DIMENSIONS, 4. DESIGN LOADS: ROOF 25 PSF (LIVE LOAD) FLOOR 40 PSF (LIVE LOAD) 100 PSF STAIRS GARAGE FLOOR 125 PSF (2000# PT)

(IF YOUR LOCAL AREA REQUIRES DIFFERENT DESIGN LOADS, CONSULT WITH A LOCAL STRUCTURAL ENGINEER TO DETERMINE THE APPROPRIATE REVISIONS.)

PROVIDE INSULATION BAFFLES AT EAVE VENTS

ALL SMOKE DETECTORS SHALL BE POWERED BY 110Y URRENT, CONNECTED TO HOUSE ELECTRICA SYSTEM. INTERCONNECT WITH EACH ONE SO THAT IF ANY ONE TRIPS THEY WILL ALL SOUND. THEY SHAL ALSO HAVE A BATTERY BACKUP AND BE LOCATED IN

EACH BEDROOM AND ON EACH FLOOR LE GUARDRAILS SHALL HAVE INTERMEDIATE RAILS SPACED SUCH THAT A SPHERE 4" IN DIA. CANNOT PASS THROUGH PROVIDE GROUNDING ELECTRODE AT ELECTRICAL SERVICE CONSISTING OF A MINIMUM 20' LENGTH OF 1/2"

STEEL REINFORCEMENT OF FOOTINGS. ELECTRODE SHALL EXTEND 12" MIN. ABOVE THE PLATE LINE. THE MAXIMUM AMOUNT OF WATER USED BY NEW

PLUMBING FIXTURES: 2.5 GALLONS/MINUTE SHOWER HEADS INTERIOR FAUCETS 2.5 GALLONS/MINUTE D. IN THE EVENT OF CONFLICT BETWEEN PERTINENT CODES AND REGULATIONS AND REFERENCED STANDARDS OF THESE SPECIFICATIONS, THE MORE STRINGENT

PROVISIONS SHALL GOVERN STRUCTURAL SPECIFICATIONS AND DRAWINGS FOR THIS WORK HAVE BEEN PREPARED IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICE TO MEET MINIMUM REQUIREMENTS OF THE LATEST EDITION OF THE

SPECIFICATIONS AND DRAWINGS INDICATE FINISHED STRUCTURE. BUILDER SHALL BE RESPONSIBLE FOR CONSTRUCTION METHODS, PROCEDURES, AND CONDITIONS (INCLUDING SAFETY), EXCEPT AS SPECIFICALLY INDICATED OTHERWISE IN THE CONTRACT DOCUMENTS

CONSTRUCTION LOADS SHALL NOT OVERLOAD STRUCTURE NOR SHALL THEY BE IN EXCESS OF DESIGN LOADINGS INDICATED ON DRAWINGS . BUILDER SHALL VERIFY ALL MATERIALS, DIMENSIONS, AND CONDITIONS SHOWN ON STRUCTURAL DRAWINGS OR

NOTED IN STRUCTURAL SPECIFICATIONS, ANY VARIANCES WITHIN STRUCTURAL DRAWINGS AND SPECIFICATIONS, OR WITHIN CONDITIONS ENCOUNTERED AT JOB SITE, SHALL BE REPORTED TO OWNER IN WRITING BEFORE COMMENCEMENT OF ANY WORK EFFECTED BY SUCH

BUILDER SHALL RIGIDLY ADHERE TO ALL LAWS, CODES, AND ORDINANCES WHICH APPLY TO THIS WORK. HE SHALL NOTIFY AND RECEIVE CLARIFICATION FROM OWNER IN WRITING OF ANY VARIATIONS BETWEEN CONTRACT DOCUMENTS AND GOVERNING REGULATIONS.

ALL MANUFACTURED MATERIALS, COMPONENTS FASTENERS, ASSEMBLIES, ETC., SHALL BE HANDLED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND PROVISIONS OF APPLICABLE ICBO RESEARCH RECOMMENDATIONS. WHERE SPECIFIC MANUFACTURED PRODUCTS ARE CALLED FOR GENERIC EQUALS WHICH MEET APPLICABLE STANDARDS AND SPECIFICATIONS MAY BE USED.

NO VARIANCE BY A BUILDING OFFICIAL SHALL BE BINDING ON DESIGNERS.

