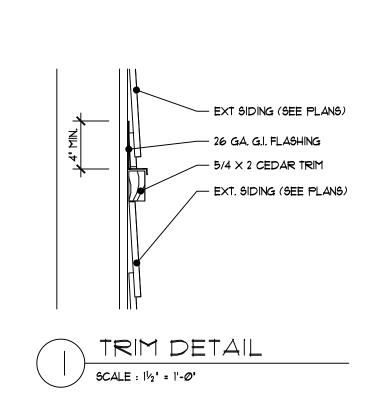


LEFT SIDE ELEVATION

FRONT ELEVATION

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

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



MODIFIED BY

NAME

YARBOROUGH

PROJECT

NUMBER

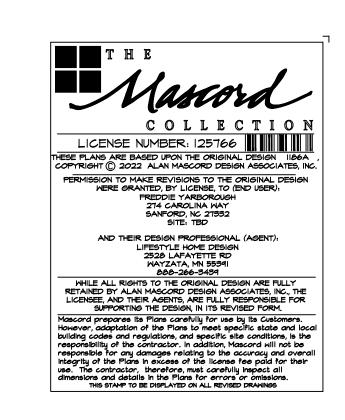
2528 Lafayette Rd, Wayzata, MN 55391

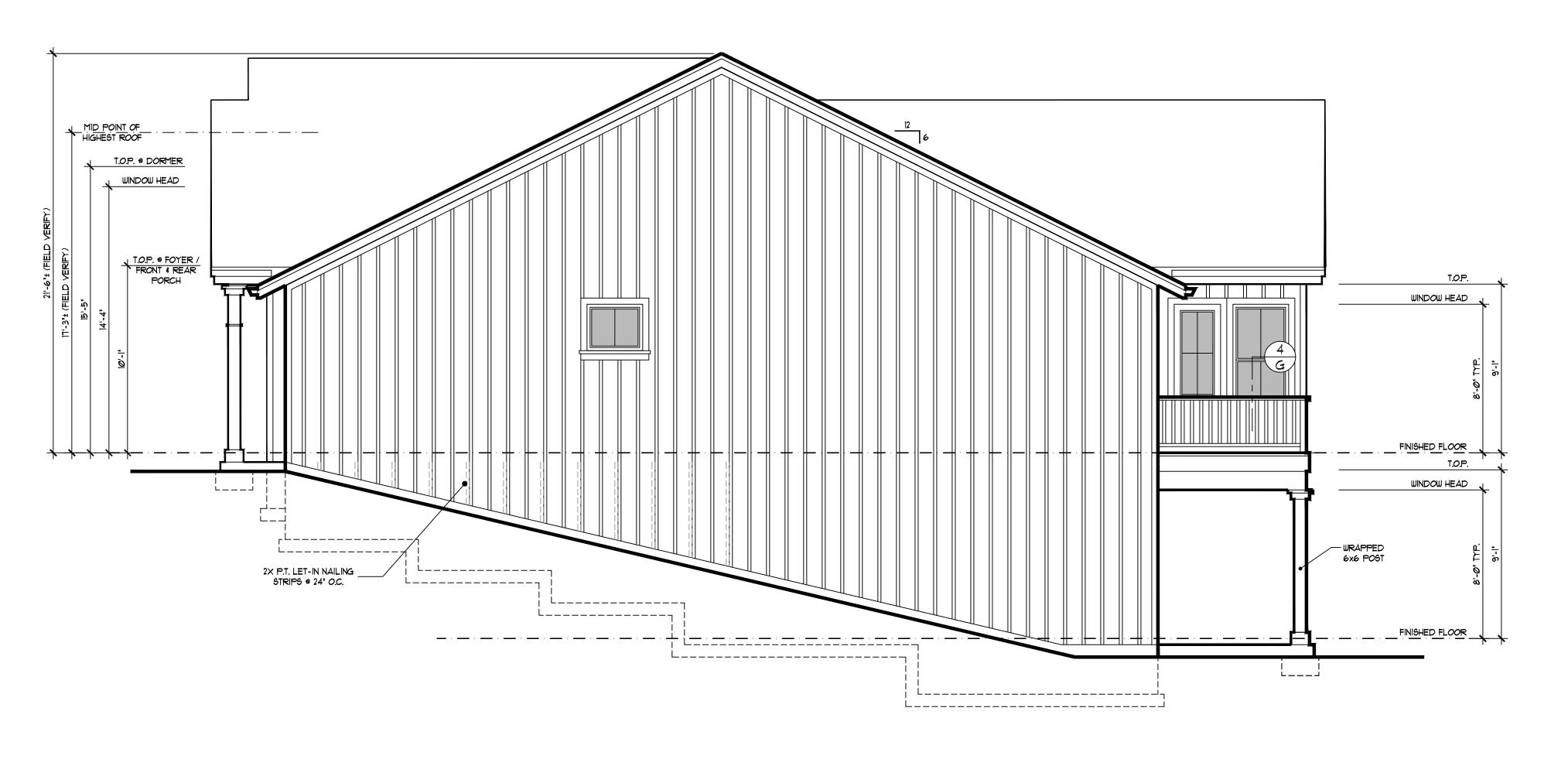
Ph (888) 266-3439 Fx (651) 602-5050

Important:

Contractor/Builders shall verify all conditions and dimensions before beginning construction. Any discrepancies shall be reported to LifeStyle Design Service for justification and/or corrections before proceeding with work. Contractor/Builders shall assume responsibility for all errors that are not reported. (888) 266-3439

THE CONTRACTOR ASSUMES FULL RESPONSIBILITY FOR THE CORRECT INSTALLATION OF ALL EXTERIOR FINISHES AND WEATHERPROOFING.





# RIGHT SIDE ELEVATION SCALE: 1/4' = 1'-0'

REAR ELEVATION

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



MODIFIED BY

NAME

YARBOROUGH

PROJECT

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2528 Lafayette Rd, Wayzata, MN 55391

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1519 SQ. FT.

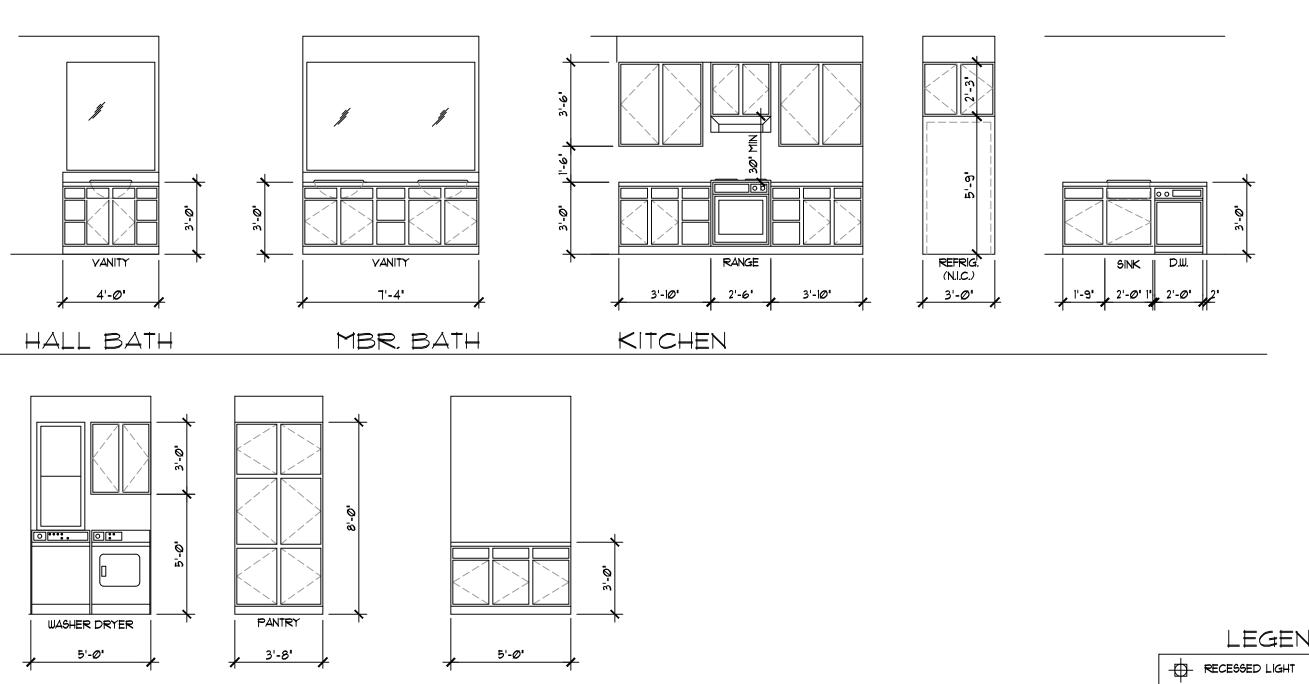
1035 SQ. FT.

