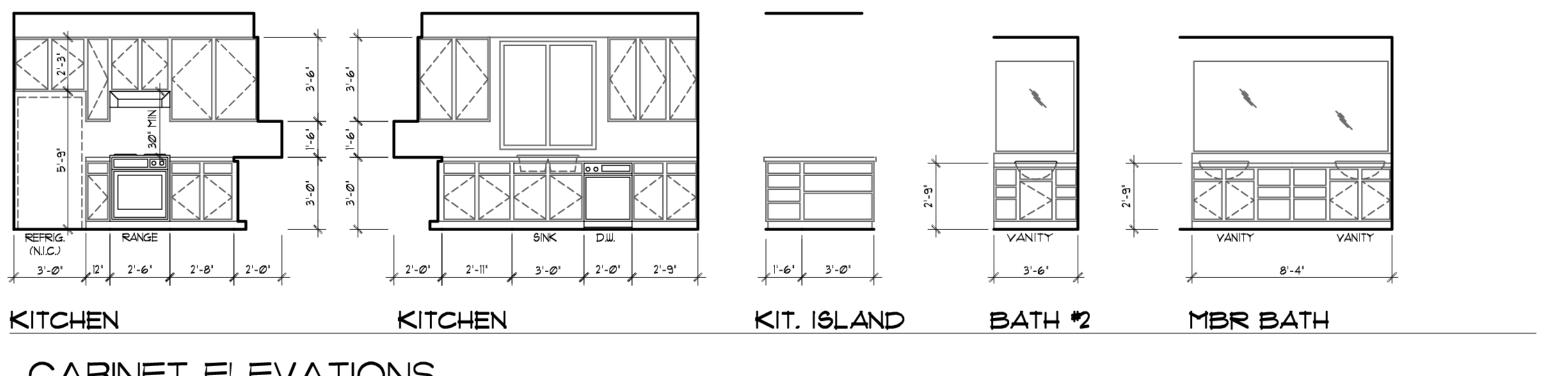


EXTERIOR FINISHES AND WEATHERPROOFING.

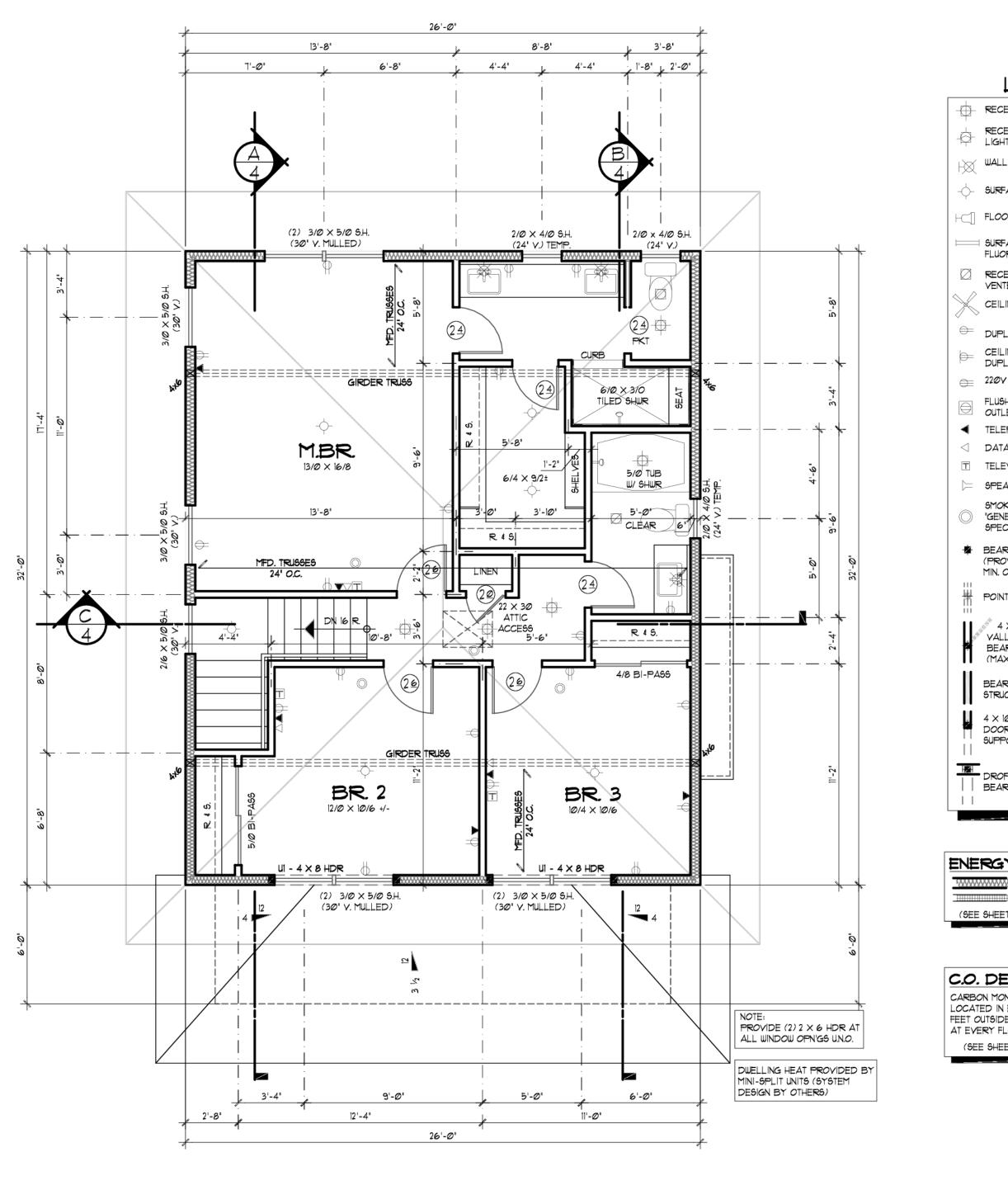
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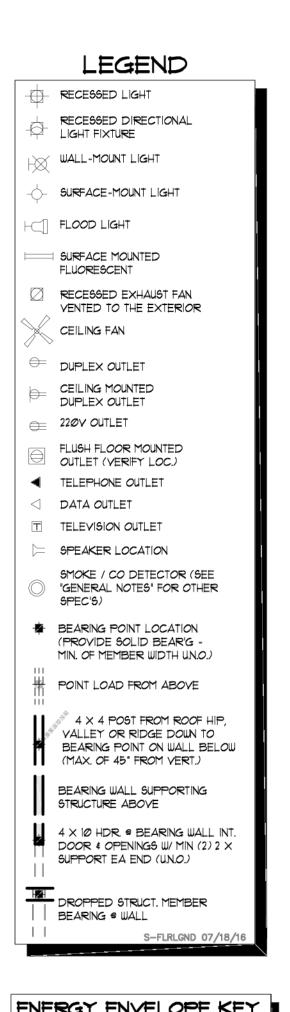
21149CB-1 PROJECT MANAGER:EAS DRAWN 10/15/21 PJB

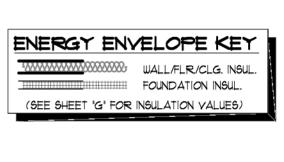
25# SNOW LOAD



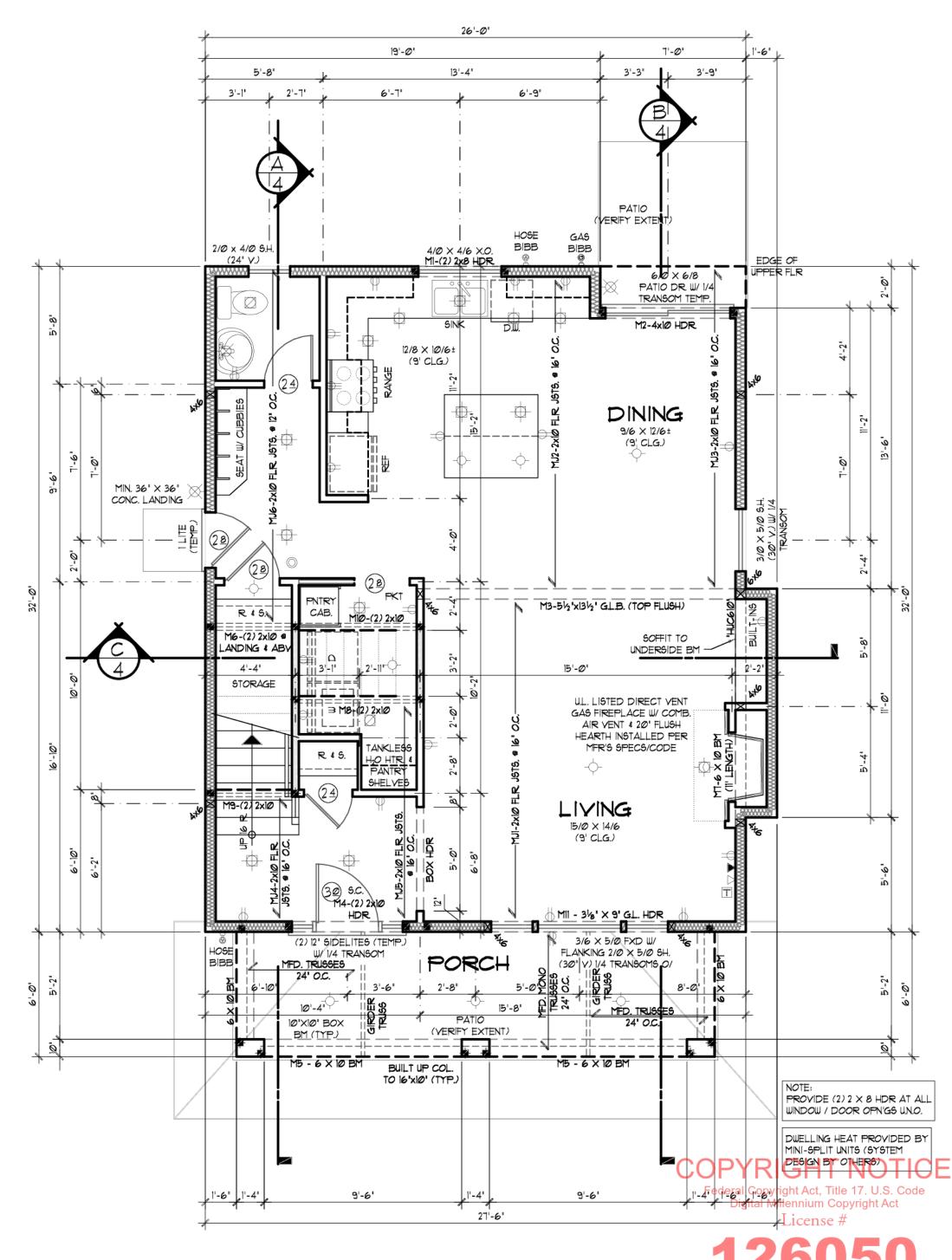
CABINET ELEVATIONS SCALE : 1/4" = 1'-0"







# C.O. DET LOCATION CARBON MONOXIDE ALARMS SHALL BE LOCATED IN EA. BEDROOM OR WITHIN 15 FEET OUTSIDE OF EA. BEDROOM DOOR, AT EVERY FLOOR LEVEL W/ BEDROOMS (SEE SHEET "G" FOR ADD'L INFO)



UPPER FLOOR PLAN

IFLATERAL ENGINEERING IS REQUIRED, REFER TO ENGINEERING SHEETS FOR LATERAL SPECIFICATIONS

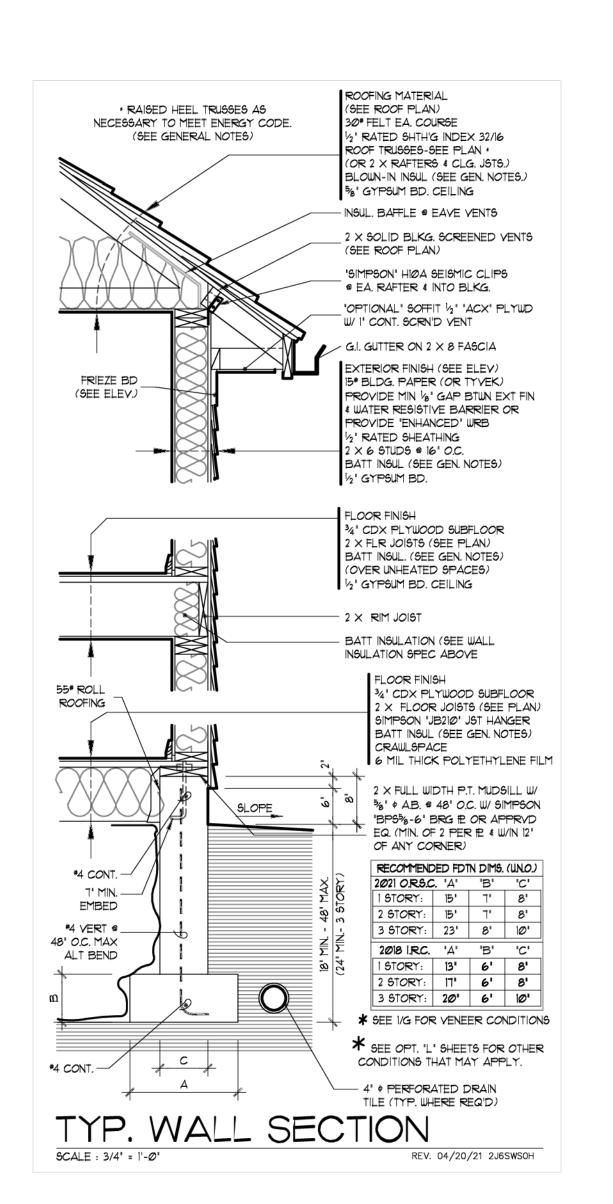
MAIN FLOOR PLAN

IF LATERAL ENGINEERING IS REQUIRED, REFER TO ENGINEERING SHEETS FOR LATERAL SPECIFICATIONS R REMOVAL OF THIS NOTIFICATION IS SUBJECT

