

GENERAL NOTES

BUILDING CODE: 2018 INTERNATIONAL BLDG. CODE (IBC), AND BY REFERENCE WHERE APPLICABLE THE 2018 INTERNATIONAL RESIDENTIAL CODE (IRC) AS AMENDED BY LOCAL JURISDICTION.
ROOF LIVE LOAD = 25 PSF (90U)
ROOF DEAD LOAD = 15 PSF
FLOOR LIVE LOAD = 40 PSF
FLOOR DEAD LOAD = 15 PSF
WIND LOAD = 110 MPH WIND SPEED, EXPOSURE 'B', RISK CAT. II
TYPE: V OCCUPANCY GROUP: R-3

DESIGN CRITERIA TABLE R302(1)

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP.	ICE SHIELD UNDER-LAYMENT REQUIRED	FLOOD HAZARD	AIR FREEZING INDEX	MEAN ANNUAL TEMP.
	SPEED (MPH)	TOPOGRAPHIC EFFECTS	REGION	WIND-BORNE DEBRIS ZONE		WEATHERING	FROST LINE DEPTH	TERRESTRIE					
25	110				D/D2	MOD	18	SLIGHT-MOD	IT	NO	PER LOCAL JURISDICTION	50	50

ADDITIONAL REQUIRED SUBMITTAL ITEMS

- ITEMS TO BE SUBMITTED BY THE OWNER OR CONTRACTOR AT TIME OF PERMIT SUBMITTAL:
 - MFG. JST. DESIGN AND LAYOUT IF APPLICABLE (FROM MANUFACTURER)
 - MFG. TRUSS DESIGN AND LAYOUTS (FROM MANUFACTURER)

SITE WORK

GENERAL

UNLESS A SOILS INVESTIGATION BY A QUALIFIED SOILS ENGINEER IS PROVIDED, FOUNDATION DESIGN IS BASED ON AN ASSUMED AVERAGE SOIL BEARING OF 1500 PSF. EXCEPT FOOTINGS SHALL BEAR ON MINIMUM FINISHED GRADE. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED EARTH BELOW ORGANIC SURFACE SOILS. BACKFILL TO BE THOROUGHLY COMPACTED.

CONCRETE

MINIMUM COMPRESSIVE STRENGTH OF CONCRETE PER TABLE R402.2

TYPE OR LOCATIONS OF CONCRETE CONSTRUCTION	MINIMUM COMPRESSIVE STRENGTH (f'c) AT 28 DAYS
	MODERATE WEATHERING POTENTIAL
BASEMENT SLABS & INTERIOR SLAB ON GRADE, EXCEPT GARAGE FLOOR SLABS. (NON-STRUCTURAL)	2500 psi
BASEMENT WALLS, FOUNDATION WALLS, EXTERIOR WALLS & OTHER VERTICAL CONCRETE WORK EXPOSED TO THE WEATHER	3000 psi (5% to 7% air entrained)
PORCHES, CARPORT SLABS & STEPS EXPOSED TO THE WEATHER & GARAGE FLOOR SLAB	3000 psi (5% to 7% air entrained)

CONCRETE "BATCH TICKET" SHALL BE AVAILABLE ON SITE FOR REVIEW BY BUILDING OFFICIAL. REINFORCING STEEL TO COMPLY WITH ASTM A615 GRADE 60, UNO. (SEE STRUCTURAL.)

FOUNDATION

BOLT HEADS AND NUTS BEARING AGAINST WOOD TO BE PROVIDED WITH 1/4"x3"x3" PLATE WASHERS. WOOD BEARING ON OR INSTALLED WITHIN 1' OF MASONRY OR CONCRETE TO BE PRESSURE TREATED WITH AN APPROVED PRESERVATIVE. FOUNDATION SILL BOLTS TO BE 5/8" DIAMETER AT 5'-0" O.C. UNO. WITH MIN. 1" EMBEDMENT METAL FRAMING CONNECTORS TO BE MANUFACTURED BY SIMPSON STRONG-TIE OR USP STRUCTURAL CONNECTORS. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED. FIELD CUT ENDS, NOTCHES, AND DRILLED HOLES OF PRESSURE TREATED LUMBER SHALL BE RETREATED IN THE FIELD IN ACCORDANCE WITH AUPA 14. (END CUT SOLUTION BY WOLFMANIZED WOOD) PER IRC R501.11, FASTENERS FOR PRESSURE PRESERVATIVE AND FIRE RETARDANT TREATED WOOD SHALL BE OF HOT-DIPPEED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE, OR COPPER.
6" MIN. CLEARANCE BETWEEN WOOD AND GRADE.
12" MIN. CLEARANCE BETWEEN FLOOR BEAMS AND GRADE.
18" MIN. CLEARANCE BETWEEN FLOOR JOIST AND GRADE.

DAMPENPROOFING EXCEPT WHERE REQUIRED BY SEC. R406.2 TO BE WATERPROOFED, FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR FLOORS BELOW GRADE SHALL BE DAMPPROOFED FROM THE HIGHER OF (a) THE TOP OF THE FOOTING OR (b) 6 INCHES BELOW THE TOP OF THE BASEMENT FLOOR. TO THE FINISHED GRADE. MASONRY WALLS SHALL HAVE NOT LESS THAN 3/8 INCH PORTLAND CEMENT MARGING APPLIED TO THE EXTERIOR OF THE WALL. THE MARGING SHALL BE DAMPPROOFED IN ACCORDANCE WITH ONE OF THE FOLLOWING:
1. BITUMINOUS COATING.
2. 3 POUNDS PER SQ. YD. OF ACRYLIC MODIFIED CEMENT.
3. 1/2" COAT OF SURFACE-BONDING CEMENT COMPLYING WITH ASTM C 887.
4. ANY MATERIAL PERMITTED FOR WATERPROOFING IN SEC. R406.2.
5. OTHER APPROVED METHODS OR MATERIALS.
EXCEPTION: MARGING OF UNIT MASONRY WALLS IS NOT REQUIRED WHERE A MATERIAL IS APPROVED FOR DIRECT APPLICATION TO THE MASONRY.
CONCRETE WALLS SHALL BE DAMPPROOFED BY APPLYING ANY ONE OF THE LISTED DAMPPROOFING MATERIALS OR ANY ONE OF THE WATERPROOFING MATERIALS LISTED IN SECTION R406.2 TO THE EXTERIOR OF THE WALL.

WATERPROOFING R406.2 - IN AREAS WHERE A HIGH WATER TABLE OR OTHER SEVERE SOIL-WATER CONDITIONS ARE KNOWN TO EXIST, EXTERIOR FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE WATERPROOFED FROM THE HIGHER OF (a) THE TOP OF THE FOOTING, OR (b) 6 INCHES BELOW THE TOP OF THE BASEMENT FLOOR, TO THE FINISHED GRADE. WALLS SHALL BE WATERPROOFED IN ACCORDANCE WITH ONE OF THE FOLLOWING:
1. 2-PLY HOT-MOPPED FELT.
2. 95 POUND ROLL ROOFING.
3. 6-MIL POLYVINYL CHLORIDE.
4. 6-MIL POLYETHYLENE
5. 40-MIL POLYMER-MODIFIED ASPHALT.
6. 60-MIL FLEXIBLE POLYMER CEMENT.
7. 1/2" CEMENT-BASED, FIBER-REINFORCED, WATERPROOF COATING.
8. 60-MIL SOLVENT-FREE, LIQUID-APPLIED SYNTHETIC RUBBER.
EXCEPTION: ORGANIC-SOLVENT-BASED PRODUCTS SUCH AS HYDROCARBONS, CHLORINATED HYDROCARBONS, KETONES AND ESTERS SHALL NOT BE USED FOR ICF WALLS WITH EXPANDED POLYSTYRENE FORM MATERIAL. USE OF PLASTIC ROOFING CEMENTS, ACRYLIC COATINGS, LATEX COATINGS, MORTARS AND MARGINGS TO SEAL ICF WALLS IS PERMITTED. COLD-SETTING ASPHALT OR HOT ASPHALT SHALL CONFORM TO TYPE C OF ASTM D 443. HOT ASPHALT SHALL BE APPLIED AT A TEMPERATURE OF LESS THAN 220°F. ALL JOINTS IN MEMBRANE WATERPROOFING SHALL BE LAPPEDED AND SEALED WITH AN ADHESIVE COMPATIBLE WITH THE MEMBRANE.

VENTILATION R408.1 - THE UNDER-FLOOR SPACE BETWEEN THE BOTTOM OF THE FLOOR JOISTS AND THE EARTH UNDER ANY BUILDING (EXCEPT SPACES OPENING BY THE BASEMENT) SHALL BE VENTILATED THROUGH FOUNDATION WALLS OR EXTERIOR WALLS. A GROUND COVER OF SIX MIL (0.006) IN THICK BLACK POLYETHYLENE OR APPROVED EQUAL SHALL BE LAID OVER THE GROUND WITHIN CRAWL SPACES. THE GROUND COVER SHALL BE OVERLAPPED SIX INCHES MINIMUM AT THE JOINTS AND SHALL EXTEND TO THE FOUNDATION WALL.
EXCEPTION: THE GROUND COVER MAY BE OMITTED IN CRAWL SPACES IF THE CRAWL SPACE HAS A CONCRETE SLAB FLOOR WITH A MINIMUM THICKNESS OF TWO INCHES.

DRAFTSTOPPING & FIRE BLOCKING

DRAFTSTOPPING R302.12
IN COMBUSTIBLE CONSTRUCTION WHERE THERE IS USABLE SPACE BOTH ABOVE & BELOW THE CONCEALED SPACE OF A FLOOR/CEILING ASSEMBLY, DRAFTSTOPPING SHALL BE PROVIDED TO PREVENT THE PASSAGE OF GASES, SMOKE, OR FLAME. DRAFTSTOPPING SHALL DIVIDE THE CONCEALED SPACE INTO APPROXIMATELY EQUAL AREAS. WHERE THE ASSEMBLY IS ENCLOSED BY A FLOOR MEMBRANE ABOVE & A CEILING MEMBRANE BELOW, DRAFTSTOPPING SHALL BE PROVIDED IN FLOOR/CEILING ASSEMBLIES UNDER THE FOLLOWING CIRCUMSTANCES:
1. CEILING IS SUSPENDED UNDER THE FLOOR FRAMING.
2. FLOOR FRAMING IS CONSTRUCTED OF TRUSS-TYPE OPEN-WEB OR PERFORATED MEMBERS. DRAFTSTOPPING SHALL CONSIST OF MATERIALS LISTED IN IRC SECTION R302.12.1.

FIREBLOCKING R302.11

IN COMBUSTIBLE CONSTRUCTION, FIREBLOCKING SHALL BE PROVIDED TO CUT OFF BOTH VERTICAL AND HORIZONTAL CONCEALED DRAFT OPENINGS AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND THE ROOF SPACE. FIREBLOCKING SHALL BE PROVIDED IN WOOD-FRAMED CONSTRUCTION IN THE FOLLOWING LOCATIONS:
1. IN CONCEALED SPACES OF STUD WALLS AND PARTITIONS, INCLUDING PURGED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS AS FOLLOWS:

- 1. VERTICALLY AT THE CEILING AND FLOOR LEVELS.
- 2. HORIZONTALLY AT INTERVALS NOT EXCEEDING 10".

- 2. AT INTERCONNECTIONS BETWEEN CEILING AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILING, AND COVE CEILING.
- 3. IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH IRC SECTION R302.11 (1) "GUE".
- 4. AT OR BETWEEN WALLS, PARTITIONS, DUCTS, CABLES AND WIRES AT CEILING AND FLOOR LEVEL, WITH AN APPROVED MATERIAL TO RESIST THE FREE PASSAGE OF FLAME AND PRODUCTS OF COMBUSTION. THE MATERIAL FILLING THIS ANNULAR SPACE SHALL NOT BE REQUIRED TO MEET THE ASTM E 136 REQUIREMENTS.
- 5. FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES, SEE IRC SECTION R102.9.3.
- 6. FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPARATION. FIREBLOCKING SHALL CONSIST OF MATERIALS LISTED IN IRC SECTION R302.11. LOOSE-FILL INSULATION MATERIAL SHALL NOT BE USED AS A FIREBLOCK UNLESS SPECIFICALLY TESTED IN THE FORM AND MANNER INTENDED. THE INTEGRITY OF ALL FIREBLOCKS SHALL BE MAINTAINED.

WALL CONSTRUCTION/FRAMING

GENERAL. ALL MINIMUM NAILING SHALL BE IN ACCORDANCE WITH IBC TABLE 2304.10(1) AND IRC TABLE R602.3(1) UNLESS NOTED OTHERWISE. GYPSUM WALL BOARD AT INTERIOR WALLS TO BE FASTENED ACCORDING TO TABLE R702.3.5

MINIMUM THICKNESS AND APPLICATION OF GYPSUM BOARD								
TABLE R702.3.5								
THICKNESS OF GYPSUM BOARD OR GYPSUM PANEL PRODUCTS (INCHES)	APPLICATION	ORIENTATION OF GYPSUM BOARD OR GYPSUM PANEL PRODUCTS TO FRAMING	MAXIMUM SPACING OF FRAMING MEMBERS (INCHES O.C.)	MAXIMUM SPACING OF FASTENERS (INCHES) NAILS w/o adhesive	SCREWS	SIZE OF NAILS FOR APPLICATION TO WOOD FRAMING		
3/8"	CEILING	PERPENDICULAR	16	1	12	3 GAGE, 1-1/4" LONG, 19x4" HEAD; 0.095" DIA, 1-1/4" LONG, ANNULAR-RINGED; OR 4d COOLER NAIL, 0.095" DIA, 1-3/8" LONG, 1/2" HEAD.		
	WALL	EITHER DIRECTION	16	8	16			
1/2"	CEILING	EITHER DIRECTION	16	1	12	3 GAGE, 1-3/8" LONG, 19x4" HEAD; 0.095" DIA, 1-1/4" LONG, ANNULAR-RINGED; OR 5d COOLER NAIL, 0.095" DIA, 1-5/8" LONG, 5/4" HEAD; OR GYPSUM BOARD NAIL, 0.095" DIA, 1-1/8" LONG, 3/2" HEAD.		
	CEILING	PERPENDICULAR	24	1	12			
	WALL	EITHER DIRECTION	24	8	12			
	WALL	PERPENDICULAR	16	8	16			
5/8"	CEILING	EITHER DIRECTION	16	1	12	3 GAGE, 1-5/8" LONG, 19x4" HEAD; 0.095" DIA, 1-3/8" LONG, ANNULAR-RINGED; OR 6d COOLER NAIL, 0.095" DIA, 1-7/8" LONG, 1/4" HEAD; OR GYPSUM BOARD NAIL, 0.095" DIA, 1-1/8" LONG, 19x4" HEAD.		
	CEILING	PERPENDICULAR	24	1	12			
	TYPE X AT GARAGE CLG. BEHNEATH HABITABLE ROOMS	PERPENDICULAR	24	6	6	1-7/8" LONG 6d COATED NAILS OR EQUIVALENT DRYWALL SCREWS. SCREWS SHALL COMPLY WITH SECTION R702.3.5.1.		
	WALL	EITHER DIRECTION	24	8	12	3 GAGE, 1-5/8" LONG, 19x4" HEAD; 0.095" DIA, 1-3/8" LONG, ANNULAR-RINGED; OR 6d COOLER NAIL, 0.095" DIA, 1-7/8" LONG, 1/4" HEAD; OR GYPSUM BOARD NAIL, 0.095" DIA, 1-1/8" LONG, 19x4" HEAD.		
3/8"	CEILING	PERPENDICULAR	16	16	16	APPLICATION WITH ADHESIVE		
	CEILING	EITHER DIRECTION	16	16	16	SAFE AS ABOVE FOR 3/8" GYPSUM BOARD AND GYPSUM PANEL PRODUCTS.		
	1/2" OR 5/8"	CEILING	PERPENDICULAR	24	12	16	SAFE AS ABOVE FOR 1/2" AND 5/8" GYPSUM BOARD AND GYPSUM PANEL PRODUCTS, RESPECTIVELY.	
	WALL	EITHER DIRECTION	24	16	24			
3/8 LAYERS	CEILING	PERPENDICULAR	16	16	16	BASE PLY NAILLED AS ABOVE FOR 3/8" GYPSUM BOARD AND GYPSUM PANEL PRODUCTS, FACE PLY INSTALLED WITH ADHESIVE.		
	WALL	EITHER DIRECTION	24	24	24			

FASTENERS. ALL NAILS SPECIFIED ON THIS PLAN SHALL BE COMMON OR GALVANIZED BOX (UNLESS NOTED OTHERWISE) OF THE DIAMETER AND LENGTH LISTED BELOW OR AS PER APPENDIX L OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) 6d COMMON (0.131" DIA, 2-1/2" LENGTH), 8d BOX (0.131" DIA, 2-1/2" LONG), 10d COMMON (0.148" DIA, 3" LONG), 10d BOX (0.128" DIA, 3" LENGTH), 16d COMMON (0.162" DIA, 3-1/2" LONG), 16d SINKER (0.148 DIA, 3-1/4" LONG) 5d COOLER (0.086" DIA, 1-5/8" LONG), 6d COOLER (0.095" DIA, 1-1/8" LONG).
LUMBER GRADES. FRAMING LUMBER SHALL COMPLY TO THE LATEST EDITION OF UMPA GRADING RULES FOR THE WESTERN LUMBER. ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED LUMBER GRADING AGENCY AND SHALL HAVE THE FOLLOWING UNADJUSTED DESIGN MINIMUM PROPERTIES:

	WOOD TYPE
JOISTS: 2X4 2X6 OR LARGER	W F 2 - Fb=850 psi, Fv=75 psi, Fc=1300 psi, E=1200000 psi W F 2 - Fb=850 psi, Fv=75 psi, Fc=1300 psi, E=1200000 psi
BEAM: 4X 6X OR LARGER	DF-L 2 - Fb=900 psi, Fv=85 psi, Fc=1350 psi, E=1600000 psi DF-L 2 - Fb=875 psi, Fv=85 psi, Fc=1600 psi, E=1300000 psi
STUDS: 2X4 2X6 OR LARGER	W F 2 - Fb=850 psi, Fv=75 psi, Fc=1300 psi, E=1200000 psi W F 2 - Fb=850 psi, Fv=75 psi, Fc=1300 psi, E=1200000 psi
POSTS: 4X4 4X6 OR LARGER 6X6 OR LARGER 6X6 OR LARGER	W F 2 - Fb=900 psi, Fv=95 psi, Fc=1350 psi, E=1600000 psi W F 2 - Fb=900 psi, Fv=95 psi, Fc=1350 psi, E=1600000 psi DF-L 1 - Fb=1000 psi, Fv=85 psi, Fc=475 psi, E=1300000 psi DF-L 2 - Fb=100 psi, Fv=85 psi, Fc=475 psi, E=1300000 psi

GLUED-LAMINATED BEAM (GLB) SHALL BE 24F-V4 FOR SINGLE SPANS & 24F-V8 FOR CONTINUOUS OR CANTILEVER SPANS WITH THE FOLLOWING MINIMUM PROPERTIES:
Fb = 2,400 PSI, Fv = 165 PSI, Fc = 650 PSI (PERPENDICULAR), E = 1,800,000 PSI.
ENGINEERED WOOD BEAMS AND JOISTS
CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND SPECIFICATIONS FOR APPROVAL BY BUILDING OFFICIAL. DESIGN, FABRICATION AND ERECTION IN ACCORDANCE WITH THE LATEST ICC EVALUATION REPORT.
BEAMS DESIGNATED AS 'PSL' SHALL HAVE THE MINIMUM PROPERTIES:
Fb = 2,300 PSI, Fv = 230 PSI, Fc = 750 PSI (PERPENDICULAR), E = 2,000,000 PSI. BEAMS DESIGNATED AS 'LVL' SHALL HAVE THE MINIMUM PROPERTIES:
Fb = 2,600 PSI, Fv = 285 PSI, Fc = 750 PSI (PERPENDICULAR), E = 1,300,000 PSI. BEAMS DESIGNATED AS 'L8.' SHALL HAVE THE MINIMUM PROPERTIES:
Fb = 1,700 PSI, Fv = 400 PSI, Fc = 600 PSI (PERPENDICULAR), E = 1,300,000 PSI. CALCULATIONS SHALL INCLUDE DEFLECTION AND CAMBER REQUIREMENTS. DEFLECTION SHALL BE LIMITED AS FOLLOWS:
FLOOR LIVE LOAD MAXIMUM = L/480. FLOOR TOTAL LOAD MAXIMUM = L/240.

PRE-FABRICATED WOOD TRUSSES
PRE-FABRICATED WOOD TRUSSES SHALL BE DESIGNED TO SUPPORT SELF WEIGHT PLUS LIVE LOAD AND SUPERIMPOSED DEAD LOADS AS STATED IN THE GENERAL NOTES. TRUSSES SHALL BE DESIGNED & STAMPED BY A LICENSED PROFESSIONAL ENGINEER AND FABRICATED ONLY FROM THOSE DESIGNS. NONBEARING WALLS SHALL BE HELD AWAY FROM THE TRUSS BOTTOM CHORD WITH AN APPROVED FASTENER (SUCH AS SIMPSON STC) TO ENSURE THAT THE TRUSS BOTTOM CHORD WILL NOT BEAR ON THE WALL. ALL PERMANENT TRUSS MEMBER BRACING SHALL BE INSTALLED PER THE TRUSS DESIGN DRAWINGS.

ROOF/WALL FLOOR SHEATHING
TYPICAL WALL & ROOF SHEATHING SHALL BE 7/16" RATED SHEATHING MINIMUM UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 8d COMMON @ 6" O.C. @ PANEL EDGES AND 12" O.C. IN FIELD UNO. ON SHEARWALL SCHEDULE. SPAN INDEX SHALL BE 24/0 FOR WALLS AND 24/16 FOR ROOF. FLOOR SHEATHING SHALL BE 3/4" TAG RATED (40/20) SHEATHING, UNLESS OTHERWISE SPECIFIED. MINIMUM NAILING SHALL BE 8d COMMON AT 6" O.C. @ PANEL EDGES AND 12" O.C. IN FIELD. SPAN INDEX SHALL BE 40/20 UNLESS NOTED OTHERWISE. STAGGER END LAPS AT ROOF AND FLOOR SHEATHING.
WALL FLASHING
APPROVED CORROSION-RESISTANT FLASHING SHALL BE PROVIDED IN THE EXTERIOR WALL ENVELOPE IN SUCH A MANNER AS TO PREVENT ENTRY OF WATER INTO THE WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS. THE FLASHING SHALL EXTEND TO THE SURFACE OF THE EXTERIOR WALL FINISH AND SHALL BE INSTALLED TO PREVENT WATER FROM REENTERING THE EXTERIOR WALL ENVELOPE. APPROVED CORROSION-RESISTANT FLASHINGS SHALL BE INSTALLED AT ALL OF THE FOLLOWING LOCATIONS:
1. AT TOP OF ALL EXTERIOR WINDOW AND DOOR OPENINGS IN SUCH A MANNER AS TO BE LEAKPROOF.
2. AT THE EXTERIOR CORNERS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO OPENINGS.
3. UNDER AND AT THE ENDS OF MASONRY, WOOD, OR METAL COPINGS AND SILLS.
4. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM.
5. WHERE EXTERIOR PORCHES, DECKS, OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD CONSTRUCTION.
6. AT WALL AND ROOF INTERSECTIONS.
7. AT BUILT-IN GUTTERS.