BUILDER SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILLED EXCAVATIONS OR BURIED STRUCTURES SUCH AS CESS POOLS, CISTERNS FOUNDATIONS, ETC. IF ANY SUCH ITEMS ARE FOUND, OWNER SHALL BE NOTIFIED IMMEDIATELY.

### FLOOR PLAN NOTES

EACH BEDROOM TO HAVE A MINIMUM WINDOW OPENING OF 5.7 SQ FT WITH A MIN. WIDTH OF 20' AND A MIN. HEIGHT OF 22" AND A SILL LESS THAN 44" OFF THE FLOOR.

ALL WINDOWS WITHIN 18" OF THE FLOOR AND WITHIN 24' OF ANY DOOR ARE TO HAVE TEMPERED GLAZING. SEE SECTION R308.4 IN ORSC FOR ADDITIONAL INFO SKYLITES ARE TO BE GLAZED WITH TEMPERED GLASS ON OUTSIDE AND LAMINATED GLASS ON INSIDE (UNLESS PLEXIGLAS), GLASS TO HAVE MAXIMUM CLEAR SPAN

OF 25". SKYLITE FRAME IS TO BE ATTACHED TO A 2 X CURB WITH MINIMUM OF 4" ABOVE ROOF PLANE. ALL TUB OR SHOWER ENCLOSURES ARE TO BE GLAZED

WITH SAFETY GLAZING . ALL EXTERIOR WINDOWS ARE TO BE DOUBLE GLAZED AND ALL EXTERIOR DOORS ARE TO BE SOLID CORE WITH WEATHERSTRIPPING. PROVIDE 1/2" DEADBOLT LOCKS ON ALL EXTERIOR DOORS AND LOCKING DEVICES ON ALL DOORS OR WINDOWS WITHIN 10' (VERTICAL) OF GRADE.

EXTERIOR DOORS PROVIDE COMBUSTION AIR VENTS (W/ SCREEN AND BACK DAMPER) FOR FIREPLACES, WOOD STOVES AND

PROVIDE PEEP-HOLE @ 54" - 66" ABOVE FLOOR ON

ANY APPLIANCES WITH AN OPEN FLAME. BATHROOMS AND UTILITY ROOMS ARE TO BE VENTED TO THE OUTSIDE WITH A MINIMUM OF A 90 CFM FAN. RANGE HOODS ARE ALSO TO BE VENTED TO OUTSIDE.

# **INSULATION SPECIFICATIONS**

ALL EXPOSED INSULATION IS TO HAVE A FLAME SPREAD RATING OF LESS THAN 25 & A SMOKE DENSITY

PERIMETER CONC. WALLS TO BE PROTECTED W/ RIGID FIBERBOARD INSULATION FROM TOP OF CONC WALL TO NOT LESS THAN 24" BELOW GRADE.

SLAB EDGE INSULATION IS TO BE R-15.

HEATING DUCTS TO BE INSULATED W/R-8 WINDOWS SHALL MEET REQUIRED U FACTORS FOR THE CONTRACTORS CHOSEN PATH OF COMPLIANCE SEE TABLE NII@4.I(1)

ONE EXTERIOR DOOR MAY BE INSULATED TO A U-FACTOR OF 0.20. ALL OTHER EXTERIOR DOORS MAY NOT EXCEED 0.54.

### FRAMING NOTES

IOTE: SEE TABLE 602.3(1) IN ORSC FOR FASTENER SCHEDULE nttps://codes.iccsafe.org/content/ORRSC2021P1/chapter-6-wall-construction

ALL EXTERIOR WALL AND BEARING WALL OPENINGS TO HAVE 4X12 DF HEADERS UNLESS OTHERWISE INDICATED JOISTS THAT ARE ATTACHED TO FLUSH BEAMS ARE TO BE HUNG WITH "SIMPSON" LU TYPE OR EQUIY

DOUBLE JOISTS THAT ARE ATTACHED TO FLUSH BMS ARE TO BE HUNG WITH "SIMPSON" LUS TYPE OR EQUIV. PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL

PARTITIONS OVER PROVIDE FIREBLOCKING, DRAFTSTOPS & FIRESTOPS AS PER THE ORSC SEC R602.8

3. LUMBER SPECIES: A. POSTS, BEAMS, HEADERS NO.2 DOUG FIR JOISTS AND RAFTERS B. SILLS, PLATES, BLOCKING NO.3 DOUG FIR

BRIDGING, ETC. C. STUDS STUD GRADE D.F. D. POST AND BEAM DECKING UTILITY GRADE D.F. E. PLYWOOD SHEATHING 1/2" CDX PLY, 32/16 F. GLU-LAM BEAMS fb-2400, DRY ADH.

