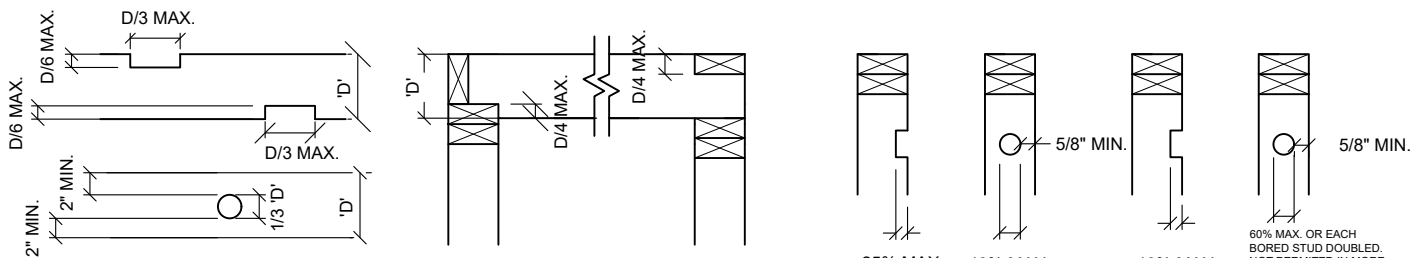


ROOF RAFTER SPANS (DF-LARCH #2) Dead load 10 psf / Live load 20 psf (Ceiling attached to rafters, L/Δ = 240) [Table R802.5.1(2)]			CEILING JOIST SPANS (DF-LARCH #2) [Table R802.4(1) & R802.4(2)]			
Rafter Size	Spacing	Allowable span	Joist Size	Spacing	Allowable span Dead load 5 psf/ Live load 10 psf	Allowable span Dead load 10 psf/ Live load 20 psf
2x6	24"	11'-11"	2x4	24"	9'-10"	7'-3"
	16"	14'-1"		16"	11'-3"	8'-11"
	12"	15'-6"		12"	12'-5"	9'-10"
2x8	24"	15'-1"	2x6	24"	15'-0"	10'-8"
	16"	18'-5"		16"	17'-8"	13'-0"
	12"	20'-5"		12"	19'-6"	15'-0"
2x10	24"	18'-5"	2x8	24"	19'-1"	13'-6"
	16"	22'-6"		16"	23'-4"	16'-6"
	12"	26'-0"		12"	25'-8"	19'-1"
2x12	24"	21'-4"	2x10	24"	23'-3"	16'-5"
	16"	26'-0"		16"	26'-0"	20'-2"
	12"	26'-0"		12"	26'-0"	23'-3"

FLOOR JOIST SPANS (DF-LARCH #2) Dead load 10 psf / Live load 40 psf [Table R502.3.1(2)]			GIRDER AND HEADER SPANS FOR EXTERIOR BEARING WALLS ONE STORY (DF-LARCH #2) [Table R602.7(1)] NJ = Number of jacks studs required to support each end.		RAFTER TIE CONNECTIONS Roof live load 20 psf [(Table R802.5.1(9)) Required number of 16d common nails per connection, wood members shall be of sufficient size to prevent splitting due to nailing. Split members shall be removed and replaced.								
Joist size	Spacing	Allowable span	Size	20' Building width	28' Building width	RAFTER SLOPE	TIE SPACING	ROOF SPAN(FT.)					
								12	20	28			
2x6	24" 16" 12"	8'-3" 9'-9" 10'-9"	2-2x6	5'-5" w/ 1 NJ	4'-8" w/ 1 NJ	3:12	12	4	6	8			
			2-2x8	6'-10" w/ 1 NJ	5'-11" w/ 2 NJ			5	8	10			
			2-2x10	8'-5" w/ 2 NJ	7'-3" w/ 2 NJ			7	11	15			
			2-2x12	9'-9" w/ 2 NJ	8'-5" w/ 2 NJ			8	10	12			
			3-2x12	12'-2" w/ 2 NJ	10'-7" w/ 2 NJ			10	12	15			
2x8	24" 16" 12"	10'-5" 12'-9" 14'-2"	GIRDER AND HEADER SPANS FOR INTERIOR BEARING WALLS ONE STORY (DF-LARCH #2) [Table R602.7(2)] NJ = Number of jacks studs required to support each end.			4:12	12	3	5	6			
			2x10	24" 16" 12"	12'-9" 15'-7" 18'-0"			Size	20' Building width	28' Building width	4	6	8
											2-2x6	4'-6" w/ 1 NJ	3'-11" w/ 1 NJ
2x12	24" 16" 12"	14'-9" 18'-1" 20'-11"	2-2x6	4'-6" w/ 1 NJ	3'-11" w/ 1 NJ	5:12	12	3	4	5			
			2-2x8	5'-9" w/ 1 NJ	5'-0" w/ 2 NJ			4	5	6			
			2-2x10	7'-0" w/ 2 NJ	6'-1" w/ 2 NJ			5	6	7			
			2-2x12	8'-1" w/ 2 NJ	7'-0" w/ 2 NJ			6	7	8			
			3-2x12	10'-2" w/ 2 NJ	8'-10" w/ 2 NJ			7	8	9			