EXTERIOR DOORS, WINDOWS AND SKYLIGHTS

PER 2018 WASHINGTON STATE ENERGY CODE
WINDOWS SHALL BE INSTALLED AND FINISHED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. WRITTEN INSTALLATION INSTRUCTIONS SHALL BE PROVIDED BY THE MANUFACTURER FOR EACH WINDOW. ALL SKYLIGHTS AND SKY WALLS TO BE LAMINATED GLASS UNLESS NOTED OTHERWISE.
SECTION R310-EMERGENCY ESCAPE & RESCUE OPENINGS
R310.1 EMERGENCY ESCAPE AND RESCUE OPENING REQUIRED.
BASEMENTS, HABITABLE ATTICS AND EVERY SLEEPING ROOM SHALL HAVE NOT LESS THAN ONE OPERABLE EMERGENCY ESCAPE AND RESCUE OPENING. WHERE BASEMENTS CONTAIN ONE OR MORE SLEEPING ROOMS, AN EMERGENCY ESCAPE AND RESCUE OPENING SHALL BE REQUIRED IN EACH SLEEPING ROOM. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL OPEN DIRECTLY INTO A PUBLIC WAY, OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY.
EXCEPTION: STORY SHELTERS AND BASEMENTS USED ONLY TO HOUSE MECHANICAL EQUIPMENT NOT EXCEEDING A TOTAL FLOOR AREA OF 200 SQ. FT.
MINIMUM OPENING AREA: ALL EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL HAVE A MIN. NET CLEAR OPENING OF 5.7 SQ. FT.
EXCEPTION: GRADE FLOOR OPENINGS SHALL HAVE A MIN. 5.0 SQ. FT.
MINIMUM OPENING HEIGHT: THE MIN. NET CLEAR OPENINGS HEIGHT SHALL BE 24 INCHES.
MINIMUM OPENING WIDTH: THE MIN. NET CLEAR OPENING WIDTH SHALL BE 20 INCHES.
MAXIMUM SILL HEIGHT: WHERE A WINDOW IS PROVIDED AS THE EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL HAVE A SILL HEIGHT OF NOT MORE THAN 44" ABOVE THE FLOOR, WHERE THE SILL HEIGHT IS BELOW GRADE, IT SHALL BE PROVIDED WITH A WINDOW WELL IN ACCORDANCE WITH SEC. R302.3.
SAFETY GLAZING SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS OR AS OTHERWISE REQUIRED PER IRC SECTION R308.4
1. GLAZING IN DOORS - 6IDE HINGED DOORS, SLIDING GLASS DOORS AND PANELS IN SLIDING, & BIFOLD DOOR ASSEMBLIES PER IRC SECTION R308.4.1.
2. GLAZING ADJACENT TO DOORS - PANELS WITHIN 24" OF EITHER SIDE OF THE DOOR IN CLOSED POSITION PER IRC SECTION R308.4.2.
3. GLAZING IN WINDOWS - THE PANE IS LARGER THAN 9 SQ. FT. THE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR, THE TOP EDGE IS MORE THAN 36" ABOVE THE FLOOR, AND ONE OR MORE WALKING SURFACES ARE WITHIN 36"; MEASURED HORIZONTALLY AND IN A STRAIGHT LINE OF THE GLAZING PER IRC SECTION R308.4.3.
4. GLAZING IN GUARDS AND RAILS PER IRC SECTION R308.4.4.
5. GLAZING IN UIET SPACES - WALLS, ENCLOSURES OR FENCES CONTAINING OR FACING HOT TUBS, SPAS, WHIRLPOOLS, SAUNAS, STEAM ROOMS, BATHTUBS, SHOWERS AND INDOOR OR OUTDOOR SWIMMING POOLS WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 60" MEASURED VERTICALLY ABOVE ANY STANDING OR WALKING SURFACE PER IRC SECTION R308.4.5.
6. GLAZING ADJACENT TO STAIRS AND RAFTERS - WHERE THE BOTTOM EXPOSED EDGE IS LESS THAN 36" ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF STAIRWAYS, LANDING BETWEEN FLIGHTS OF STAIRS AND RAFTERS PER IRC SECTION R308.4.6.
7. GLAZING ADJACENT TO THE BOTTOM STAIR LANDING - WHERE THE GLAZING IS LESS THAN 36" ABOVE THE LANDING AND WITHIN A 60° HORIZONTAL ARC LESS THAN 180 DEGREES FROM THE BOTTOM TREAD NOSING PER IRC SECTION R308.4.1.

INSULATION AND MOISTURE PROTECTION

R302.10 FLAME SPREAD INDEX AND SMOKE-DEVELOPED INDEX FOR INSULATION
FLAME SPREAD AND SMOKE-DEVELOPED INDEX FOR INSULATION SHALL BE IN ACCORDANCE WITH SECTIONS R302.10.1 THROUGH R302.10.5.
R302.10.1 INSULATION
INSULATION MATERIALS, INCLUDING FACINGS, SUCH AS VAPOR RETARDERS AND VAPOR-PERMEABLE MEMBRANES INSTALLED WITHIN FLOOR-CEILING ASSEMBLIES, ROOF-CEILING ASSEMBLIES, SCREW, CRAWL SPACES AND ATTIC SPACES, SHALL HAVE A FLAME SPREAD INDEX NOT TO EXCEED 25 WITH AN ACCOMPANYING SMOKE-DEVELOPED INDEX NOT TO EXCEED 450 WHERE TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723.
EXCEPTIONS:
1. WHERE SUCH MATERIALS ARE INSTALLED IN CONCEALED SPACES, THE FLAME SPREAD INDEX AND SMOKE-DEVELOPED INDEX LIMITATIONS DO NOT APPLY TO THE FACINGS, PROVIDED THAT THE FACING IS INSTALLED IN SUBSTANTIAL CONTACT WITH THE UNEXPOSED SURFACE OF THE CEILING, FLOOR OR WALL FINISH.
2. CELLULOSE FIBER LOOSE-FILL INSULATION THAT IS NOT SPRAY APPLIED, COMPLYING WITH THE REQUIREMENTS OF SECTION R302.10.3, SHALL NOT BE REQUIRED TO MEET THE SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450 AND SHALL BE REQUIRED TO MEET A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 450 WHERE TESTED IN ACCORDANCE WITH CANULC 9102.2.
3. FOAM PLASTIC INSULATION SHALL COMPLY WITH SECTION R316.

R302.10.2 LOOSE-FILL INSULATION
LOOSE-FILL INSULATION MATERIALS THAT CANNOT BE MOUNTED IN THE ASTM E 84 OR UL 723 APPARATUS WITHOUT A SCREEN OR ARTIFICIAL SUPPORTS SHALL COMPLY WITH THE FLAME SPREAD AND SMOKE-DEVELOPED LIMITS OF SECTION R302.10.1 WHERE TESTED IN ACCORDANCE WITH CANULC 9102.2.
EXCEPTION: CELLULOSE FIBER LOOSE-FILL INSULATION SHALL NOT BE REQUIRED TO BE TESTED IN ACCORDANCE WITH CANULC 9102.2, PROVIDED SUCH INSULATION COMPLIES WITH THE REQUIREMENTS OF SECTIONS R302.10.1 AND R302.10.3.
R302.10.3 CELLULOSE FIBER LOOSE-FILL INSULATION
CELLULOSE FIBER LOOSE-FILL INSULATION SHALL COMPLY WITH CPSC 16 CFR PARTS 1209 AND 1404. EACH PACKAGE OF SUCH INSULATING MATERIAL SHALL BE CLEARLY LABELED IN ACCORDANCE WITH CPSC 16 CFR PARTS 1209 AND 1404.
R302.10.4 EXPOSED ATTIC INSULATION
EXPOSED INSULATION MATERIALS INSTALLED ON ATTIC FLOORS SHALL HAVE A CRITICAL RADIANT FLUX NOT LESS THAN 0.12 WATT PER SQUARE CENTIMETER.
R302.10.5 TESTING
TESTS FOR CRITICAL RADIANT FLUX SHALL BE MADE IN ACCORDANCE WITH ASTM E 910.

INFILTRATION
CONTROL EXTERIOR JOINTS AROUND WINDOWS AND DOOR FRAMES, PENETRATIONS IN FLOORS, ROOFS AND WALLS AND ALL SIMILAR OPENINGS SHALL BE SEALED, CAULKED, GASKETED OR WEATHERSTRIPPED TO LIMIT AIR LEAKAGE.
R102.1 VAPOR RETARDERS
CLASS I OR II VAPOR RETARDERS ARE REQUIRED ON THE INTERIOR SIDE OF FRAME WALLS IN CLIMATE ZONES 5, 6, 7, 8, AND MARINE 4.
EXCEPTIONS:
1. ASSEMBLY WALLS.
2. BELOW-GRADE PORTION OF ANY WALL.
3. CONSTRUCTION WHERE MOISTURE OR ITS FREEZING WILL NOT DAMAGE THE MATERIALS.
R102.1.1 CLASS III VAPOR RETARDERS
CLASS III VAPOR RETARDERS SHALL BE PERMITTED WHERE ANY ONE OF THE CONDITIONS IN TABLE R102.1.1 IS MET.
R102.1.2 MATERIAL VAPOR RETARDER CLASS
THE VAPOR RETARDER CLASS SHALL BE BASED ON THE MANUFACTURER'S CERTIFIED TESTING OR A TESTED ASSEMBLY.
THE FOLLOWING SHALL BE DESIGN TO TO MEET THE CLASS SPECIFIED:
CLASS I: SHEET POLYETHYLENE, UNPERFORATED ALUMINUM FOIL.
CLASS II: KRAFT-FACED FIBERGLASS BATTS.
CLASS III: LATEX OR ENAMEL PAINT.
R102.1.3 MINIMUM CLEAR AIRSPACES AND VENTED OPENINGS FOR VENTED CLADDING
FOR THE PURPOSES OF THIS SECTION, VENTED CLADDING SHALL INCLUDE THE FOLLOWING MINIMUM CLEAR AIRSPACES. OTHER OPENING WITH THE EQUIVALENT VENT AREA SHALL BE PERMITTED:
1. VINTY LATEX OR HORIZONTAL ALUMINUM SIDING APPLIED OVER A WEATHER-RESISTIVE BARRIER AS SPECIFIED IN TABLE R103.3(1).
2. BRICK VENEER WITH A CLEAR AIRSPACE AS SPECIFIED IN TABLE R103.3.4.
3. OTHER APPROVED VENTED CLADDINGS.

USBC R402.4 AIR LEAKAGE (MANDATORY)
THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS R402.4.1 THROUGH R402.4.4.
R402.4.1 TESTING
THE BUILDING OR DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 3 AIR EXCHANGES PER HOUR.
R402.4.2 TESTING
THE BUILDING OR DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 3 AIR EXCHANGES PER HOUR.
R402.4.3 TESTING
THE BUILDING OR DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 3 AIR EXCHANGES PER HOUR.
R402.4.4 TESTING
THE BUILDING OR DWELLING UNIT SHALL BE TESTED AND VERIFIED AS HAVING AN AIR LEAKAGE RATE OF NOT EXCEEDING 3 AIR EXCHANGES PER HOUR.

INSPECTIONS AND ENFORCEMENT

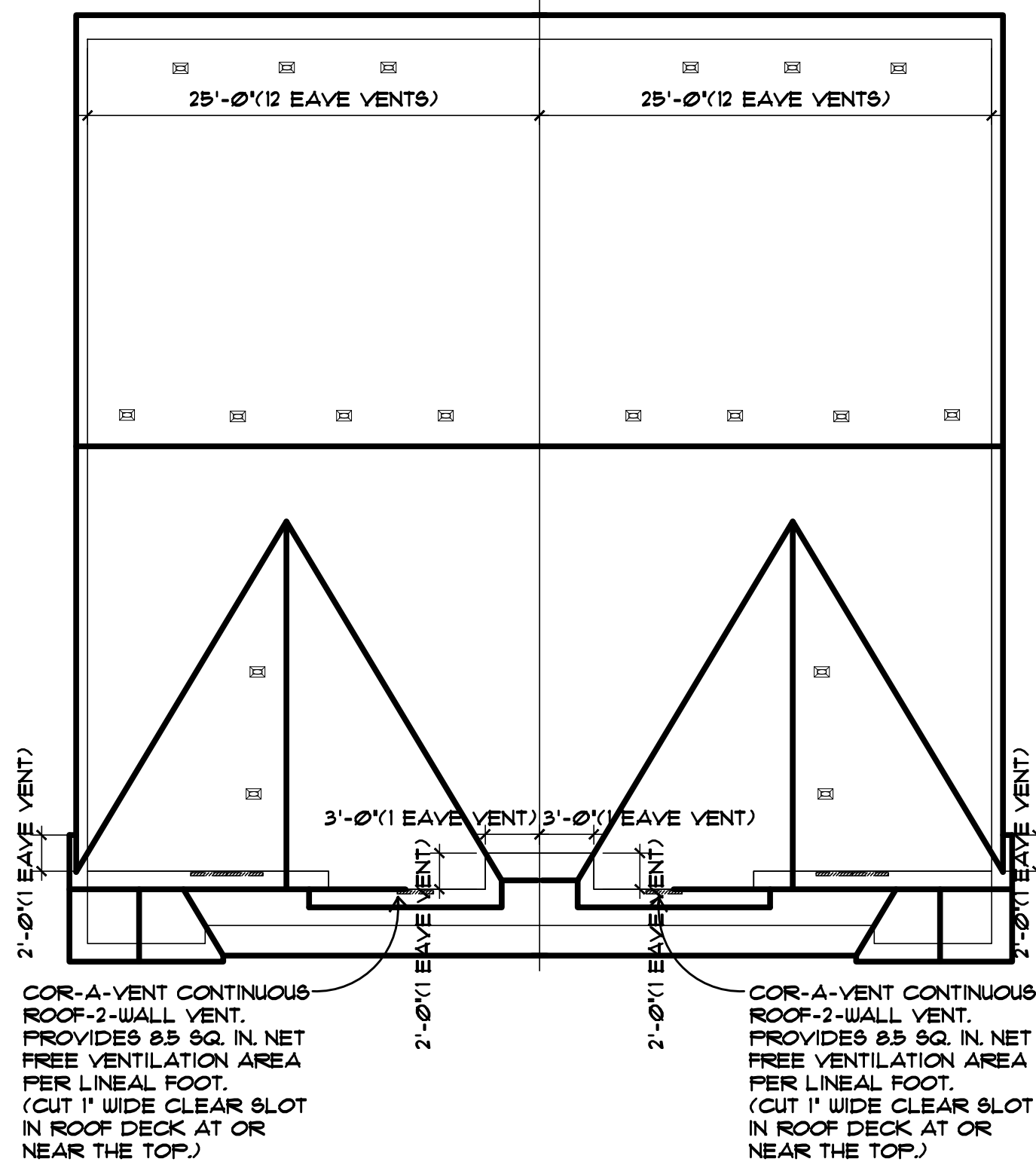
POSTING OF CERTIFICATE USBC R402.3
A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE BUILDER OR REGISTERED DESIGN PROFESSIONAL AND POSTED ON A WALL IN THE SPACE WHERE THE FURNACE IS LOCATED, A UTILITY ROOM, OR AN APPROVED LOCATION INSIDE THE BUILDING. WHEN LOCATED ON AN ELECTRICAL PANEL, THE CERTIFICATE SHALL NOT COVER OR OBSTRUCT THE VISIBILITY OF THE CIRCUIT DIRECTORY LABEL. SERVICE DISCONNECT LABELS OR OTHER REQUIRED LABELS. THE CERTIFICATES SHALL LIST THE PRECEDENT R-VALUES OF INSULATION INSTALLED IN OR ON CEILING/ROOF, WALLS, FOUNDATION (SLAB, BELOW-GRADE WALL, AND/OR FLOOR) AND DUCTS OUTSIDE CONDITIONED SPACES. U-FACTORS FOR FENESTRATION AND THE SOLAR HEAT GAIN COEFFICIENT (SHGC) OF FENESTRATION, AND THE RESULTS FROM ANY REQUIRED DUCT SYSTEM AND BUILDING ENVELOPE AIR LEAKAGE TESTING DONE ON THE BUILDING. WHERE THERE IS MORE THAN ONE VALUE FOR EACH COMPONENT, THE CERTIFICATES SHALL LIST THE VALUE COVERING THE LARGEST AREA. THE CERTIFICATES SHALL LIST THE TYPES AND EFFICIENCIES OF HEATING, COOLING AND SERVICE WATER HEATING EQUIPMENT. WHERE A GAS-FIRED UNVENTED ROOM HEATER, ELECTRIC FURNACE, OR BASEBOARD ELECTRIC HEATER IS INSTALLED IN THE RESIDENCE, THE CERTIFICATE SHALL LIST 1500-BTU-FIRED UNVENTED ROOM HEATER, ELECTRIC FURNACE, OR BASEBOARD ELECTRIC HEATER, "AS APPROPRIATE. AN EFFICIENCY SHALL NOT BE LISTED FOR GAS-FIRED UNVENTED ROOM HEATERS, ELECTRIC FURNACES OR ELECTRIC BASEBOARD HEATERS.
DUCT LEAKAGE TESTING
DUCTS SHALL BE LEAK TESTED IN ACCORDANCE WITH USBC R3-33, USING THE MAXIMUM DUCT LEAKAGE RATES SPECIFIED IN 2018 USBC SEC. R402.3.3. A WRITTEN REPORT OF THE RESULTS SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE BUILDING OFFICIAL.
BUILDING AIR LEAKAGE TESTING 2018 USBC SEC. R402.4
THE BUILDING THERMAL ENVELOPE SHALL BE CONSTRUCTED TO LIMIT AIR LEAKAGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS R402.4.1 THROUGH R402.4.4.

PLUMBING NOTES

RODENT PROOFING:
2018 UNIFORM PLUMBING CODE SEC. 312.12
STRAINER PLATES ON DRAIN INLETS SHALL BE DESIGNED AND INSTALLED SO THAT NO OPENING EXCEEDS 1/4 OF AN INCH IN THE LEAST DIMENSION.
312.12.1 PETER BOXES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT RATS CANNOT ENTER A BUILDING BY FOLLOWING THE SERVICE PIPES FROM THE BOX INTO THE BUILDING.
312.12.2 METAL COLLARS IN OR ON BUILDINGS WHERE OPENINGS HAVE BEEN MADE IN WALLS, FLOORS, OR CEILING FOR THE PASSAGE OF PIPES, SUCH OPENINGS SHALL BE CLOSED AND PROTECTED BY THE INSTALLATION OF APPROVED METAL COLLARS SECURELY FASTENED TO THE ADJOINING STRUCTURE.
312.12.3 TUB WASTE OPENINGS IN FRAMED CONSTRUCTION TO CRAWL SPACES AT OR BELOW THE FIRST FLOOR SHALL BE PROTECTED BY THE INSTALLATION OF APPROVED METAL COLLARS OR METAL SCREEN SECURELY FASTENED TO THE ADJOINING STRUCTURE WITH NO OPENING EXCEEDING 1/4 OF AN INCH IN THE LEAST DIMENSION.
WATER HAMMER R302.10.2(UPC)
BUILDING WATER SUPPLY SYSTEM WHERE QUICK-ACTING VALVES ARE INSTALLED SHALL BE PROVIDED WITH WATER HAMMER ARRESTOR(S) TO ABSORB HIGH PRESSURES RESULTING FROM THE QUICK CLOSING OF THESE VALVES. WATER HAMMER ARRESTORS SHALL BE APPROVED MECHANICAL DEVICES IN ACCORDANCE WITH THE APPLICABLE STANDARD AND SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO QUICK ACTING VALVES.

VENTILATION REQUIREMENTS

ROOF ATTIC VENTILATION CALCULATIONS



VENTILATION CALCULATIONS & REQUIREMENTS

AT LEAST 40% (NOT MORE THAN 50% OF REQUIRED VENTS SHALL BE IN UPPER PORTION OF VENTILATED ROOF SPACE (NO MORE THAN 3' BELOW THE RIDGE OR HIGHEST POINT) WITH THE BALANCE OF REQUIRED VENTILATION PROVIDED BY EAVE VENTING.

VENTILATION REQUIRED PER SEC. R202.1 - ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATION OPENINGS SHALL HAVE A LEAST DIMENSIONS OF 1/8" MINIMUM AND 1/4" INCH MAXIMUM. VENTILATION OPENINGS HAVING A LEAST DIMENSION LARGER THAN 1/4" SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH OR SIMILAR MATERIAL WITH OPENINGS HAVING A LEAST DIMENSION OF 1/16" MINIMUM AND 1/4" MAXIMUM. OPENINGS IN ROOF FRAMING MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF SECTION R202.7. REQUIRED VENTILATION OPENINGS SHALL OPEN DIRECTLY TO THE OUTSIDE AIR.

MINIMUM VENT AREA PER SEC. R202.2 - THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/50 OF THE AREA OF THE VENTED SPACE.

VENT AND INSULATION CLEARANCE PER SEC. R202.3 - WHERE EAVE OR CORNICE VENTS ARE INSTALLED, INSULATION SHALL NOT BLOCK THE FREE FLOW OF AIR NOT LESS THAN A 1-INCH SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING AND AT THE LOCATION OF THE VENT.

UPPER ROOF: (AREA 1)

156 SQ. FT. OF ATTIC AREA/300 = 3.85 SQ. FT. OF VENTILATION REQUIRED (955 SQ. INCHES)
UPPER VENTS = 218 SQ. IN. (6 AF50 VENTS)
LOWER VENTS = 218 SQ. IN.
15 EAVE VENTS x 12" PER BLOCK = 180 SQ. IN.
3 AF50 VENTS x 50" PER VENT = 150 SQ. IN.
NOTE: UPPER ROOF VENTING PROVIDED BY 1"x10" AF50 ROOF VENTS. (50" IN. PER VENT)
NOTE: EAVE VENTING PROVIDED BY (4)-2 1/8" DIAMETER 180D HOLES PER EAVE BLOCK.
(4)-2 1/8" DIA HOLES = 146 SQ. IN. W/O MESH
NFA 1/8" MESH = 12" SQ. IN. PER BLOCK

LOWER ROOF - GARAGE: (AREA 3)

182 SQ. FT. OF ATTIC AREA/300 = 51 SQ. FT. OF VENTILATION REQUIRED (13 SQ. INCHES)
EAVE VENTS = 31 SQ. IN.
4 EAVE VENTS x 12" PER BLOCK = 48 SQ. IN.
UPPER VENTS = 30 SQ. IN. (CONT. ROOF-2-WALL VENT)
8.5 SQ. IN. X 2 LFT/85 BAY = 17 SQ. IN. PER TRUSS BAY
48 SQ. IN. REQUIRED/ 17 SQ. IN. = 3 BAYS
NOTE: UPPER ROOF VENTING PROVIDED BY COR-A-VENT ROOF-2-WALL VENT (8.5 SQ. IN. PER LINEAL FT.)