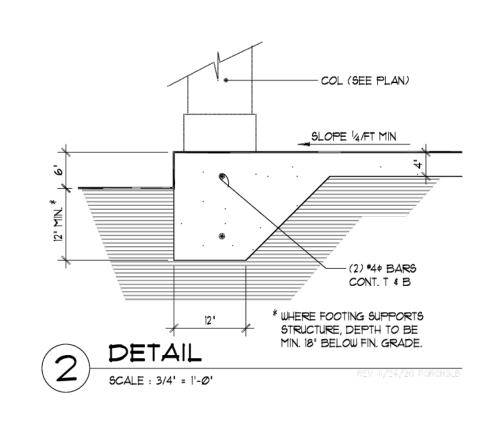
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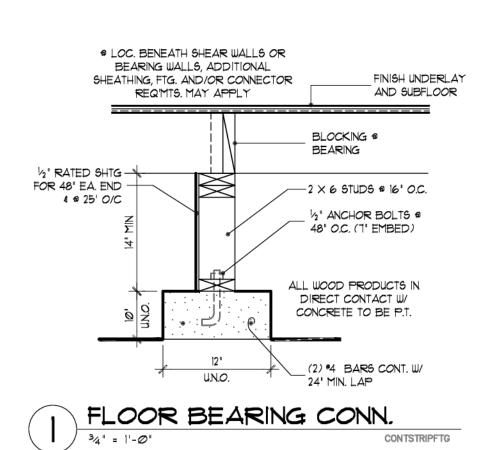
25# SNOW LOAD

21149CB-2 PROJECT MANAGER:EAS DRAWN 10/15/21 PJB

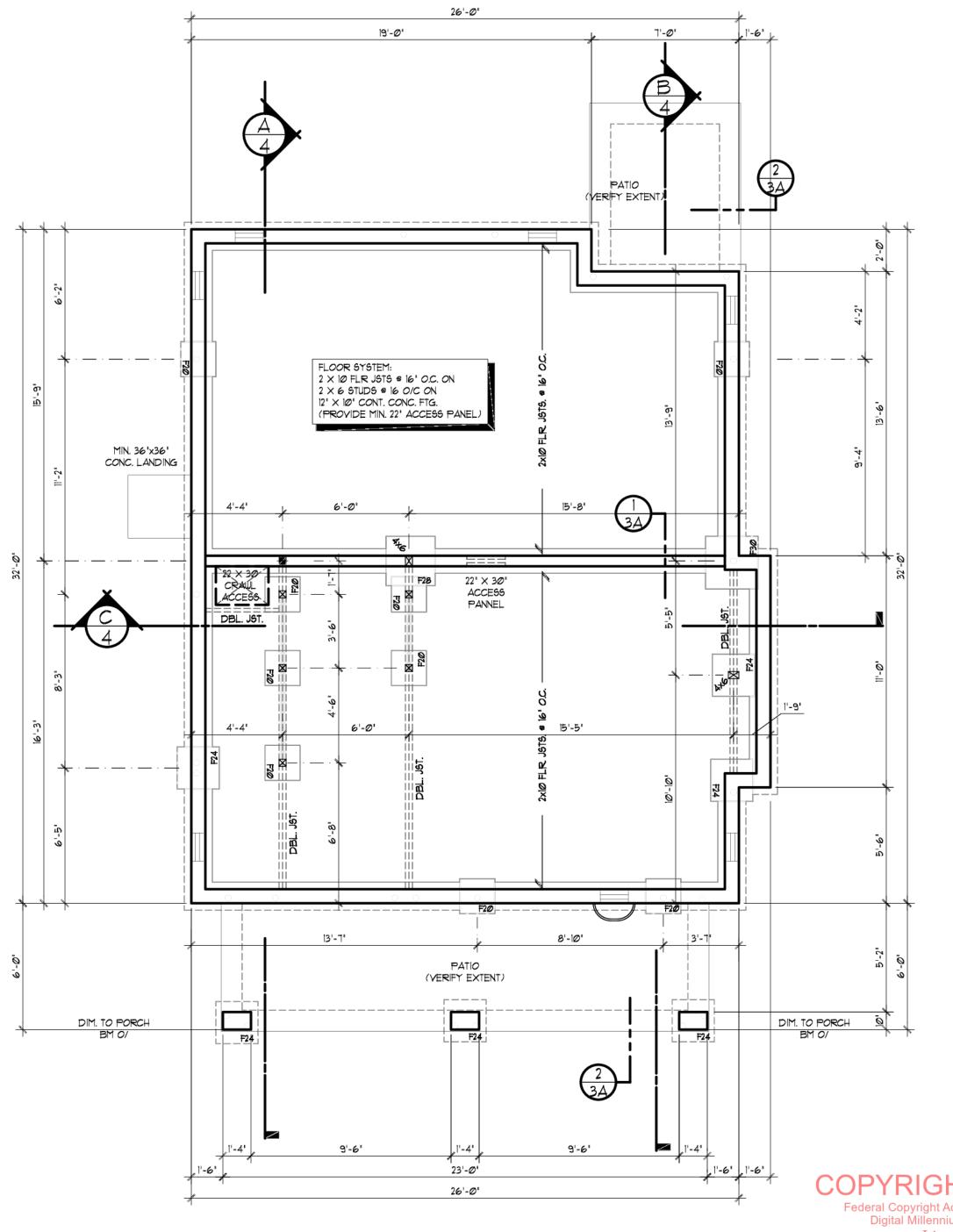


FOUN	DATION VENTI	ILATION CALC	CULATIONS (SEE GEN	ERAL NOTES FOR	ADDITIONAL INFOR	RMATION)
DESCRIPTION	UNDER-FLOOR AREA (FT²)	NET AREA (IN²) PER VENT	QTY OF VENTS REQ'D (WITHOUT CLASS-I VAPOR BARRIER)	QTY. OF VENTS REQ'D (WITH CLASS-1 VAPOR BARRIER)		DEHUMIDIFICATION RATE (PINTS PER DAY)
AMOUNT/QTY	757	45	17	2	15.1	53.Ø
CODE REF.			R408.1 \$ R408.2	R408.1 & R408.2	R4083 & N1102.11	R4Ø8.3.2.4
NOTES			1/150 OF UNDER-FLOOR AREA (NO VAPOR BARRIER REQUIRED)	I/I500 OF UNDER-FLOOR AREA (VAPOR BARRIER PERM RATING ≤ 0.1)	MECHANICAL VENT CAPABLE OF 1.0 CFM PER 50 FT <sup>2</sup> OF UNDER-FLOOR AREA	





TAG	PAD SIZE	REINFORCING	MAX. BRY
-	18" DIA. x 7"	N.A.	2,474 #
F2Ø	20"x20"x10"	N.A.	3,819 #
F24	24"x24"x12"	N.A.	5,400 *
F28	28"x28"x14"	N.A.	T,211 <b>*</b>
F3Ø	30'x30'x15'	N.A.	8,203 *
F36	36'x36'x13'	(5) *4 BARS @ 7" O.C. E/W	12,Ø37 #
F42	* 42'x42'x12'	(5) *4 BARS @ 8" O.C. E/W	16,537 #
F48	** 48'x48'x12'	(6) *4 BARS @ 9" O.C. E/W	21,600 #
F54	*** 54'x54'x12'	(6) *4 BARS @ 9" O.C. E/W	27,337 #
F6Ø	*** 60'x60'x12"	(1) *4 BARS @ 9' O.C. E/W	33,75Ø #
* 6x1 ** 3½ *** 5¼	6 *2 DF. COLUMN FO 'x3½' PSL COLUMN 'x5½' PSL COLUMN	FOR MAX. BR'G (OR 6x6 TO	18,521 *)



FOUNDATION PLAN

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

Federal Copyright Act, Title 17. U.S. Code
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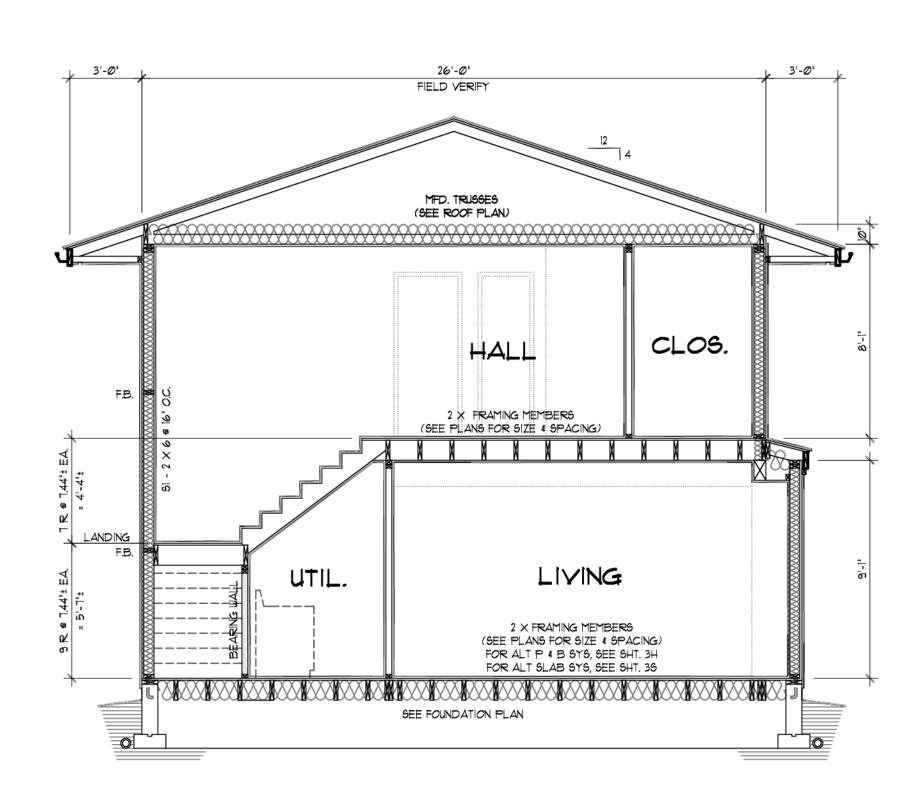
IF LATERAL ENGINEERING IS REQUIRED, REFER TO 26050
ENGINEERING SHEETS FOR LATERAL SPECIFICATIONS

THIS PLAN IS LICENSED FOR THE PURPOSES RELATED.