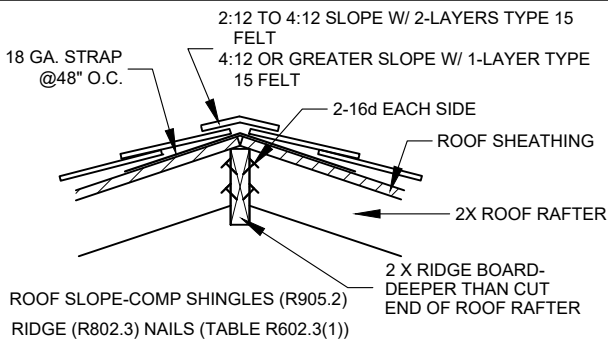
ALLOWABLE SPANS AND LOADS FOR WOOD STRUCTURAL PANELS FOR ROOF & SUBFLOOR SHEATHING (Dead load 10 psf; Panel continuous over two or more spans w/ long dimension perpendicular to supports; Applies to panels 24" or wider) [Table R503.2.1.1(1)]						
Sheathing		Roof				Subfloor
Span rating	Min. panel thickness (in.)	Max. span (in.)		Load (psf)		Max. span (in.)
Roof / floor span	thickness (in.)	Edge support (2x blocking)	No edge support	Total load	Live load	Panel edges with tongue and groove joints or with blocking
24/0	3/8	24	20	40	30	0
24/16	7/16	24	24	50	40	16
32/16	15/32, 1/2	32	28	40	30	16
40/20	19/32, 5/8	40	32	40	30	20
48/24	23/32, 3/4	48	36	45	35	24