NAILING SCHEDULE SEE TABLE 602.3(1)

> SHALL NOT EXCEED ONE-SIXTH OF THE DEPTH OF THE MEMBER, SHALL NOT BE LONGER THAN ONE-THIRD OF THE DEPTH OF THE MEMBER AND SHALL NOT BE LOCATED IN THE MIDDLE ONE-THIRD OF THE SPAN. NOTCHES AT THE ENDS OF THE MEMBER SHALL NOT EXCEED ONE-FOURTH THE DEPTH OF THE MEMBER. THE TENSION SIDE OF MEMBERS 4" (102mm) OR GREATER IN NOMINAL

NOTCHES IN SOLID LUMBER JOISTS, RAFTERS, AND BEAMS

THICKNESS SHALL NOT BE NOTCHED EXCEPT AT ENDS OF THE MEMBERS. THE DIAMETER OF HOLES BORED OR CUT INTO MEMBERS SHALL NOT EXCEED ONE-THIRD THE DEPTH OF THE MEMBER. HOLES SHALL NOT BE CLOSER THAN 2" TO THE TOP OR BOTTOM OF THE MEMBER, OR TO ANY OTHER HOLE LOCATED IN THE MEMBER. WHERE THE MEMBER IS ALSO NOTCHED, THE HOLE SHALL NOT BE CLOSER THAN 2" (51mm) TO THE NOTCH.

STUDS IN AN EXTERIOR WALL OR LOAD-BEARING PAR-TITIONS SHALL BE PERMITTED TO BE CUT OR NOTCHED TO A DEPTH NOT EXCEEDING 25% OF ITS WIDTH. STUDS IN NON-LOAD-BEARING PARTITIONS SHALL BE PERMITTED TO BE NOTCHED TO A DEPTH NOT TO EXCEED 40% OF A SINGLE STUD WIDTH, STUDS SHALL BE PERMITTED TO BE BORED OR DRILLED, PROVIDED THAT THE DIAMETER OF THE RESULTING HOLE IS NO GREATER THAN 40% OF THE STUD WIDTH, THE EDGE OF THE HOLE IS NO CLOSER THAN 5/8" (15.9mm) TO THE EDGE OF THE STUD, AND THE HOLE IS NOT LOCATED IN THE SAME SECTION AS A CUT OR NOTCH.

INSTALL ALL HORIZONTAL MEMBERS WITH CROWN UP. . ALL MEMBERS IN BEARING SHALL BE ACCURATELY CUT AND ALIGNED SO THAT FULL BEARING IS PROVIDED WITHOUT USE OF SHIMS. BEARING POSTS SHALL HAVE FULL BLOCKING OR SUPPORT UNDER.

ALL JOISTS SHALL HAVE A MINIMUM OF 2" BEARING AT SUPPORTS. LAPPING JOISTS SHALL HAVE 6" LAPS CENTERED OVER INTERIOR SUPPORTS.

LEDGERS AND STUD WALL FOUNDATION SILL PLATES SHALL BE BOLTED TO CONCRETE W/ ANCHOR BOLTS OF SIZE AND MINIMUM SPACING AS SHOWN ON DRAWINGS. AT LEAST TWO BOLTS SHALL BE PROVIDED FOR EACH PIECE W/ ONE BOLT WITHIN 12" OF EACH END.

ALL PLYWOOD WALL SHEATHING SHALL BE APPLIED AS FOLLOWS: CENTER YERTICAL JOINTS OVER STUDS AND CENTER HORIZONTAL JOINT OVER 2" BLOCKING OR PLATE. NAIL TOP OF PANELS TO DOUBLE TOP PLATE, AND NAIL BOTTOM OF PANELS TO ANCHORED SILL PLATE APPLY GYPSUM BOARD SO THAT END JOINTS OF ADJACENT COURSE DO NOT OCCUR AT THE SAME STUD.