WHOLE HOUSE VENTILATION USING EXHAUST FANS

SEC. M1505

MECHANICAL

HEATING EQUIPMENT ALL WARM-AIR FURNACES SHALL BE LISTED AND LABELED BY AN APPROVED AGENCY AND INSTALLED TO LISTED SPECIFICATIONS.

NO WARM-AIR FURNACES SHALL BE INSTALLED IN A ROOM USED OR DESIGNED TO BE USED AS A BEDROOM, BATHROOM, CLOSET OR IN ANY ENCLOSED SPACE WITH ACCESS ONLY THROUGH SUCH ROOM OR SPACE, EXCEPT DIRECT VENT FURNACE, ENCLOSED FURNACES AN ELECTRIC HEATING FURNACES.

LIQUEFIED PETROLEUM GAS-BURNING APPLIANCES SHALL NOT BE INSTALLED IN A PIT, BASEMENT OR SIMILAR LOCATION WHERE HEAVIER THAN AIR GAS MIGHT COLLECT. APPLIANCES SO FUELED SHALL NOT BE INSTALLED IN AN ABOVE GRADE UNDER FLOOR SPACE OR BASEMENT UNLESS SUCH LOCATION IS PROVIDED WITH AN APPROVED MEANS FOR REMOVAL OF UNBURNED GAS.

HEATING AND COOLING EQUIPMENT LOCATED IN A GARAGE AND WHICH GENERATES A GLOW SPARK OR FLAME CAPABLE OF IGNITING FLAMMABLE VAPOURS SHALL BE INSTALLED WITH THE PILOTS AND BURNERS OR HEATING ELEMENTS AND SWITCHES AT LEAST 18" ABOVE THE FLOOR LEVEL.

TEMPERATURE CONTROL THE PRIMARY SPACE CONDITIONING SYSTEM WITHIN EACH DWELLING UNIT SHALL BE PROVIDED WITH AT LEAST ONE PROGRAMMABLE THERMOSTAT FOR THE REGULATION OF TEMPERATURE USEC SEC. 403.11

VENTILATION EVERY FACTORY BUILT CHIMNEY, TYPE L VENT, TYPE B GAS VENT OR TYPE BU GAS VENT SHALL BE INSTALLED IN ACCORDANCE WITH THE TERMS OF ITS LISTING, MFR'S INSTALLATION INSTRUCTIONS AND APPLICABLE CODE REQUIREMENTS.

A TYPE L VENTING SYSTEM SHALL TERMINATE NOT LESS THAN 2 FEET ABOVE THE HIGHEST POINT WHERE THE VENT PASSES THROUGH THE ROOF OF THE BUILDING AND AT LEAST 2' HIGHER THAN ANY PORTION OF THE BUILDING WITHIN 10' OF THE VENT.

UTILITY ROOM NOTES/MAKE UP AIR:

- WHERE THE EXHAUST DUCT IS CONCEALED WITHIN THE BUILDING CONSTRUCTION, THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG. THE LABEL OR TAG SHALL BE LOCATED WITHIN 6 FEET OF THE EXHAUST DUCT CONNECTION.
- INSTALLATIONS EXHAUSTING MORE THAN 200 CFM SHALL BE PROVIDED WITH MAKE UP AIR WHERE A CLOSET IS DESIGNED FOR THE INSTALLATION OF A CLOTHES DRYER, AN OPENING HAVING AN AREA OF NOT LESS THAN 100 SQ. INCHES FOR MAKE UP AIR SHALL BE PROVIDED IN THE CLOSET ENCLOSURE, OR MAKE UP AIR SHALL BE PROVIDED BY OTHER APPROVED MEANS.
- 100 SQ. INCH TRANSFER GRILL PER IRC G2439.5 (614.6)

WHOLE HOUSE VENTILATION SYSTEM USING EXHAUST FANS SEC. M1505

AS AMENDED BY WASHINGTON STATE

M1505.1 GENERAL WHERE LOCAL EXHAUST OR WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS AND EQUIPMENT SHALL BE DESIGNED IN ACCORDANCE WITH THIS SECTION.

M1505.2 RECIRCULATION OF AIR EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT BE RECIRCULATED WITHIN A RESIDENCE OR TO ANOTHER DWELLING UNIT AND SHALL BE EXHAUSTED DIRECTLY TO THE OUTDOORS. EXHAUST AIR FROM BATHROOMS AND TOILET ROOMS SHALL NOT DISCHARGE INTO AN ATTIC, CRAWL SPACE OR OTHER AREAS OF THE BUILDING. THIS SECTION SHALL NOT PROHIBIT THE INSTALLATION OF DUCTLESS RANGE HOODS IN ACCORDANCE WITH THE EXCEPTION TO SECTION M1505.3.

M1505.3 EXHAUST EQUIPMENT EXHAUST EQUIPMENT SERVING SINGLE DWELLING UNITS SHALL BE LISTED AND LABELED AS PROVIDING THE MIN. REQUIRED AIRFLOW IN ACCORDANCE WITH ANSI/ASHRAE 210-ANSI/ASHRAE 51

M1505.4 WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM EACH DWELLING UNIT SHALL BE EQUIPPED WITH A VENTILATION SYSTEM. THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE DESIGNED IN ACCORDANCE WITH SECTIONS M1505.4.1 THROUGH M1505.4.4.

M1505.4.1 SYSTEM DESIGN THE WHOLE-HOUSE VENTILATION SYSTEM SHALL CONSIST OF ONE OR MORE SUPPLY FANS, ONE OR EXHAUST FANS, OR AN EVR/HRV WITH INTEGRAL FANS, ASSOCIATED DUCTS AND CONTROLS. WHOLE HOUSE MECHANICAL VENTILATION SUPPLY AND EXHAUST FANS PER SECTIONS M1505.4.2 THE SYSTEM SHALL BE DESIGNED AND INSTALLED TO EXHAUST AND OR SUPPLY THE MINIMUM OUTDOOR AIRFLOW RATES PER SECTION M1505.4.3 AS MODIFIED BY THE WHOLE HOUSE VENTILATION SYSTEM COEFFICIENTS IN SECTION M1505.4.3.1 WHERE APPLICABLE. THE WHOLE HOUSE VENTILATION SYSTEM SHALL OPERATE CONTINUOUSLY AT THE MINIMUM VENTILATION RATE DETERMINED PER SECTION M1505.4.2 UNLESS CONFIGURED WITH INTERMITTENT OFF CONTROLS PER SECTION M1505.4.3.2

M1505.4.1.1 WHOLE HOUSE SYSTEM COMPONENT REQUIREMENTS WHOLE HOUSE VENTILATION SUPPLY AND EXHAUST FANS SPECIFIED IN THIS SECTION SHALL HAVE A MIN. EFFICACY AS PRESCRIBED IN THE WASHINGTON STATE ENERGY CODE. DESIGN AND INSTALLATION OF THE SYSTEM OF EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS. WHOLE HOUSE VENTILATION FANS SHALL BE RATED FOR SOUND NO LESS THAN THE MIN. AIRFLOW RATE REQUIRED BY SECTION M1505.4.3.1. VENTILATION FANS SHALL BE RATED FOR SOUND AT A MAX. OF 10 SONE. THIS SHOULD RATING SHALL BE AT A MIN. OF 0.1 IN W.C. STATIC PRESSURE IN ACCORDANCE WITH HV1 PROCEDURES SPECIFIED IN SECTIONS M1505.4.1.2 AND M1505.4.1.3.

M1505.4.1.2 EXHAUST FANS EXHAUST FANS REQUIRED SHALL BE DUCTED DIRECTLY TO THE OUTSIDE. EXHAUST AIR OUTLETS SHALL BE DESIGNED TO LIMIT THE PRESSURE DIFFERENCE TO THE OUTSIDE AND EQUIPPED WITH BACKDRAFT DAMPERS OR MOTORIZED DAMPERS IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE. EXHAUST FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATING INSTITUTE. EXHAUST FANS REQUIRED IN THIS SECTION MAY BE USED TO PROVIDE LOCAL VENTILATION. BATHROOM EXHAUST FANS THAT ARE DESIGNED FOR INTERMITTENT EXHAUST AIRFLOW RATES HIGHER THAN THE CONT. EXHAUST AIRFLOW RATES IN TABLE M1505.4.3(3) SHALL BE PROVIDED WITH OCCUPANCY SENSORS OR HUMIDITY SENSORS TO AUTOMATICALLY OVERRIDE THE FAN TO THE HIGH SPEED AIRFLOW RATE. THE EXHAUST FANS SHALL BE TESTED AND THE TESTING RESULTS SHALL BE SUBMITTED AND POSTED IN ACCORDANCE WITH SECTION M1505.4.1.6.

M1505.4.1.3 SUPPLY FANS SUPPLY FANS USED IN MEETING THE REQUIREMENTS OF THIS SECTION SHALL SUPPLY OUTDOOR AIR FROM INTAKE OPENINGS IN ACCORDANCE WITH IMC SECTIONS 401.4 AND 401.5. WHEN DESIGNED FOR INTERMITTENT OFF OPERATION, SUPPLY SYSTEMS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS IN ACCORDANCE WITH THE WASHINGTON STATE ENERGY CODE.

M1505.4.1.4 BALANCED WHOLE HOUSE VENTILATION SYSTEM A BALANCED WHOLE HOUSE VENTILATION SYSTEM SHALL INCLUDE BOTH SUPPLY AND EXHAUST FANS. THE SUPPLY AND EXHAUST FANS SHALL HAVE AIRFLOW THAT IS WITHIN 10 PERCENT OR 5 CFM, WHICHEVER IS GREATER, OF THE TOTAL MECHANICAL SUPPLY AIRFLOW RATE.

M1505.4.1.5 WHOLE-HOUSE VENTILATION INTEGRATED SUPPLY SYSTEMS USING SPACE HEATING AND OR COOLING AIR HANDLER FANS FOR OUTDOOR AIR SUPPLY DISTRIBUTION ARE NOT PERMITTED.

M1505.4.1.6 TESTING WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE TESTED, BALANCED AND VERIFIED TO PROVIDE A FLOW RATE NOT LESS THAN THE MINIMUM REQUIRED BY SECTIONS M1505.4.3 AND M1505.4.4. TESTING SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S VENTILATION EQUIPMENT MANUFACTURER'S INSTRUCTIONS, OR BY USING A FLOW HOOD, FLOW GRID, OR OTHER AIRFLOW MEASURING DEVICE AT THE MECHANICAL VENTILATION FANS INLET TERMINALS, OUTLET TERMINALS OR GRILLES OR IN THE CONNECTED VENTILATION DUCTS.

M1505.4.1.7 CERTIFICATE A PERMANENT CERTIFICATE SHALL BE COMPLETED BY THE MECHANICAL CONTRACTOR, TEST AND BALANCE CONTRACTOR OR OTHER APPROVED PARTY AND POSTED ON A WALL IN THE SPACE WHERE THE FURNACE IS LOCATED, A UTILITY ROOM, OR AN APPROVED LOCATION INSIDE THE BUILDING.

M1505.4.2 SYSTEM CONTROLS THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT COMPLY WITH THE FOLLOWING:

- THE WHOLE HOUSE VENTILATION SYSTEM SHALL BE CONTROLLED WITH MANUAL SWITCHES, TIMERS OR OTHER MEANS THAT PROVIDE FOR AUTOMATIC OPERATION OF THE VENTILATION SYSTEM WITH READY ACCESS BY THE OCCUPANT.
- WHOLE HOUSE MECHANICAL VENTILATION SYSTEM SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE OFF OF THE SYSTEM BY THE OCCUPANT DURING PERIODS OF POOR OUTDOOR AIR QUALITY. CONTROLS SHALL INCLUDE PERMANENT TEXT OR A SYMBOL INDICATION THEIR FUNCTION. RECOMMENDED CONTROL PERMANENT LABELING TO INCLUDE TEXT SIMILAR TO THE FOLLOWING: LEAVE ON UNLESS OUTDOOR AIR QUALITY IS VERY POOR. MANUAL CONTROLS SHALL BE READILY ACCESSIBLE BY THE OCCUPANT.
- WHOLE HOUSE VENTILATION SYSTEMS SHALL BE CONFIGURED TO OPERATE CONTINUOUSLY EXCEPT WHERE INTERMITTENT OFF CONTROLS AND SIZING ARE PROVIDED PER SECTION M1505.4.3.2

M1505.4.3 MECHANICAL VENTILATION RATE THE WHOLE-HOUSE MECHANICAL VENTILATION SYSTEM SHALL PROVIDE OUTDOOR AIR AT A CONTINUOUS RATE AS DETERMINED IN ACCORDANCE WITH TABLE M1505.4.3(1) OR EQUATION 15-1

M1505.4.3.1 VENTILATION QUALITY ADJUSTMENT THE MINIMUM WHOLE HOUSE VENTILATION RATE FROM SECTION M1505.4.3 SHALL BE ADJUSTED BY THE SYSTEM COEFFICIENT IN TABLE M1505.4.3(2).

M1505.4.3.2 INTERMITTENT OFF OPERATION WHOLE-HOUSE MECHANICAL VENTILATION SYSTEMS SHALL BE PROVIDED WITH ADVANCED CONTROLS THAT ARE CONFIGURED TO OPERATE THE SYSTEM WITH INTERMITTENT OFF OPERATION SHALL OPERATE FOR AT LEAST TWO HOURS IN EACH FOUR-HOUR SEGMENT.

M1505.4.4 LOCAL EXHAUST BATHROOMS, TOILET ROOMS, AND KITCHENS SHALL INCLUDE A LOCAL EXHAUST SYSTEM. SUCH LOCAL EXHAUST SYSTEMS SHALL HAVE THE CAPACITY TO EXHAUST THE MINIMUM AIRFLOW RATE IN ACCORDANCE WITH TABLE M1505.4.4(1). FANS REQUIRED BY THIS SECTION SHALL BE PROVIDED WITH CONTROLS THAT ENABLE MANUAL OVERRIDE OR AUTOMATIC OCCUPANCY SENSOR, HUMIDITY SENSOR OR POLLUTANT SENSOR CONTROLS. AN 'ON/OFF' SWITCH SHALL MEET THIS REQUIREMENT FOR MANUAL CONTROLS. MANUAL FAN CONTROLS SHALL BE READILY ACCESSIBLE IN THE ROOM SERVED BY THE FAN.

M1505.4.4.2 LOCAL EXHAUST FANS EXHAUST FANS MEET THE FOLLOWING CRITERIA:
1. EXHAUST FANS SHALL BE TESTED AND RATED IN ACCORDANCE WITH THE AIRFLOW AND SOUND RATING PROCEDURES OF THE HOME VENTILATION INSTITUTE.

TABLE M1505.4.3(1) CONTINUOUS WHOLE HOUSE MECHANICAL VENTILATION SYSTEM AIR FLOW RATE REQUIREMENTS

DWELLING UNIT FLOOR AREA (SQ. FT.)	NUMBER OF BEDROOMS				
	0-1	2	3	4	5 OR MORE
	AIRFLOW IN CFM				
<500	30	30	35	45	50
501-1,000	30	35	40	50	55
1,001-1,500	30	40	45	55	60
1,501-2,000	35	45	50	60	65
2,001-2,500	40	50	55	65	70
2,501-3,000	45	55	60	70	75
3,001-3,500	50	60	65	75	80
3,501-4,000	55	65	70	80	85
4,001-4,500	60	70	75	85	90
4,501-5,000	65	75	80	90	95

TABLE M1505.4.3(2) INTERMITTENT WHOLE HOUSE MECHANICAL VENTILATION RATE FACTORS

RUN-TIME % IN EACH 4-HOUR SEGMENT	25%	33%	50%	66%	75%	100%
FACTOR	4	3	2	1.5	1.3	1.0

TABLE M1505.4.4 MINIMUM REQUIRED LOCAL EXHAUST RATES FOR ONE- AND TWO-FAMILY DWELLINGS

AREA TO BE EXHAUSTED	EXHAUST RATES	AREA TO BE EXHAUSTED	EXHAUST RATES
KITCHENS	100 cfm INTERMITTENT OR 25 cfm CONTINUOUS	BATHROOMS-TOILET RM'S LAUNDRY ROOMS INDOOR SWIMMING POOLS & SPAS	MECHANICAL EXHAUST CAPACITY OF 50 cfm INTERMITTENT OR 20 cfm CONTINUOUS

2018 ENERGY CODE COMPLIANCE AND OPTIONS

2018 USEC: 4.5 ENERGY CREDITS REQUIRED PER TABLE 406.2
4 - 3.4 5.5+ 4.5 ENERGY CREDITS

FUEL NORMALIZATION CREDITS (TABLE R406.2)

4. (2.5 CREDITS)
FOR HEATING SYSTEM BASED ON ELECTRIC RESISTANCE WITH A DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM IN ACCORDANCE WITH SECTION R403.1.1 INCLUDING THE EXCEPTION.

3.4. (1.5 CREDIT)
DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM, ZONAL CONTROL: IN HOMES WHERE THE PRIMARY SPACE HEATING SYSTEM IS ZONAL ELECTRIC HEATING, A DUCTLESS MINI-SPLIT HEAT PUMP SYSTEM WITH MIN. HSPH OF 10.0 SHALL BE INSTALLED AND PROVIDE HEATING TO THE LARGEST ZONE OF THE HOUSING UNIT.

TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE HEATING EQUIPMENT TYPE AND THE MIN. EQUIPMENT EFFICIENCY.

5.5. (2.0 CREDIT)
WATER HEATING SYSTEM SHALL INCLUDE ONE OF THE FOLLOWING:
ELECTRIC HEAT PUMP WATER HEATER MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION

OR
FOR R-2 OCCUPANCY, ELECTRIC HEAT PUMP WATER HEATER(S), MEETING THE STANDARDS FOR TIER III OF NEEA'S ADVANCED WATER HEATING SPECIFICATION, SHALL SUPPLY DOMESTIC HOT WATER TO ALL UNITS. IF ONE WATER HEATER IS SERVING MORE THAN ONE DWELLING UNIT, ALL HOT WATER SUPPLY AND RECIRCULATION PIPING SHALL BE INSULATED WITH R-8 MIN. PIPE INSULATION.

TO QUALIFY TO CLAIM THIS CREDIT, THE BUILDING PERMIT DRAWINGS SHALL SPECIFY THE OPTION BEING SELECTED AND SHALL SPECIFY THE WATER HEATER EQUIPMENT TYPE AND THE MIN. EQUIPMENT EFFICIENCY AND, FOR SOLAR WATER HEATING SYSTEMS, THE CALCULATION OF THE MIN. ENERGY SAVINGS.

1. Contractor or builder must verify all dimensions before proceeding with construction.

2. This plan was designed to be marketed throughout many municipalities. The purchaser must verify compliance with all local applicable building codes where the home is to be constructed.

3. Purchaser should have plans reviewed by a licensed builder and structural engineer for compliance to specific site conditions.

4. These plans should not be altered by other than a qualified designer, architect, or structural engineer.

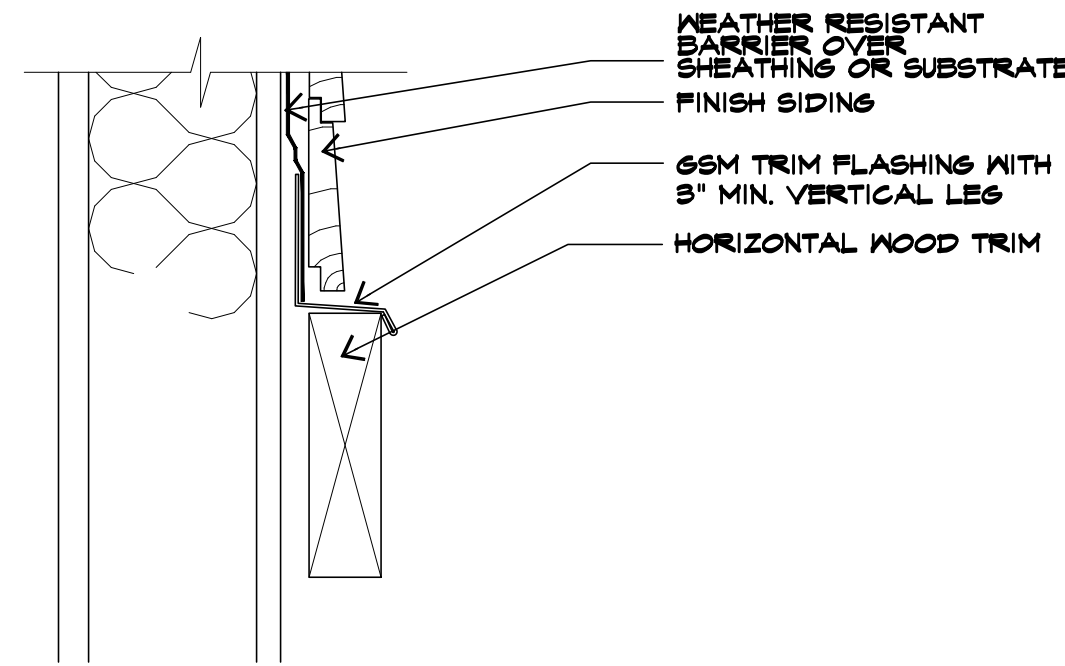
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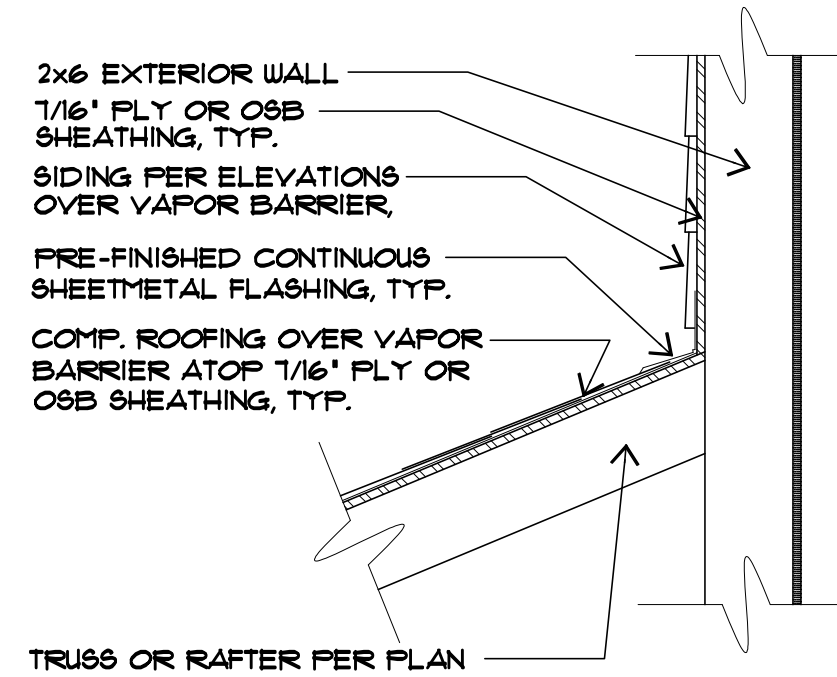
N-2



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



HORIZ. TRIM AT SHEATHING/WOOD STUDS
NTS.