2554 SQ. FT.

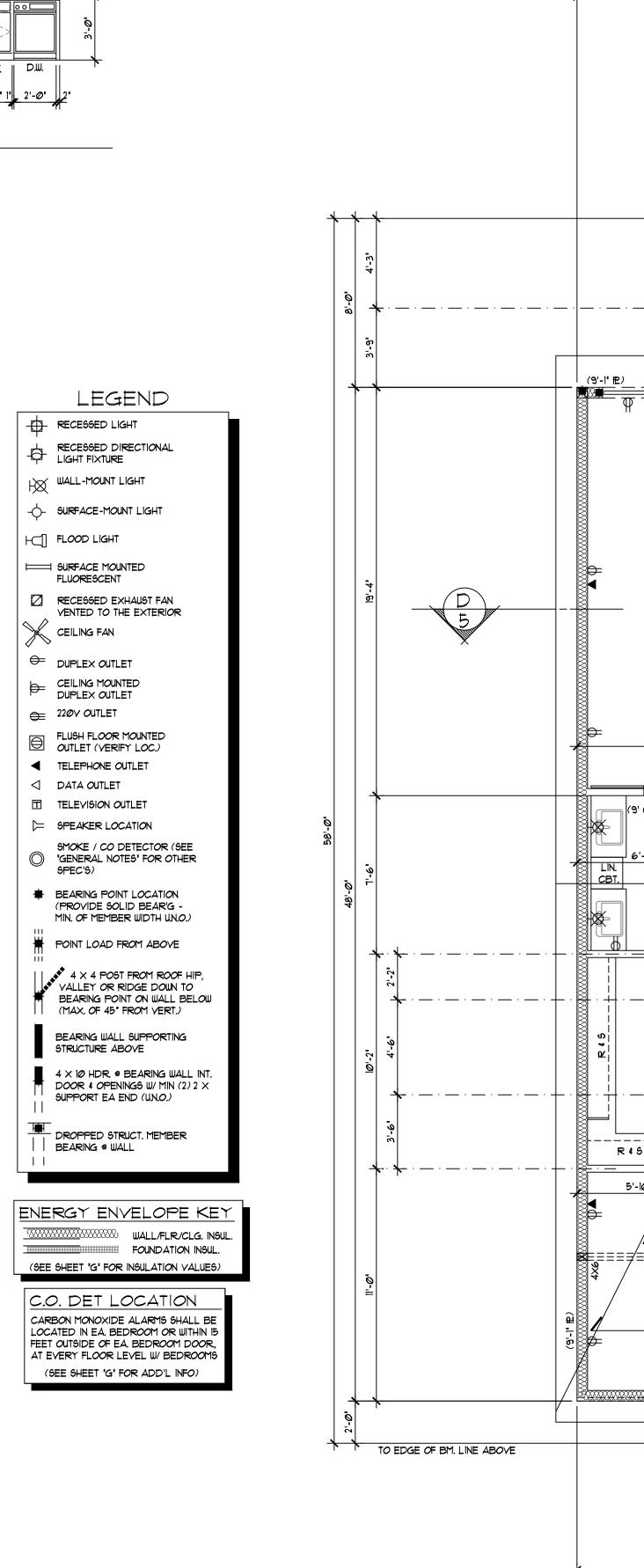
MAIN FLOOR LOWER FLOOR

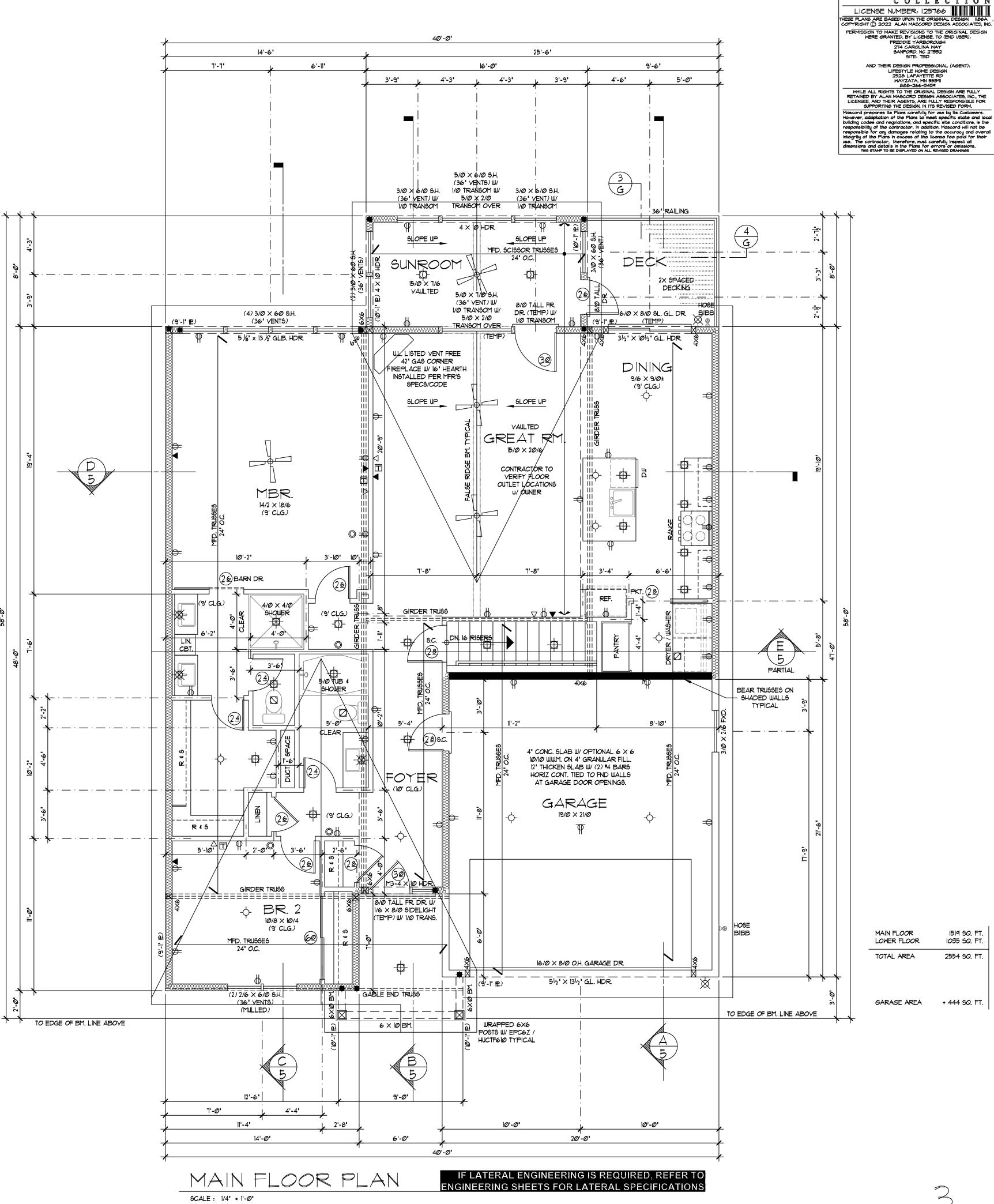
TOTAL AREA

GARAGE AREA



GREAT RM.