## ELECTRICAL REQUIREMENTS

<u>LIGHTING REQUIREMENTS:</u>

AT LEAST ONE WALL SWITCH-CONTROLLED LIGHTING OUTLET SHALL BE INSTALLED IN EVERY HABITABLE ROOM AND IN BATHROOMS, HALLWAYS, STAIRWAYS, ATTACHED GARAGES, DETACHED GARAGES PROVIDED WITH ELECTRICAL POWER AND AT THE EXTERIOR SIDE OF EGRESS DOORS. STAIRWAY LIGHTING CONTROL

ALL INTERIOR AND EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH A MEANS OF ILLUMINATION TO THE STAIR, INCLUDING THE LANDINGS AND TREADS, TO BE CONTROLLED BY A WALL SWITCH AT EACH FLOOR LEVEL. INTERIOR STAIRS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF EACH LANDING AT THE TOP AND BOTTOM OF THE STAIR. EXTERIOR STAIRS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE

IMMEDIATE VICINITY OF THE TOP LANDING OF THE STAIR. EXCEPTION: WHERE THE DIFFERENCE BETWEEN FLOOR LEVELS REQUIRES LESS THAN 6 STAIR RISERS.

FIXTURES IN CLOTHES CLOSETS: SURFACE MOUNTED FLUORESCENT FIXTURES SHALL BE INSTALLED ON THE WALL ABOVE THE DOOR OR ON THE CEILING, PROVIDED THERE IS A MINIMUM CLEARANCE OF 6" BETWEEN THE FIXTURE AND THE NEAREST POINT OF A STORAGE SPACE. WET OR DAMP LOCATIONS:

FIXTURES INSTALLED IN WET OR DAMP LOCATIONS SHALL BE INSTALLED SO THAT WATER CANNOT ENTER OR ACCUMULATE IN WIRING COMPARTMENTS, LAMPHOLDERS OR OTHER ELECTRICAL PARTS. ALL FIXTURES INSTALLED IN WET LOCATIONS SHALL BE MARKED "SUITABLE FOR WET LOCATIONS". ALL FIXTURES INSTALLED IN DAMP LOCATIONS SHALL BE MARKED 'SUITABLE FOR WET LOCATIONS' OR 'SUITABLE FOR DAMP LOCATIONS"

LIGHT SWITCH ACCESS:

ALL SWITCHES SHALL BE LOCATED TO ALLOW OPERATION FROM A READILY ACCESSIBLE LOCATION.

RECEPTACLE OUTLET REQUIREMENTS:

IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, DEN, BEDROOM, OR SIMILAR ROOM OR AREA OF DWELLING UNITS, RECEPTACLE OUTLETS SHALL BE INSTALLED SO THAT NO POINT ALONG THE FLOOR LINE IN ANY WALL SPACE IS MORE THAN 6 FEET, MEASURED HORIZONTALLY FROM AN OUTLET IN THAT SPACE, INCLUDING ANY WALL SPACE THAT IS 2 FEET OR MORE IN WIDTH.

RECEPTACLE OUTLETS, WITH GFI PROTECTION, SHALL BE INSTALLED EVERY 24" ON ALL COUNTER SPACES THAT MEASURE 12" OR WIDER

AT LEAST ONE WALL RECEPTACLE OUTLET, WITH GFI PROTECTION, SHALL BE INSTALLED IN BATHROOMS ADJACENT TO EACH BASIN LOCATION. AT LEAST ONE RECEPTACLE OUTLET, WITH GFI PROTECTION, SHALL BE INSTALLED OUTDOORS AT THE FRONT AND BACK OF EACH DWELLING UNIT

HAYING DIRECT ACCESS TO GRADE. HALLWAYS: HALLWAYS OF 10 FEET OR MORE IN LENGTH SHALL HAVE AT LEAST ONE RECEPTACLE OUTLET.

A CONVENIENCE RECEPTACLE OUTLET SHALL BE INSTALLED FOR THE SERVICING OF HEATING, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT LOCATED IN ATTICS AND CRAWL SPACES.

A RECEPTACLE INSTALLED IN A WET LOCATION SHALL BE IN A WEATHER PROOF ENCLOSURE, THE INTEGRITY OF WHICH IS NOT AFFECTED WHEN THE ATTACHMENT PLUG CAP IS INSERTED.