THIS PLAN IS LICENSED FOR THE PURPOSES RELATED TO THE CONSTRUCTION OF A SINGLE RESIDENCE. THIS LICENSE CANNOT BE TRANSFERRED - UNAUTHORIZED REPRODUCTION OR USAGE OF THESE DOCUMENTS OR REMOVAL OF THIS NOTIFICATION IS SUBJECT TO PROSECUTION

21149CB-3A PROJECT MANAGER:EAS DRAWN 10/15/21 PJB

25# SNOW LOAD

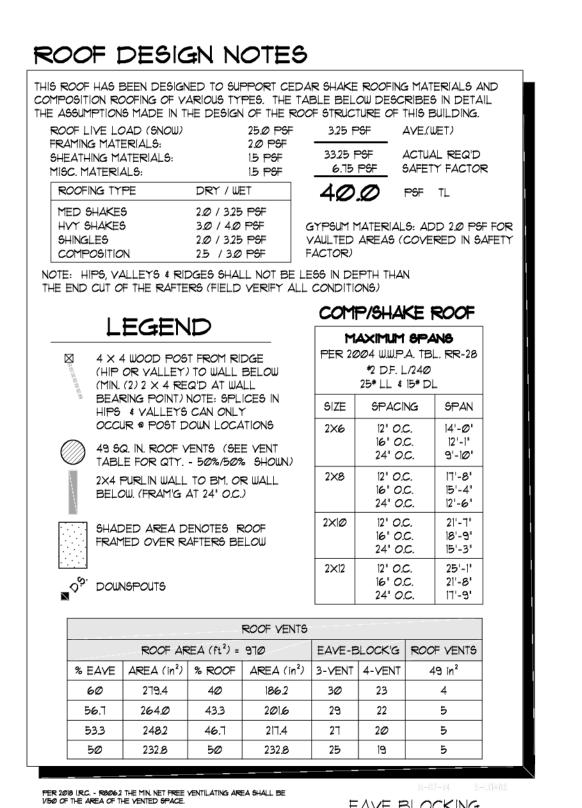


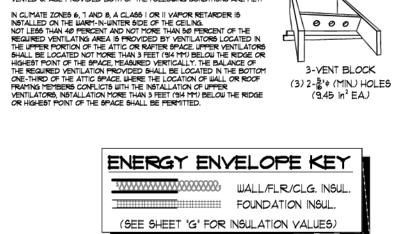
BUILDING SECTION

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

BUILDING SECTION

SCALE: 1/4' = 1'-Ø'





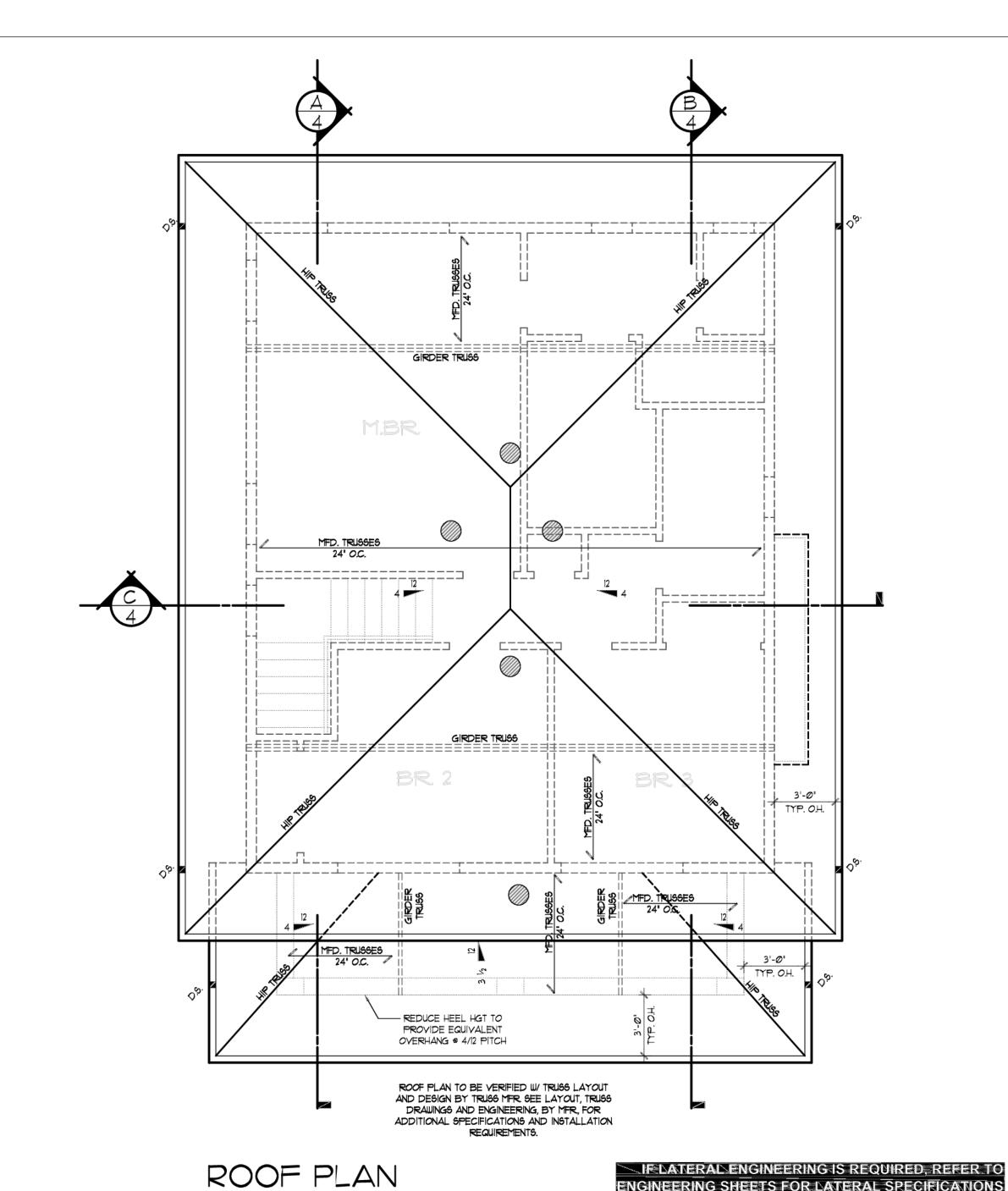
EXCEPTION: THE MIN. NET PREE VENTILATION AREA SHALL BE 1/300 OF THE VENTED SPACE PROVIDED BOTH OF THE FOLLOWING CONDITIONS ARE MET:

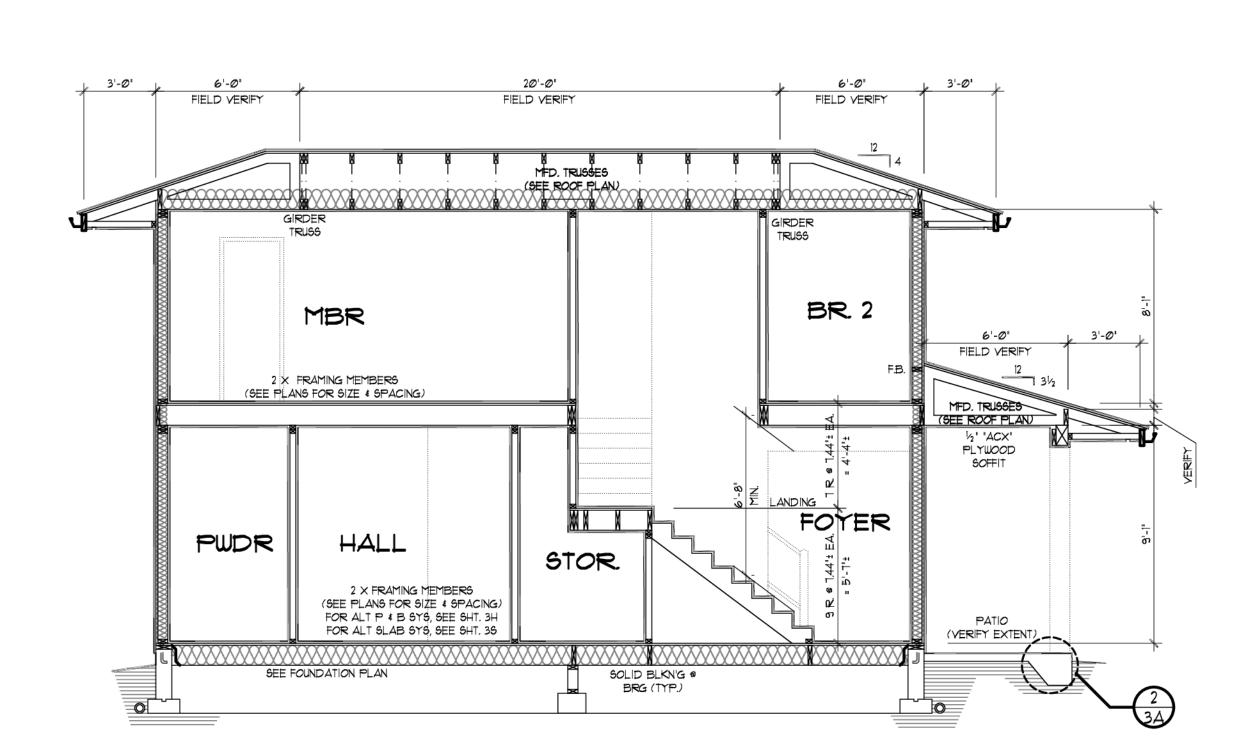
EAVE BLOCKING

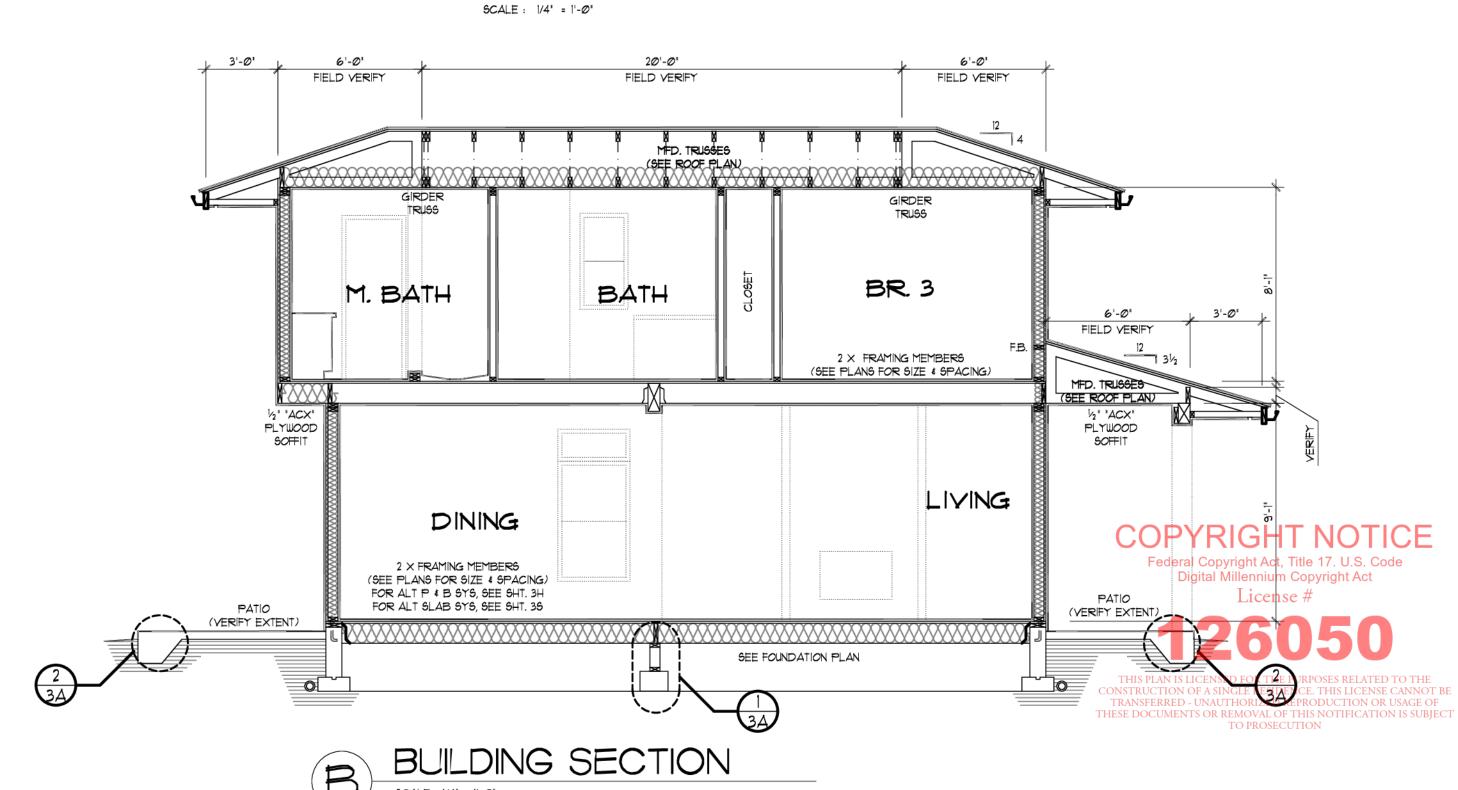
4-VENT BLOCK (4) 2-音ゆ (MIN.) HOLES (12.6 in² E.A.)

3-VENT BLOCK

(3)2-震中(MIN.)HOLES







ENGINEERING SHEETS FOR LATERAL SPECIFICATIONS

21149CB-4S PROJECT MANAGER:EAS

25# SNOW LOAD

THESE PLANS HAVE BEEN LICENSED TO THE CUSTOMER FOR USE IN THE CONSTRUCTION OF ONE BUILDING ONLY AND ARE SUBJECT TO THE CONDITIONS OF LICENSE ACCEPTED BY THE CUSTOMER, (MULTI-USE BUILDING LICENSES ARE AVAILABLE), USE OF ANY PART OF THE PLANS BY ANY PARTY OTHER THAN THE CUSTOMER, EXCEPT ON LOAN BY THE CUSTOMER TO THIRD PARTIES NECESSARY TO ASSIST THE CUSTOMER IN USING THE PLANS, SUCH AS CONTRACTORS AND SUBCONTRACTORS, IS STRICTLY PROHIBITED. THE PLANS MAY NOT BE RE-USED OR COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION FROM ALAN MASCORD DESIGN ASSOCIATES, INC. ('MASCORD'), WHICH RETAINS COPYRIGHTS TO, & OWNERSHIP OF THE PLANS.

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## GENERAL NOTES:

1. ALL WORK IS TO COMPLY WITH THE LATEST ADOPTED VERSION OF THE 2018 INTERNATIONAL RESIDENTIAL CODE (I.R.C.) AND/OR ANY APPLICABLE STATE, COUNTY OR LOCAL JURISDICTION.