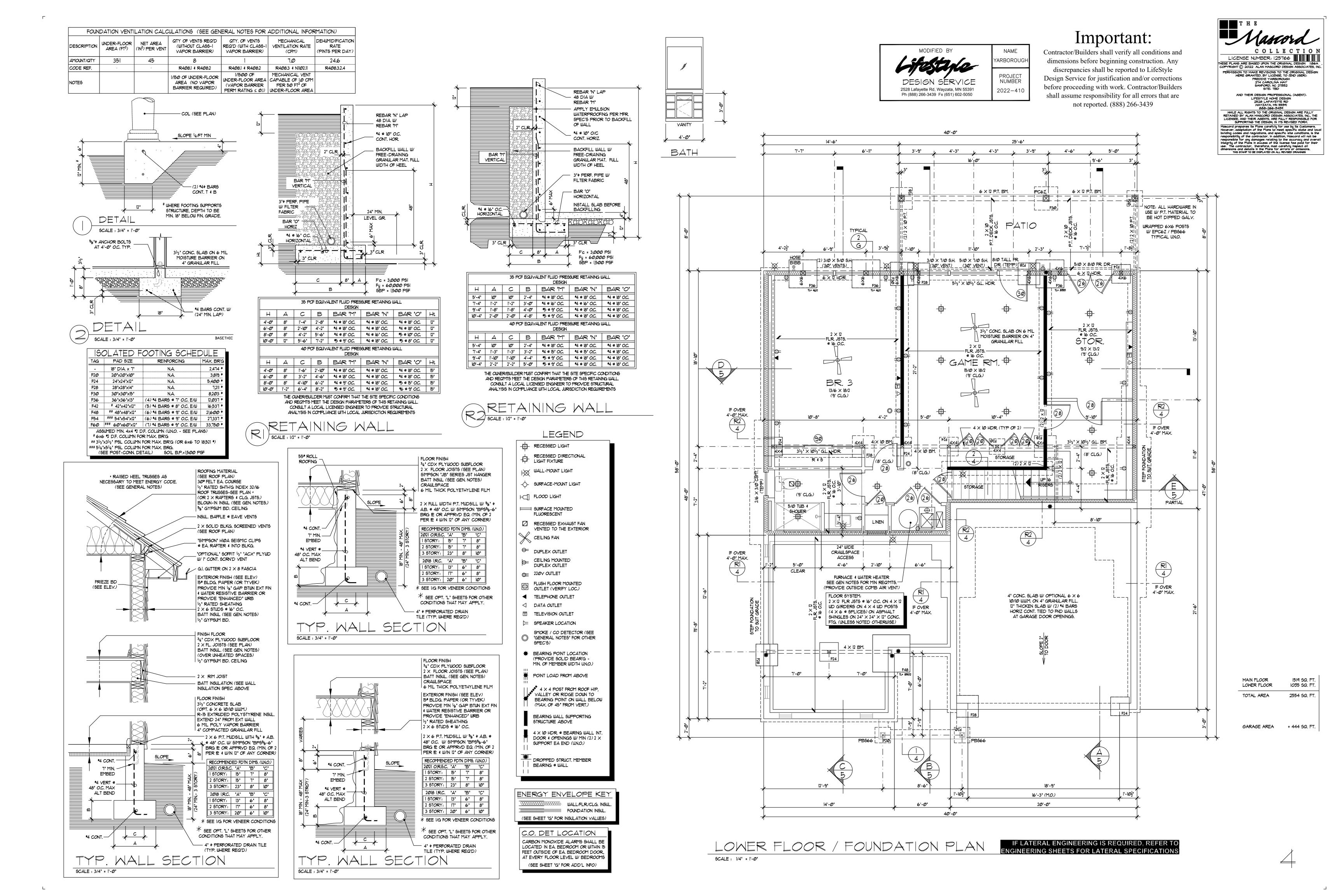


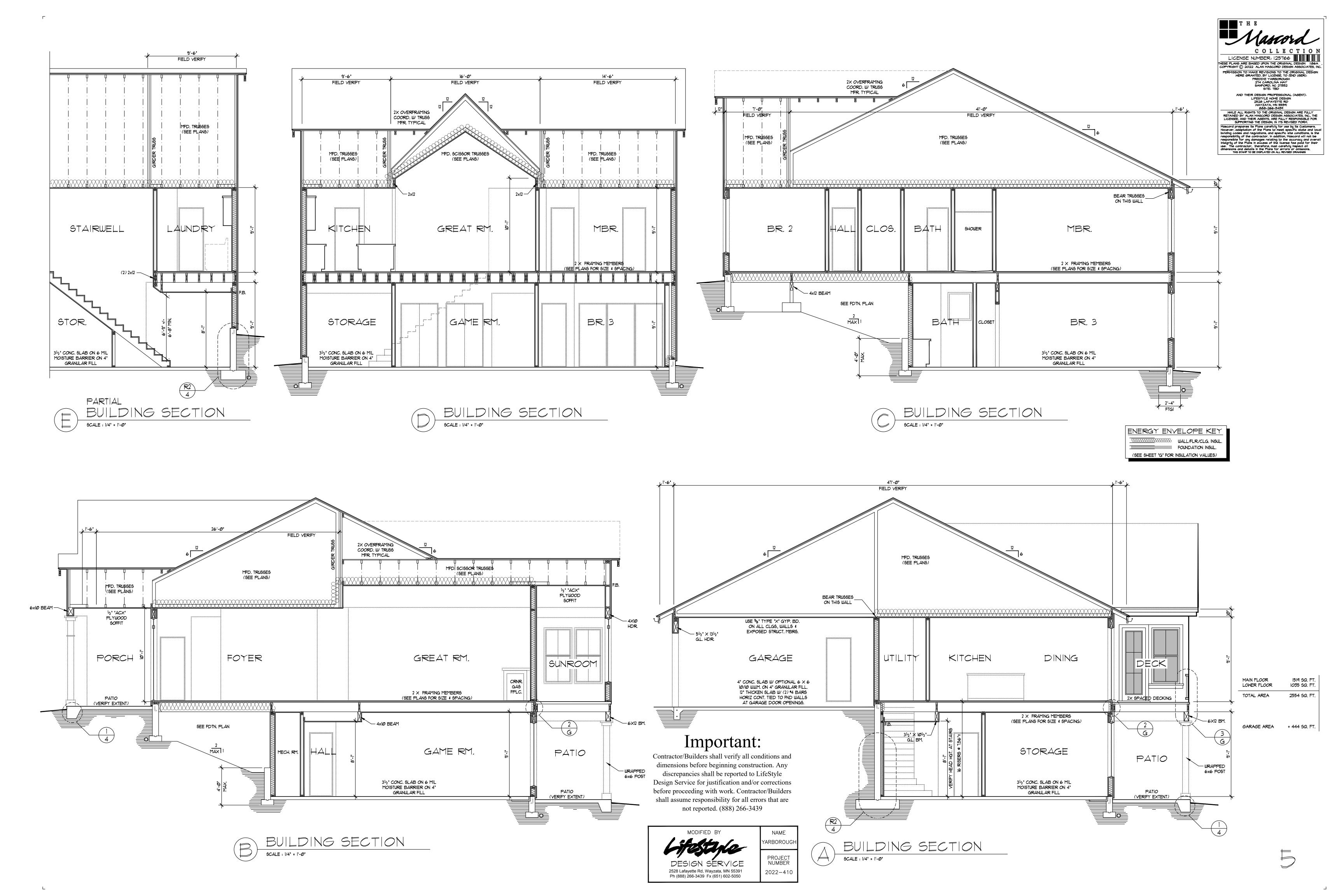
LAUNDRY

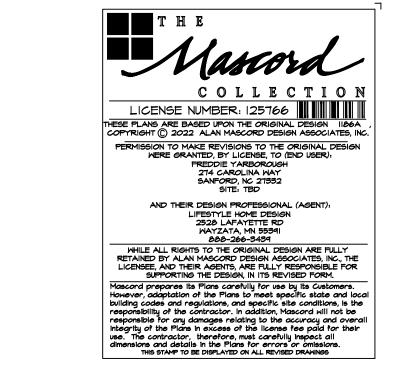
Important:

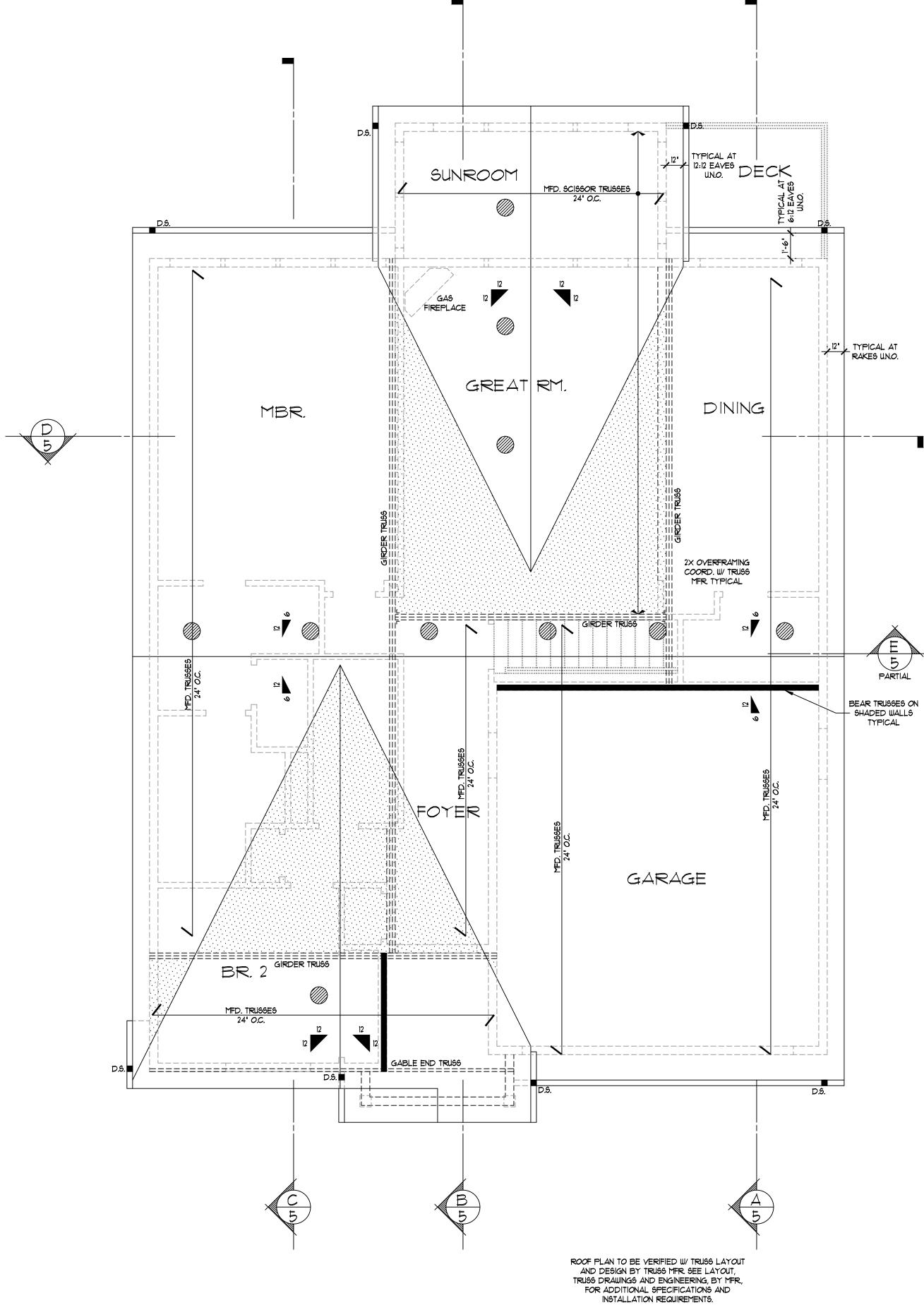
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COLLECTION









ROOF FRAMING PLAN

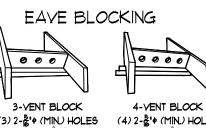
SCALE: 1/4" = 1'-@"

IF LATERAL ENGINEERING IS REQUIRED, REFER TO

**ENGINEERING SHEETS FOR LATERAL SPECIFICATIONS** 

HIS ROOF HAS BEEN D COMPOSITION ROOFING HE ASSUMPTIONS MADI	OF VARIOUS TO E IN THE DESIG	YPES. THE TA IN OF THE ROC	BLE BELC OF STRUCT	OW DESC TURE OF	RIBES I	N DETAIL ILDING.
ROOF LIVE LOAD (SI FRAMING MATERIALS		25.0 PSF 2.0 PSF	3.25 F	PSF ,	AVE.(WE	T)
SHEATHING MATERIA MISC. MATERIALS:		1.5 PSF 1.5 PSF	33.25 F 6.75		ACTUAL SAFETY	REQ'D FACTOR
ROOFING TYPE	DRY / U	JET .	40	Ø	PSF T	L
MED SHAKES HVY SHAKES SHINGLES COMPOSITION  NOTE: HIPS, VALLEYS	2.0 / 3.2 3.0 / 4.6 2.0 / 3.2 2.5 / 3.6	7 PSF (7 PSF ) PSF   F	GYPSUM MATERIALS: ADD 2.0 PSF VAULTED AREAS (COVERED IN SA FACTOR)			
THE END CUT OF THE F					IN.	
			COM	⊃/SH <i>A</i> l	KF R	00F
LEG	END					
(HIP OR VA (MIN. (2) 2 X	POST FROM R LEY) TO WALL 4 REQ'D AT W	.BELOW ALL		4×1MUM 1904 W.W.P. 1925 D.F. L 1925 L.L. 4	.A. TBL. _/240	
	DINT) NOTE: SP. LEYS CAN ONL		SIZE	SPACI	NG	SPAN
OCCUR @ PO	OST DOWN LOC	ATIONS	2×6	12° 0.0		14'- <b>0"</b> 12'-1"
V////	OOF VENTS (SI QTY 50%/50			24" O.	.c.	9'-10"
	WALL TO BM. 0 AM'G AT 24" 0.0		2×8	12" 0.0 16" 0. 24" 0.	c.	17'-8 <b>"</b> 15'-4 <b>"</b> 12'-6"
	EA DENOTES ER RAFTERS E		2×1Ø	12" O.0 16" O. 24" O.	c.	21'-7 <b>'</b> 18'-9 <b>'</b> 15'-3 <b>'</b>
DOWNSPOUT	9		2×12	12" O.0 16" O. 24" O.	c. c.	25'-1 <b>'</b> 21'-8 <b>'</b> 17'-9 <b>'</b>
% EAVE AREA	(in²) % ROOF	AREA (in²)	3-√ENT	4-VENT	49	in <sup>2</sup>
60 589		393.2	63	47 47	45	
56.7 55 <sup>-</sup>		425.7	59	44		<u></u>
53.3 524		459.1	56	42		3
50 491		491.5	52	39	16	

PER 2018 I.R.C. - R80062 THE MIN. NET FREE VENTILATING AREA SHALL BE 1/150 OF THE AREA OF THE VENTED SPACE. EXCEPTION: THE MIN NET FREE VENTILATION AREA SHALL BE 1300 OF THE VENTED SPACE PROVIDED BOTH OF THE FOLLOWING CONDITIONS ARE MET:



N CLIMATE ZONES 6, I AND 8, A CLASS I OR II VAPOR RETARDER IS

NSTALLED ON THE WARM-IN-UNITER SIDE OF THE CELING.

NOT LESS THAN 40 PERCENT AND NOT MORE THAN 50 PERCENT OF THE

REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN

THE UPPER PORTION OF THE ATTIC OR RAFTER SPACE. UPPER VENTILATORS
SHALL BE LOCATED NOT MORE THAN 3 FIET (914 MY) BELOW THE RIDGE OR

HIGHEST POINT OF THE SPACE, BREASURED VERTICALLY. THE BALANCE OF

THE REQUIRED VENTILATION PROVIDED SHALL BE LOCATED IN THE BOTTOM

ONE-THIRD OF THE ATTIC SPACE WHERE THE LOCATION OF WALL OR ROOF

FRAMING MEMBERS COMPLICTS WITH THE NISTALLATION OF UPPER

VENTILATORS, INSTALLATION MORE THAN 3 FEET (914 MY) BELOW THE RIDGE

OR HIGHEST POINT OF THE SPACE SHALL BE PERMITTED. 3-VENT BLOCK 4-VENT BLOCK
(3) 2-\$ (4) 2-\$ (4) 2-\$ (10) HOLES
(9.45 in 2 EA.) (126 in 2 EA.)

Important:

2528 Lafayette Rd, Wayzata, MN 55391 Ph (888) 266-3439 Fx (651) 602-5050

YARBOROUGH

PROJECT NUMBER

2022-410

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1519 SQ. FT.

1035 SQ. FT.

2554 SQ. FT.

GARAGE AREA + 444 SQ. FT.

MAIN FLOOR LOWER FLOOR

TOTAL AREA

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.

MASCORD PREPARES ITS PLANS CAREFULLY FOR USE BY ITS CUSTOMERS. HOWEVER, ADAPTATION OF THE PLANS TO MEET SPECIFIC STATE AND LOCAL BUILDING CODES AND REGULATIONS, AND SPECIFIC SITE CONDITIONS, IS THE RESPONSIBILITY OF THE CONTRACTOR. IN ADDITION, MASCORD WILL NOT BE RESPONSIBLE FOR ANY DAMAGES RELATING TO THE ACCURACY AND OVERALL INTEGRITY OF THE PLANS IN EXCESS OF THE LICENSE FEE PAID FOR THEIR USE. THE CONTRACTOR, THEREFORE, MUST CAREFULLY INSPECT ALL DIMENSIONS AND DETAILS IN THE PLANS FOR ERRORS OR OMISSIONS.