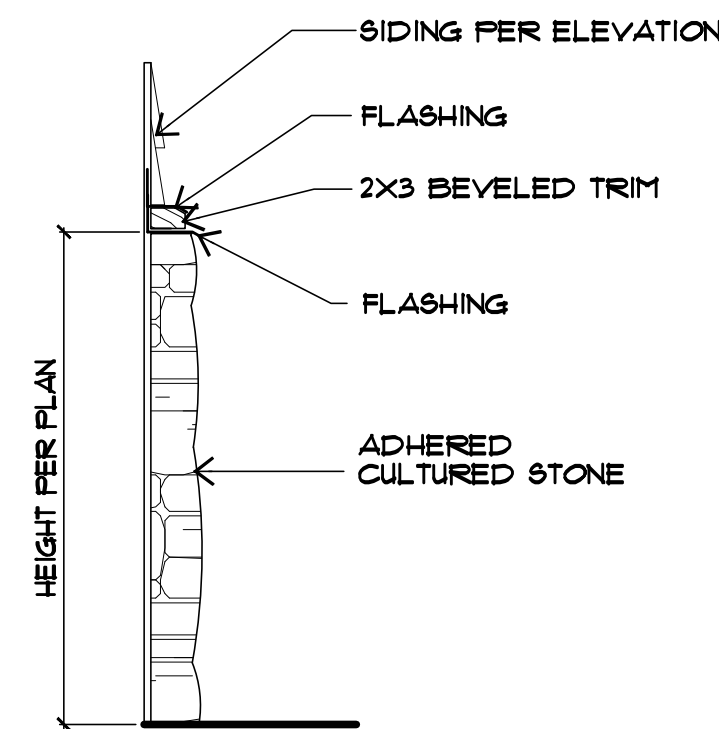


ROOF TO WALL FLASHING DETAIL
NTS.

MASONRY VENEER - GENERAL NOTES PER SEC. R103.12

ADHERED MASONRY VENEER SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R103.13 AND THE REQUIREMENTS IN SECTIONS 12.1 AND 12.3 OF TMS 402/ACI 530/ASCE 5. ADHERED MASONRY VENEER SHALL BE INSTALLED IN ACCORDANCE WITH SECTION R103.11, ARTICLE 3.3C OF TMS 602/ACI 530/ASCE 6 OR THE MANUFACTURER'S INSTRUCTIONS.

- CLEARANCES - MINIMUM OF 4 INCHES ABOVE THE EARTH, MINIMUM OF 2 INCHES ABOVE PAVED AREAS, OR MINIMUM OF 1/2 INCH ABOVE EXTERIOR WALKING SURFACES THAT ARE SUPPORTED BY THE SAME FOUNDATION THAT SUPPORTS THE EXTERIOR WALL.
- FLASHING AT FOUNDATION - A CORROSION-RESISTANT SCREED OR FLASHING OF A MINIMUM 0.019-INCH OR 26-GAGE GALVANIZED OR PLASTIC WITH A MINIMUM VERTICAL ATTACHMENT FLANGE OF 3 1/4 INCHES SHALL BE INSTALLED TO EXTEND A MINIMUM OF 1 INCH BELOW THE FOUNDATION FLATE LINE ON EXTERIOR STUD WALLS IN ACCORDANCE WITH SECTION R103.4.
- WATER-RESISTIVE BARRIER - A WATER-RESISTIVE BARRIER SHALL BE INSTALLED AS REQUIRED BY SECTION R103.2 AND SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R103.6.3. THE WATER-RESISTIVE BARRIER SHALL LAP OVER THE EXTERIOR OF THE ATTACHMENT FLANGE OF THE SCREED OR FLASHING PROVIDED IN ACCORDANCE WITH SECTION R103.12.2.



STONE VENEER
NTS.

ROOF DRIP EDGES PER SEC. R0902.05 PROVIDE DRIP EDGE AT EAVES & GABLES W/ A MIN. 2" OVERLAP



UNIT 1 UNIT 2

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

HOUSE NUMBERS TO BE VISIBLE & LEGIBLE WITH CONTRASTING BACKGROUND FROM THE STREET FRONTING THE HOUSE. ADDRESS NUMBER SHALL BE MIN. 4" HIGH & A MIN. STROKE WIDTH OF 1/2" PER SEC. R319.1

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4. These plans should not be altered by other than a qualified designer, architect, or structural engineer.

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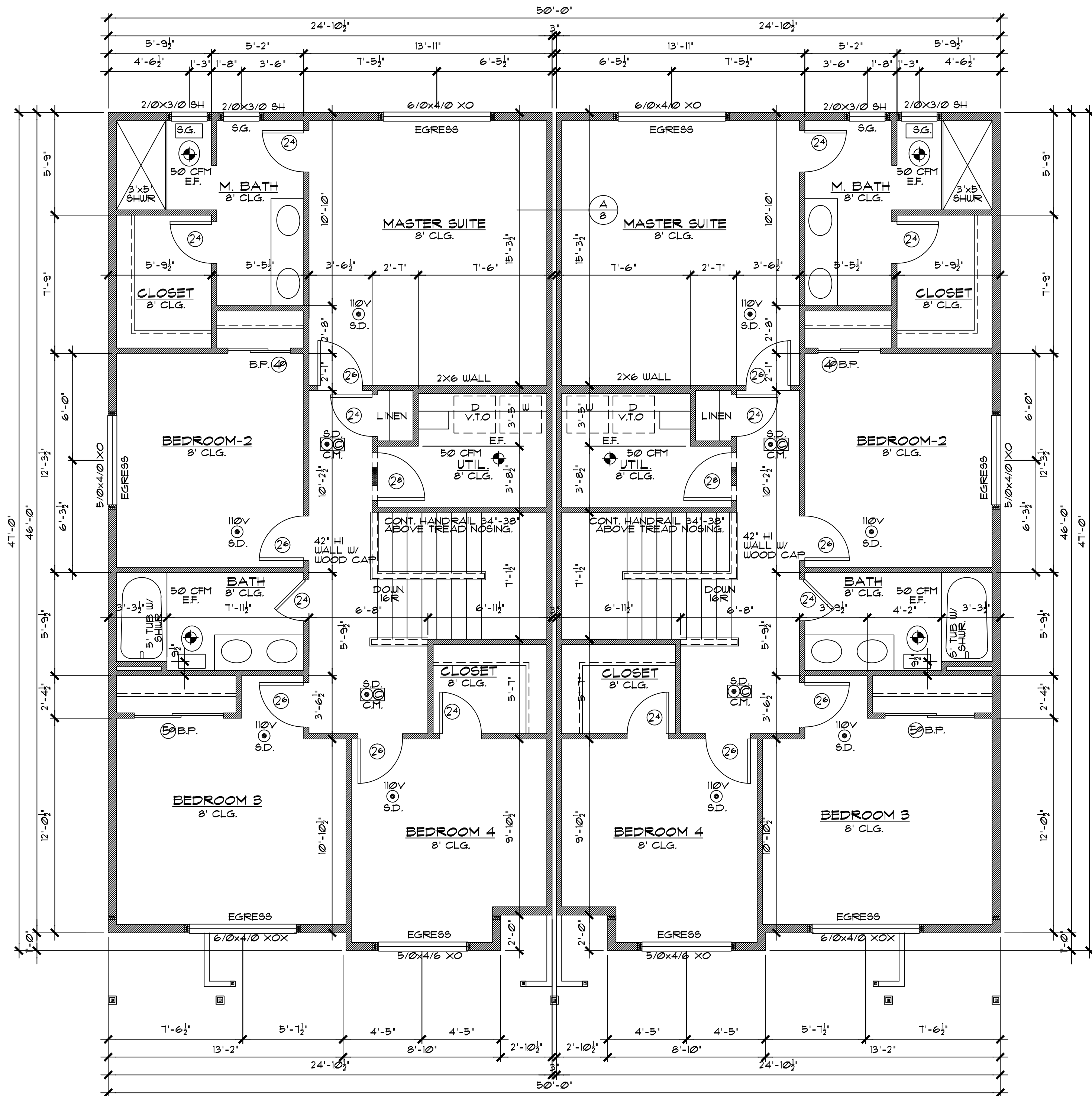


LEFT ELEVATION "A"
SCALE: 1/4"=1'-0"



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

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UNIT '1'

UNIT '2'

UPPER FLOOR PLAN 'A'
1/4"=1'-0"

GENERAL NOTES:

- ALL WORK TO BE IN CONFORMANCE WITH 2018 IRC.
- VENT ALL EXHAUST FANS, DRYER VENTS AND RANGES TO OUTSIDES.
- VENT WATER HEATER PRESSURE RELIEF VALVES TO OUTSIDE.
- PROVIDE FIRE BLOCKING AT ALL PLUMBING AND MECHANICAL PENETRATIONS.
- ALL SHOWER WALLS TO BE WATERPROOF TO MINIMUM 12" ABOVE DRAIN.
- SHOWERHEADS & KITCHEN FAUCET TO BE LIMITED TO MAXIMUM 1.75 GPM FLOW. ALL OTHER LAVATORY FAUCETS TO BE LIMITED TO MAXIMUM 1.0 GPM FLOW.
- ALL GLAZING WITHIN 60" ABOVE DRAIN INLET TO BE SAFETY GLASS.
- ALL GLAZING WITHIN 24" OF DOOR OR WITHIN 18" OF FLOOR TO BE SAFETY GLASS.
- SMOKE ALARMS - TO BE INSTALLED PER SEC R314.3 IN THE FOLLOWING LOCATIONS: IN EACH SLEEPING ROOMS, OUTSIDE EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS, ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS AND HABITABLE ATTICS, AND ALARMS TO BE INSTALLED NOT LESS THAN 3 FT. HORIZONTALLY FROM A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER. ALARMS TO BE INTERCONNECTED IN SUCH A MANNER THAT ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT.

60 1/2" SMOKE ALARM-CARBON MONOXIDE COMBO.

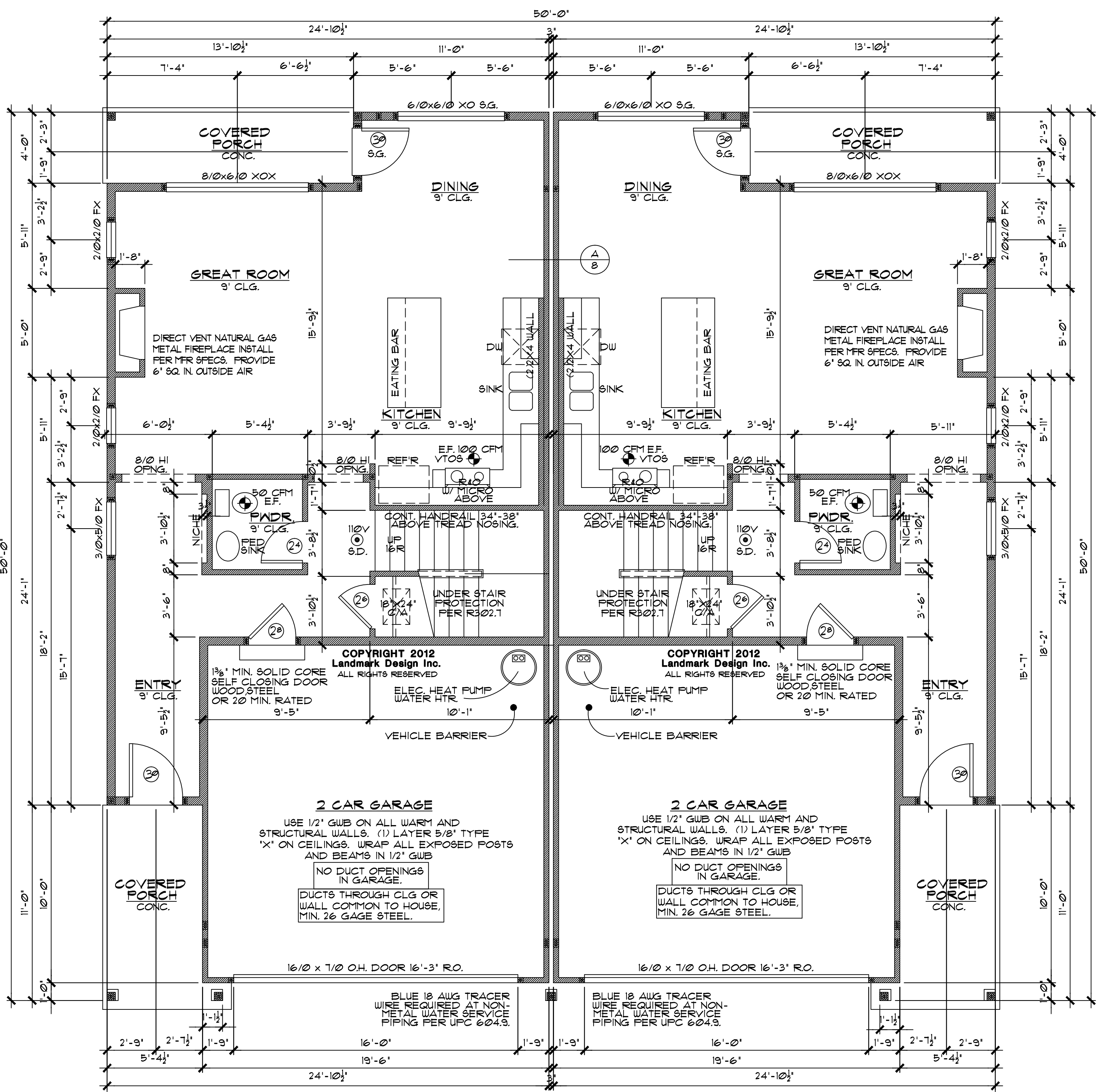
- PROVIDE CARBON MONOXIDE ALARMS PER SEC. R315.
- AN APPROVED CARBON MONOXIDE ALARM SHALL BE INSTALLED ON EACH FLOOR & OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS. PER 2018 IRC & WA STATE AMENDMENTS SEC R315.
- INSULATE ALL WATER PIPES TO MINIMUM R-3 PER WSEC R403.3.3.
- ALL DUCTS & EXHAUST DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED TO A MINIMUM OF R-8 PER WSEC R403.3.1. DUCTS WITHIN A CONCRETE SLAB OR IN THE GROUND SHALL BE INSULATED TO R-10 WITH INSULATION DESIGNED TO BE USED BELOW GRADE.
- EXHAUST AIR SHALL NOT BE DIRECTED ONTO WALKWAYS. ALL EXHAUST DUCTS SHALL TERMINATE OUTSIDE THE BUILDING. PER R303.5.2.
- GAS PIPING IS TO BE PROTECTED PER G2415.1. WHERE PIPING IS INSTALLED THROUGH HOLES OR NOTCHES IN FRAMING MEMBERS AND THE PIPING IS LOCATED LESS THAN 1-1/2 INCHES FROM THE FRAMING MEMBER FACE TO WHICH WALL, CEILING OR FLOOR MEMBRANES WILL BE ATTACHED, THE PIPE SHALL BE PROTECTED BY SHIELD PLATES THAT COVER THE WIDTH OF THE PIPE AND THE FRAMING MEMBER AND THAT EXTEND NOT LESS THAN 4 INCHES TO EACH SIDE OF THE FRAMING MEMBER. WHERE THE FRAMING MEMBER THAT THE PIPING PASSES THROUGH IS A BOTTOM PLATE, BOTTOM TRACK, TOP PLATE OR TOP TRACK, THE SHIELD PLATES SHALL COVER THE FRAMING MEMBER AND EXTEND NOT LESS THAN 4 INCHES ABOVE THE BOTTOM FRAMING MEMBER AND NOT LESS THAN 4 INCHES BELOW THE TOP FRAMING MEMBER.

- ATTIC & CRAWL ACCESS HATCHES OR DOORS SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES.
- WHOLE HOUSE VENTILATION 24 HR. TIMER, READILY ACCESSIBLE & WITH LABEL AFFIXED TO CONTROL THAT READS "WHOLE HOUSE VENTILATION" (SEE OPERATING INSTRUCTIONS).
- DRYER DUCT SPECIFIED LENGTH PER SEC M1502.4.5.1. THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE 35 FEET (10668mm) FROM THE CONNECTION TO THE TRANSITION DUCT FROM THE DRYER TO THE OUTLET TERMINAL. WHERE FITTINGS ARE USED, THE MAXIMUM LENGTH OF THE EXHAUST DUCT SHALL BE REDUCED IN ACCORDANCE WITH THE TABLE M1502.4.5.1. THE MAXIMUM LENGTH OF THE EXHAUST DUCT DOES NOT INCLUDE THE TRANSITION DUCT.
- CAVITIES WITHIN CORNERS AND HEADERS OF FRAME WALLS SHALL BE INSULATED BY COMPLETELY FILLING THE CAVITY WITH A MATERIAL HAVING A THERMAL RESISTANCE OF R-3 PER INCH MINIMUM PER 2018 WSEC TABLE R402.4.1.1.

UTILITY ROOM NOTES/MAKE UP AIR:

- PER IRC G2439.1.
- WHERE THE EXHAUST DUCT IS CONCEALED WITHIN THE BUILDING CONSTRUCTION AND THE EXHAUST DUCT EQUIVALENT LENGTH EXCEEDS 35 FT., THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON A PERMANENT LABEL OR TAG. THE LABEL OR TAG SHALL BE LOCATED WITHIN 6 FT OF THE EXHAUST DUCT CONNECTION PER G2439.1.5.
- INSTALLATIONS EXHAUSTING MORE THAN 200 CFM SHALL BE PROVIDED WITH MAKE UP AIR. WHERE A CLOSET IS DESIGNED FOR THE INSTALLATION OF A CLOTHES DRYER, AN OPENING HAVING AN AREA OF NOT LESS THAN 100 SQ. INCHES FOR MAKE UP AIR SHALL BE PROVIDED IN THE CLOSET ENCLOSURE, OR MAKE UP AIR SHALL BE PROVIDED BY OTHER MEANS PER G2439.5.
- 100 SQ. INCH TRANSFER GRILL.

MAIN FLOOR: 742 SQ. FT.
UPPER FLOOR: 1080 SQ. FT.
TOTAL: 1822 SQ. FT.
GARAGE: 368 SQ. FT.
FRONT PORCH: 60 SQ. FT.
REAR PORCH: 56 SQ. FT.



UNIT '1'

UNIT '2'

MAIN FLOOR PLAN 'A'
1/4"=1'-0"

INTERIOR STAIRWAY ILLUMINATION PER SEC. R303.2.1 IRC. INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE TO ILLUMINATE THE LANDINGS AND TREADS. STAIRWAY ILLUMINATION SHALL RECEIVE PRIMARY POWER FROM THE BUILDING WIRING. THE LIGHT SOURCE SHALL BE CAPABLE OF ILLUMINATING TREADS AND LANDINGS TO LEVELS NOT LESS THAN 1 FOOT-CANDLE MEASURED AT THE CENTER OF TREADS AND LANDINGS. THERE SHALL BE A WALL SWITCH AT EACH FLOOR LEVEL TO CONTROL THE LIGHT SOURCE WHERE THE STAIRWAY HAS SIX OR MORE RISERS. EXCEPTION: A SWITCH IS NOT REQUIRED WHERE REMOTE, CENTRAL OR AUTOMATIC CONTROL OF LIGHTING IS PROVIDED.

EXTERIOR STAIRWAY ILLUMINATION PER SEC. R303.2.2 IRC. EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE TOP LANDING OF THE STAIRWAY. STAIRWAY ILLUMINATION SHALL RECEIVE PRIMARY POWER FROM THE BUILDING WIRING. EXTERIOR STAIRWAYS PROVIDING ACCESS TO A BASEMENT FROM THE OUTDOOR GRADE LEVEL SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE BOTTOM LANDING OF THE STAIRWAY.

WHOLE HOUSE VENTILATION:
*REFER TO SHEET N-2 TABLE 1505.4.3(1) & 1505.4.3(2) FOR FAN SIZING AND RUN TIMES

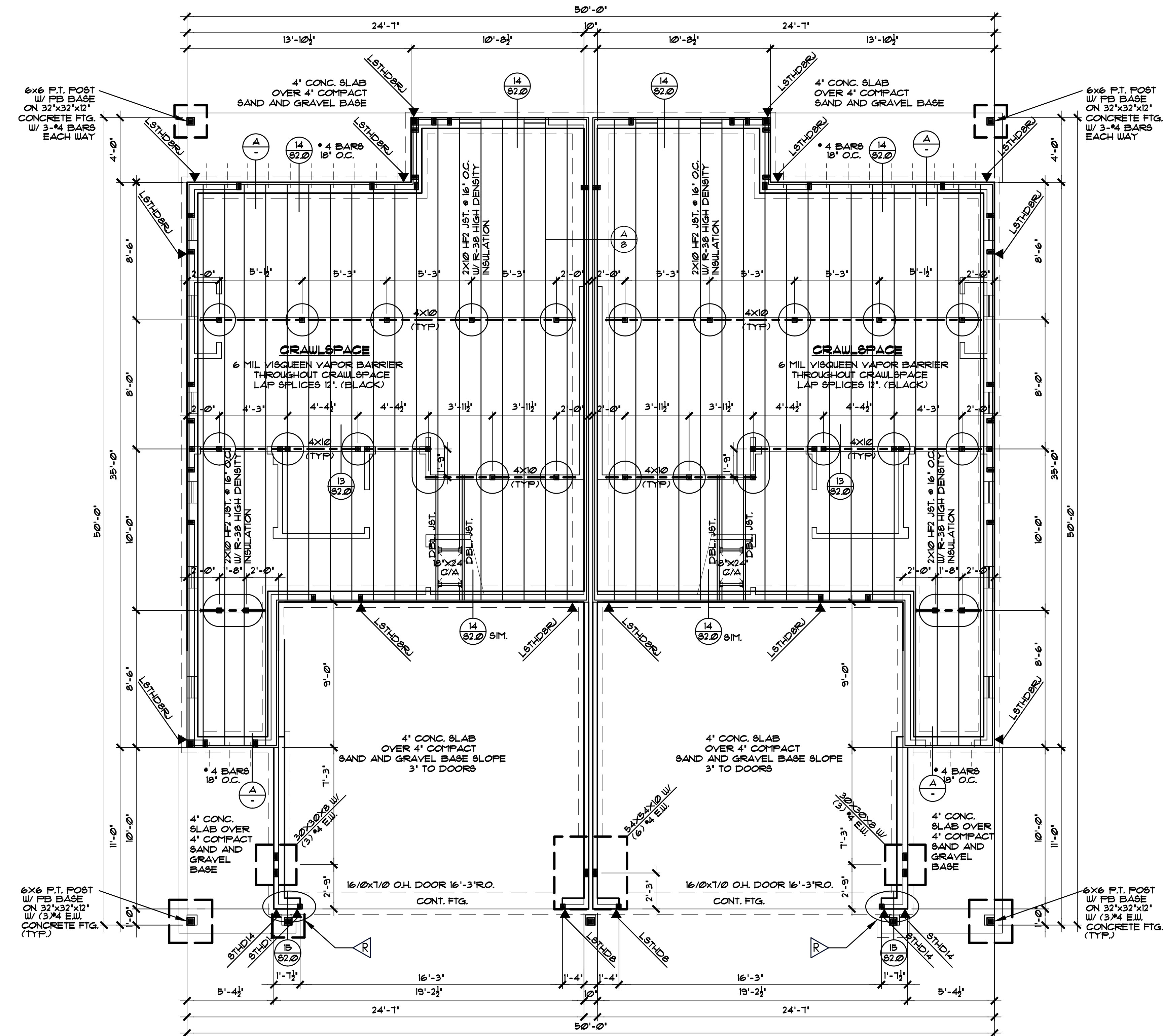
FURNACE TO HAVE A DUCT FOR OUTSIDE AIR. MOTORIZED DAMPER WITH TIMER AND CONTROLS ARE TO BE ADDED FOR THE REQUIRED FRESH AIR EXCHANGE.