\*ADDITIONAL INFORMATION CAN BE FOUND IN THE OREGON RESIDENTIAL SPECIALTY CODE BOOK IN SECTIONS:

E37-404 SWITCHES E37-406 RECEPTACLE OUTLETS E37-410 LIGHTING OUTLETS

NIIO5.3 INSTALLATION OF DUCTS ALL NEW DUCT SYSTEMS AND AIR HANDLING EQUIPMENT AND APPLIANCES SHALL BE LOCATED FULLY WITHIN THE

BUILDING THERMAL ENVELOPE.

I. VENTILATION INTAKE DUCTWORK AND EXHAUST DUCTWORK 2. UP TO 5 PERCENT OF THE LENGTH OF AN HVAC SYSTEM DUCTWORK SHALL BE PERMITTED TO BE LOCATED OUTSIDE OF HE THERMAL ENVELOPE.

3. DUCTS DEEPLY BURIED IN INSULATION IN ACCORDANCE ALL OF THE FOLLOWING: 3.1 INSULATION SHALL BE INSTALLED TO FILL GAPS AND YOLDS BETWEEN THE DUCT AND THE CEILING, AND A MINIMUM OF R-19 INSULATION SHALL BE INSTALLED ABOVE THE DUCT BETWEEN THE DUCT AND UNCONDITIONED ATTIC. 3.2 INSULATION DEPTH MARKER FLAGS SHALL BE INSTALLED ON

THE DUCTS EVERY 10 FT OR AS APPROVED BY THE BUILDING

NIIOG. MECHANICAL SYSTEM PIPING INSULATION MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105°F OR BELOW 55°F SHALL BE INSULATED TO A MINIMUM OF R-3.

NIIO6.2 DOMESTIC AND SERVICE HOT WATER SYSTEMS. DOMESTIC HOT WATER PIPING SHALL BE INSULATED TO A MINIMUM OF R-3 AT THE FOLLOWING LOCATIONS: 1. PIPE LOCATED OUTSIDE THE BUILDING THERMAL

2. THE FIRST & FEET OF PIPE INTO AND OUT OF A WATER HEATER. 3. RECIRCULATING WATER PIPING.

ENVELOPE

## **SECTION N1107**

TERMINATION W/ CLEARANCE MIN. 36'

ALL PERMANENTLY INSTALLED INTERIOR AND EXTERIOR LIGHTING FIXTURES SHALL BE COMPANCT FLUORESCENT LAMPS, T-8 OR SMALLER DIAMETER LINEAR FLUORESCENT LAMPS, LED LAMPS FIXTURE-INTEGRATED ILLUMINATION DEVICES, OR LAMPS WITH AN EFFICACY NOT LESS THAN 65 LUMENS PER WATT FOR EACH LAMP OR LUMINAIRES WITH EFFICACY NOT LESS THAN 45 LUMENS PER WATT PER EACH LUMINAIRE EXCEPT 2 INTERIOR AND 2 EXTERIOR PERMANENT FIXTURES ARE NOT