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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:

uoe	L-L-	<i>ν</i> <sub>±</sub> .
UNINHAB. ATTIC W/O STORAGE	10	10
UNINHAB. ATTIC W/ LIMITED STORAGE	20	10
HABITABLE ATTICS & ATTICS SERVED BY STAIR	30	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	30	10
STAIRS	40	10

(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:

CLIMATE ZONE	1	2	3	4 Except Marine	5 And Marine 4	6	7 and 8	For SI:   1 foot = 304.8 mm
FENESTRATION U-FACTOR 6	NR	0.40	Ø.32	Ø.32	Ø3Ø	Ø3Ø	0.30	UP TO 15 ft² GLAZED
SKYLIGHT U-FACTOR b	Ø.75	Ø.65	0.55	Ø.55	Ø.55	Ø.55	Ø.55	FENESTRATION & (1) SIDE HINGED SOLID DR UP TO
GLAZED FENESTRATION SHGC b, e	Ø.25	Ø.25	Ø25	Ø.4Ø	NR	NR	NR	24 ft <sup>2</sup> IS PERMITTED TO BE EXEMPTED FROM THE U-FACTOR SHGC REQIMT O
CLG R-VALUE j	30	38	38	49	49	49	49	TABLE R402.IJ
WOOD FRAME WALL R-VALUE	13	13	20 or 1345 h	20 or 13+5 h	20 or 13+5 h	20+5 or 13+10h	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	309	3Ø 9	38 9	PERMITTED TO SATISFY
BASEMENT WALL R-VALUE c	ø	ø	5/13 <sup>f</sup>	10/13	15/19	15/19	15/19	THE U-FACTOR REQ'MTS SUPPLY DUCTS IN ATTICS
SLAB R-VALUE AND DEPTH a	ø	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-YALUE ¢	ø	Ø	5/13	10/13	15/19	15/19	15/19	DUCTS SHALL BE INSULATED TO MIN. R-6

- 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 req'mts. in Climate Zones 1 thru 3 where the SHGC for such skylights does not exceed 0.30.
- "15/19" means R-15 cont. insul. on the int. or ext. of the home or R-19 cavity insul. at the int. o 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. a the int. of the best. 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 req'mt. 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: DWELLING 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

DUCTS, SHAFTS, UTILITY PENETRATIONS & FLUE SHAFTS 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,

SPACE BETWEEN WINDOWS/DOOR JAMBS & FRAMING AND SKYLIGHTS & FRAMING.

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

CAYITIES IN WALL CORNERS 4 HDRS. TO BE FULLY INSULATED TO R3/in 4 SHALL BE SEALED. FLOORS, INCLUDING ABOYE GARAGE AND CANTILEVERED FLOORS - INSUL. SHALL BE INSTALLED TO MAINTAIN PERMANENT CONTACT W/ UNDERSIDE OF SUBFLOOR DECKING. (EXCEPTIONS PER NII022.8) 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/60FFIT SHALL BE ALIGNED W/ THE INSUL. AND ANY GAPS IN AIR BARRIER SEALED. ACCESS OPENINGS, DROP-DOWN STAIR, ETC. INTO UNCONDITIONED ATTIC SPACE SHALL

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-1 VAPOR

BE SEALED. BATT INSUL. INSTALLED IN ATTIC ROOF ASSEMBLIES MAY BE COMPRESSED @ EXT. WALL LINES TO

BATT INSUL. SHALL BE CUT NEATLY TO FIT AROUND WIRING & PLUMBING IN EXT. WALLS WITHOUT VOIDS/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.

RETARDER W/ OVERLAPPING JOINTS TAPED.

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 (NIIØ3.3.2) JOINTS & SEAMS SHALL COMPLY W/ IMC OR MIGOLA! EXCEPTIONS ALLOWED FOR AIR- IMPERMEABLE SPRAY FOAM PRODUCTS (EXCEPTION 1) OR DUCTS MEETING SPECIFIC PRESSURE & JOINT REGIMTS (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 \$ 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 Ø12 WATTS PER cm² PER ASTM E 1900

1. INSULATE ALL ACCESS DOOR/HATCHES TO CRAWLSPACES 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 REQUIREMENTS OF AAMA/WDMA/CSA 101/1.52/A440. 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). CRAWLSPACE WALL AND / OR FLOOR) AND DUCTS OUTSIDE COND. SPACES. - FENESTRATION U-FACTORS/SHGC AND RESULTS FROM ANY REQ'D. ENVELOPE AIR LEAKAGE TESTING, ALONG WITH TYPES AND EFFICIENCIES OF HEATING, COOLING AND SERVICE WATER HEATING EQUIP. PER NIIØ1.14 (R4Ø13) 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)

12. DOORS BETWEEN GARAGE AND RESIDENCE SHALL BE SOLID WOOD NOT LESS THAN 1-3/8" THICKNESS OR 20 MINUTE 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 19 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 5.1 SQ. FT. WITH A MIN. WIDTH OF 20' AND A SILL HGT. NOT MORE THAN 44' ABOYE 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 & TREADS. INTERIOR STAIRS OF 6 STEPS OR MORE SHALL HAVE THE REQUIRED LIGHTING IN THE IMMEDIATE CINITY 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

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 & INDOOR SWIMMING POOLS & SPAS ARE TO BE VENTED WITH A FAN CAPABLE OF PRODUCING A MIN. 50 CFM INTERMITTENT OR 20 CFM CONT. AND KITCHENS CAPABLE OF 100 CFM INTERMITTENT OR 25 CFM CONT., DUCT LENGTH, DIA,, & TYPE TO BE DETERMINED PER TABLE MI5062 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-HYAC CONTRACTOR TO SIZE VENTILATION SYSTEM IN ACCORDANCE WITH SECTION MIDO 13, REGARDING AREA SERVED AND SYSTEM TYPE.)

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

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

# W.G. (50 PASCALS). WHERE REQ'D BY BUILDING OFFICIAL, TESTING SHALL BE CONDUCTED BY AN APPROVED THIRD PARTY. SEE NII02.4.12 (R402.4.12), FOR TESTING PROCEDURES AND DOCUMENTATION REQIMTS. Marine (C) ZONE I INCLUDES HAMAII, GUAM, PUERTO RICO, AND THE VIRGIN ISLANDS ALL OF ALASKA IN ZONE T EXCEPT FOR THE FOLLOWING BOROUGHS IN ZONE 8: NORTHWEST ARCTIC SOUTHEAST FAIRBANKS WADE HAMPTON YUKON-KOYUKUK CLIMATE ZONE MAP

# FOUNDATION NOTES:

. FOOTINGS ARE TO BEAR ON UNDISTURBED LEVEL SOIL DEVOID OF ANY ORGANIC MATERIAL AND STEPPED 46 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) YERT, 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.

- BASEMENT WALLS & FOUNDATIONS EXPOSED TO WEATHER:	NOT 2,500 PSI	MORTAR & GROOT TO BE MIXED P
- BASEMENT & INTERIOR SLABS ON GRADE:	2,5 <i>00</i> PSI	MFR REQ'MTS
- BASEMENT WALLS & FOUNDATIONS EXPOSED TO THE WEATHER:, AND GARAGE SLABS	3 <i>,000</i> PSI	
- PORCHES, STEPS, & CARPORT SLABS EXPOSED TO WEATHER:	3,500 PSI	

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

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

9. EXCAYATE SITE TO PROVIDE A MIN. OF 18' CLEARANCE UNDER ALL GIRDERS.

8. REINFORCING STEEL TO BE A-615 GRADE 60. OPTIONAL WELDED WIRE MESH TO BE A-185.

Ø. COVER ENTIRE CRAWL SPACE WITH CLASS I VAPOR RETARDER (e.g. 6 MIL POLYETHYLENE FILM). \$ NGTALL 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 NSTALLED AT CRAWLSPACE VENTS.

PROVIDE A MIN. OF I 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 NOT 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 EXCEPTIONS 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.

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

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

IØ. LUMBER SPECIES:

· LAMINATED STRAND LUMBER

STEEL OR HOT DIPPED GALVINIZED.