LANDING AT "EXIT" DOOR NOT TO BE LOWER THAN 15 INCHES FROM TOP OF THRESHOLD. (R311.1.1)

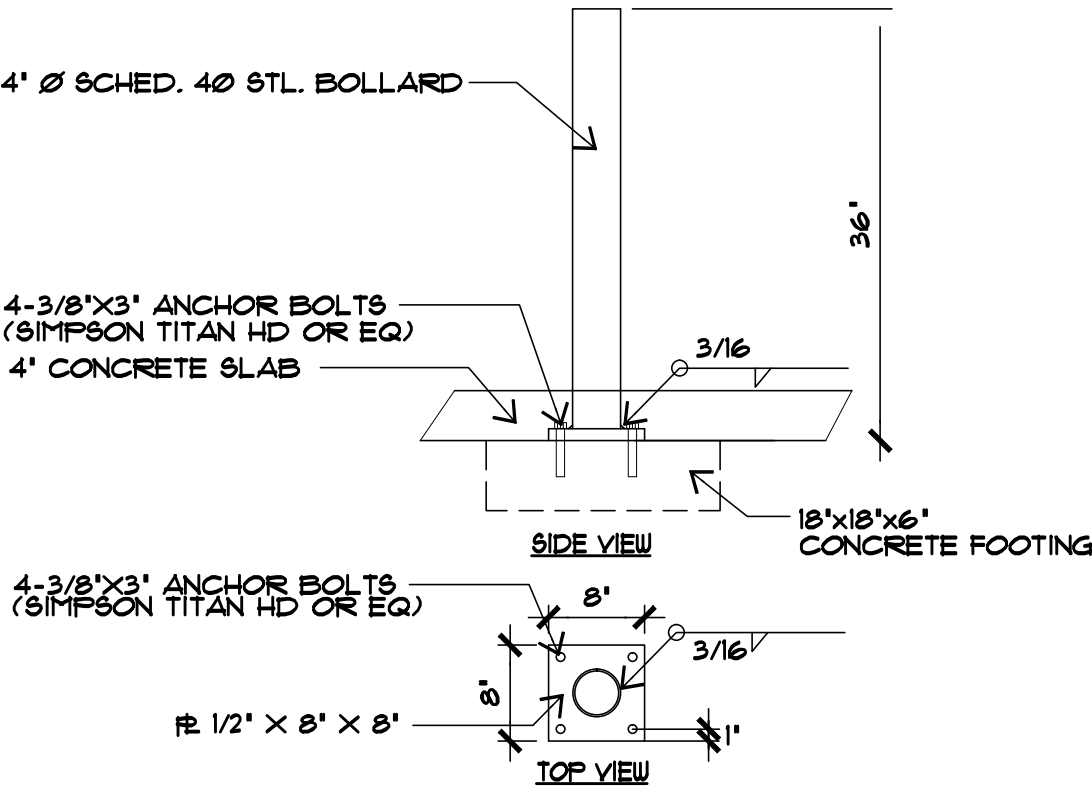
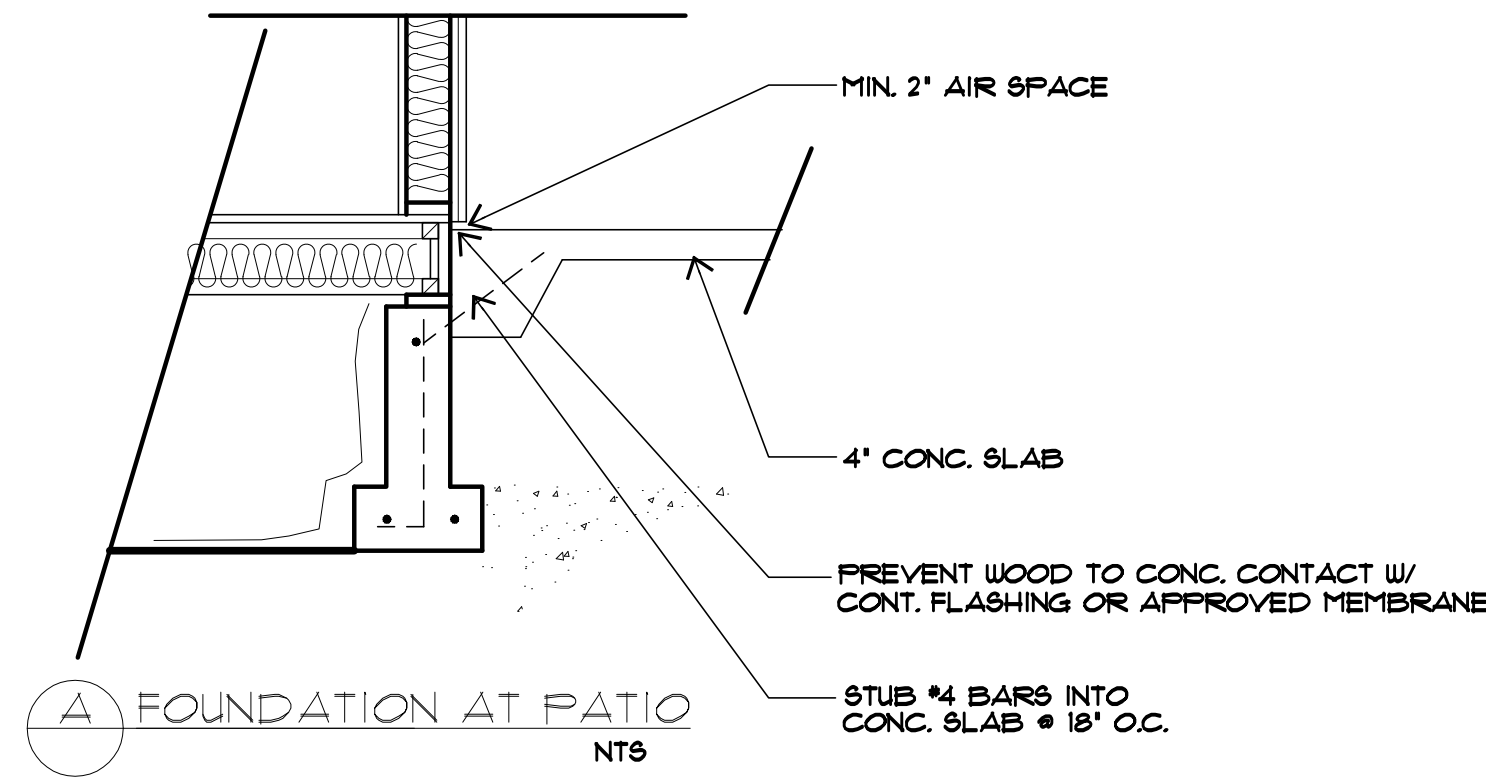
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FOUNDATION PLAN 'A'
1/4"=1'-0"



VEHICLE IMPACT BARRIER DETAIL

FOUNDATION NOTES:

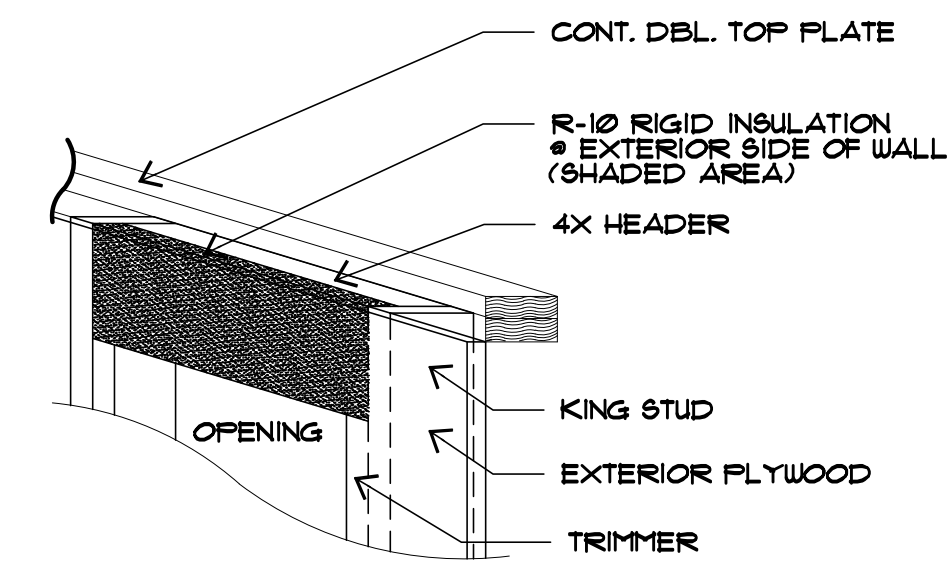
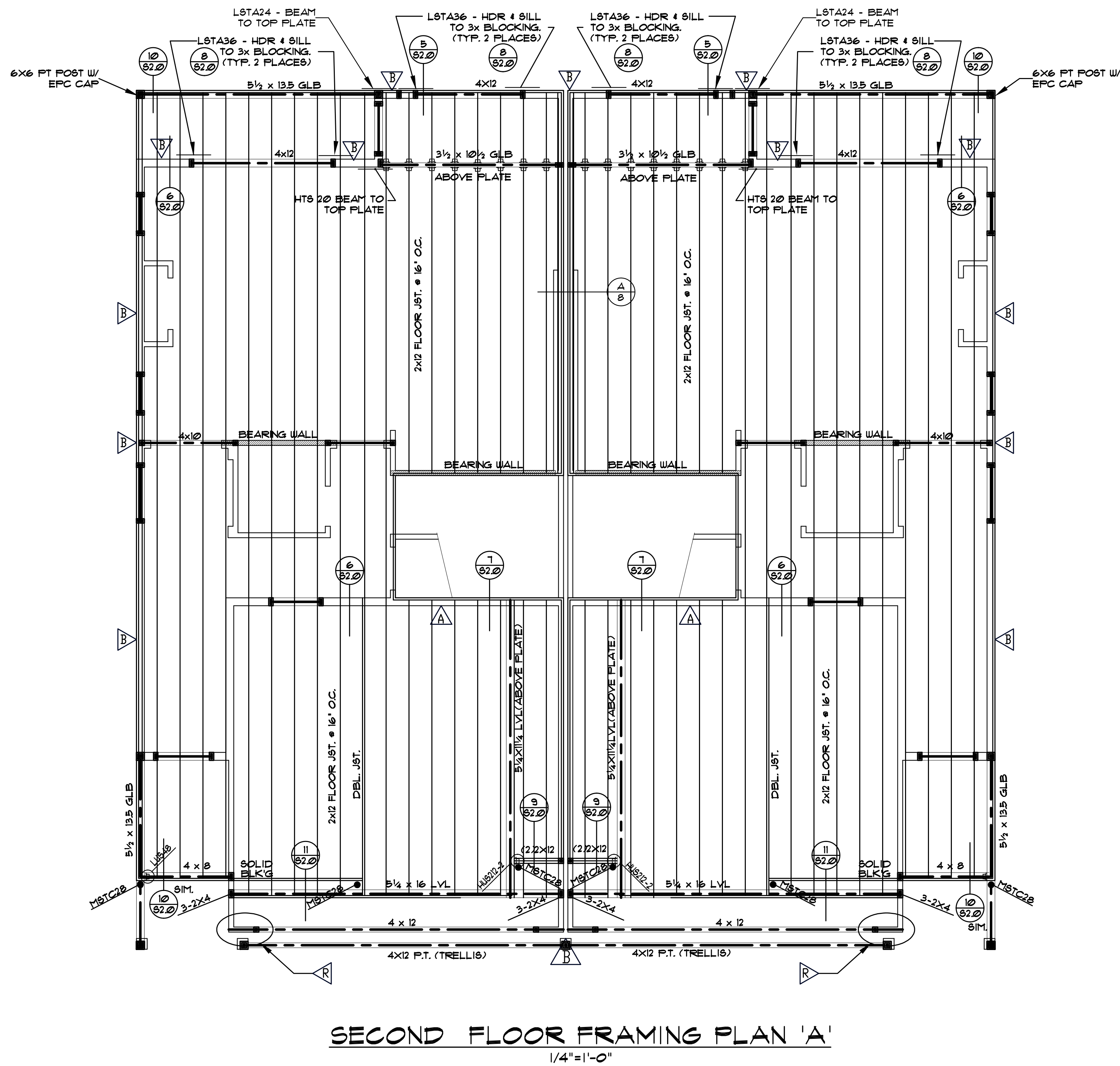
1. ALL FOOTINGS TO BEAR ON FIRM UNDISTURBED SOIL.
2. ALL WOOD IN CONTACT WITH CONCRETE TO BE PRESSURE TREATED.
3. ALL BEAMS TO BE 4x10 DFL #2 ON 4x4 POSTS (4x6 AT SPLICES) ON 24" DIA. x 8' CONC. PADS UNLESS NOTED OTHERWISE.
4. ALL POSTS TO BE ANCHORED AGAINST LATERAL MOVEMENT.
5. SOLID BLOCK AT ALL POINT LOADS FROM ABOVE.
6. FLOOR JOISTS SHOULD BE SUPPORTED Laterally AT EACH END AND AT EACH SUPPORT, BY SOLID BLOCKING OR BY ANOTHER APPROVED METHOD.
7. PROVIDE MINIMUM 18"-24" CRAWL ACCESS. CRAWL ACCESS HATCHES OR DOORS SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES.
8. PROVIDE CRAWL SPACE VENTILATION PER IRC SECTION R408. FOUNDATION VENTS SHALL BE PLACED SO THAT THE TOP OF THE VENT IS BELOW THE LOWER SURFACE OF THE FLOOR INSULATION.
9. INTERIOR GRADE OF CRAWL SPACE SHALL BE SLOPED TO DRAIN AND INSURE THE REMOVAL OF WATER.
10. PREVENT WOOD TO CONC. CONTACT W/CONT. FLASHING OR APPROVE MEMBRANE.
11. ◀ INDICATES 'SIMPSON' HOLDDOWN.
12. A SEE SHEARWALL SCHEDULE FOR ANCHOR BOLT SIZE & SPACING (SHT 910).

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USE 3' x 3' x 1/4' GALVANIZED STEEL SQUARE PLATE WASHERS FOR ALL ANCHOR BOLTS

VENTILATION	
CRAWL SPACE VENTILATION	TOTAL NET FREE AREA
REQ'D 142/150	4.95 SQ. FT.
PROVIDE SCREENED VENTS FOR VENTILATION	8 VENTS REQ'D

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FRAMING NOTES:

1. ALL MULTIPLE JOISTS OR BEAMS MUST BE BOTH GLUED AND NAILED W/8d NAILS @ 24" O.C. NAILED TOP & BOTTOM STAGGERED EACH SIDE.
2. ALL HEADERS TO BE 4x8 DF #2, UNLESS NOTED OTHERWISE. HEADERS AT EXTERIOR WALLS & WARM WALLS TO BE INSULATED W/R-10 RIGID INSULATION.
3. SOLID BLOCK BENEATH ALL POINT LOADS FROM ABOVE.
4. FLOOR JOISTS SHOULD BE SUPPORTED Laterally AT EACH AND AT EACH SUPPORT BY SOLID BLOCKING OR BY ANOTHER APPROVED METHOD.
5. ● MISC 40 STRAPS PER STRUCTURAL, UNLESS NOTED OTHERWISE
6. REFER TO SHEAR WALL SCHEDULE.

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NOTE-FASTENERS FOR TREATED WOOD TO BE HOT-DIPPED GALVANIZED, STAINLESS STEEL, SILICONE, BRONZE OR COPPER.

STUD NOTCHING AND BORING

- BEARING OR EXTERIOR WALL NOTCH 25%, BORING 40%
- 60% BORING IF DOUBLED & LESS OR EQUAL SUCCESSIVE STUDS.
- NON-BEARING MAXIMUM NOTCH 40%, BORING 60%.
- HOLES NO CLOSER THAN 5/8 INCH TO FACE OF STUD.

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ROOF VENTILATION CALCULATIONS & REQUIREMENTS

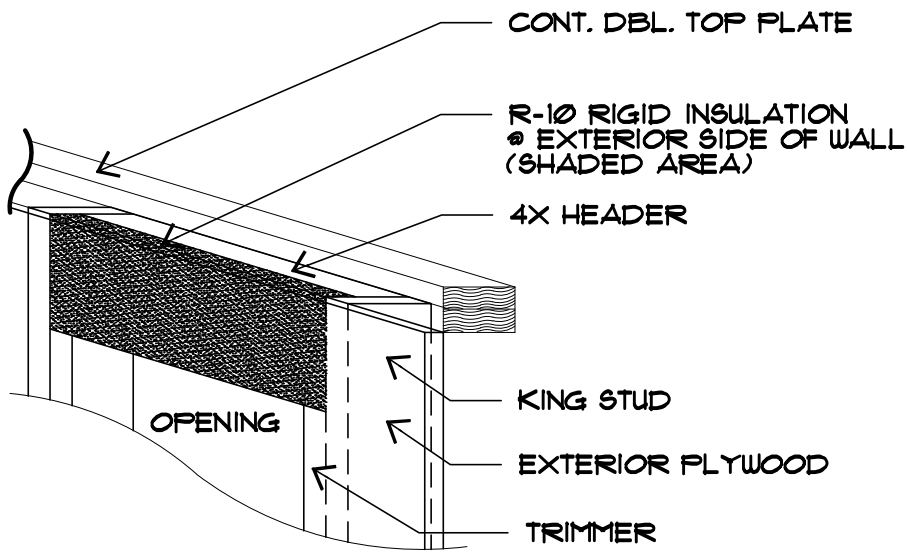
AT LEAST 40% & NOT MORE THAN 50% OF REQUIRED VENTS SHALL BE IN UPPER PORTION OF VENTILATED ROOF SPACE (NO MORE THAN 3' BELOW THE RIDGE OR HIGHEST POINT) WITH THE BALANCE OF REQUIRED VENTILATION PROVIDED BY EAVE VENTING.

VENTILATION REQUIRED PER SEC. R802.1 - ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. VENTILATION OPENINGS SHALL HAVE A LEAST DIMENSIONS OF 1/16" INCH MINIMUM AND 1/4" INCH MAXIMUM. VENTILATION OPENINGS HAVING A LEAST DIMENSION LARGER THAN 1/4" SHALL BE PROVIDED WITH CORROSION-RESISTANT WIRE CLOTH SCREENING, HARDWARE CLOTH OR SIMILAR MATERIAL WITH OPENINGS HAVING A LEAST DIMENSION OF 1/16" MINIMUM AND 1/4" MAXIMUM. OPENINGS IN ROOF FRAMING MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF SECTION R802.1. REQUIRED VENTILATION OPENINGS SHALL OPEN DIRECTLY TO THE OUTSIDE AIR.

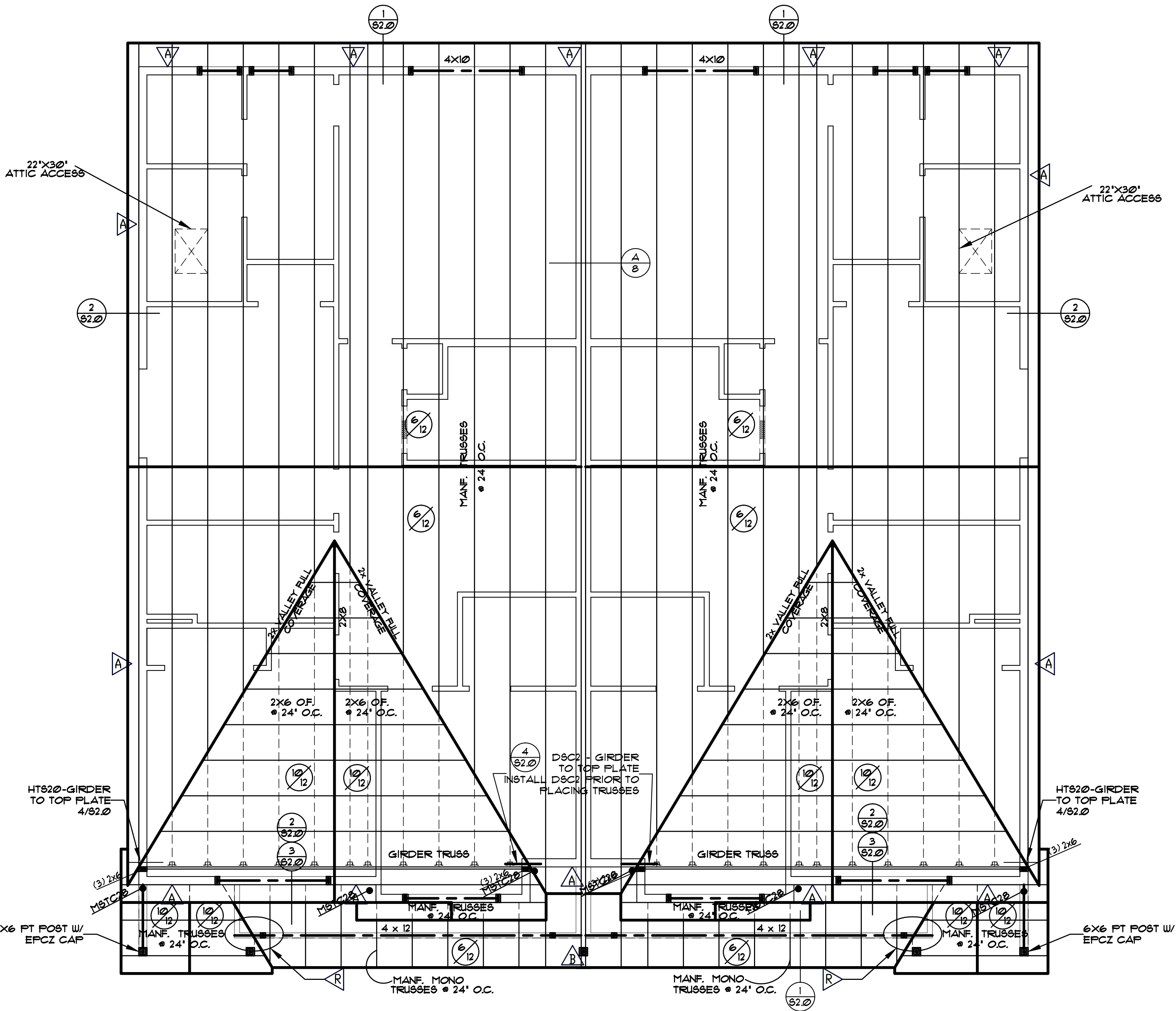
MINIMUM VENT AREA PER SEC. R802.2 - THE MINIMUM NET FREE VENTILATION AREA SHALL BE 1/50 OF THE AREA OF THE VENTED SPACE.