2. 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. OWNER/CONTRACTOR SHALL VERIFY WITH LOCAL BLDG. DEPT. WHICH CLIMATE ZONE THE PROJECT WILL BE BUILT IN.

3. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE THE DRAWINGS.

4. DESIGN LOADS:

30L		
UNINHAB. ATTIC W/O STORAGE	10	10
UNINHAB. ATTIC W/ LIMITED STORAGE	20	10
HABITABLE ATTICS & ATTICS SERVED BY STAIR	3Ø	10
BALCONIES (EXTERIOR) & DECKS	40	10
GUARD RAILS & HAND RAILS	200	-
GUARD RAIL IN-FILL COMPONENTS	50	-
PASSENGER VEHICLE GARAGE (3,000* POINT)	50	VARIES
ROOMS OTHER THAN SLEEPING ROOMS	40	10
SLEEPING ROOMS	3Ø	10
STAIRS	40	10
		TDI 4

(IF YOUR LOCAL AREA REQUIRES DIFFERENT DESIGN LOADS CONSULT WITH A LOCAL QUALIFIED PROFESSIONAL TO DETERMINE THE APPROPRIATE REVISIONS.)

5. INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENTS:

								I Fam CI
CLIMATE ZONE	1	2	3	4 Except Marine	5 And Marine 4	6	7 and 8	For SI:   1 foot = 3048 mm
FENESTRATION U-FACTOR 6	NR	0.40	Ø.32	Ø.32	030	0.30	0.30	UP TO 15 ft² GLAZED
SKYLIGHT U-FACTOR b	Ø.75	0.65	0.55	Ø.55	Ø.55	Ø.55	Ø.55	FENESTRATION & (1) SIDE HINGED SOLID DR UP TO
GLAZED FENESTRATION SHGC b, e	Ø25	Ø25	Ø.25	0.40	NR	NR	NR	24 ft <sup>2</sup> IS PERMITTED TO EXEMPTED FROM THE U-FACTOR SHGC REQIME
CLG R-VALUE j	30	38	38	49	49	49	49	TABLE R402.1.1
WOOD FRAME WALL R-VALUE	13	13	20 or 13+5 h	20 or 13+5 h	20 or 13+5 h	20+5 or 13+10 h	20+5 or 13+10 h	AREA WEIGHTED AVERAGE
MASS WALL R-VALUE	3/4	4/6	8/13	8/13	13/17	15/20	19/21	OF FENESTRATION PRODUCTS SHALL BE
FLOOR R-VALUE	13	13	19	19	3Ø g	3Ø g	38 <sup>g</sup>	PERMITTED TO SATISFY THE U-FACTOR REQ'MTS
BASEMENT WALL R-VALUE c	ø	Ø	5/13 <sup>f</sup>	10/13	15/19	15/19	15/19	SUPPLY DUCTS IN ATTICS
SLAB R-VALUE AND DEPTH d	0	Ø	0	10, 2 ft	10, 2 ft	10, 4ft	10, 4ft	SHALL BE INSULATED TO MIN. OF R-8. ALL OTHER
CRAWL SPACE WALL R-VALUE c	Ø	Ø	5/13	10/13	15/19	15/19	15/19	DUCTS SHALL BE INSULATED TO MIN. R-6
	•	•			•		TBL-2	•

- a. R-values are minimums. U-factors and SHGC are maximums. When insul. in installed in a cavity which is less than the label or design thickness of the insul., the installed R-value of the insul. shall not be less than the R-value specified in the table.
- b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration. Exception: Skylights may be excluded from glazed fenestration SHGC regimts, in Climate Zones 1 thru 3 where the SHGC for such skylights does not exceed 0.30.

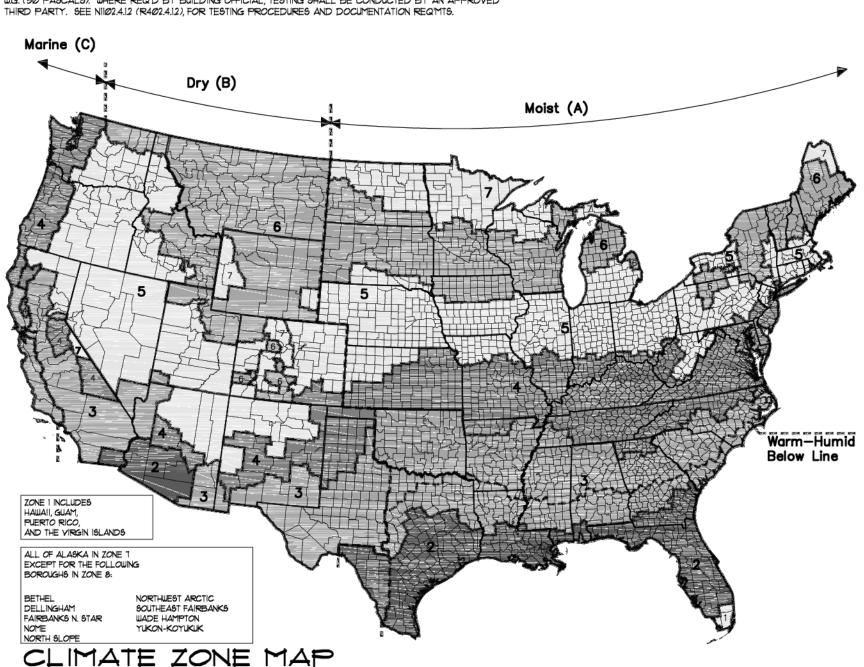
c. "15/19" means R-15 cont. insul. on the int. or ext. of the home or R-19 cavity insul. at the int. of

- the bsmt. wall. "15/19" shall be permitted to be met w/R-13 cavity insul. on the int. of the bsmt. wall plus R-5 cont. insul. on the int. or ext. of the home. "10/13" means R-10 cont. insul. on the int. or ext. of the home, or R-13 cavity insul. @ the int. of the bemt. wall.
- d. R-5 shall be added to the required slab edge R-values for heated slabs. Insulation depth shall be the depth of the ftg. or 2'-0', whichever is less in Zones 1 thru 3 for heated slabs. There are no SHGC requirements in the Marine Zone.
- Basement wall insul is not regid in warm-humid locations. (see climate map)
- Or insulation sufficient to fill the framing cavity, R-19 min. First value is cavity insul., second is cont. insul. or insulated siding, so "13+5" means R-13 cavity insul. plus R-5 cont. insul. or insulated siding. If struct, sheathing covers 40% or less of the ext., cont. insul R-value shall be permitted to be reduced by no more than R-3 in locations where struct, sheathing is used - to maintain a consistent total sheathing thickness
- The second R-value applies when more than half the insul. is on the interior of the mass wall. Under prescriptive building thermal envelope, R-30 shall be deemed to satisfy the regimt for R-38 wherever the full height of uncompressed R-30 insul, extends over the wall top plate at the eaves. Similarly, R-38 satisfies the regimt for R-49. In limited areas (500 sq. ft. or 20% of total insul. clg area, whichever is less) roof/clg assembly thermal envelope regimt. may be reduced to R-30.

AIR BARRIER: CONT. AIR BARRIER SHALL BE INSTALLED IN THE BDLG. ENVELOPE. BREAKS/JOINTS IN THE AIR BARRIER SHALL BE SEALED. AIR PERMEABLE INSUL. SHALL NOT BE USED AS A SEALING MATERIAL. INSUL. SHALL BE INSTALLED PER MANUF, GUIDELINES,

#### INFILTRATION: THE SEALING METHODS BETWEEN DISSIMILAR MATERIALS SHALL ALLOW FOR DIFFERENTIAL EXPANSION AND CONTRACTION. THE FOLLOWING SHALL BE CAULKED, GASKETED, WEATHERSTRIPPED OR OTHERWISE SEALED WITH AN AIR BARRIER MATERIAL, SUITABLE FILM OR SOLID MATERIAL

TESTING: DUELLING SHALL BE TESTED TO VERIFY LEAKAGE RATE DOES NOT EXCEED 5 AIR CHANGES PER HOUR IN ZONES 1 4 2, AND 3 AIR CHANGES PER HOUR IN ZONES 3-8 BY BLOWER DR. TEST AT A PRESSURE OF Ø2 IN W.G. (50 PASCALS). WHERE REQ'D BY BUILDING OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED



#### SPACE BETWEEN WINDOWS/DOOR JAMBS & FRAMING AND SKYLIGHTS & FRAMING. DUCT9, SHAFT9, UTILITY PENETRATIONS & FLUE SHAFT9 OPENING TO EXT. OR UNCONDITIONED SPACE. JUNCTIONS OF FOUNDATION & SILL PLATE & JUNCTION OF THE TOP PLATE & TOP OF EXT. WALLS. HVAC REGISTER BOOTS THAT PENETRATE BLDG. THERMAL ENVELOPE (SEAL TO SUBFLOOR/DRYWALL).

- RECESSED LIGHT FIXTURES INSTALLED IN THE BLDG. THERMAL ENVELOPE SHALL BE AIR TIGHT, IC-RATED (SEALED TO THE DRYWALL). BETWEEN GARAGE AND CONDITIONED SPACES.
- AIR BARRIER TO BE INSTALLED ON FIREPLACE WALLS FIREPLACE TO HAVE GASKETED DOORS. OPENINGS AT PENETRATIONS OF UTILITY SERVICES THROUGH THE ROOF, WALLS, AND FLOORS BUILDING ASSEMBLIES USED AS DUCTS OR PLENUMS JOINTS, SEAMS, AND PENETRATIONS OF VAPOR RETARDERS ALL OTHER OPENINGS IN THE BUILDING ENVELOPE

CAVITIES IN WALL CORNERS & HDRS. TO BE FULLY INSULATED TO R3/in & SHALL BE SEALED. FLOORS, INCLUDING ABOVE GARAGE AND CANTILEVERED FLOORS - INSUL. SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT W/UNDERSIDE OF SUBFLOOR DECKING. (EXCEPTIONS PER NII0228) THE AIR BARRIER SHALL BE INSTALLED AT ANY EXPOSED EDGE OF INSUL. RIM JOIST SHALL BE INSULATED \$ INCLUDE AIR BARRIER. KNEE WALLS SHALL

CEILING/ATTIC - AIR BARRIER & DROPPED CEILING/SOFFIT SHALL BE ALIGNED W/ THE INSUL, AND ANY GAPS IN AIR BARRIER SEALED. ACCESS OPENINGS, DROP-DOWN STAIR, ETC. INTO UNCONDITIONED ATTIC SPACE SHALL BE SEALED, BATT INSUL. INSTALLED IN ATTIC ROOF ASSEMBLIES MAY BE COMPRESSED . EXT. WALL LINES TO ALLOW FOR REQ'D ATTIC VENTIL ATION

WHERE PROVIDED & CRAWLSPACE, IN LIEU OF FLOOR INSUL., INSUL. SHALL BE PERMANENTLY ATTACHED TO THE CRAWLSPACE WALLS. EXPOSED EARTH IN UNVENTED EARTH SHALL BE COVERED WITH A CLASS-I VAPOR RETARDER W/ OVERLAPPING JOINTS TAPED.

BATT INSUL. SHALL BE OUT NEATLY TO FIT AROUND WIRING & PLUMBING IN EXT. WALLS WITHOUT YOIDS/GAPS, AIR BARRIER SHALL EXTEND BEHIND ELECTRICAL/COMMUNICATION BOXES OR INSTALL AIR SEALED BOXES. EXT. WALLS ADJACENT TO TUBS/SHOWERS TO BE INSULATED AND AIR BARRIER SHALL SEPARATE THE INSULATED

WALL FROM THE SHOWER/TUB. AT LEAST ONE THERMOSTAT SHALL BE PROVIDED FOR EA. SEPARATE HEATING AND COOLING SYSTEM. WITH FORCED AIR HEATING, AT LEAST ONE THERMOSTAT SHALL BE DAILY PROGRAMMABLE

DUCTS, AIR HANDLERS & FILTER BOXES SHALL BE SEALED (NIIØ332) JOINTS \$ SEAMS SHALL COMPLY W/ IMC OR MIGØLÅ, EXCEPTIONS ALLOWED FOR AIR- IMPERMEABLE SPRAY FOAM PRODUCTS (EXCEPTION 1) OR DUCTS MEETING SPECIFIC PRESSURE + JOINT REQIMTS (EXCEPTION 2), DUCTS SHALL BE PRESSURE TESTED PER NII03.3.3 (MANDATORY) BY EITHER ROUGH-IN TEST OR POST CONSTRUCTION TEST AS DESCRIBED IN CODE, UNLESS DUCTS 4 AIR HANDLERS ARE LOCATED ENTIRELY WITHIN THERMAL BLDG. ENVELOPE. A WRITTEN TEST REPORT, SIGNED BY THE TESTER, SHALL BE PROVIDED TO THE BUILDING OFFICIAL. TOTAL DUCT LEAKAGE SHALL MEET PRESCRIPTIVE) REQIMTS OF NII03.3.4.1 ROUGH-IN TEST, OR NII03.3.4.2 POST CONSTRUCTION TEST.