FASTENING SCHEDULE [Table R602.3(1)]		
Description of Building Elements	Number and Type of Fastener	Spacing and Location
Roof		
Blocking between ceiling joists or rafters to top plate	4-8d box (2-1/2" x 0.113")	Toe nail
Ceiling joists to top plate	4-8d box (2-1/2" x 0.113")	Toe nail
Ceiling joists not attached to parallel rafter, laps over partitions	4-10d box (3" x 0.128")	Face nail
Rafter or roof truss	3-16d box (3-1/2" x 0.135"); or 3-10d common nails (3" x 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss.
Roof rafter to ridge, valley or hip rafters or roof rafter to minimum 2" ridge beam	4-16d box (3-1/2" x 0.135") 3-16d box (3-1/2" x 0.135")	Toe nail End nail
Wall		
Stud to stud (not at braced wall panels)	16d common (3-1/2" x 0.162")	24" o.c. face nail
Stud to stud and abutting studs at intersecting wall corners (at braced wall panels)	16d box (3-1/2" x 0.135")	12" o.c. face
Built-up header (2" or 2" header with 1/2" spacer)	16d common (3-1/2" x 0.162")	16" o.c. each edge face nail
Continuous header to stud	5-8d box (2-1/2" x 0.113")	Toe nail
Top plate to top plate	16d common (3-1/2" x 0.162")	16" o.c. face nail
Double top plate splice	8-16d common (3-1/2" x 0.162")	Face nail on each side of end joint (minimum 24" lap splice length each side of end joint)
Bottom plate to joist, rim joist, band joist or blocking (not at braced wall panels)	16d common (3-1/2" x 0.162")	16" o.c. face nail
Bottom plate to joist, rim joist, band joist or blocking (at braced wall panel)	3-16d box (3-1/2" x 0.135")	3 each 16" o.c. face nail
Top or bottom plate stud	4-8d box (2-1/2" x 0.113") 3-16d box (3-1/2" x 0.135")	Toe nail End nail
Top plates, laps at corners and intersections	3-10d box (3" x 0.128")	Face nail
Floor		
Joist to sill, top plate or girder	4-8d box (2-1/2" x 0.113")	Toe nail
Rim joist, band joist or blocking to sill or top plate (roof applications also)	8d common (2-1/2" x 0.131")	6" o.c. toe nail
Built-up girders and beams, 2-inch lumber layers	20d common (4" x 0.192")	Nail each layer as follows: 32" o.c. at top and bottom and staggered.
Ledger strip supporting joists or rafters	4-16d box (3-1/2" x 0.135")	At each joist or rafter, face nail