VENT AND INSULATION CLEARANCE PER SEC. R802.3 - WHERE EAVE OR CORNICE VENTS ARE INSTALLED, INSULATION SHALL NOT BLOCK THE FREE FLOW OF AIR. NOT LESS THAN A 1-INCH SPACE SHALL BE PROVIDED BETWEEN THE INSULATION AND THE ROOF SHEATHING AND AT THE LOCATION OF THE VENT.

SEE SHEET N2 FOR ROOF VENTILATION CALCULATIONS AND LOCATIONS



HEADER/INSULATION DETAIL
NTS



ROOF A FRAMING PLAN
1/4"=1'-0"

ROOF OVERFRAME NOTES:
IRC SEC R802.3

1. RAFTERS SHALL BE FRAMED TO 2x RIDGE BOARD PER PLAN. RIDGE BOARD SHALL NOT BE LESS IN DEPTH THAN THE CUT END OF THE RAFTER. AT ALL VALLEYS AND HIPS THERE SHALL BE A 2x VALLEY OR HIP RAFTER AND NOT LESS IN DEPTH THAN THE CUT END OF THE RAFTER. FULL COVERAGE AT RIDGE, HIPS AND VALLEYS.

ROOF FRAMING NOTES:

- ALL HEADERS TO BE 4x8 DF #2, UNLESS NOTED OTHERWISE. HEADERS AT EXTERIOR WALLS & WARM WALLS TO BE INSULATED W/R-10 RIGID INSULATION.
- ALL OTHER TRUSSES:
 - SHALL CARRY MANUFACTURERS STAMP.
 - SHALL HAVE DESIGN DETAILS AND SPECIFICATIONS ON SITE FOR FRAME INSPECTION.
 - SHALL BE INSTALLED AND BRACED PER MANUFACTURERS SPECIFICATIONS PER IRC SEC. 802.112 AND 802.103 AS WELL AS THE TRUSS INSTITUTE'S BUILDING COMPONENT SAFETY INFORMATION.
- NO TRUSS SHALL BE FIELD-MODIFIED WITHOUT PRIOR CONSENT OF THE TRUSS ENGINEER AND THE BUILDING DEPARTMENT.
- PROVIDE ATTIC ACCESS AT A MINIMUM OF 22'x30' PER IRC SEC. R802.1. ACCESS HATCHES OR DOORS SHALL BE WEATHERSTRIPPED AND INSULATED TO A LEVEL EQUIVALENT TO THE INSULATION ON THE SURROUNDING SURFACES.
- PROVIDE ATTIC VENTILATION PER IRC SEC. R806. ALL FRAMING TO COMPLY WITH IRC SEC R802.
- REFER TO SHEAR WALL SCHEDULE.

MANUFACTURED TRUSSES

MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE ON SITE AT TIME OF INSPECTION FOR THE INSPECTOR'S USE AND REFERENCE

NOTE-
FASTENERS FOR TREATED WOOD TO BE HOT-DIPPED GALVANIZED, STAINLESS STEEL, SILICONE, BRONZE OR COPPER.

STUD NOTCHING AND BORING
- BEARING OR EXTERIOR WALL NOTCH 25%, BORING 40%
- 60% BORING IF DOUBLED & LESS OR EQUAL SUCCESSIVE STUDS.
- NON-BEARING MAXIMUM NOTCH 40%, BORING 60%.
- HOLES NO CLOSER THAN 5/8 INCH TO FACE OF STUD.

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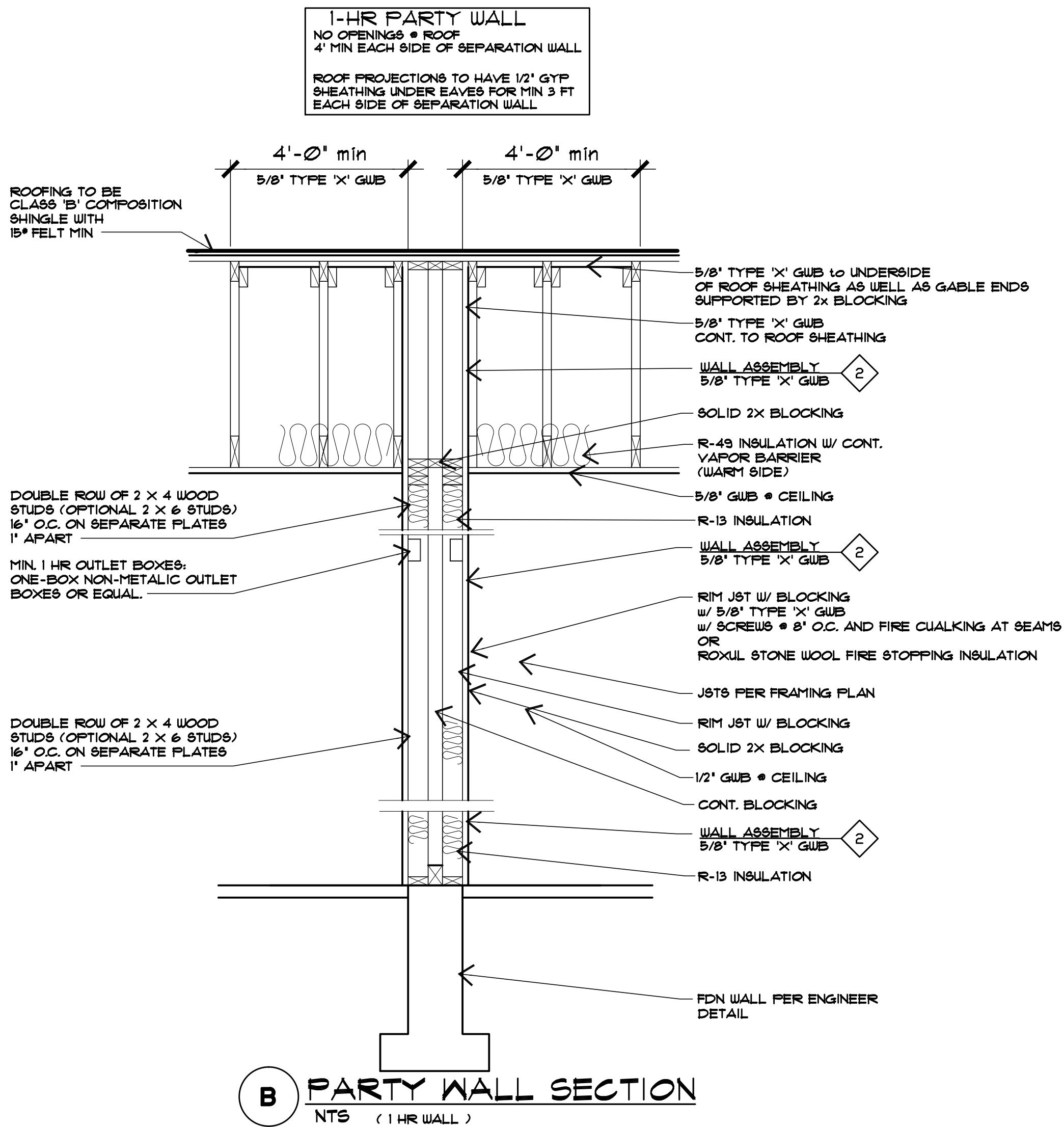
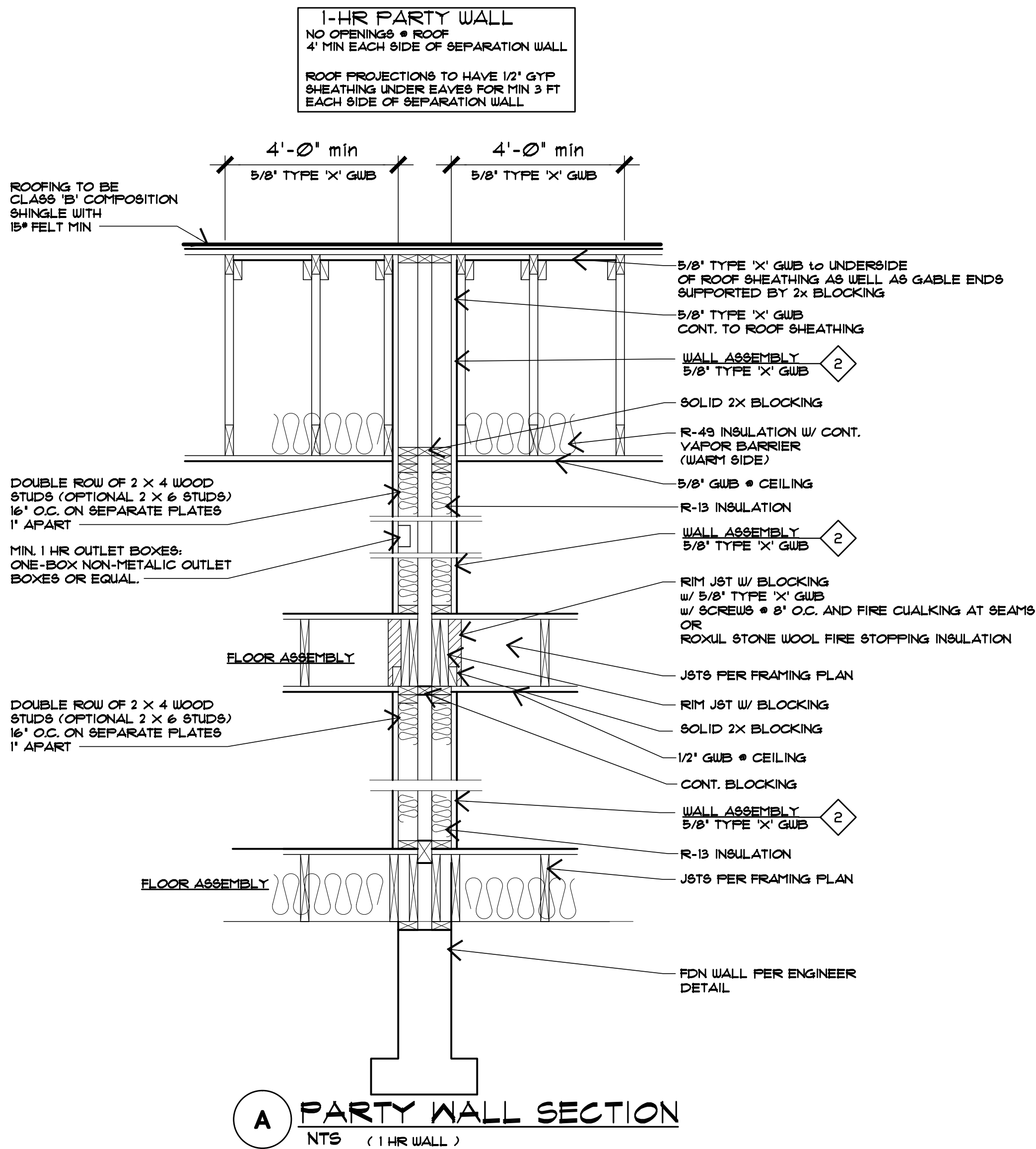
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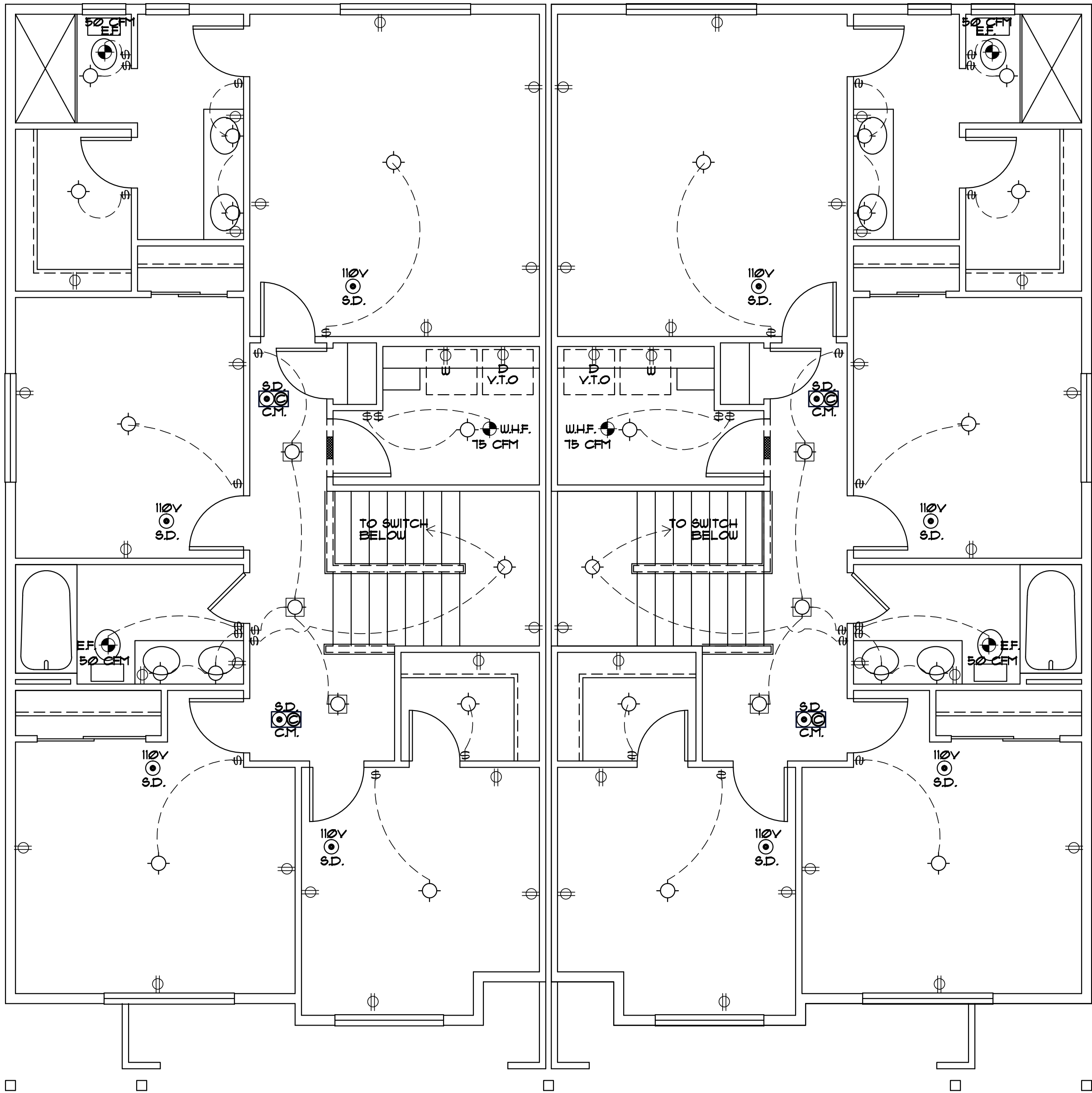
WALL ASSEMBLIES									
NO.	DIAGRAM		FIRE RATING	TEST REPORT #	NO.	DIAGRAM		FIRE RATING	TEST REPORT #
1 NON RATED EXT WALL		EXTERIOR INTERIOR	NON RATED						
2 1 HR EXT WALL		INTERIOR EXTERIOR	1 HR SEPARATION WALL	GA FILE NO WP 5512					



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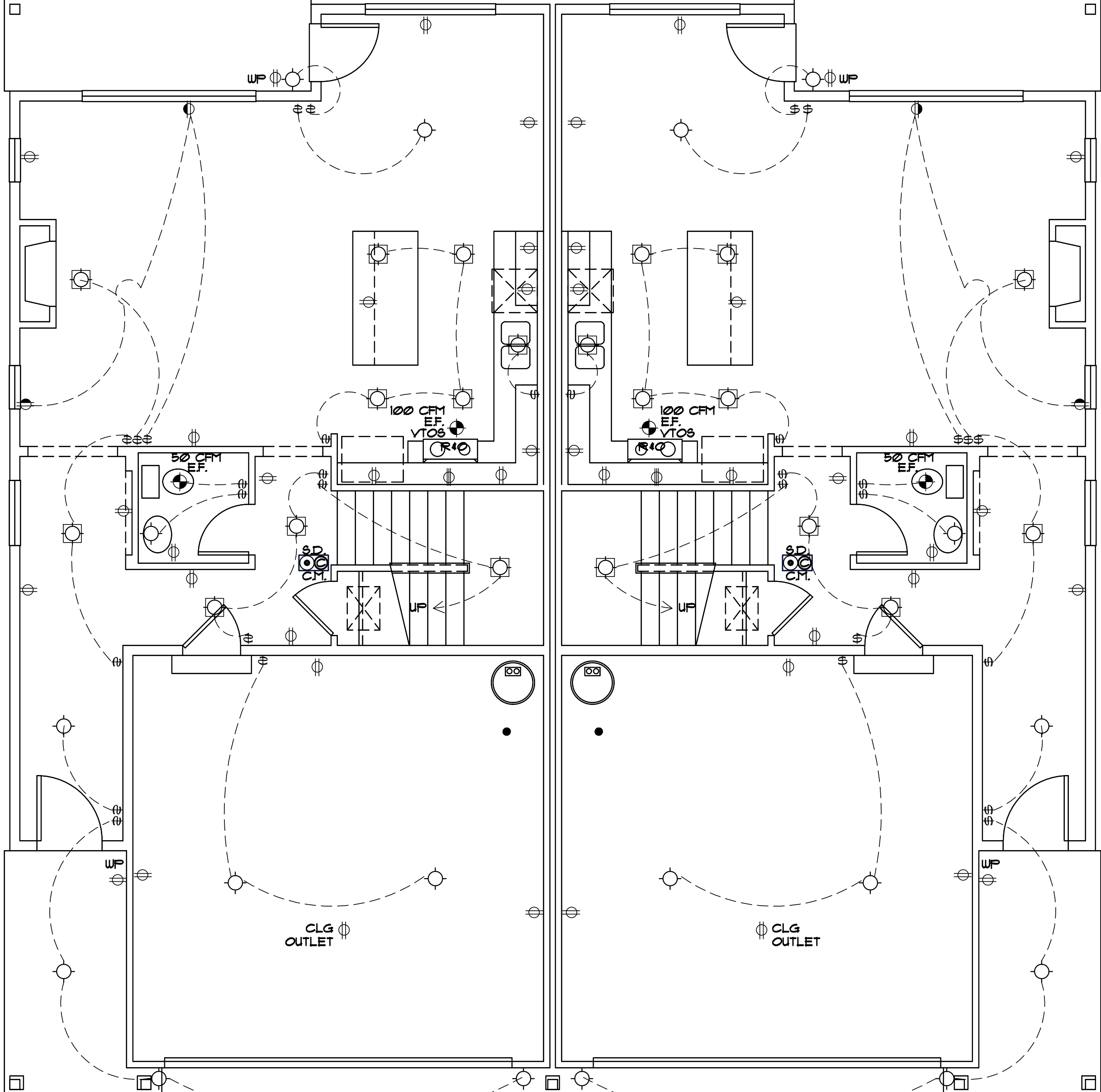
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UPPER FLOOR ELECTRICAL
1/4"=1'-0"

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MAIN FLOOR ELECTRICAL
1/4"=1'-0"

INTERIOR STAIRWAY ILLUMINATION PER SEC R302.1 IRC
INTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE TO ILLUMINATE THE LANDINGS AND TREADS. STAIRWAY ILLUMINATION SHALL RECEIVE PRIMARY POWER FROM THE BUILDING WIRING. THE LIGHT SOURCE SHALL BE CAPABLE OF ILLUMINATING TREADS AND LANDINGS TO LEVELS NOT LESS THAN 1 FOOT-CANDLE MEASURED AT THE CENTER OF TREADS AND LANDINGS. THERE SHALL BE A WALL SWITCH AT EACH FLOOR LEVEL TO CONTROL THE LIGHT SOURCE WHERE THE STAIRWAY HAS SIX OR MORE RISERS. EXCEPTION: A SWITCH IS NOT REQUIRED WHERE REMOTE, CENTRAL OR AUTOMATIC CONTROL OF LIGHTING IS PROVIDED.

EXTERIOR STAIRWAY ILLUMINATION PER SEC R302.2 IRC
EXTERIOR STAIRWAYS SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE TOP LANDING OF THE STAIRWAY. STAIRWAY ILLUMINATION SHALL RECEIVE PRIMARY POWER FROM THE BUILDING WIRING. EXTERIOR STAIRWAYS PROVIDING ACCESS TO A BASEMENT FROM THE OUTDOOR GRADE LEVEL SHALL BE PROVIDED WITH AN ARTIFICIAL LIGHT SOURCE LOCATED AT THE BOTTOM LANDING OF THE STAIRWAY.