6. ALL EXPOSED INSUL. TO HAVE A FLAME SPREAD RATING NOT TO EXCEED 25. SMOKE-DEVELOPED INDEX NOT TO EXCEED 450, WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 123, AND WHERE INSTALLED ON ATTIC FLOORS, ALL HAVE A CRITICAL RADIANT FLUX NOT LESS THAN Ø.12 WATTS PER cm² PER ASTM E 790.

I. INSULATE ALL ACCESS DOOR/HATCHES TO CRAIULSPACES AND ATTICS TO THE EQUIV. RATING OF THE WALL FLOOR, OR CEILING THROUGH WHICH THEY PENETRATE, EXCEPTION: VERTICAL ACCESS DOORS TO UNCONDITIONED SPACE SHALL BE PERMITTED TO MEET THE WALL R-VALUE A MIN. OF 90% OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH EFFICACY LAMPS.

8. ALL WINDOWS WITHIN 24" OF ANY DOOR (REGARDLESS OF WALL PLANE), AND WHOSE BOTTOM EDGE IS LESS THAN 60" ABOVE FLOOR OR WALKING SURFACE SHALL HAVE TEMPERED GLAZING.

9. SKYLIGHTS ARE ASSUMED TO BE PRE-MFR UNIT SKYLIGHTS, UNIT SKYLIGHTS SHALL COMPLY WITH THE

IØ. A PERMANENT CERTIFICATE SHALL BE COMPLETED AND POSTED ON OR IN THE ELEC. DIST. PANEL LISTING THE PREDOMINANT R-VALUES OF INSUL. INSTALLED IN OR ON CLG/ROOF, WALLS, FOTN. (SLAB, BSMT WALL, CRAIULSPACE WALL AND / OR FLOOR) AND DUCTS OUTSIDE COND. SPACES. - FENESTRATION U-FACTORS/SHGC AND REGULTS FROM ANY REQ'D. ENVELOPE AIR LEAKAGE TESTING, ALONG WITH TYPES AND EFFICIENCIES OF HEATING, COOLING AND SERVICE WATER HEATING EQUIP. PER NII01.14 (R4013)

II. ALL EXTERIOR WINDOWS ARE TO BE DOUBLE GLAZED AND ALL EXTERIOR DOORS ARE TO BE SOLID CORE WITH WEATHER-STRIPPING. PROVIDE 1/2" IN. DEAD BOLT LOCKS ON ALL EXTERIOR DOORS, AND LOCKING DEVICES ON ALL DOORS AND WINDOWS WITHIN 10 FT. (VERTICAL) OF GRADE. PROVIDE PEEPHOLE 54" - 66 ABOVE FIN. FLOOR ON EXTERIOR ENTRY DOORS. OPERABLE WINDOWS LOCATED MORE THAN 12" ABOVE FINISHED GRADE OR SURFACE SHALL HAVE LOWEST PART OF CLEAR OPENING A MIN OF 24' ABOVE FINISHED FLOOR. GLAZING BETWEEN FIN FLOOR AND 24" SHALL BE FIXED OR HAVE OPENINGS THROUGH WHICH A 4" DIA. SPHERE CANNOT PASS OR CODE APPROVED WINDOW GUARD. (COMPLIANT W/ ASTM F2090).

IT OF 12. DOORS BETWEEN GARAGE AND RESIDENCE SHALL BE SOLID WOOD NOT LESS THAN 1-3/8" THICKNESS OR 20 1INUTE RATED FIRE-RATED, AND TO BE EQUIPPED WITH A SELF-CLOSING DEVICE

13. GLAZING IN DOORS AND ENCLOSURES FOR HOT TUBS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS & SHOWERS, AND IN ANY PART OF A BUILDING WALL ENCLOSING THESE COMPARTMENTS, WHERE BOTTOM EDGE OF GLAZING IS LESS THAN 60" MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE, TO BE

14. BASEMENTS, EVERY SLEEPING ROOM AND HABITABLE ATTICS TO HAVE MIN. WINDOW OPENING OF 5.7 SQ. FT. WITH A MIN. WIDTH OF 20' AND A SILL HGT. NOT MORE THAN 44' ABOVE FIN. FLOOR.

15. SMOKE DETECTORS SHALL BE INSTALLED IN EA. SLEEPING ROOM, OUTSIDE THE IMMEDIATE VICINITY OF EA. SLEEPING AREA AND ON EA. STORY OF THE DWELLING. CARBON MONOXIDE ALARMS SHALL BE LOCATED IN EA. BEDROOM OR W/IN 15 FEET OUTSIDE OF EA. BEDROOM DR. BEDROOMS ON SEPARATE FLR LEVELS IN A STRUCTURE OF TWO OR MORE STORIES SHALL HAVE SEPARATE CARBON MONOXIDE ALARMS SERVING EA. STORY. ALL SMOKE DETECTORS AND/OR COMBINATION SMOKE/CARBON MONOXIDE ALARMS SHALL BE INTERCONNECTED SUCH THAT THE ACTUATION OF ONE ALARM WILL ACTUATE ALL THE ALARMS AND WILL BE AUDIBLE IN ALL SLEEPING AREAS OVER BACKGROUND NOISE LEVELS WITH ALL INTERVENING DOORS CLOSED. SINGLE STATION CARBON MONOXIDE ALARMS THAT ARE HARD WIRED SHALL BE EQUIPPED W/ BATTERY

16. ELECTRICAL RECEPTACLES IN BATHROOMS, KITCHENS, EXTERIOR LOCATIONS AND GARAGES SHALL BE G.F.I. OR G.F.I.C. PER NATIONAL ELECTRICAL CODE (N.E.C.) REQUIREMENTS.

17. INTERIOR & EXTERIOR STAIRS SHALL HAVE A MEANS TO ILLUMINATE THE STAIRS, INCLUDING LANDINGS & READS. INTERIOR STAIRS OF 6 STEPS OR MORE SHALL HAVE THE REQUIRED LIGHTING IN THE IMMEDIATE VICINITY OF THE TOP & BOTTOM OF THE STAIRS. EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED IN THE IMMEDIATE VICINITY OF THE TOP LANDING OF STAIR EXTERIOR STAIRS LEADING FROM GRADE TO BASEMENT SHALL HAVE AN ARTIFICIAL LIGHT SOURCE IN THE IMMEDIATE VICINITY OF THE BOTTOM LANDING OF STAIRS. LIGHTING FOR INTERIOR STAIRS SHALL BE CONTROLLED FROM

TOP & BOTTOM OF EA. STAIR. SEE I.R.C. 303.7 18. PROVIDE COMBUSTION AIR VENTS (W/ SCREEN AND BACK DAMPER) FOR FIREPLACES, WOOD STOVES, AND ANY APPLIANCES WITH AN OPEN FLAME. FIREPLACE FLUE DAMPERS SHALL BE TIGHTLY FITTING AND OPERATED BY A READILY ACCESSIBLE MANUAL OR APPROVED AUTOMATIC CONTROL

19. LOCAL EXHAUST: BATHROOMS-TOILET ROOMS, UTILITY ROOMS 4 INDOOR SWIMMING POOLS 4 SPAS ARE TO BE VENTED WITH A FAN CAPABLE OF PRODUCING À MIN. 50 CFM INTERMITTENT OR 20 CFM CONT. AND KITCHENS CAPABLE OF 100 CFM INTERMITTENT OR 25 CFM CONT., DUCT LENGTH, DIA., 4 TYPE TO BE DETERMINED PER TABLE MISONS ALL EXHAUST VENTS TO BE VENTED TO EXTERIOR. WHERE IT EXCEEDS 35', THE EQUIVALENT LENGTH OF THE DRYER EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG LOCATED WITHIN 6 FEET OF THE EXHAUST DUCT CONNECTION.

20. WHOLE HOUSE MECHANICAL VENTILATION: SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY OR EXHAUST FANS, OR A COMBINATION OF SUCH, AND ASSOCIATED DUCTS AND CONTROLS. LOCAL EXHAUST OR SUPPLY FANS ARE PERMITTED TO SERVE AS SUCH A SYSTEM, OUTDOOR AIR DUCTS CONNECTED TO THE RETURN SIDE OF A AIR HANDLER SHALL BE CONSIDERED TO PROVIDE SUPPLY VENTILATION. SYSTEM SHALL BE PROVIDED WITH MANUAL OVERRIDE CONTROLS. (MECH.-HVAC CONTRACTOR TO SIZE VENTILATION SYSTEM IN ACCORDANCE WITH SECTION MISØ13, REGARDING AREA SERVED AND SYSTEM TYPE.)

21. SPECIFIC MANUFACTURES AND MATERIALS DEPICTED ON THESE PLANS ARE AN INDICATION OF QUALITY AND STRENGTH. VERIFY ALL CONSTRUCTION MATERIAL SUBSTITUTIONS WITH CURRENT APPLICABLE BUILDING CODES AND LOCAL BUILDING OFFICIALS PRIOR TO INSTALLATION / SUBSTITUTION.

ANY SPECIFIC LATERAL DESIGN REQUIREMENTS.

22. THIS DESIGN, UNLESS PURCHASED WITH ITS SPECIFIC ENGINEERED ANALYSIS, HAS NOT BEEN REVIEWED FOR

# FOUNDATION NOTES:

I. FOOTINGS ARE TO BEAR ON UNDISTURBED LEVEL SOIL DEVOID OF ANY ORGANIC MATERIAL AND STEPPED AS REQUIRED TO MAINTAIN THE REQUIRED DEPTH BELOW THE FINAL GRADE. 2. CONTINUOUS FOOTINGS ARE DESIGNED PER 2018 IRC TABLE R403.(1) - SOIL BEARING VALUE OF 1500 PSF, 30° SNOW LOAD, LIGHT FRAME CONSTRUCTION BASED ON 32' WIDE HOUSE WITH CENTER BEARING WALL.

3. MAX. SLOPE OF CUTS AND FILLS TO BE TWO (2) HORIZ. TO ONE (1) VERT. FOR BLDG, STRUCTURES, AND FDTNS. 4. ANY FILL UNDER GRADE SUPPORTED SLABS TO BE A MIN. OF 4' IN. GRANULAR MAT. COMPACTED TO 95%. 5. CONCRETE: - MIX AND 28 DAY STRENGTH OF CONCRETE.

iii. Tiir Filb 10 Pri Tii Cii Cii Cii Cii	1101 1212		
BASEMENT WALLS & FOUNDATIONS XPOSED TO WEATHER:	NOT	2,500 PSI	MORTAR & GROU TO BE MIXED P
BASEMENT & INTERIOR LABS ON GRADE:		2,500 PSI	MFR REQ'MTS
BASEMENT WALLS & FOUNDATIONS XPOSED TO THE WEATHER:, AND ARAGE SLABS		3,000 PSI	
PORCHES, STEPS, & CARPORT LABS EXPOSED TO WEATHER:		3,500 PSI	
·		TBL-3	-

#### 6. GARAGE FLOORS TO SLOPE 1/8"/FT MIN. TOWARDS OPENING AS REQUIRED FOR DRAINAGE. CONCRETE SLABS TO HAVE CONTROL JOINTS AT 25' FT. (MAX.) INTERVALS EA. WAY. SLABS ARE TO BE 5-7% AIR

1. CONCRETE SIDEWALKS TO HAVE 3/4" IN. TOOLED JOINTS AT 5" FT. (MIN.) O.C.

- 8. REINFORCING STEEL TO BE A-615 GRADE 60. OPTIONAL WELDED WIRE MESH TO BE A-185.
- 9. EXCAYATE SITE TO PROVIDE A MIN. OF 18" CLEARANCE UNDER ALL GIRDERS 10. COVER ENTIRE CRAWL SPACE WITH CLASS I VAPOR RETARDER (e.g. 6 MIL POLYETHYLENE FILM). \$ INSTALL A RADON VENT BETWEEN GROUND COVER AND SOIL (PER IRC APPENDIX F,- SEE SHEET R), AS

REQ'D WHERE VENT AREA IS LESS THAN 1/150 OF CRAWLSPACE AREA OR OPERABLE LOUVERS ARE INSTALLED AT CRAWLSPACE VENTS. PROVIDE A MIN. OF 1 SQ. FT. OF VENTILATION AREA FOR EACH 1500 SQ. FT. OF CRAWL SPACE AREA.

LOCATE VENTS TO PROVIDE CROSS VENTILATION OF THE SPACE. IF CLASS I VAPOR RETARDER <u>NOT</u> USED, PROVIDE I SQ. FT. OF VENTILATION AREA FOR EA. 150 SQ. FT. OF CRAWL SPACE AREA, AND VENTS TO BE EVENLY SPACED TO PROVIDE CROSS VENTILATION EXCEPT ONE SIDE OF BUILDING MAY HAVE NO VENT OPENING. VENTS ARE TO BE COVERED WITH 1/8" IN MESH CORROSION RESISTANT SCREEN, OR APPROVED ALTERNATE PER R4082. VENTS SHALL BE LOCATED WITHIN 3 FEET OF EACH BUILDING CORNER.