ALL EXTERIOR WALL OPENINGS 4 BEARING WALL OPENINGS TO HAVE 4  $\times$  10 HEADERS UNLESS OTHERWISE INDICATED. IF BUILDING BUILT WITH 88% In. STUDS USE 4 imes 8 HEADERS UNLESS

. 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 UNLESS NOTED OTHERWISE. ALL INTERIOR WALLS SUPPORTING TWO OR MORE FLOORS AND I OR MORE ROOF/CEILING: ASSEMBLIES SHALL BE 2 × 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. UN.O. JOISTS HUNG ON FLUSH BEAMS TO BE ATTACHED WITH U210 OR EQUIVALENT. MULTIPLE JOISTS USE U210-2/U210-3 AS REQUIRED. USE OF  $100 \times 1-1/2$  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

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 3A6E6 UN.O. AND AT INTERIOR GARAGE PO6TS AT FINISH FLOOR, (PO6T NOT EMBEDDED) USE SIMPSON' CB SERIES BASES. "USP" CONNECTORS CONSIDERED APPROVED EQUA 9. FASTENERS FOR PRESERVATIVE-TREATED WOOD INCLUDING NUTS AND WASHERS SHALL BE

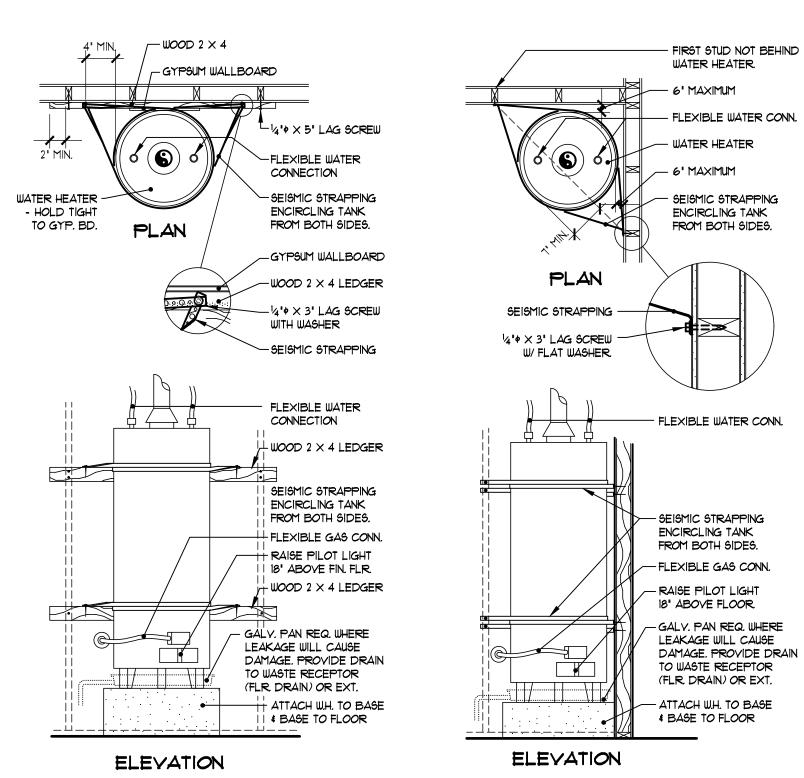
A. POSTS, BEAMS, HEADERS JOIS	STS AND RAFTERS	NO. 2 DOUGLAS FIR
B. SILLS, PLATES, BLOCKING BR	IDGING ETC.	NO. 3 DOUGLAS FIR
C. STUDS		STUD GRADE DF.
D. STUDS OVER 10' HIGH		NO. 2 OR BETTER D/F
E. POST & BEAM DECKING		UTILITY GRADE D.F.
F. PLYWOOD SHEATHING		½" CDX PLY, 32/16
G. GLU-LAM BEAMS (EXT. ADH @	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 = 2900 Fv = 285 Fv = 285 Fv = 525
PSL INDICATES PARALLEL 51     LVL INDICATES LAMINATED V		

. METAL HANGERS & FASTENERS USED WITH P.T. LUMBER TO BE STAINLESS

HOT-DIPPED, ZINC-COATED GALVANIZED STEEL OR STAINLESS STEEL

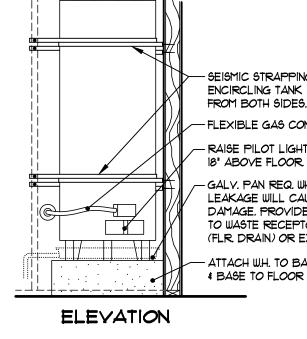
BLK'G BETWEEN CEIL JSTS OR RFTRS TO TOP IE	4-8d BOX (21/2 'x@.113")	TCE NAIL
CLG JST TO TOP #2	4-8d BOX (21/2 'x@.113')	FACE NAIL
CLG JST LAPPED AT PARTITION CEIL JSTS TO RAFTER	4-10d BOX (3'x0.128')	TOE NAIL
CEIL JSTS TO RAFTER	PER TABLE 802.5.1.(9)	FACE NAIL EA. RETR
COLLAR TIE TO RAFTER	4-10d BOX (3'x0.128')	TOE NAIL
RAFTER/TRUSS TO IP	3-16d BOX (3½'xØ.135')	END NAIL
RAFTER TO RIDGE/HIP/VALLEY (MIN. 2")	3-16d BOX (3½'x0.135')	12" O.C. FACE
STUD TO STUD \$ INTSECTING WALL CORNERS	16d BOX (3½'x0.135')	16' O.C. EA. EDGE
BUILT-UP HDR 2X MEMBERS	16d COM (3½'xØ.162')	TOE NAIL
CONT. HOR TO STUD	5-8d BOX (2½ 'xØ.113')	12" O.C. FACE
TOP IE TO TOP IE	2-16d COM (3½"xØ.162")	FACE EA. SIDE
DBL. TOP IE SPLICE	12-16d COM (3½"xØ.162")	16" O.C. FACE
SOLE IE TO JST, RIM OR BLK'G TOP OR BOTTOM IE TO STUD	16d COM (3½'xØ.162')	END NAIL
TOP OR BOTTOM IP TO STUD	3-16d BOX(3½"x0.135")	FACE NAIL
TOP IE LAPS @ CORNER/INTERSECTION	2-16d COM (3½"x0.162")	
		TOE NAIL
JOIST TO SILL, TOP IE OR GIRDER	4-8d BOX (21/2"xØ.113")	4' O.C. TOE NAIL
RIM JST OR BLKG TO SILL OR TOP 12	8d BOX (2½ 'xØ.113')	9 EA BEAR'G
2' SUBFLR TO JST/GIRDER	3-16d BOX (2½ 'xØ.135')	9 EA BEAR'G
2' SUBFLR TO JST/GIRDER 2' PLANKS (P & B FLR AND ROOF)	3-16d BOX (2½ 'xØ.135')	END NAIL
RIM JST. TO JST.	3-16d COM (3½'xØ.162')	24" O.C. FACE TOP 4
BUILT-UP GIRDERS/BEAMS (2" LAYERS)	10d BOX (3'x0.128')	BTM 4 STAGGERED
Builti-up GIRDERS/BEALIS (2 LATERS)	I BOX BOX (5 XB.120 /	6' EDGE/12' FIELD
! ¾'-½' WOOD STRUCTURAL PANELS	8d COM (2½"xØ.131")	6' EDGE/12' FIELD
B'-1" WOOD STRUCTURAL PANELS	8d COM (21/2"xØ.131")	6' EDGE/12' FIELD
11/2"-11/4" WOOD STRUCTURAL PANELS	10d COM (3'x0.148')	1' EDGE/1' FIELD
1/2" GYPSUM WALL/CLG. BD. (UN.O.)	14" TYPE "5"/"W" SCREW	1' EDGE/1' FIELD
%" GYPSUM WALL/CLG. BD. (UN.O.)	15%" TYPE 'S'/'W' SCREW	

	E	51 BASED ON 2015 I.R.	PAN T C. TABLE R5023.K	• •	-	ND R802.5(2)	
70	PISTS	<b>FLOOR</b> (40* LL/10* DL) (L/360)	<b>FLOOR</b> (30* LL/10* DL) (L/360)	70	ISTS	<b>CEILING</b> (20* LL/10* DL) (L/240)	<b>CEILING</b> (IØ* LL/5* DL) (L/24Ø)
D.F. #2	SPAC'G O.C.	MAX. SPAN	MAX. SPAN	D.F. *2	SPAC'G O.C.	MAX. SPAN	MAX. SPAN
2 × 6	12" 16" 24"	10'-9 <b>'</b> 9'-9 <b>'</b> 8'-3 <b>'</b>	11'-10 <b>'</b> 10'-3 <b>'</b> 9'-3'	2 × 4	12" 16" 24"	9'-10" 8'-11' 7'-3'	12'-5" 11'-3" 9'-10"
2 × 8	12' 16' 24'	14'-2" 12'-9" 10'-5"	5'-7"  4'-2"   1'-8"	2 × 6	12' 16' 24'	15'-0 <b>'</b> 13'-0 <b>'</b> 10'-8 <b>'</b>	19'-6" 17'-8" 15'-0"
2 × 1Ø	12" 16" 24"	18'-0' 15'-7' 12'-9'	19'-10 <b>'</b> 17'-5 <b>'</b> 14'-3'	2 × 8	12' 16' 24'	19-1' 16'-6" 13'-6'	25-8" 23'-4"  9'-1"
2 × 12	12" 16" 24"	2Ø'-1 '  8'-1"  4'-9"	23'-4 <b>'</b> 20'-3' 16'-6'	2 × 1Ø	12' 16' 24'	23'-3 20'-2' 16'-5"	26'- <b>0'</b> 26'- <b>0'</b> 26'- <b>0'</b>