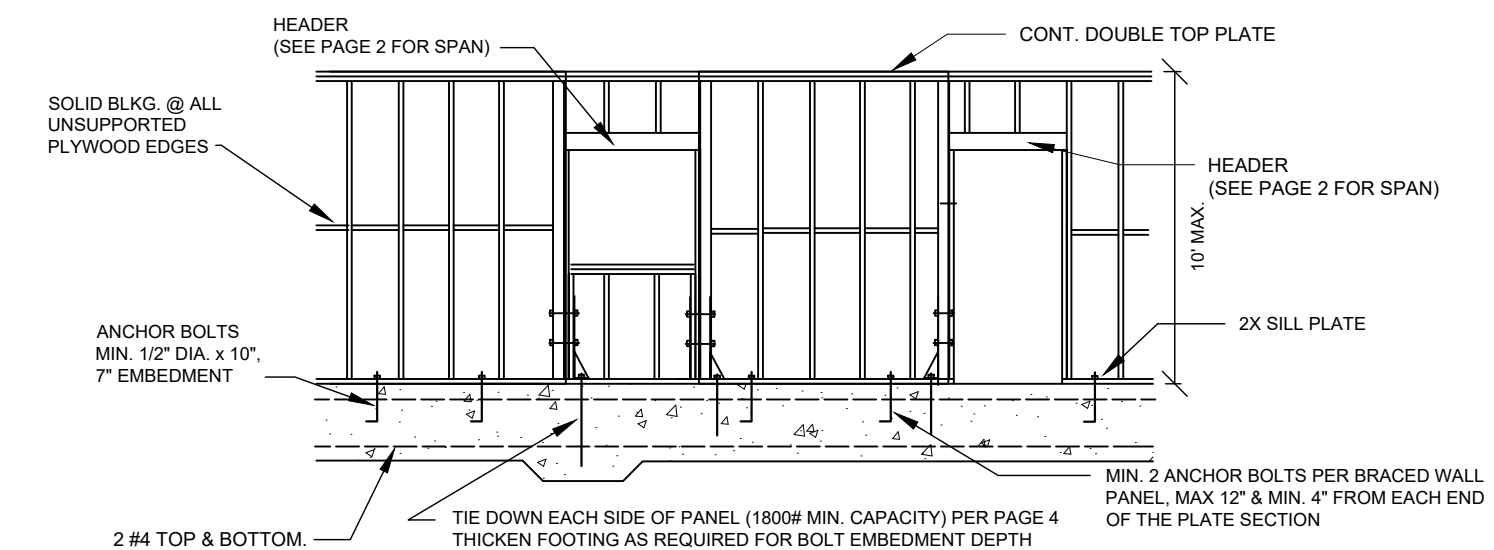
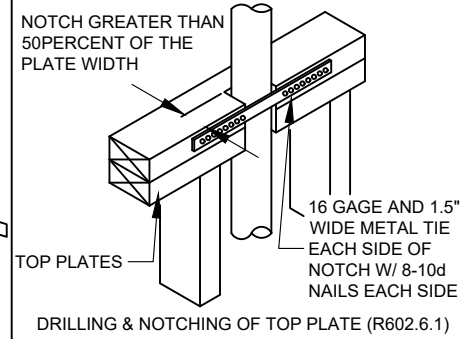
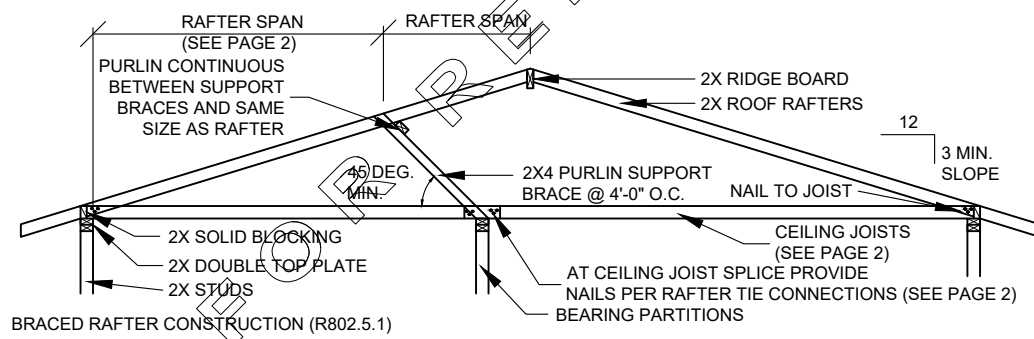
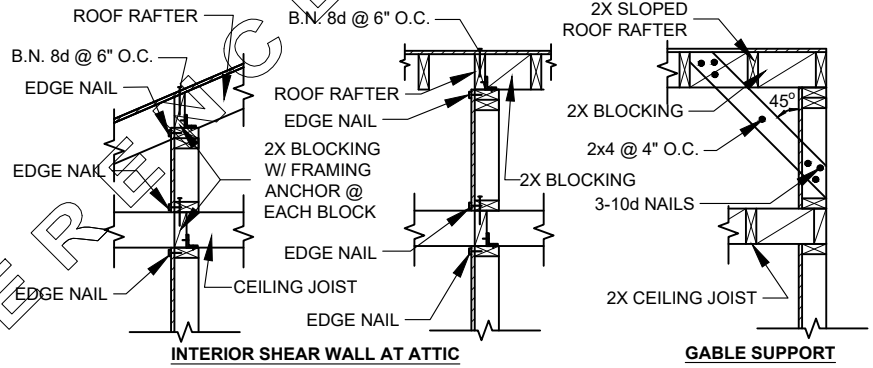
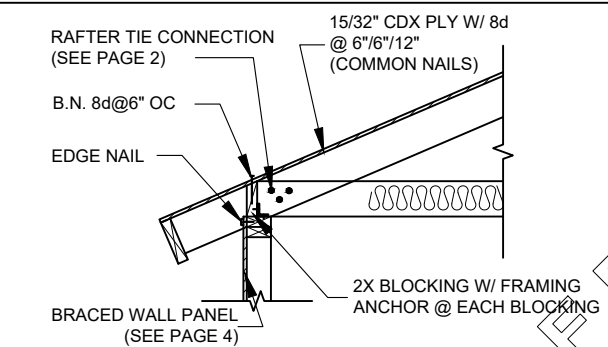