REQUIRED TO HAVE HIGH EFFICIENCY LAMPS. THE BUILDING OFFICIAL SHALL BE NOTIFIED IN WRITING AT THE FINAL

INSPECTION THAT THE PERMANENTLY INSTALLED FIXTURES HAVE MET

NOTE: AS PER ORSC NIIØT.4 PROVIDE 4"X4" METAL JUNCTION BOX W/

METAL RACEWAY EXTENDING FROM JCT. BOX TO CAPPED ROOF

COVER WITHIN 24" OF MAIN ELECTRICAL PANEL. PROVIDE A 34" RIGID

### TABLE N1101.1(1) PRESCRIPTIVE ENVELOPE REQUIREMENTS<sup>a</sup>

DI III DINO	STANDA	ARD BASE CASE	LOG HOMES ONLY		
COMPONENT	Required Performance	Equiv. Value <sup>b</sup>	Required Performance	Equiv. Value <sup>b</sup>	
Wall insulation—above grade	U-0.059 <sup>c</sup>	R-21 Intermediate <sup>c</sup>	Note d	Note d	
Wall insulation—below grade <sup>e</sup>	C-0.063	R-15 c.i. / R-21	C-0.063	R-15/R-21	
Flat ceilings <sup>f</sup>	U-0.021	R-49	U-0.020	R-49 A <sup>h</sup>	
/aulted ceilings <sup>g</sup> U-0.033		R-30 Rafter or R-30A <sup>g, h</sup> Scissor Truss	U-0.027	R-38A <sup>h</sup>	
Underfloors	U-0.033	R-30	U-0.033	R-30	
Slab-edge perimeter <sup>m</sup>	F-0.520	R-15	F-0.520	R-15	
Heated slab interior <sup>i</sup>	n/a	R-10	n/a	R-10	
Windows <sup>j</sup>	U-0.27	U-0.27	U-0.27	U-0.27	
Skylights	U-0.50	U-0.50	U-0.50	U-0.50	
Exterior doorsk	U-0.20	U-0.20	U-0.54	U-0.54	
Exterior doors with > 2.5 ft <sup>2</sup> glazing <sup>l</sup>	U-0.40	U-0.40	U-0.40	U-0.40	

a. As allowed in Section N1104.1, thermal performance of a component may be adjusted provided that overall heat loss does not exceed the total resulting from conformance to the required U-factor standards. Calculations to document equivalent heat loss shall be performed using the procedure and approved U-factors contained in Table N1104.1(1).

R-values used in this table are nominal for the insulation only in standard wood-framed construction and not for the entire assembly. c. Wall insulation requirements apply to all exterior wood-framed, concrete or masonry walls that are above grade. This includes cripple walls and rim joist areas. Nominal compliance with R-21 insulation and Intermediate Framing (N1104.5.2) with insulated headers.

d. The wall component shall be a minimum solid log or timber wall thickness of 3.5 inches.

e. Below-grade wood, concrete or masonry walls include all walls that are below grade and do not include those portions of such wall that extend more than 24 inches above grade. R-21 for insulation in framed cavity; R-15 continuous insulation.

. Insulation levels for ceilings that have limited attic/rafter depth such as dormers, bay windows or similar architectural features totaling not more than 150 square feet in area may be reduced to not less than R-21. When reduced, the cavity shall be filled (except for required ventilation spaces). R-49 insulation installed to minimum 6-inches depth at top plate at exterior of structure to achieve U-factor.

g. Vaulted ceiling surface area exceeding 50 percent of the total heated space floor area shall have a U-factor no greater than U-0.026 (equivalent to R-38 rafter or scissor truss with R-38 advanced framing).

h. A = Advanced frame construction. See Section N1104.6.

i. Heated slab interior applies to concrete slab floors (both on and below grade) that incorporate a radiant heating system within the slab. Insulation shall be installed underneath the entire slab.

 Sliding glass doors shall comply with window performance requirements. Windows exempt from testing in accordance with Section NF1111.2, Item 3 shall comply with window performance requirements if constructed with thermal break aluminum or wood, or vinyl, or fiberglass frames and double-pane glazing with low-emissivity coatings of 0.10 or less. Buildings designed to incorporate passive solar elements may include glazing with a U-factor greater than 0.35 by using Table N1104.1(1) to demonstrate equivalence to building envelope requirements.

k. A maximum of 28 square feet of exterior door area per dwelling unit can have a U-factor of 0.54 or less.

Glazing that is either double pane with low-e coating on one surface, or triple pane shall be deemed to comply with this requirement.

m. Minimum 24-inch horizontal or vertical below grade.

### TABLE N1101.1(2) ADDITIONAL MEASURES

# HIGH EFFICIENCY HVAC SYSTEM<sup>a</sup>

a. Gas-fired furnace or boiler AFUE 94%, or

b. Air source heat pump HSPF 10.0/14.0 SEER cooling, or

Ground source heat pump COP 3.5 or Energy Star rated

### HIGH EFFICIENCY WATER HEATING SYSTEM

Natural gas/propane water heater with minimum UEF 0.90, or

Electric heat pump water heater with minimum 2.0 COP, or

c. Natural gas/propane tankless/instantaneous heater with minimum 0.80 UEF and Drain Water Heat Recovery Unit installed on minimum of one shower/tub-shower

### WALL INSULATION UPGRADE Exterior walls—U-0.045/R-21 conventional framing with R-5.0 continuous insulation

Windows—U-0.21 (Area weighted average), and

Flat ceilingb—U-0.017/R-60, and

Framed floors—U-0.026/R-38 or slab edge insulation to F-0.48 or less (R-10 for 48"; R-15 for 36" or R-5 fully insulated slab)