13. BEAM POCKETS IN CONCRETE TO HAVE 1/2" IN. AIRSPACE AT SIDES AND ENDS WITH A MIN. BEARING OF

12. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED OR PROTECTED WITH 55\* ROLL

14. WATERPROOF BASEMENT WALLS BEFORE BACKFILLING. PROVIDING A 4' IN. DIA. PERFORATED DRAIN TILE BELOW THE TOP OF THE FOOTING (SEE BUILDING SECTIONS).

15. PROVIDE MIN. 18"  $\times$  24" CRAWLSPACE ACCESS THROUGH FLOOR OR MIN. 16"  $\times$  24" CRAWLSPACE

# FRAMING NOTES:

**ROOFING** 

ALL EXTERIOR WALL OPENINGS & BEARING WALL OPENINGS TO HAVE 4 X 10 HEADERS UNLESS OTHERWISE INDICATED. IF BUILDING BUILT WITH 88% IN. STUDS USE 4  $\times$  8 HEADERS UNLESS OTHERWISE NOTED ON THE PLAN.

2. ALL EXTERIOR WALLS TO BE BUILT OF 2 X 6 STUDS # 16' O.C. TYPICALLY UNLESS NOTED OTHERWISE. ALL INTERIOR WALLS ARE TO BE BUILT OF 2 X 4 STUDS @ 16" O.C. TYPICALLY INLESS NOTED OTHERWISE. ALL INTERIOR WALLS SUPPORTING TWO OR MORE FLOORS AND 1 OR MORE ROOF/CEILING ASSEMBLIES SHALL BE 2 imes 6 STUDS @ 16" O.C. FOUNDATION CRIPPLE WALLS SHALL BE FRAMED OF STUDS NOT LESS IN SIZE THAN THE STUDDING ABOVE. WHEN EXCEEDING 4'-0' IN HEIGHT, SUCH WALLS SHALL BE FRAMED OF STUDS HAVING THE SIZE REQUIRED FOR AN ADDITIONAL STORY UNLESS SPECIFIED OTHERWISE.

3. ALL METAL CONNECTORS TO BE "SIMPSON" OR EQUIVALENT. U.N.O. JOISTS HUNG ON FLUSH BEAMS TO BE ATTACHED WITH U210 OR EQUIVALENT. MULTIPLE JOISTS USE U210-2/U210-3 AS REQUIRED. USE OF 10d X 1-1/2" NAILS ARE ALLOWED WITH THESE TYPE OF HANGERS UNLESS NOTED ON THE PLANS. SEE NAIL CONVERSION CHART FROM CONNECTOR MANUFACTURES. CATALOG FOR OTHER NOTES AND RESTRICTIONS THAT MAY APPLY. "USP" CONNECTORS CONSIDERED APPROVED EQUAL.

4. PROVIDE DOUBLE JOISTS UNDER ALL WALLS ABOVE, RUNNING PARALLEL TO JOISTS AND SOLID BLOCKING BELOW ALL BEARING WALLS RUNNING PERPENDICULAR TO FLOOR JOISTS. 5. PROVIDE POSITIVE VENTILATION AT EACH END OF EACH RAFTER SPACE AT VAULTED CLG AREAS, AND INSULATION BAFFLES AT EAVE VENTS BETWEEN RAFTERS. RAFTER VENTILATION IS ALSO REQUIRED AT BLOCKING LOCATIONS ABOVE THE PLATE.

6. PROVIDE FIRE BLOCKING PER 2018 I.R.C. R302.11 \$ DRAFT STOPS PER 2018 I.R.C. R302.12

1. HIPS, VALLEY'S AND RIDGES SHALL NOT BE LESS IN DEPTH THAN THE END CUT OF THE

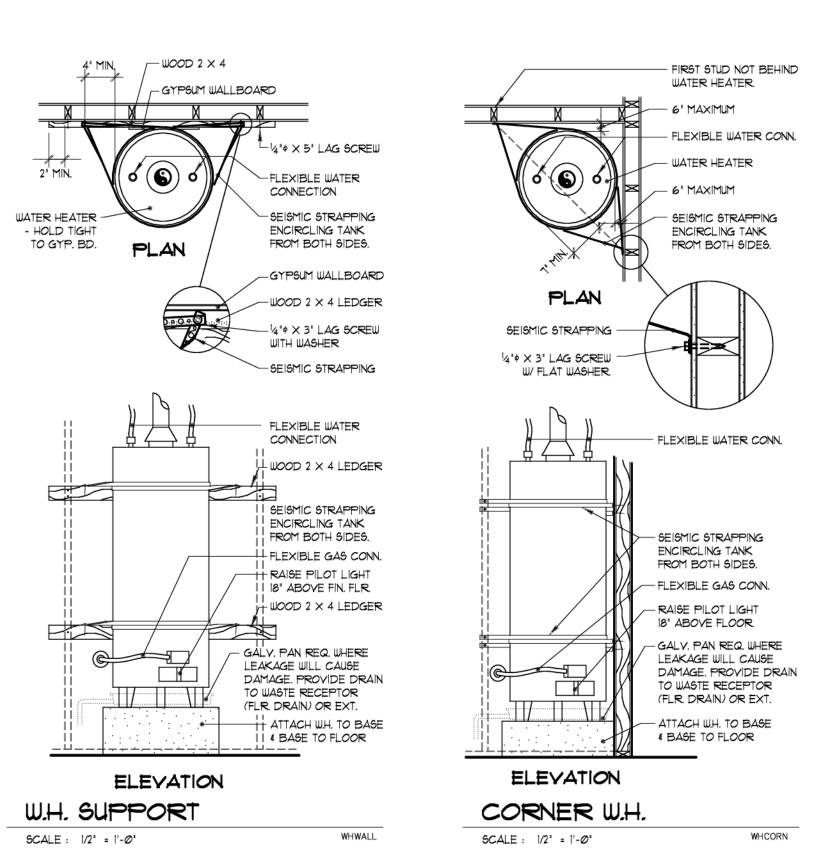
8. UNLESS NOTED OTHERWISE, CONNECT POST TO BEAM WITH "SIMPSON" BC SERIES CAP/BASE OR APPROVED EQUAL) CONNECTORS. AT EXTERIOR APPLICATIONS USE "SIMPSON" EPB SERIES BASES UN.O. AND AT INTERIOR GARAGE POSTS AT FINISH FLOOR, (POST NOT EMBEDDED) USE 'SIMPSON' CB SERIES BASES. 'USP' CONNECTORS CONSIDERED APPROVED EQUAL.

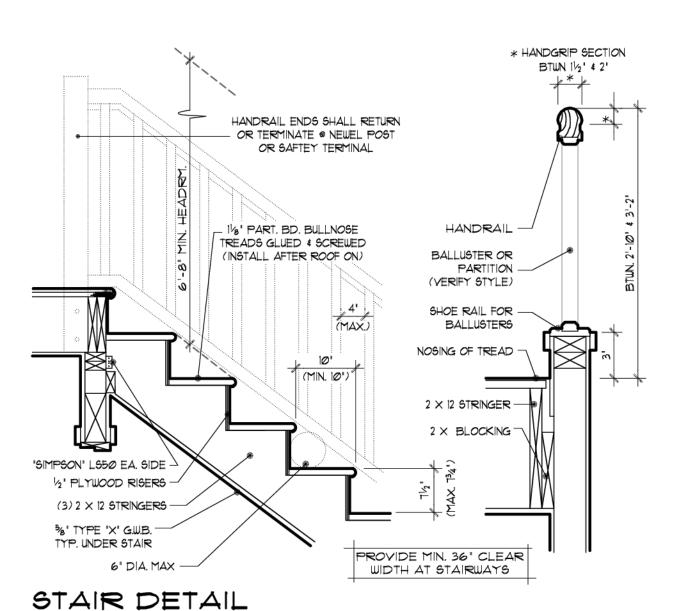
9. FASTENERS FOR PRESERVATIVE-TREATED WOOD INCLUDING NUTS AND WASHERS SHALL BE HOT-DIPPED, ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL.

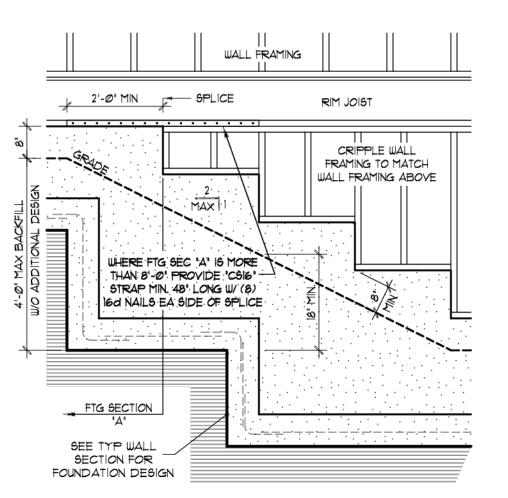
LUMBER SPECIES:					
A. POSTS, BEAMS, HEADERS JO	NO. 2 DOUGLAS FIR				
B. SILLS, PLATES, BLOCKING B	B. 9ILLS, PLATES, BLOCKING BRIDGING ETC.				
C. STUDS		STUD GRADE DF.			
D. STUDS OVER 10' HIGH		NO. 2 OR BETTER D/F			
E. POST & BEAM DECKING		UTILITY GRADE DF.			
F. PLYWOOD SHEATHING		½" CDX PLY, 32/16			
G. GLU-LAM BEAMS (EXT. ADH	€ EXT. CONDITIONS)	Fb-2400, DRY ADH.			
H. PSL MATERIALS * LVL. MATERIALS ** LSL MATERIALS ***	Fb = 2900 E = 20 Fb = 2900 E= 20 Fb = 2600 E= 1.9 Fb = 2335 E= 1.55	Fv = 285			
<ul> <li>P\$L INDICATE\$ PARALLEL</li> <li>LVL INDICATE\$ LAMINATED</li> <li>LAMINATED \$TRAND LUMBEI</li> <li>METAL HANGER\$ \$ FASTENER</li> <li>\$TEEL OR HOT DIPPED GALVII</li> </ul>	VENEER LUMBER R \$ USED WITH P.T. LUMBER '	TO BE STAINLESS			

	BLK'G BETWEEN CEIL JSTS OR RETRES TO TOP ID	4-8d BOX (21/2 'x0.113')	TCE NAIL
.	CLG JST TO TOP PL	4-8d BOX (21/2 x0.1131)	FACE NAIL
5	CLG JST LAPPED AT PARTITION	4-10d BOX (3'x0.128')	TOE NAIL
ž	CEIL JSTS TO RAFTER	PER TABLE 8/02.5.1.(9)	FACE NAIL EA. RETR
	COLLAR TIE TO RAFTER	4-10d BOX (3'x0.128')	TOE NAIL
	RAFTER/TRUSS TO #2	3-16d BOX (3½"x0.135")	END NAIL
	RAFTER TO RIDGE/HIP/VALLEY (MIN. 21)	3-16d BOX (31/2 'x0.135")	12" O.C. FACE
	STUD TO STUD \$ INTSECTING WALL CORNERS	16d BOX (3½ "xØ.135")	16" O.C. EA. EDGE
	BUILT-UP HDR 2X MEMBERS	16d COM (3½ 'x0.162')	TOE NAIL
	CONT. HDR TO STUD	5-8d BOX (21/2 'x@.113')	12" O.C. FACE
	TOP IE TO TOP IE	2-16d COM (3½'xØ.162')	FACE EA. SIDE
П	DBL. TOP PE SPLICE	12-16d COM (31/2"x0.162")	16" O.C. FACE
₩ M	SOLE #2 TO JST, RIM OR BLK'G	16d COM (3½'xØ.162')	END NAIL
<b>≩</b>	TOP OR BOTTOM 12 TO STUD	3-16d BOX(31/2 'x0.135')	FACE NAIL
	TOP PL LAPS & CORNER/INTERSECTION	2-16d COM (3½'xØ.162')	
			TOE NAIL
	JOIST TO SILL, TOP #2 OR GIRDER	4-8d BOX (21/2 'xØ.113')	4" O.C. TOE NAIL
	RIM JST OR BLKG TO SILL OR TOP ID	8d BOX (21/2 'xØ.113")	€ EA BEAR'G
Η̈́	2" SUBFLR TO JST/GIRDER	3-16d BOX (2½ 'xØ.135')	€ EA BEAR'G
Z T T T T	2" PLANKS (P & B FLR AND ROOF)	3-16d BOX (2½ 'xØ.135')	END NAIL
2	RIM JST. TO JST.	3-16d COM (3½ 'xØ.162')	24" O.C. FACE TOP \$
χĮ	BUILT-UP GIRDERS/BEAMS (2" LAYERS)	10d BOX (3'x0.128')	BTM & STAGGERED
9 K	Built-ur Girpero/Bea io (2 La Tero)	100 100 100 100 1	6' EDGE/I2' FIELD
ᅶ	36'-12' WOOD STRUCTURAL PANELS	8d COM (2½ 'xØ.131')	6" EDGE/I2" FIELD
	뭣'-1' WOOD STRUCTURAL PANELS	8d COM (2½ 'xØ.131')	6' EDGE/12' FIELD
	11/2"-11/4" WOOD STRUCTURAL PANELS	10d COM (3'x0.148')	1' EDGE/1' FIELD
	½' GYPSUM WALL/CLG. BD. (UN.O.)	14" TYPE '5"/'W' SCREW	1' EDGE/1' FIELD
	%'GYPSUM WALL/CLG. BD. (UN.O.)	15/6' TYPE '6'/'W' SCREW	TBL-5