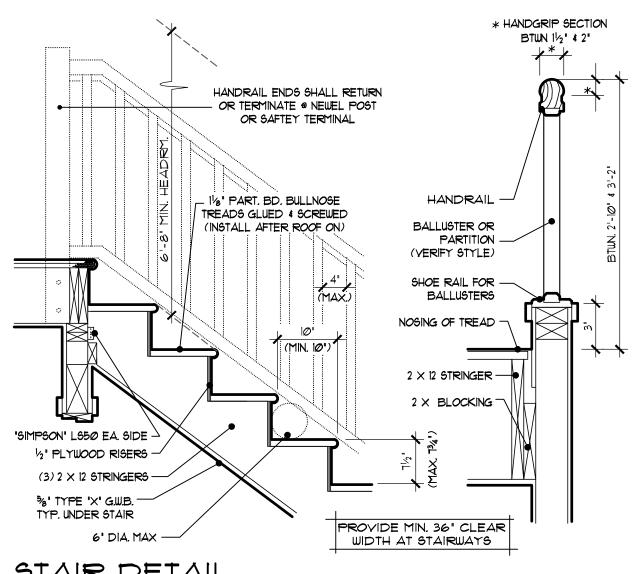
W.H. SUPPORT

SCALE: 1/2" = 1'-0"



CORNER W.H.

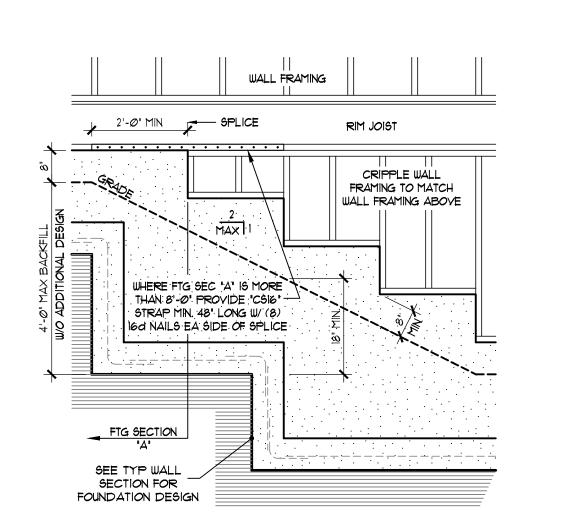
SCALE: 1/2" = 1'-0"



STAIR DETAIL

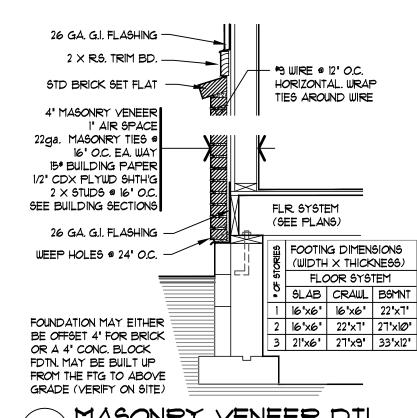
SCALE : 3/4" = 1'-0'

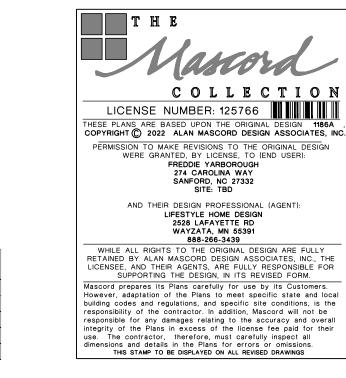
½" = 1'-0"

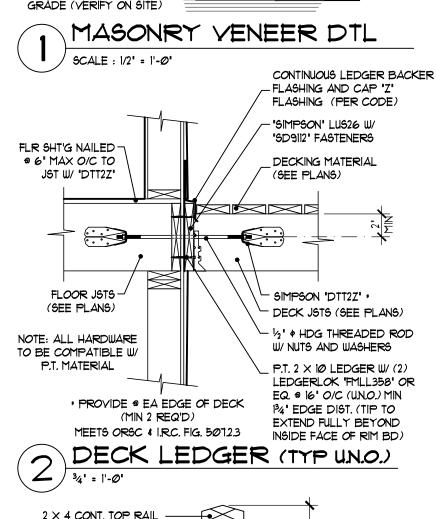


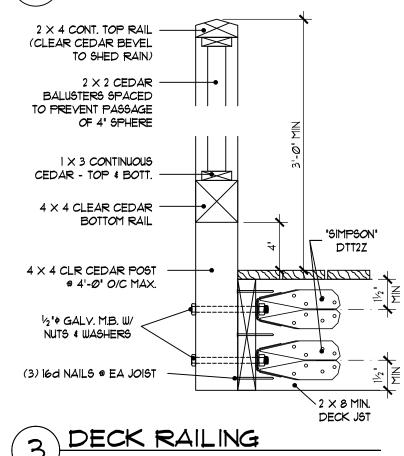
STEP FOOTING DETAIL

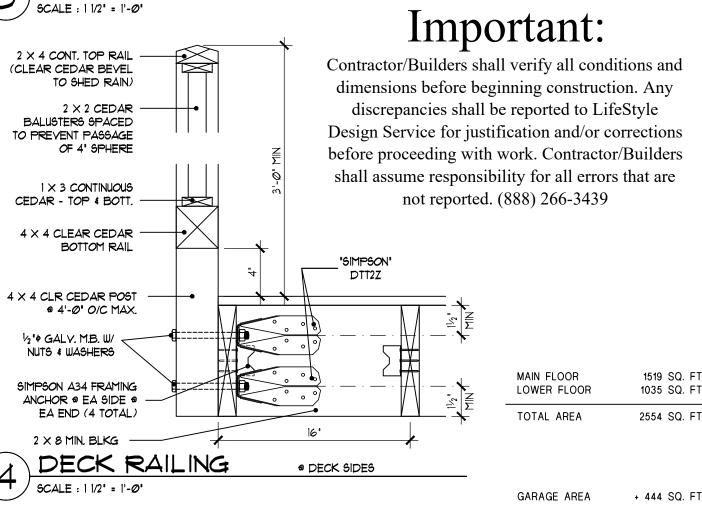
ARBOROUG PROJECT NUMBER 2528 Lafayette Rd, Wayzata, MN 55391 2022-410 Ph (888) 266-3439 Fx (651) 602-5050

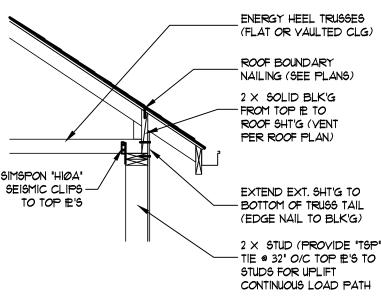












TRUSS CONNECTION SCALE : 1/2" = 1'-0"

# Important:

Contractor/Builders shall verify all conditions and dimensions before beginning construction. Any discrepancies shall be reported to LifeStyle Design Service for justification and/or corrections before proceeding with work. Contractor/Builders shall assume responsibility for all errors that are not reported. (888) 266-3439



# RADON MITIGATION

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:

#### SLAB ON-GRADE AND BASEMENT WALLS

- CRACKS IN CONCRETE SLABS
- COLD JOINT BETWEEN TWO CONCRETE POURS PORES AND JOINTS IN CONCRETE BLOCKS FLOOR-TO-WALL CRACK OR FRENCH DRAIN
- EXPOSED SOIL, AS IN A SUMP WEEPING (DRAIN) TILE, IF DRAINED TO OPEN SUMP MORTAR JOINTS
- LOOSE FITTING PIPE PENETRATIONS
- OPEN TOPS OF BLOCK WALLS WATER (FROM SOME WELLS)