### **DUCTLESS HEAT PUMP**

ADVANCED ENVELOPE

For dwelling units with all-electric heat provide:

Ductless heat pump of minimum HSPF 10 in primary zone replaces zonal electric heat sources, and Programmable thermostat for all heaters in bedrooms

HIGH EFFICIENCY THERMAL ENVELOPE UAC

# **GLAZING AREA**

Glazing area, measured as the total of framed openings is less than 12 percent of conditioned floor area

### 3 ACH AIR LEAKAGE CONTROL AND EFFICIENT VENTILATION

Proposed UA is 8 percent lower than the code UA

Achieve a maximum of 3.0 ACH50 whole-house air leakage when third-party tested and provide a whole-house ventilation system including heat recovery with a minimum sensible heat recovery efficiency of not less than 66 percent

a. Appliances located within the building thermal envelope shall have sealed combustion air installed. Combustion air shall be ducted directly from the outdoors. b. The maximum vaulted ceiling surface area shall not be greater than 50 percent of the total heated space floor area unless vaulted area has a U-factor no greater than

c. In accordance with Table N:1104.1(1), the Proposed UA total of the Proposed Alternative Design shall be a minimum of 8 percent less than the Code UA total of the Standard Base Case.

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SHEET NR

RATING OF LESS THAN 450.

# DOTINGS ARE TO BEAR ON UNDISTURBED LEVEL SOIL

FOUNDATION NOTES

A MAXIMUM SLUMP OF 4".

DEVOID OF ANY ORGANIC MATERIAL AND STEPPED AS REQUIRED TO MAINTAIN THE REQUIRED DEPTH BELOW THE FINAL GRADE. SOIL BEARING PRESSURE ASSUMED TO BE 1500 PSF.

. ANY FILL UNDER GRADE SUPPORTED SLABS TO BE A MINIMUM OF 4" GRANULAR MATERIAL COMPACTED TO 95%. . CONCRETE TO DEVELOP A MIN. OF 3000 PSI AT 28 DAYS WITH A MIN. OF 6 SACKS OF CEMENT PER YARD AND

CONCRETE SLABS TO HAVE CONTROL JOINTS AT 25' (MAXIMUM) INTERVALS EA. WAY. CONCRETE SIDEWALKS TO HAVE 3/4" TOOLED JOINTS AT 5' O.C. (MINIMUM)

REINFORCING STEEL TO MEET MIN. ASTM A706 GRADE 60 WELDED WIRE MESH TO BE A-185. EXCAVATE THE SITE TO PROVIDE A MINIMUM OF IS CLEARANCE UNDER ALL GIRDERS. . COVER ENTIRE CRAWLSPACE WITH 6 MIL BLACK

10. PROVIDE A MINIMUM OF 1 SQ FT OF VENTILATION AREA FOR EACH 150 SQ FT OF CRAWLSPACE AREA. VENTS ARE TO BE CLOSABLE WITH 1/4" OPENINGS IN CORROSIVE RESISTANT SCREEN. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE

"VISQUEEN" AND EXTEND UP FOTH, WALLS TO P.T. MUDSILL

BEAM POCKETS IN CONCRETE TO HAVE 1/2" AIRSPACE AT SIDES AND ENDS WITH A MINIMUM BEARING OF 3". B. PROVIDE CRAWLSPACE DRAIN AS PER SEC. R405.1 OF THE GRADE AWAY FROM FND WALLS SHALL FALL 6" MIN.

TREATED OR PROTECTED WITH 30# ROLL ROOFING.

SLOPE FOR PERMANENT FILLS AND CUT SLOPES SHALL NOT EXCEED 2 UNITS HORIZ, TO 1 UNIT VERT. 5. BACKFILL SHALL NOT BE PLACED UNTIL WALL HAS

SUFFICIENT STRENGTH AND HAS BEEN ANCHORED TO FLOOR ABOVE ON WALLS W/ MORE THAN 4' UNBALANCED I. BUILDER SHALL BE RESPONSIBLE FOR SUPPORT OF ALL