SPAN TABLES BASED ON 2015 I.R.C. TABLE R502.3.I(1), R502.3.I(2), R802.5(1), AND R802.5(2)								
JOISTS	FLOOR   FLOOR   (40° LL/10° DL) (30° LL/10° DL) (L/360)		JOISTS		<b>CEILING</b> (20* LL/10* DL) (L/240)	CEILING (10° LL/5° DL) (L/240)		
DF. #2 SPAC'G	MAX.	MAX.	D.F. *2	SPAC'G	MAX.	MAX.		
O.C.	SPAN	SPAN		O.C.	SPAN	SPAN		
2 × 6    2"	10'-9'	11'-10'	2 × 4	12"	9'-10"	12'-5"		
6"	9'-9'	10'-9'		16"	8'-11"	11'-3"		
24"	8'-3'	9'-3'		24"	7'-3"	9'-10'		
2 × 8    2"	14'-2'	15'-7 <b>'</b>	2 × 6	12"	15'-0"	19'-6'		
6'	12'-9'	14'-2 <b>'</b>		16"	13'-0"	17'-8 <b>'</b>		
24'	10'-5'	11'-8 <b>'</b>		24"	10'-8"	15'-0'		
2 × 10   12"	18'-@"	19'-10"	2 × 8	12"	19-1'	25-8'		
6"	15'-1"	17'-5'		16"	16'-6'	23'-4'		
24"	12'-9'	14'-3"		24"	13'-6'	9'- '		
2 × 12   12"	20'-  "	23'-4"	2 × 1Ø	12"	23'-3	26'-0'		
16"	8'- "	20'-3"		16"	20'-2"	26'-0'		
24"	4'-9"	16'-6"		24"	16'-5"	23'-3'		



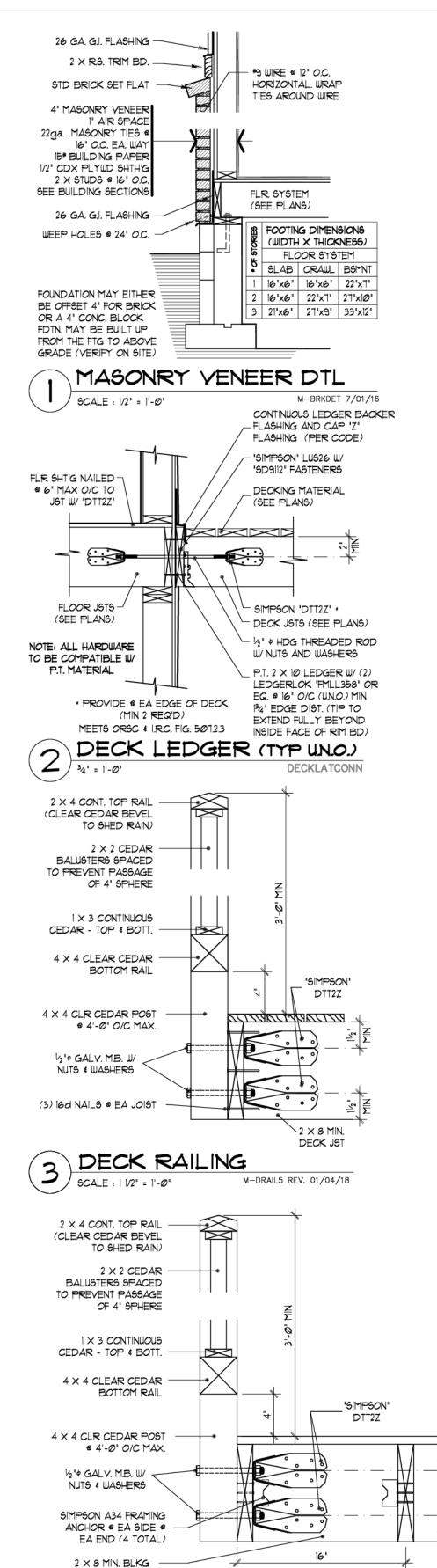


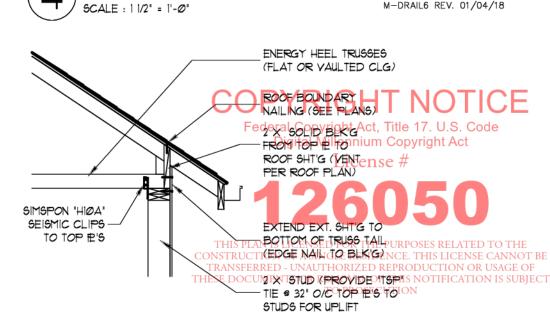


SCALE : 3/4" = 1'-0"

M-STAIR1 07/15/08







TRUSS CONNECTION

DECK RAILING

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25# SNOW LOAD

@ DECK SIDES M-DRAIL6 REV. 01/04/18

1149CB-GI

CONTINUOUS LOAD PATH

THE FOLLOWING CONSTRUCTION TECHNIQUES AND MEASURES ARE INTENDED TO MITIGATE RADON ENTRY IN NEW CONSTRUCTION. THESE TECHNIQUES MAY BE REQUIRED ON A JURISDICTION BY JURISDICTION BASIS. FOR EXAMPLE, IN THE STATE OF OREGON, PER 2017 O.R.S.C., THE COUNTIES OF MULTNOMAH, WASHINGTON, CLACKAMAS, POLK, YAMHILL, HOOD RIVER AND BAKER REQUIRE RADON MITIGATION, AS DO THE COUNTIES OF CLARK, FERRY, OKANOGAN, PEND OREILLE, SKAMANIA, SPOKANE AND STEVENS, IN THE STATE OF WASHINGTON, PER 2015 I.R.C./WAC 51-51-60101 (AFI01 & AFI03).

FOLLOWING THE U.S. E.P.A. "MODEL STANDARDS AND TECHNIQUES FOR CONTROL OF RADON IN NEW RESIDENTIAL BUILDINGS", THESE SPECIFICATIONS MEET MOST NATIONAL CODES. THE BUILDER AND HOME OWNER SHOULD CHECK FOR ANY LOCAL VARIANTS TO THESE GUIDELINES.

### BUILDING TIGHTNESS MEASURES

THE FOLLOWING ARE POINTS OF ENTRY TO PROTECT FROM PASSAGE OF RADON GAS INTO LIVING SPACE - PROVIDE POLYURETHANE CAULK OR EQUIVALENT SEALANT AT THE FOLLOWING CRITICAL POINTS:

- FLOOR-TO-WALL CRACK OR FRENCH DRAIN
- MORTAR JOINTS
- OPEN TOPS OF BLOCK WALLS

## CRAWL SPACE

- CRACKS IN SUBFLOORING AND FLOORING SPACES BEHIND STUD WALLS AND BRICK VENEER WALLS THAT REST
- ON UNCAPPED HOLLOW-BLOCK FOUNDATION ELECTRICAL PENETRATIONS LOOSE-FITTING PIPE PENETRATIONS
- OPEN TOPS OF BLOCK WALLS WATER FROM SOME WELLS
- HEATING DUCT REGISTER PENETRATIONS
- COLD-AIR RETURN DUCTS IN CRAWL SPACE

CONDENSATE DRAINS SHALL BE RUN TO THE EXTERIOR USING NON PERFORATED PIPE OR SHALL BE PROVIDED WITH AN APPROVED TRAP.

SUMP PITS THAT SERVE AS END POINT FOR A SUB-SLAB OR EXTERIOR DRAIN TILE LOOP SYSTEM, AND SUMP PITS WHICH ARE NOT SEALED FROM THE SOIL, SHALL BE FITTED WITH A GASKETED OR SEALED LID. WHERE THE SUMP IS USED AS THE SUCTION POINT IN A SUB-SLAB DECOMPRESSION SYSTEM, THE LID MUST BE DESIGNED TO ACCOMMODATE THE VENT PIPE. WHERE USED AS A FLOOR DRAWING, THE SUMP PIT LID SHALL HAVE A TRAPPED INLET.

DUCTWORK WHICH PASSES THROUGH OR BENEATH A CONCRETE FLOOR SLAB SHALL BE FREE OF SEAMS AND MUST BE PERFORMANCE TESTED.

DUCTWORK PASSING THROUGH A CRAWLSPACE MUST HAVE ALL SEAMS AND JOINTS SEALED (PER MIGØ1.4.1). ALL JOINTS OF DUCT SYSTEMS USED IN THE HEATING OR COOLING OF A CONDITIONED SPACE SHALL BE SEALED BY MEANS OF TAPES, MASTIC, AEROSOL SEALANT, GASKETING OR OTHER APPROVED CLOSURE SYSTEMS. WHERE MASTIC IS USED TO SEAL OPENINGS GREATER THAN 14", A COMBINATION OF MASTIC AND MESH SHALL BE USED.

CRAWLSPACE ACCESS OR UNDER-FLOOR MECHANICAL EQUIPMENT ACCESS, OR ANY OTHER ACCESS POINT FROM THE HABITABLE SPACE INTO THE CRAWL SPACE, SUCH AS DOORS OR PANELS, MUST BE CLOSED AND GASKETED TO CREATE AN AIRTIGHT SEPARATION.

TO SUPPORT VENT PIPE

AIR HANDLING UNITS IN CRAWL SPACES SHALL BE SEALED TO PREVENT AIR FROM BEING DRAWN INTO THE UNIT.

EXHAUST (10' FROM OPENINGS INTO PASSIVE RADON CONTROL SYSTEM IN CONDITIONED SPACES OF BUILDING) CRAWL SPACE FOR NEW CONSTRUCTION 2' MIN. ABOVE ROOF I. INSTALL A LENGTH OF 3" OR 4" DIAMETER PERFORATED DRAIN TILE HORIZONTALLY BENEATH THE SHEETING AND CONNECT TO THE "T" FITTING WITH THE VERTICAL STANDPIPE THROUGH THE SOIL-GAS-RETARDER MEMBRANE. THIS HORIZONTAL PIPE SHOULD NORMALLY BE PLACED PARALLEL TO THE LONG DIMENSION OF THE HOUSE AND SHOULD EXTEND NO CLOSER FLASHING---THAN 6 FEET TO THE FOUNDATION WALL 2. VENTILATE CRAWLSPACES IN CONFORMANCE WITH LOCAL CODES± VENTS SHALL BE OPEN TO THE EXTERIOR AND BE OF NONCLOSEABLE DESIGN. 3. CIRCUITS SHOULD BE A MINIMUM IS AMP, IIS VOLT. - ROOF BRACE JOIST INTERIOR PARTITION - ELECTRICAL JUNCTION BOX FOR FUTURE INSTALLATION LIVING AREA OF VENT FAN± NOTE 3. SEAL AROUND - ELECTRICAL JUNCTION BOX FLOOR PENETRATIONS FOR FUTURE INSTALLATION OF WARNING DEVICE + NOTE 3. FLOORING-- SUPPORT JOIST STRAPPING — 3"-4" DIA, VENT PIPE CRAWL SPACE (PVC OR EQUIVALENT) SEAL MEMBRANE AROUND SOIL-GAS-RETARDER MEMBRANE SEALED AGAINST PIPE PENETRATION WALL AND AROUND PENETRATIONS (MIN. 6-MIL POLYETHYLENE SHEETING OR EQUIVALENT) ADJOINING SHEETS OF MEMBRANE OVERLAPPED PERFORATED DRAIN LEVEL AND SEALED-TILE + NOTE 1 - PVC T-FITTING (OR EQUIVALENT) CONC. FOUNDATION (SEE TYP.

DEPRESSURIZATION SYSTEM

## RADON MITIGATION

### SLAB ON-GRADE AND BASEMENT WALLS

- CRACKS IN CONCRETE SLABS COLD JOINT BETWEEN TWO CONCRETE POURS PORES AND JOINTS IN CONCRETE BLOCKS
- EXPOSED SOIL, AS IN A SUMP WEEPING (DRAIN) TILE, IF DRAINED TO OPEN SUMP
- LOOSE FITTING PIPE PENETRATIONS

#### WATER (FROM SOME WELLS) UNTRAPPED FLOOR DRAIN TO A DRY WELL OR SEPTIC SYSTEM.

FLOOR AREA		NUMBER OF BEDROOMS					
(FT.2)	Ø-1	2-3	4-5	6-7	>7		
⊲,500	3Ø	45	60	75	90		
1,501-3,000	45	60	75	90	105		
3,001-4,500	60	75	90	105	120		
4,501-6,000	75	90	105	120	135		
6,000-7,500	90	105	120	135	150		
>7,500	105	120	135	150	165		

CRAWL SPACE RADON MITIGATION

RADON MITIGATION METHODS SHALL BE IMPLEMENTED.