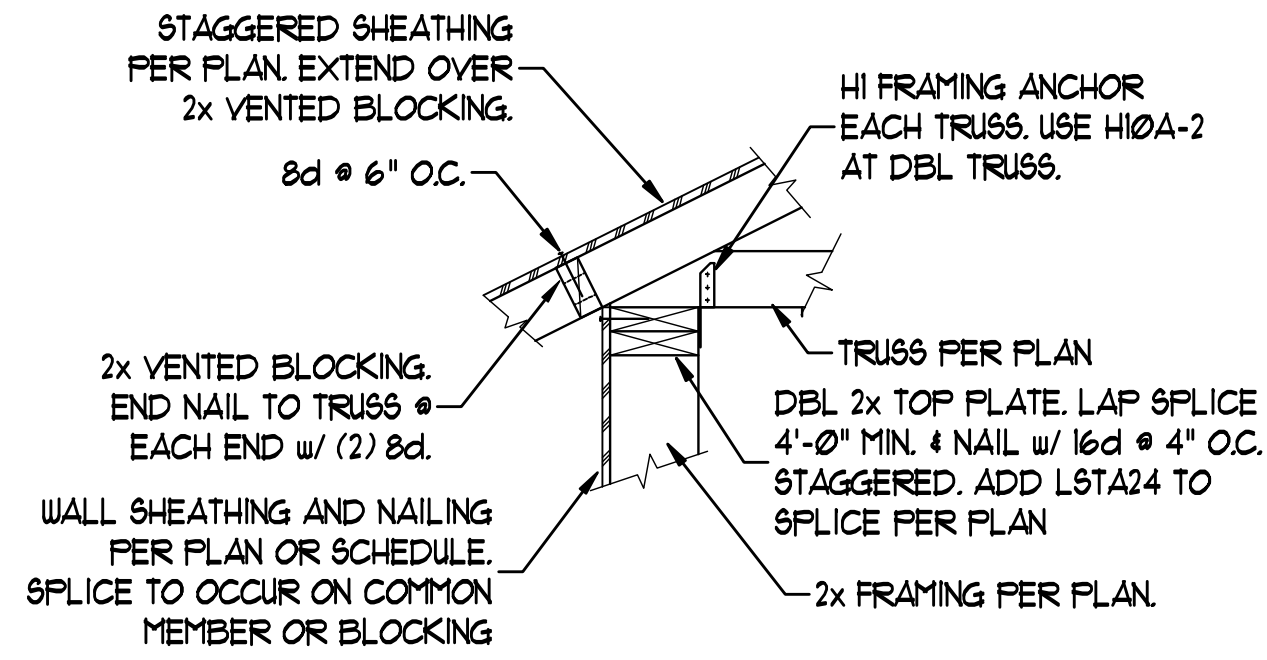
ELECTRICAL KEY	
OVER-HEAD	
CAN	
OUTLET	
DUPLEX OUTLET	
220V OUTLET	
COMBO. EXT. FAN (VTO8) 4 LIGHT	
COMBO SMOKE ALARM- 8D CARBON MONO. DET. 120 V W/ BATTERY BACKUP	
CABLE T.V. JACK	
PHONE	
UNDER COUNTER LIGHTS	
GAS OUTLET	
HOSE BIBB	
EXT. FAN VTO8	

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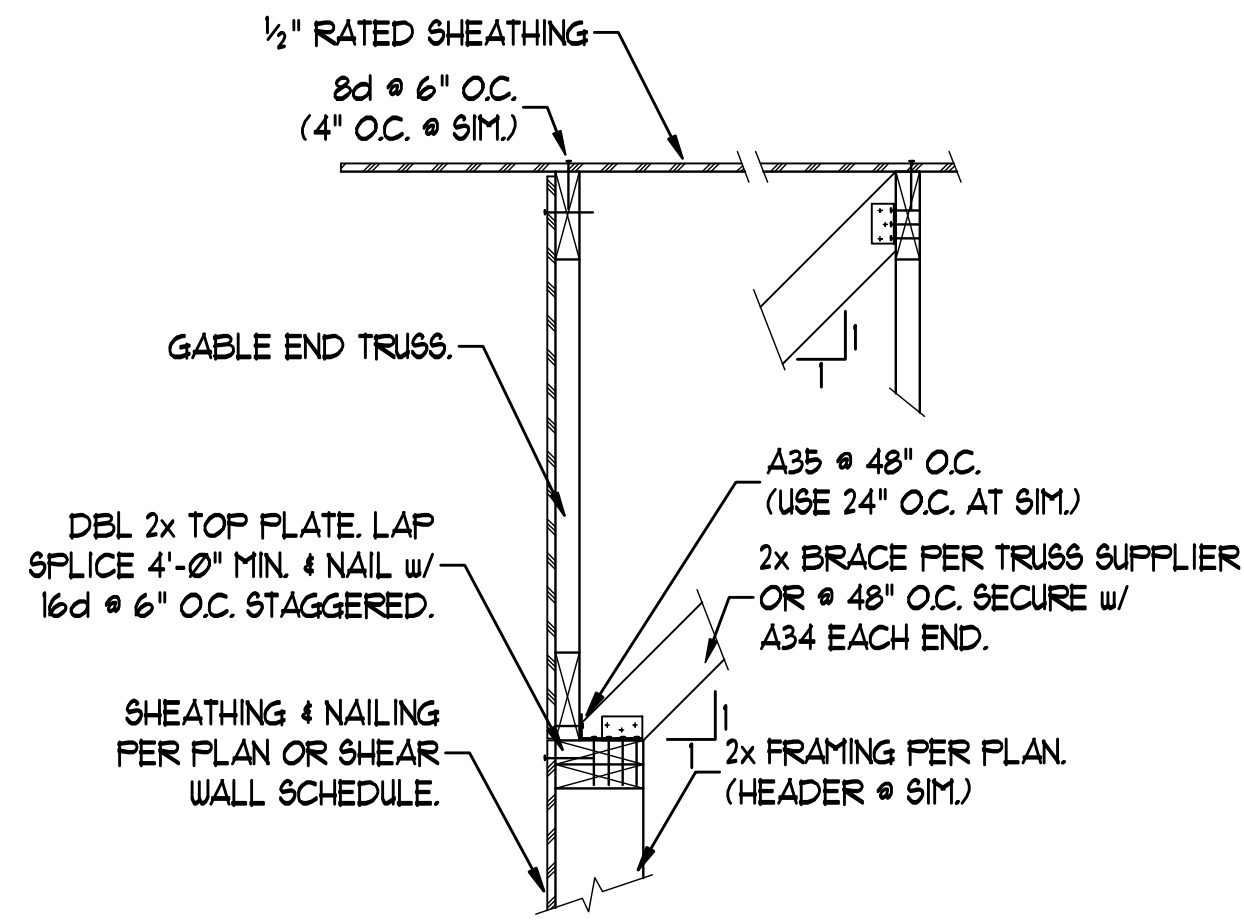
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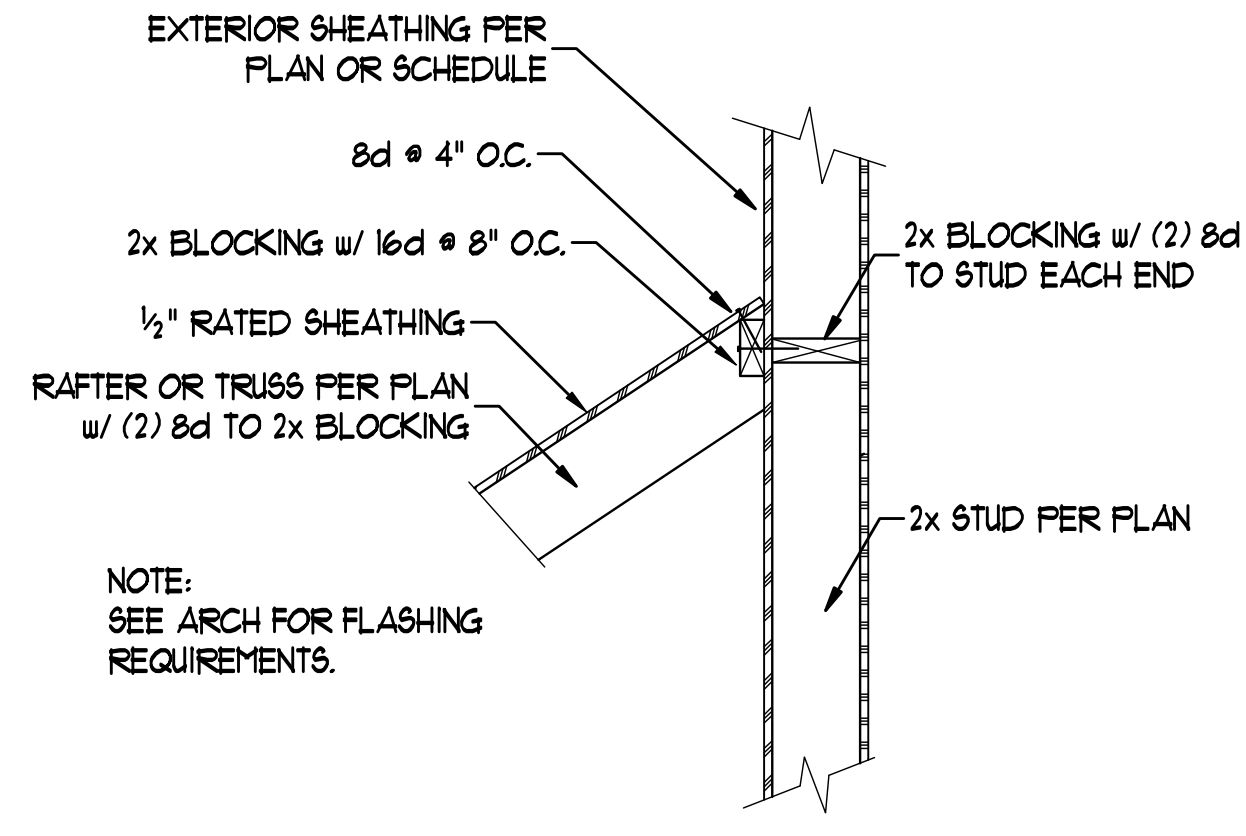
GENERAL STRUCTURAL NOTES



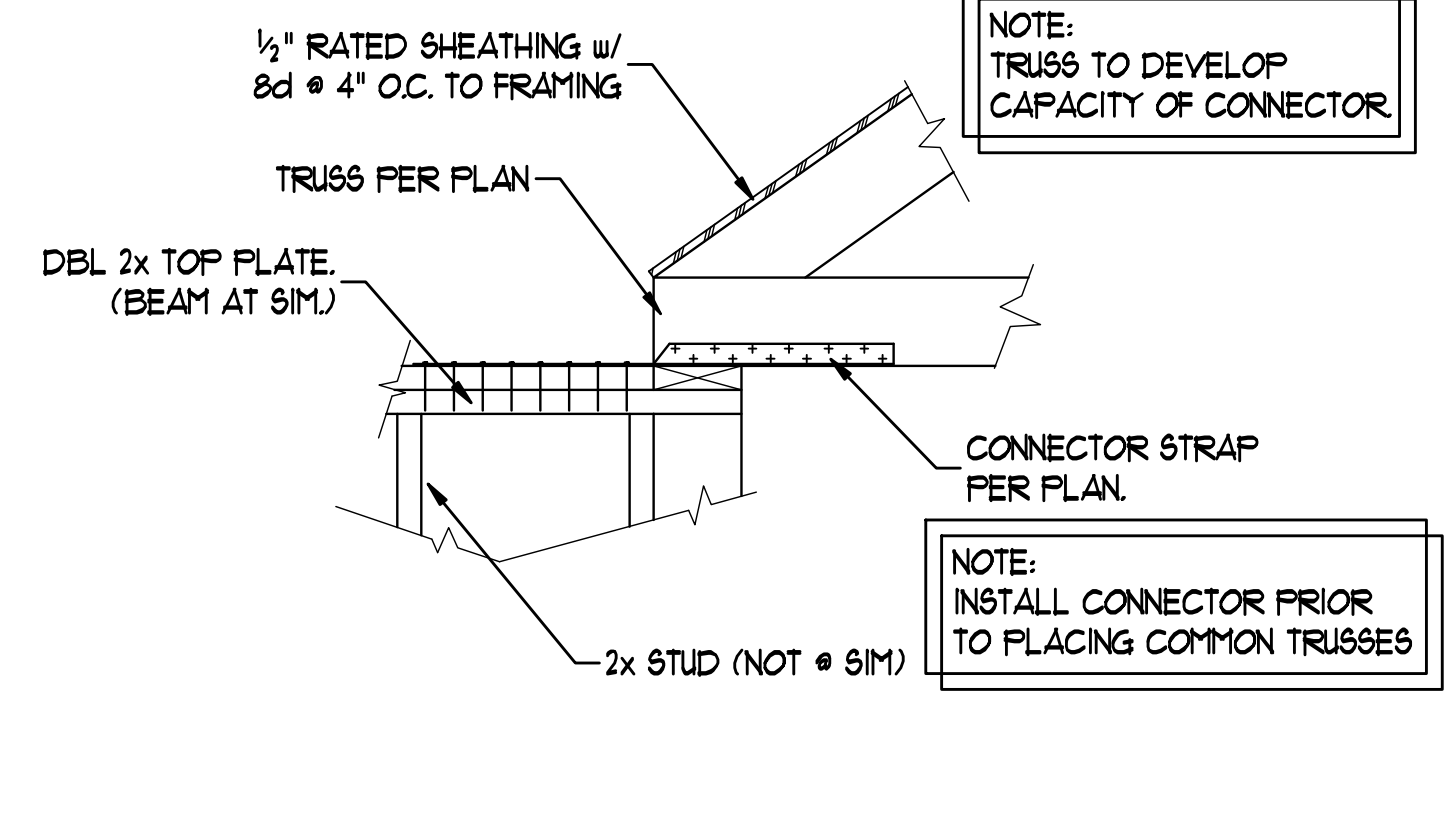
1 TYPICAL ROOF FRAMING CONNECTION
SCALE: 1" = 1'-0"



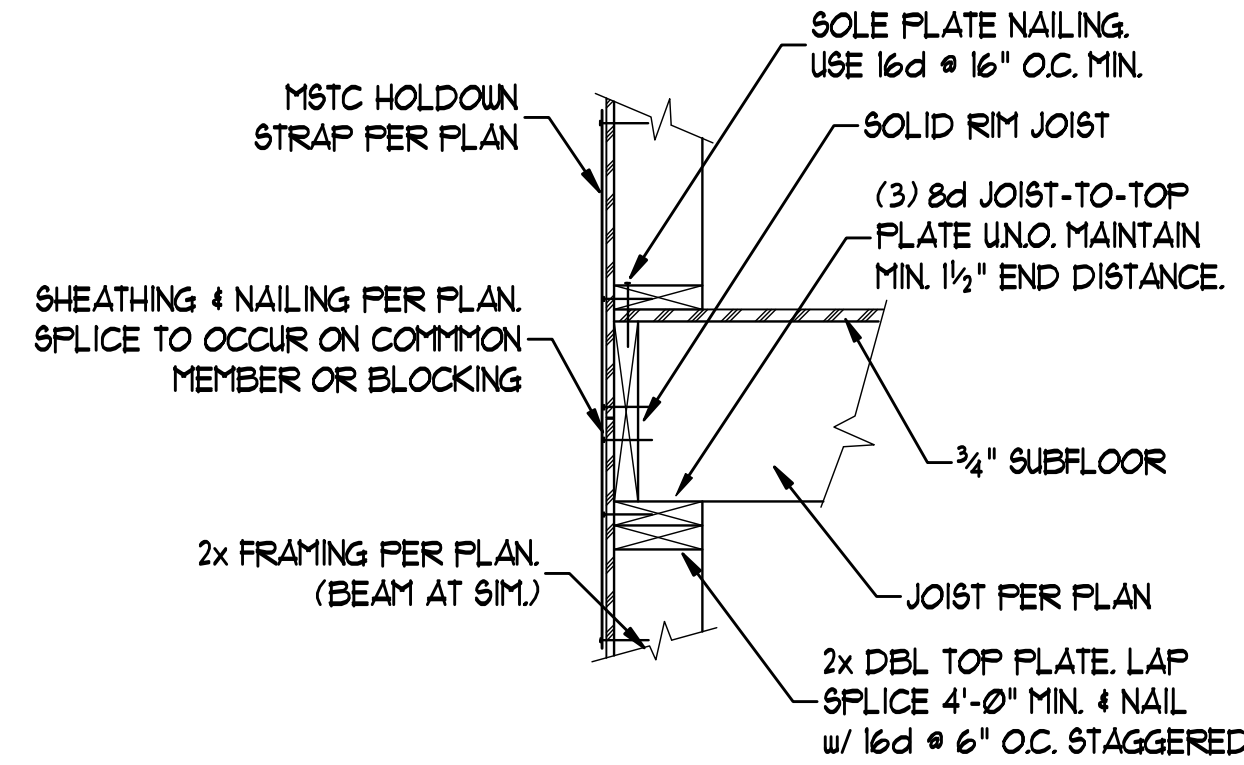
2 ROOF FRAMING @ GABLE END
SCALE: 1" = 1'-0"



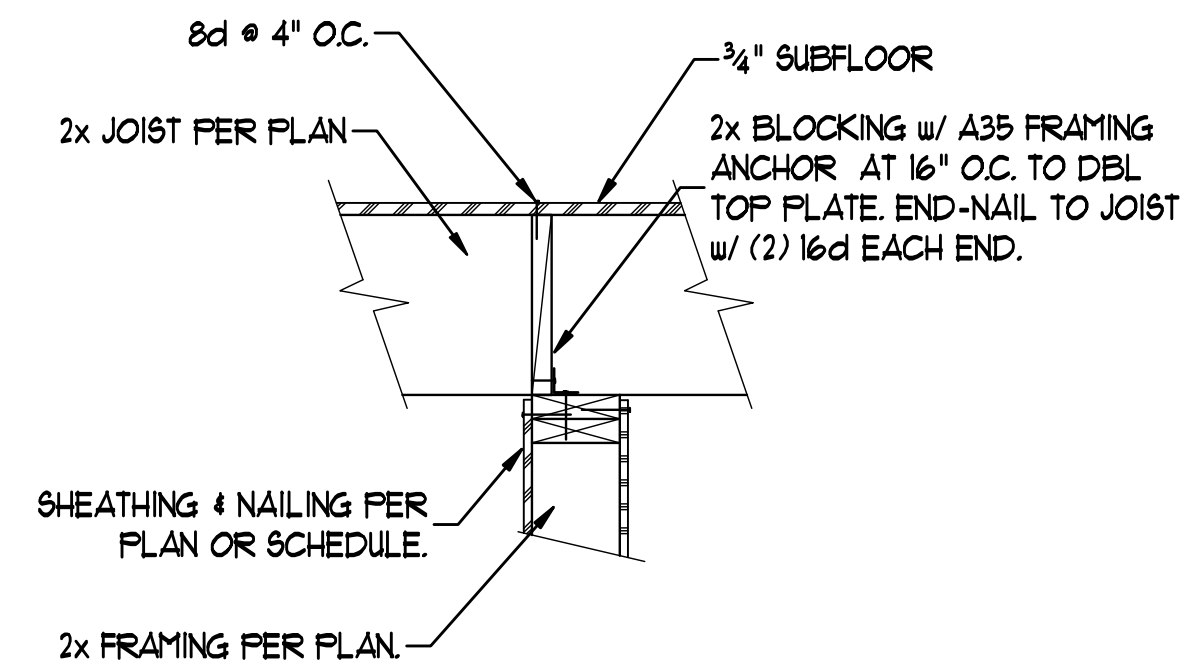
3 LOWER ROOF FRAMING @ SHEAR WALL
SCALE: 1" = 1'-0"



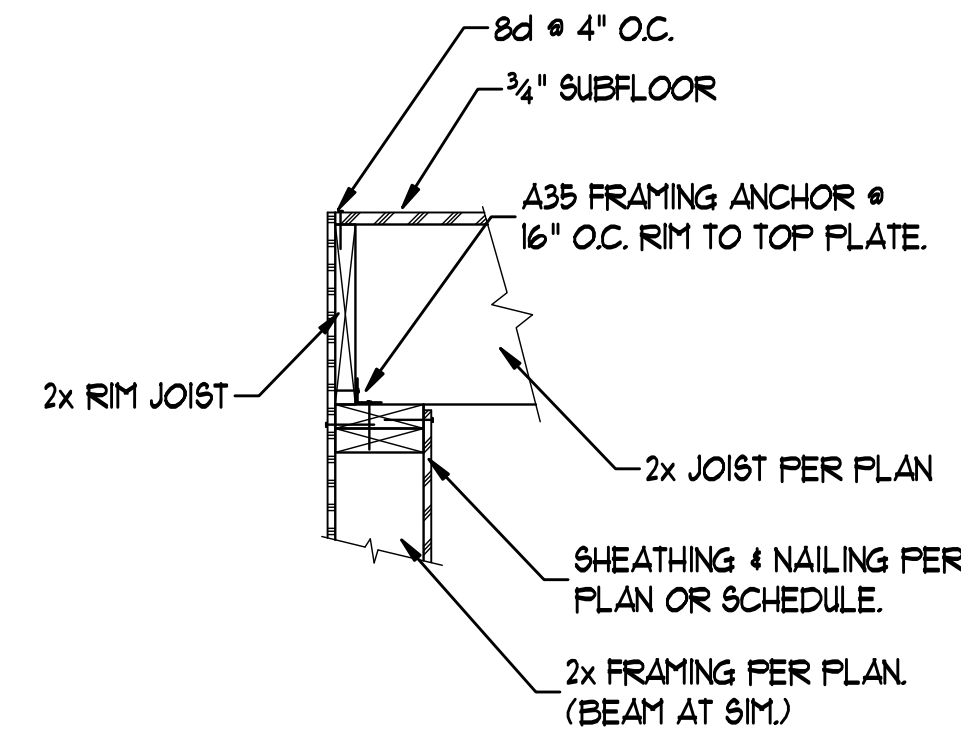
4 DRAG STRUT CONNECTION
SCALE: 1" = 1'-0"



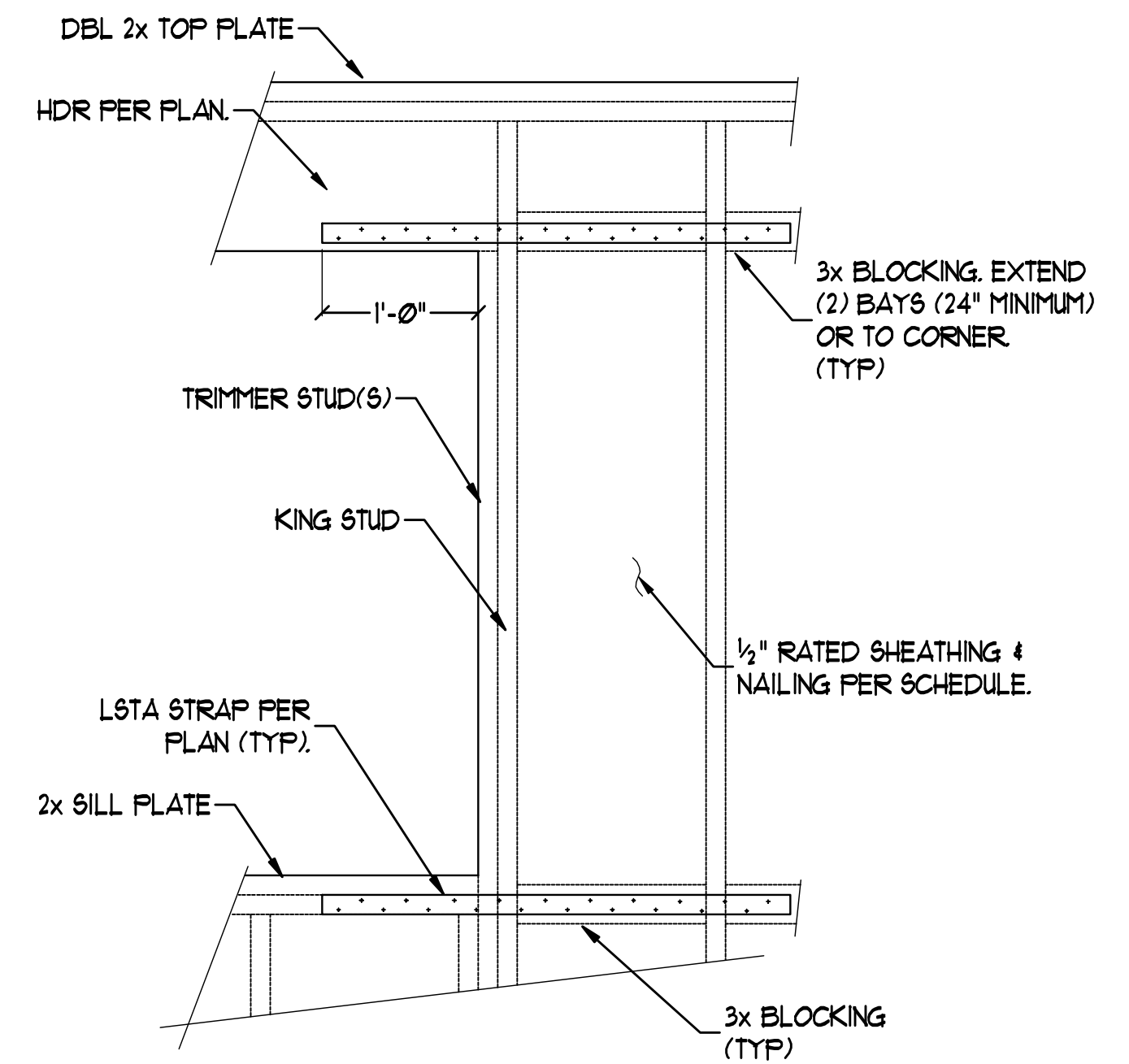
5 TYPICAL FLOOR FRAMING CONNECTION
SCALE: 1" = 1'-0"