#### UNTRAPPED FLOOR DRAIN TO A DRY WELL OR SEPTIC SYSTEM. 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.

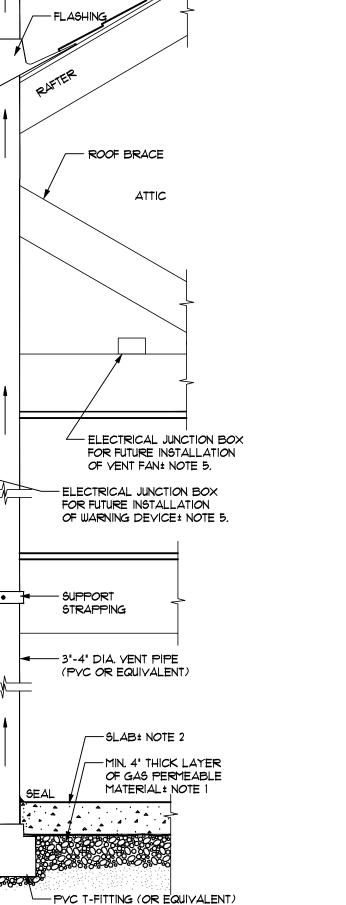
DUCTWORK PASSING THROUGH A CRAWLSPACE MUST HAVE ALL SEAMS AND JOINTS SEALED (PER MIGØ1.4.1). ALL JOINTS OF DUCT SYSTEMS USED IN THE HEATING OR COOLING OF A CONDITIONED SPACE SHALL BE SEALED BY MEANS OF TAPES, MASTIC, AEROSOL SEALANT, GASKETING OR OTHER APPROVED CLOSURE SYSTEMS. WHERE MASTIC IS USED TO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

CRAWL SPACE FOR NEW CONSTRUCTION 12" MIN. ABOVE ROOF 1. 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 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.



EXHAUST (10' FROM OPENINGS INTO

12" MIN. ABOVE ROOF

CONDITIONED SPACES OF BUILDING)

TO SUPPORT VENT PIPE 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

2. ALL CONCRETE FLOOR SLABS SHALL BE DESIGNED AND CONSTRUCTED

IN ACCORDANCE WITH LOCAL BUILDING CODES. ADDITIONAL REFS:

3. ALL OPENINGS, GAPS AND JOINTS IN FLOOR AND WALL ASSEMBLIES IN

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

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

FLOORING-

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

AMERICAN CONCRETE INSTITUTE PUBLICATIONS, "ACI302.IR" &

AND CONSTRUCTION OF POST-TENSIONED SLABS ON GROUND!

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

CONTACT SOIL OR GAPS AROUND PIPES, TOILETS, BATHTUBS OR

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

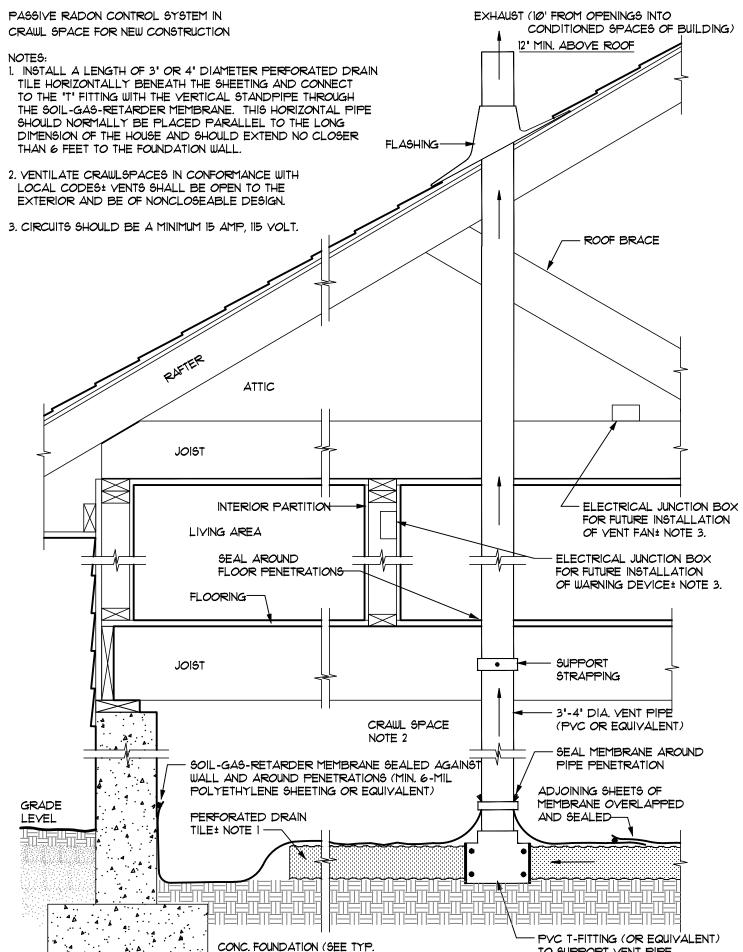
4" THICK UNIFORM LAYER OF CLEAN AGGREGATE, OR A MINIMUM 4" THICK

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 YOLT.



CRAWLSPACE SUB-MEMBRANE DEPRESSURIZATION SYSTEM

WALL SECTION ON FOUNDATION

#### CRAWL SPACE RADON MITIGATION

IN ADDITION TO THE CRAWL SPACE SEALING REQUIREMENTS, ONE OF THREE RADON MITIGATION METHODS SHALL BE IMPLEMENTED.

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

 PROVIDE AN APPROVED MECHANICAL CRAWL SPACE VENTILATION SYSTEM OR OTHER EQIVALENT SYSTEM.

# METHOD \*2 - PASSIVE SUB-MEMBRANE DEPRESSURIZATION SYSTEM

- PROVIDE FOUNDATION VENTILATION SYSTEM (SEE FOUNDATION NOTES FOR CRAWLSPACE VENTING) PROVIDE A SOIL-GAS RETARDER, SUCH AS 6 MIL POLYETHYLENE OR
- EQUIVALENT (SEE GAS-RETARDER NOTES) PROVIDE A VENT STACK (SEE VENT STACK NOTES)

#### METHOD \*3 - CRAWLSPACE VENTILATION, AND BUILDING TIGHTNESS.

- PROVIDE NO LESS THAN ONE NET SQ. FT. OF CRAWLSPACE FOUNDATION VENT AREA PER EACH 150 SQ. FT. OF UNDER-FLOOR AREA (SEE FOUNDATION NOTES FOR CRAWLSPACE VENTING LOCATION REQUIREMENTS).
- OPERABLE LOUVERS, DAMPERS, OR OTHER MEANS TO TEMPORARILY CLOSE OFF VENT OPENINGS ARE NOT ALLOWED TO MEET THE
- REQUIREMENTS OF THIS RADON MITIGATION METHOD. • DWELLINGS SHALL BE TESTED WITH A BLOWER DOOR, DEPRESSURIZING

THE DWELLING TO 50 PASCAL'S FROM AMBIENT CONDITIONS AND

FOUND TO EXHIBIT NO MORE THAN 5.0 AIR CHANGES PER HOUR. INSTALL A MECHANICAL EXHAUST, SUPPLY, OR COMBINATION VENTILATION SYSTEM PROVIDING WHOLE-BUILDING VENTILATION RATES AS PER TABLE NIIØLI(3).

#### YENTILATION AIR REQUIREMENTS (cfm)

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	
6,000-1,500	90	105	120	135	150	
71500	105	120	135	150	165	

#### 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:

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. 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 INSTALLED DURING CONSTRUCTION IN THE ATTIC OR OTHER ANTICIPATED LOCATION OF VENT PIPE FANS. AN ELECTRICAL SUPPLY SHALL ALSO BE ACCESSIBLE IN ANTICIPATED LOCATION OF SYSTEM FAILURE ALARMS.

# COMBINATION FOUNDATIONS

• COMBINATION: BASEMENT/CRAWL SPACE OR SLAB-ON-GRADE/CRAWL SPACE FOUNDATIONS SHALL HAVE SEPARATE RADON MITIGATION 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 INDIVIDUALLY CONTINUE TO TERMINATE ABOVE THE ROOF (SEE VENT PIPE NOTES).

MAIN FLOOR 1519 SQ. FT LOWER FLOOR 1035 SQ. F TOTAL AREA 2554 SQ. F

+ 444 SQ. FT.

GARAGE AREA

LICENSE NUMBER: 125766

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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

\_\_\_\_\_ ZONE 1

ZONE 2

ZONE 3

EPA RADON ZONES

RADON POTENTIAL FOR A SPECIFIC AREA.