SYSTEM OR OTHER EQIVALENT SYSTEM.

EQUIVALENT (SEE GAS-RETARDER NOTES)

PROVIDE A VENT STACK (SEE VENT STACK NOTES)

FOR CRAWLSPACE VENTING)

REQUIREMENTS).

AS PER TABLE NIIØ1.1(3).

METHOD # - MECHANICAL VENTILATION (AFIØ3.5, EXCEPTION)

IN ADDITION TO THE CRAWL SPACE SEALING REQUIREMENTS, ONE OF THREE

PROVIDE AN APPROVED MECHANICAL CRAWL SPACE VENTILATION

PROVIDE FOUNDATION VENTILATION SYSTEM (SEE FOUNDATION NOTES

PROVIDE A SOIL-GAS RETARDER, SUCH AS 6 MIL POLYETHYLENE OR

PROVIDE NO LESS THAN ONE NET SQ. FT. OF CRAULSPACE FOUNDATION

VENT AREA PER EACH 150 SQ. FT. OF UNDER-FLOOR AREA (SEE

OPERABLE LOUVERS, DAMPERS, OR OTHER MEANS TO TEMPORARILY

DWELLINGS SHALL BE TESTED WITH A BLOWER DOOR, DEPRESSURIZING

THE DWELLING TO 50 PASCAL'S FROM AMBIENT CONDITIONS AND

VENTILATION SYSTEM PROVIDING WHOLE-BUILDING VENTILATION RATES

FOUND TO EXHIBIT NO MORE THAN 5.0 AIR CHANGES PER HOUR.

CLOSE OF VENT OPENINGS ARE NOT ALLOWED TO MEET THE

REQUIREMENTS OF THIS RADON MITIGATION METHOD.

INSTALL A MECHANICAL EXHAUST, SUPPLY, OR COMBINATION

METHOD #2 - PASSIVE SUB-MEMBRANE DEPRESSURIZATION SYSTEM

METHOD #3 - CRAWLSPACE VENTILATION, AND BUILDING TIGHTNESS.

FOUNDATION NOTES FOR CRAWLSPACE VENTING LOCATION

## SLAB-ON-GRADE/BASEMENT RADON MITIGATION

A PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM SHALL BE INSTALLED DURING CONSTRUCTION IN BASEMENT OR SLAB-ON-GRADE BUILDINGS. FOLLOW THE NOTES HERE REGARDING BUILDING TIGHTNESS MEASURES AND ASSEMBLE THE FOLLOWING ELEMENTS OF THIS MITIGATION SYSTEM...

- PROVIDE A RADON VENT PIPE EXTENDING FROM A GAS PERMEABLE LAYER BENEATH THE SLAB FLOOR SYSTEM, THROUGH THE FLOORS OF
- THE DWELLING AND TERMINATING AT THE ROOF. SEE NOTES REGARDING VENT PIPE, SOIL-GAS-RETARDER AND SLAB SUBFLOOR PREPARATION.

### SLAB SUB-FLOOR 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. THE GAS-PERMEABLE LAYER SHALL CONSIST OF ONE OF THE FOLLOWING:
- 1. A UNIFORM LAYER OF CLEAN AGGREGATE, A MINIMUM OF 4 INCHES THICK. THE AGGREGATE SHALL CONSIST OF MATERIAL SMALL ENOUGH TO PASS THROUGH A 2' SIEVE AND BE RETAINED BY A 1/4" SIEVE.
- 2. A UNIFORM LAYER OF SAND (NATIVE OR FILL), A MINIMUM OF 4 INCHES THICK, OVERLAIN BY A LAYER OR STRIPS OF GEO-TEXTILE DRAINAGE MATTING DESIGNED TO ALLOW THE LATERAL FLOW OF SOIL GASES.

# SOIL-GAS-RETARDER

- THE SOIL INCRAWLSPACES SHALL BE COVERED WITH A CONTINUOUS LAYER OF MINIMUM 6-MIL POLYETHYLENE SOIL-GAS-RETARDER. THE GROUND COVER SHALL BE LAPPED A MINIMUM OF 12 INCHES AT JOINTS AND SHALL EXTEND TO ALL FOUNDATION WALLS ENCLOSING THE CRAWL SPACE AREA.
- THE SHEETING SHALL FIT CLOSELY AROUND ANY PIPE, WIRE OR OTHER
- PENETRATIONS OF THE MATERIAL. ALL PUNCTURES OR TEARS IN THE MATERIAL SHALL BE SEALED OR COVERED WITH ADDITIONAL SHEETING.

# YENT PIPE (RADON)

- A PLUMBING TEE OR OTHER APPROVED CONNECTION SHALL BE INSTERED HORIZONTALLY BENEATH THE SOIL-GAS-RETARDER SHEETING AND CONNECTED TO A 3' OR 4' DIAMETER FITTING WITH A
- VERTICAL VENT PIPE INSTALLED THROUGH THE SHEETING. THE VENT PIPE SHALL BE EXTENDED UP THROUGH THE BUILDING. FLOORS TO TERMINATE AT LEAST 12 INCHES ABOVE THE ROOF SURFACE IN A LOCATION AT LEAST 10 FEET AWAY FROM ANY WINDOW OR OTHER OPENING INTO THE CONDITIONED SPACES OF THE BUILDING THAT IS LESS THAN 2 FEET BELOW THE EXHAUST POINT, AND 10 FEET FROM ANY
- WINDOW OR OTHER OPENING IN ADJOINING OR ADJACENT BUILDINGS. IN BUILDINGS WHERE INTERIOR FOOTINGS OR OTHER BARRIERS SEPARATE THE SUB-SLAB AGGREGATE OR OTHER GAS-PERMEABLE MATERIAL, EACH AREA SHALL BE FITTED WITH AN INDIVIDUAL VENT
- MULTIPLE VENT PIPES SHALL CONNECT TO A SINGLE VENT THAT TERMINATES ABOVE THE ROOF OR EACH INDIVIDUAL VENT PIPE SHALL TERMINATE ABOVE THE ROOF.
- ALL COMPONENTS OF THE RADON VENT PIPE SYSTEM SHALL BE INSTALLED TO PROVIDE POSITIVE DRAINAGE TO THE GROUND BENEATH THE SLAB OR SOIL-GAS-RETARDER
- RADON VENT PIPES SHALL BE ACCESSIBLE FOR FUTURE FAN INSTALLATION THROUGH AN ATTIC OR OTHER AREA OUTSIDE THE HABITABLE SPACE, OR AN APPROVED ROOF TOP ELECTRICAL SUPPLY MAY BE PROVIDED FOR FUTURE USE FOR A POWERED RADON VENT
- ALL EXPOSED AND VISIBLE INTERIOR RADON VENT PIPES SHALL BE IDENTIFIED WITH AT LEAST ONE LABLE ON EACH FLOOR AND IN ACCESSIBLE ATTICS, THE LABEL SHALL READ: 'RADON REDUCTION

# POWER SOURCE REQUIREMENT

 TO ACCOMMODATE FUTURE INSTALLATION OF AN ACTIVE SUB-MEMBRANE OR SUB-SLAB DEPRESSURIZATION SYSTEM, AN ELECTRICAL CIRCUIT TERMINATED IN AN APPROVED BOX SHALL BE TO CE INSTALLED DURING CONSTRUCTION IN THE ATTIC OR OTHER ANTICIPATED LOCATION OF VENT PIBE FANS AN ELECTRICAL SUPPLY S. Code SHALL ALSO BE ACCESSIBLE IN ANTIGIPATED LOCATION OF SYSTEM ACT FAILURE ALARMS.

COMBINATION FOUNDATIONS - - COMBINATION: BASEMENT/CRAWL SPACE OR SLAB-ON-GRADE/CRAWL SPACE FOUNDATIONS SHALL HAVE SEPARATE RADON MITIGATI SYSTEMS IN EACH TYPE OF FOUNDATION AREA, PASSIVE SUB-SLAB AND PASSIVE SUB-MEMBRANE RADON VENT PIPES MAY BE CONNECTED TO A SINGLE VENT TERMINATING ABOVE THE ROOF, OR EACH VENT MAY INDIVIDUAL DO CONTINUE TO TERMINATE ABOVE THEFIC ROOF (SEE VENT PIPE NOTES).

EPA RADON ZONES

DISCLAIMER: THE PURPOSE OF THIS MAP IS TO ASSIST NATIONAL, STATE AND LOCAL ORGANIZATIONS TO TARGET THEIR RESOURCES AND TO IMPLEMENT RADON-RESISTANT BUILDING CODES. ALL HOMES SHOULD BE TESTED REGARDLESS OF GEOGRAPHIC LOCATION. EPA RECOMMENDS THAT THIS MAP BE SUPPLEMENTED WITH ANY AVAILABLE LOCAL DATA IN ORDER TO FURTHER UNDERSTAND AND PREDICT THE RADON POTENTIAL FOR A SPECIFIC AREA.

ZONE 2

\_\_\_\_ ZONE 3

FOUNDATION, PLAN) SLAB ON-GRADE/BELOW-GRADE (BASEMENTS) SUB-MEMBRANE DEPRESSURIZATION SYSTEM

PASSIVE SUB-SLAB DEPRESSURIZATION RADON

1. ALL CONCRETE SLABS THAT COME IN CONTACT WITH THE GROUND SHALL

4" THICK UNIFORM LAYER OF CLEAN AGGREGATE, OR A MINIMUM 4" THICK

2. ALL CONCRETE FLOOR SLABS SHALL BE DESIGNED AND CONSTRUCTED

3. ALL OPENINGS, GAPS AND JOINTS IN FLOOR AND WALL ASSEMBLIES IN CONTACT SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS OR

DRAINS PENETRATING THESE ASSEMBLIES SHALL BE FILLED OR CLOSED

WITH MATERIALS THAT PROVIDE A PERMANENT AIR-TIGHT SEAL. SEAL

LARGE OPENINGS WITH NON-SHRINK MORTAR, GROUTS OR EXPANDING

FOAM MATERIALS AND SMALLER GAPS WITH AN ELASTOMERIC JOINT

CONDENSATION DRAINS DOWNWARD INTO THE GROUND BENEATH THE

JOIST

JOIST

LIVING AREA

FLOORING-

INTERIOR PARTITION

-CAP BLOCK OR OTHER SEAL

- WATERPROOF SEALANT APPLIED

- SEAL OPENINGS IN SLAB AND

AROUND PENETRATIONS + NOTE 3

(SEE TYP. WALL SECTION ON

SOIL-GAS-RETARDER MEMBRANE (MIN.

EQUIVALENT) + OVERLAP SEAMS 12" MIN:

6-MIL POLYETHYLENE SHEETING OR

ON HOLLOW BLOCK WALLS

TO EXTERIOR WALLS

4. VENT PIPES SHALL BE INSTALLED SO THAT ANY RAINWATER OR

IN ACCORDANCE WITH LOCAL BUILDING CODES. ADDITIONAL REFS:

AMERICAN CONCRETE INSTITUTE PUBLICATIONS, "ACI302.IR" \$

AND CONSTRUCTION OF POST-TENSIONED SLABS ON GROUND'.

'ACI332R', OR THE POST TENSIONING INSTITUTE MANUAL, 'DESIGN

MATTING DESIGNED TO ALLOW THE LATERAL FLOW OF SOIL GASES.

BE LAID OVER A GAS PERMEABLE MATERIAL MADE UP OF EITHER A MINIMUM

UNIFORM LAYER OF SAND, OVERLAIN BY A LAYER OR STRIPS OF MANUFACTURED

CONTROL SYSTEM FOR NEW CONSTRUCTION

SEALANT, AS DEFINED IN ASTM C920-87.

SLAB OR SOIL-GAS-RETARDER MEMBRANE.

5. CIRCUITS SHOULD BE A MINIMUM 15 AMP, 115 VOLT.

EXHAUST (10' FROM OPENINGS INTO

12" MIN. ABOVE ROOF

— FLASHING

CONDITIONED SPACES OF BUILDING)

ROOF BRACE

ATTIC

- ELECTRICAL JUNCTION BOX

FOR FUTURE INSTALLATION

OF VENT FAN± NOTE 5.

- ELECTRICAL JUNCTION BOX

OF WARNING DEVICE'S NOTE 5.

FOR FUTURE INSTALLATION

- SUPPORT

STRAPPING

— 3"-4" DIA. VENT PIPE

(PVC OR EQUIVALENT)

— SLAB± NOTE 2

PVC T-FITTING (OR EQUIVALENT)

TO SUPPORT VENT PIPE

-MIN. 4" THICK LAYER

OF GAS PERMEABLE

MATERIAL± NOTE 1

CRAWLSPACE SUB-MEMBRANE

WALL SECTION ON FOUNDATION

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25# SNOW LOAD

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OJECT MANAGER:EA