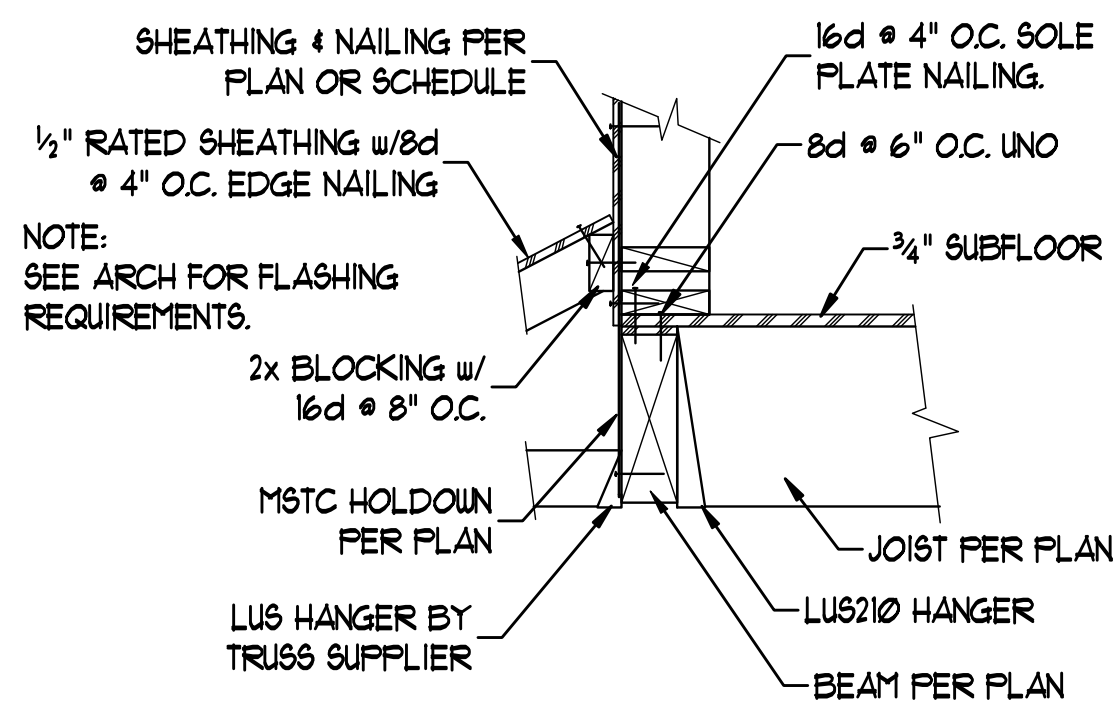
6 FRAMING AT INTERIOR SHEAR WALL
SCALE: 1" = 1'-0"



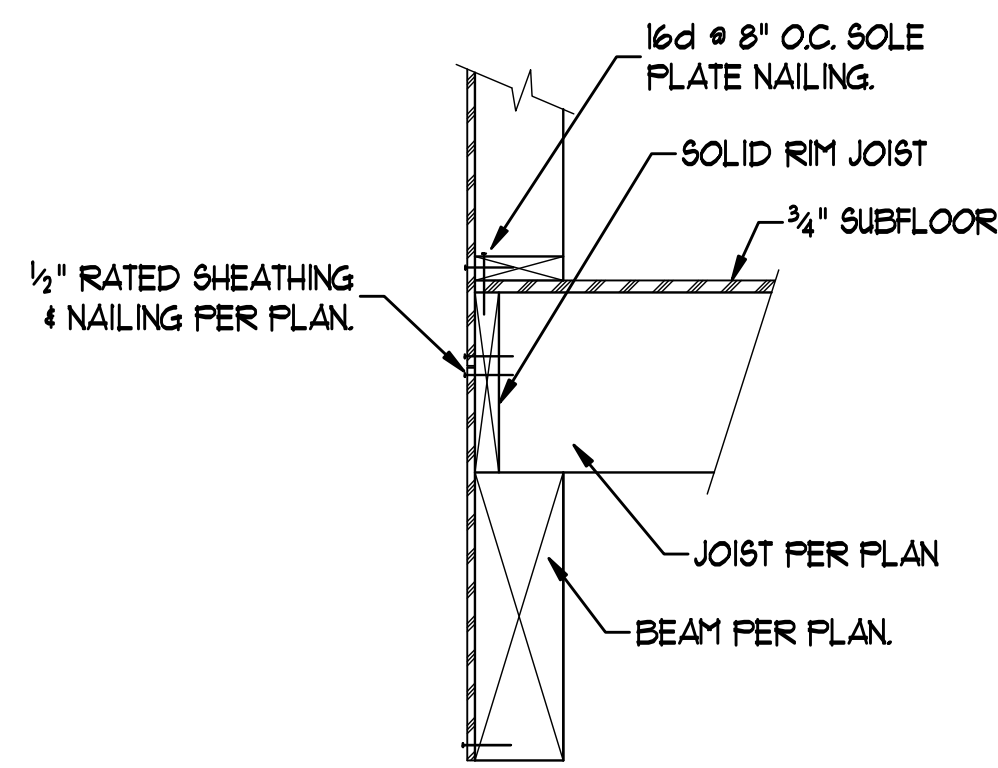
7 FRAMING AT INTERIOR SHEAR WALL
SCALE: 1" = 1'-0"



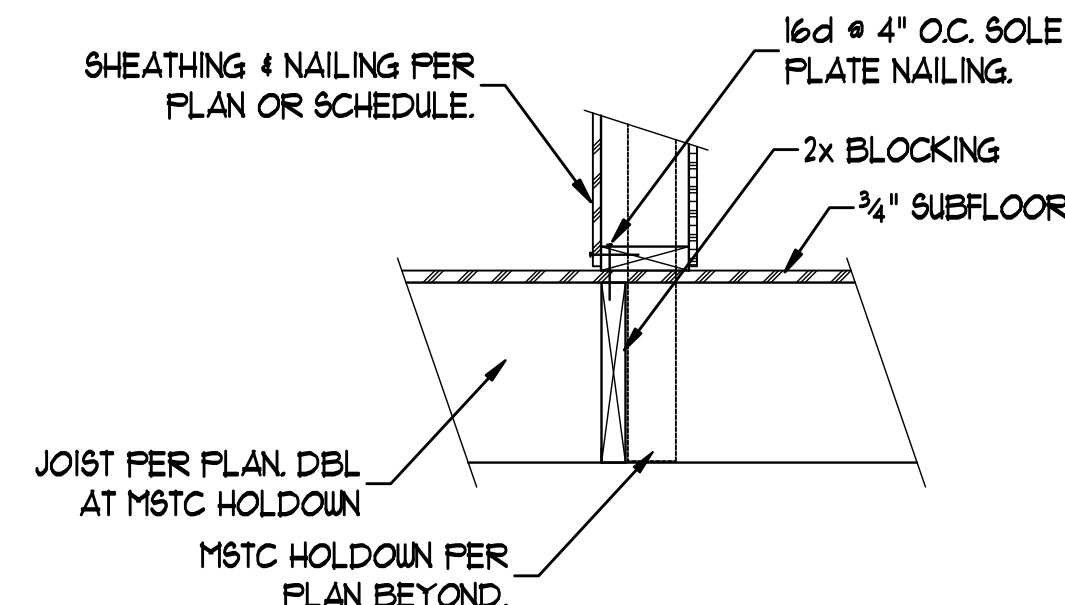
8 SHEAR WALL FORCE TRANSFER DETAIL
SCALE: 1" = 1'-0"



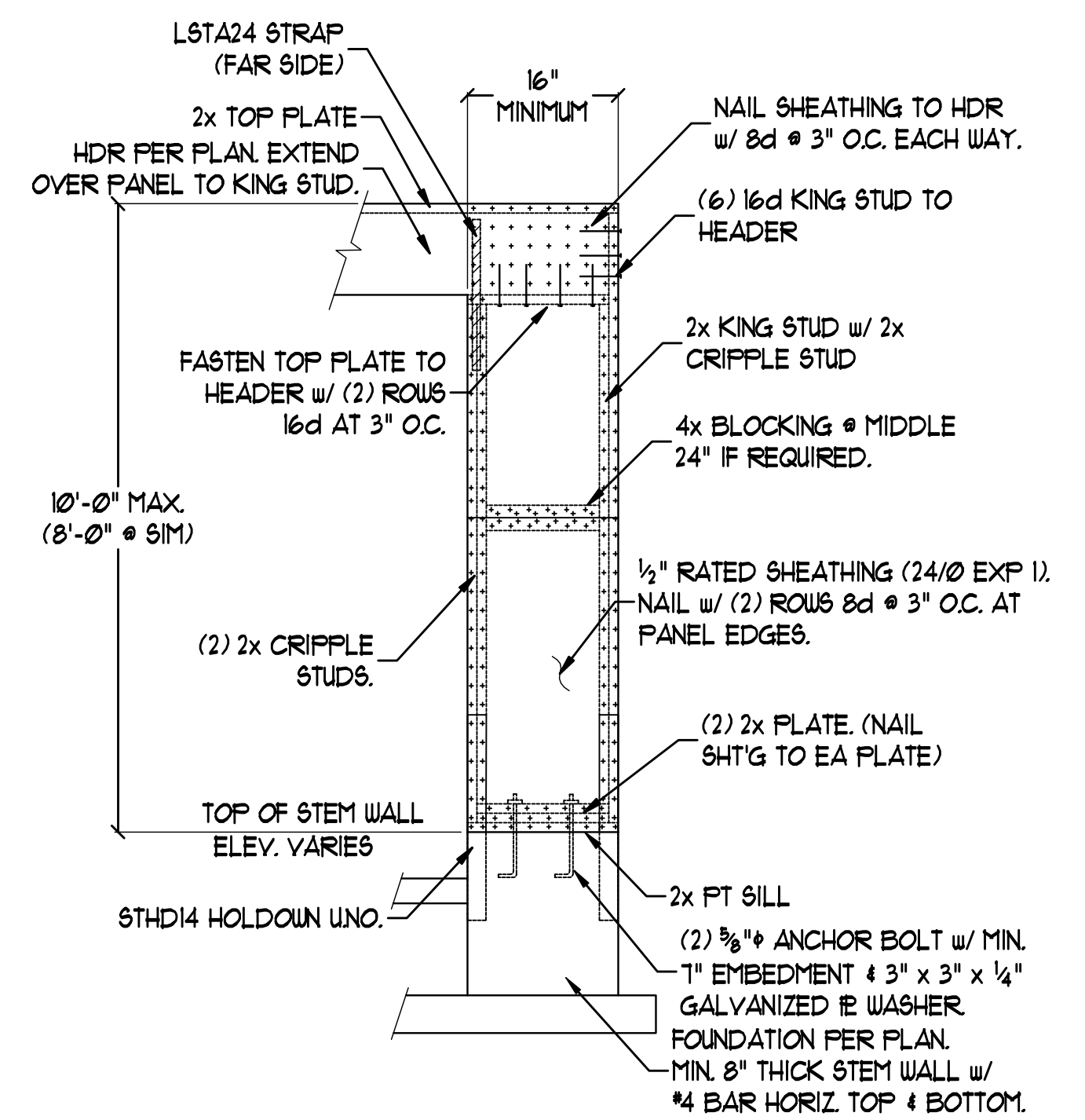
9 SHEAR WALL FRAMING AT FLUSH BEAM
SCALE: 1" = 1'-0"



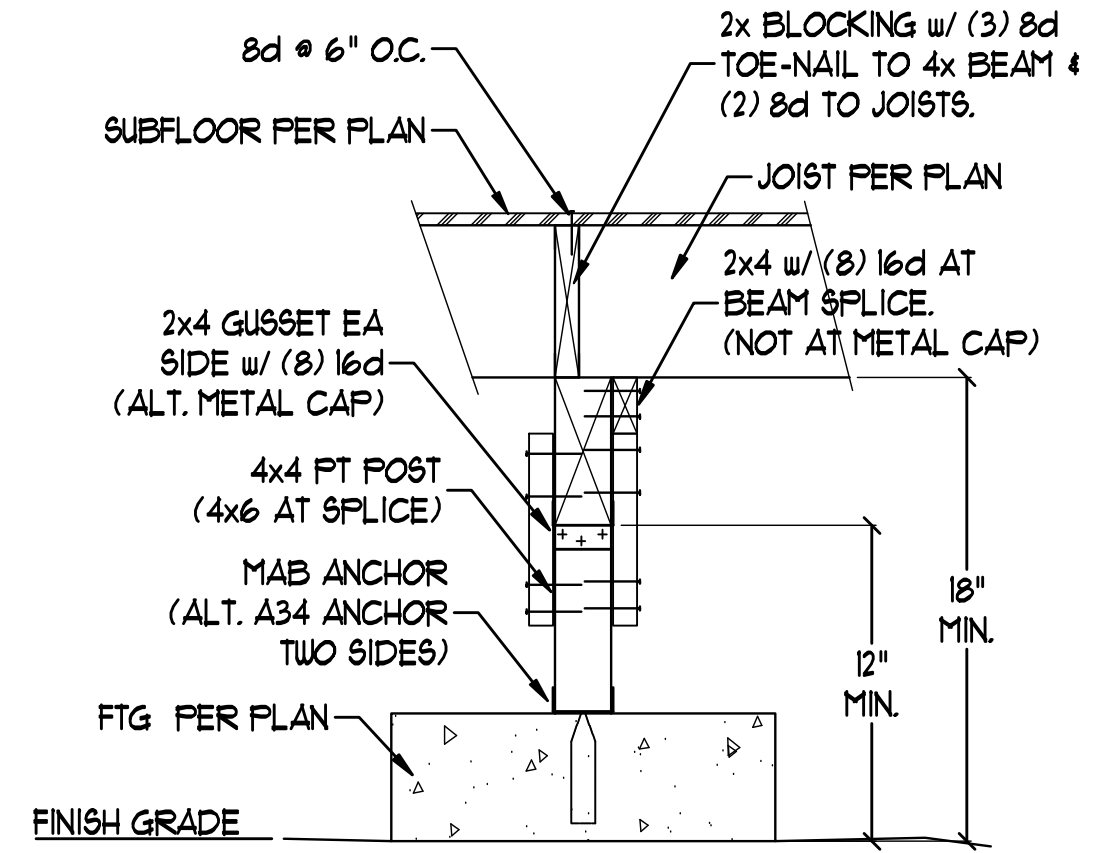
10 SHEAR WALL FRAMING AT BEAM
SCALE: 1" = 1'-0"



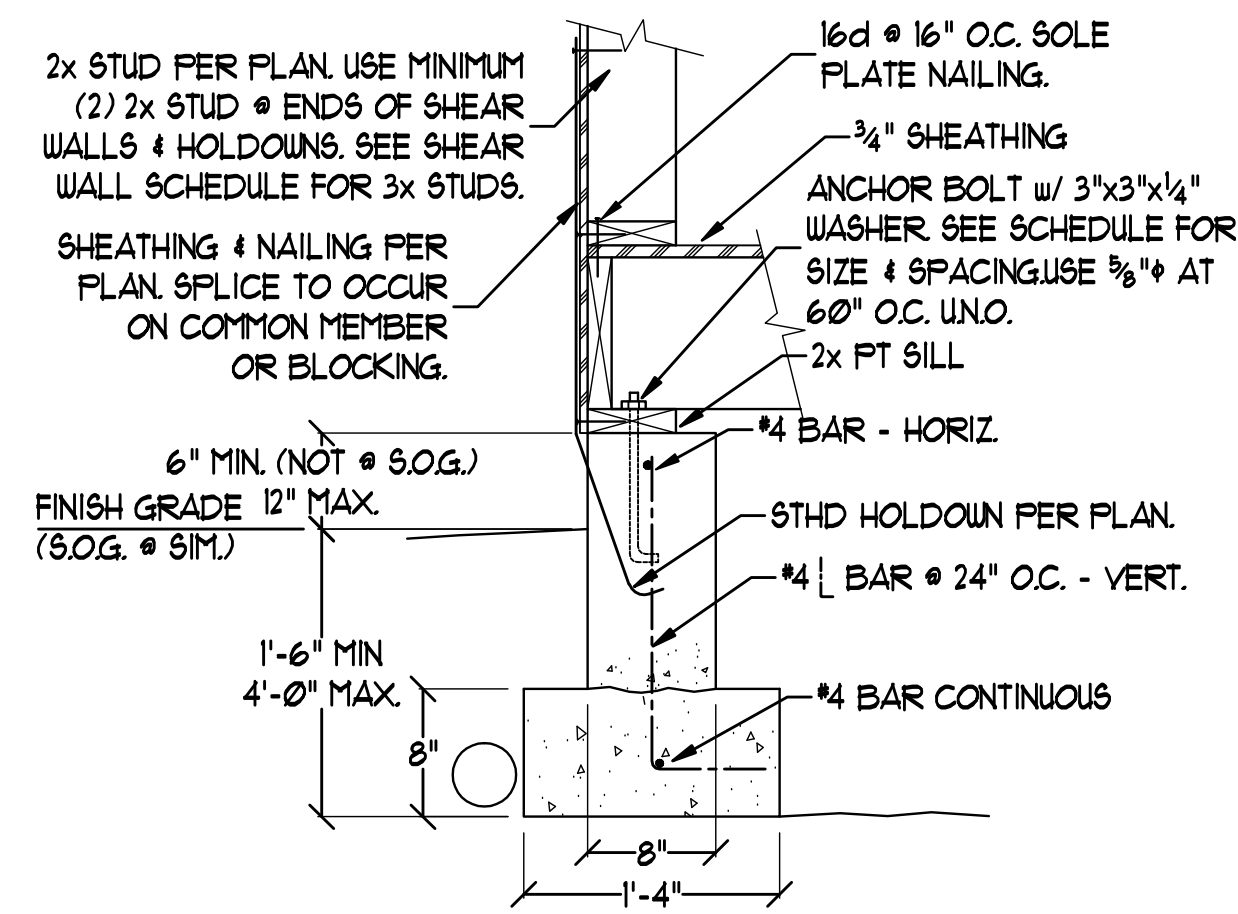
11 FLOOR FRAMING AT SHEAR WALL
SCALE: 1" = 1'-0"



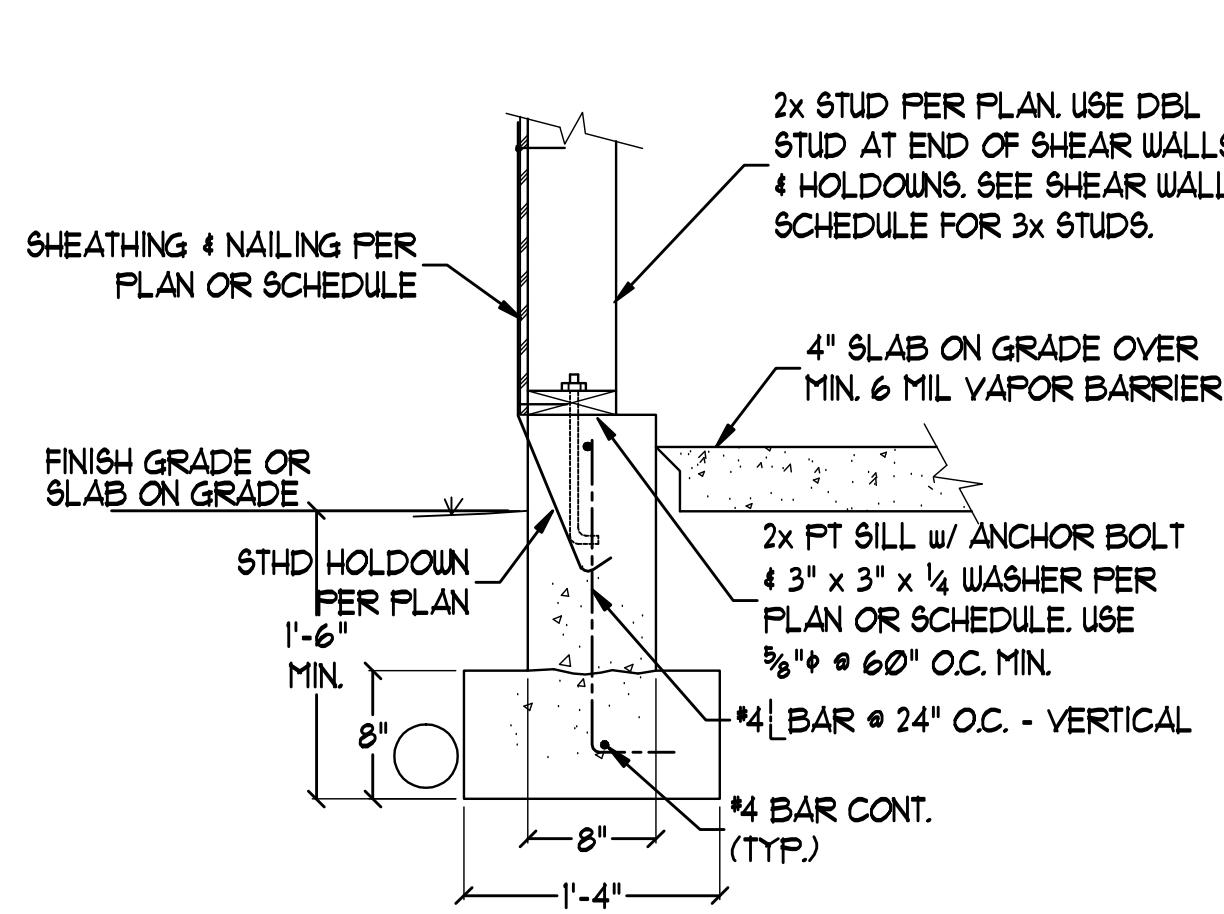
12 PORTAL FRAME PANEL
SCALE: NONE



13 FLOOR FRAMING AT CRAWL SPACE
SCALE: 1" = 1'-0"



14 FOUNDATION AT CRAWL SPACE
SCALE: 1" = 1'-0"



15 FOUNDATION AT SLAB ON GRADE
SCALE: 1" = 1'-0"

SCALE: 1" = 1'-0"
DATE: 06/22/21
ISSUE FOR PERMIT

SEGA Engineers
Structural & Civil Consulting Engineers

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LANDMARK DESIGN, INC.
PLAN NO. M-1822

STRUCTURAL DETAILS



S2.0