TEMPORARY EMBANKMENTS AND EXCAVATIONS. B. FOOTINGS SHALL BE FOUNDED ON FIRM, UNDISTURBED, NATIVE, FREE DRAINING SOILS. CONDITIONS FOUND TO BE OTHERWISE SHALL BE REPORTED TO OWNER. B. ALL GROUND OVER WHICH FOOTINGS AND SLABS-ON-GRADE ARE TO BE PLACED SHALL BE FREE OF

20. FOOTINGS AND SLABS-ON-GRADE CONCRETE SHALL NOT BE PLACED ON MUDDY OR FROZEN GROUND. SUB-GRADE FOR SLABS-ON-GRADE WHERE VAPOR BARRIER IS NOT REQUIRED SHALL BE DAMP AT TIME OF CONCRETE PLACEMENT.

EXPANSIVE OR COMPRESSIBLE DEBRIS AND ORGANIC

# SECTION M1505.4

A WHOLE HOUSE VENTILATION SYSTEM SHALL BE INSTALLED AND PROVIDE BALANCED VENTILATION AS PER SECTION MISOS.4. LOCAL EXHAUST OR SUPPLY FANS ARE PERMITTED TO SERVE AS PART OF SUCH SYSTEM, OUTDOOR AIR VENTILATION PROVIDED BY A SUPPLY FAN DUCTED TO RETURN SIDE OF AN AIR HANDLER SHALL BE CONSIDERED AS PROVIDING SUPPLY VENTILATION FOR THE BALANCED SYSTEM.

# APPENDIX F

RADON CONTROL METHODS (ABRIDGED - SEE CODE SECTION FOR FULL DETAILS)

AFIØ32 Subfloor preparation. A layer of gas-permeable material shall be placed under all concrete slabs and other floor systems that directly contact the ground and are within the walls of the living spaces of the building

1. A uniform layer of clean aggregate, a min. of 4 inches thick (see code section for additional info)

AFIØ3.3 Soil-aas-retarder, A minimum 6-mil 34 or 3-mil cross-laminated polyethylene or equivalent flexible sheeting material shall be placed on top of the gas-permeable layer (see code for additional info.)

AFIØ3.4 Entry routes. Potential radon entry routes shall be closed in accordance with Sections AFIØ3.4.1 through AFIØ3.4.10. (See code section for further details) AFIØ3.5 Crawl space mitigation system. In buildings with crawl

space foundations, a system complying with AFI03.5.1 or AFI03.5.2 shall be installed during construction. Exception: Buildings in which an approved mechanical crawl space ventilation system or other equivalent system is installed. AFIØ3.5.1.1 (PASSIVE METHOD) Ventilation. Crawl spaces shall be provided with vents to the exterior of the building The minimum net area of ventilation openings shall comply with Section R408.

AFIØ3.5.1.2 Soil-gas-retarder. The soil in crawl spaces shall

be covered with a continuous layer of minimum 6-mil (0.15 mm) polyethylene soil-gas-retarder as per code section (min 12" lap) AFIØ3.5.1.3 Vent pipe. A plumbing tee or other approved connection shall be inserted horizontally beneath the sheeting and connected to a 3- or 4-inch-diameter (76

mm or 102 mm) fitting with a vertical vent pipe installed

through the sheeting as per code section to min 12"

above roof suface

AFIØ3.5.2 (ACTIVE METHOD) Crawl space ventilation and building tightness. As an alternate method to Passive method. Requires non closable fdn vents, and whole house centilation system (air exchanger (see code section AFIØ3.5.2 for specifications)

AFIØ3.6 Passive subslab depressurization system. AFIØ36.1 Vent pipe. A minimum 3-inch-diameter (76 mm) ABS, PVC or equivalent gas-tight pipe shall be embedded vertically into the sub-slab aggregate (see

AFIØ3.6.2 - AFIØ3.10 see code section for these

requirements AFIØ3.11 Building depressurization. Joints in air ducts and plenums in unconditioned spaces shall meet the requirements of Section MI601. Thermal envelope air infiltration requirements shall comply with the energy conservation provisions in Chapter II. Firestopping shall meet the requirements contained in Section R602.8.

AFIØ3.12 Power source. To provide for future installation of an active sub-membrane or sub-slab depressurization system, an electrical circuit terminated in an approved box shall be installed during construction in the attic or other anticipated location of vent pipe fans. An electrical supply shall also be accessible in anticipated located of sustem failure