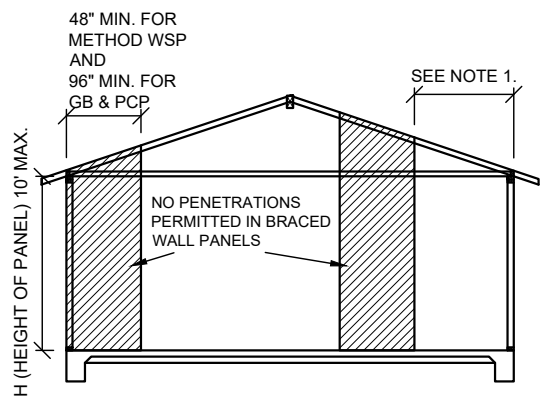
NOTCHING & BORING OF FLOOR JOISTS, RAFTERS, AND CEILING JOISTS
(NOTCHING NOT PERMITTED IN MIDDLE 1/3 JOIST SPAN)

25% MAX. 40% MAX. 40% MAX. 60% MAX. OR EACH BORED STUD DOUBLED. NOT PERMITTED IN MORE THAN 2 DOUBLE STUDS
EXTERIOR WALLS AND BEARING PARTITIONS NON-BEARING PARTITIONS

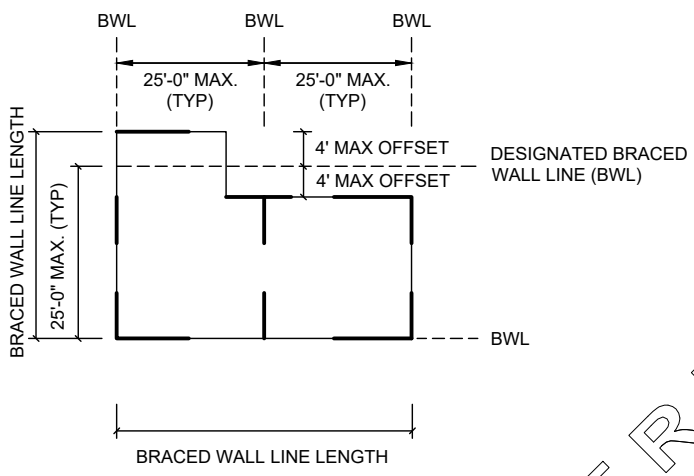


NOTCHING & BORING:
FLOOR JOISTS (R502.8), RAFTERS/CEILING (R802.7.1), WALL STUDS (R602.6)



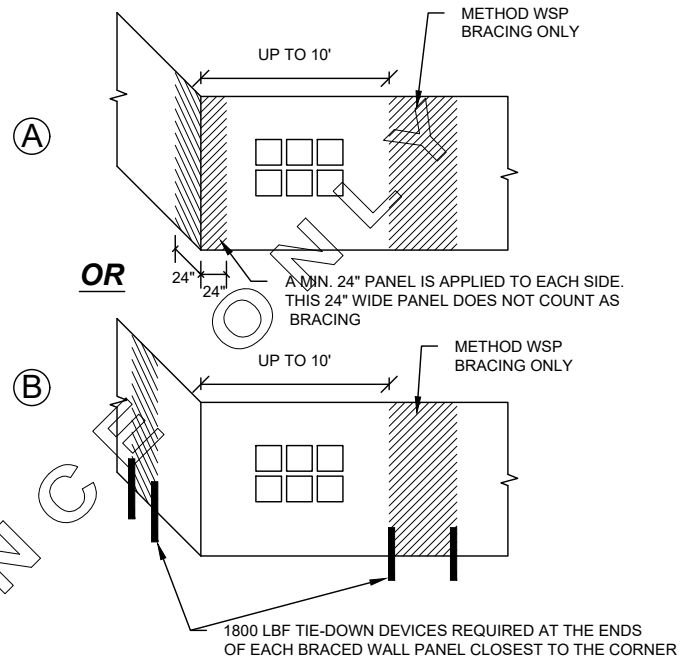


MIN. 2 BRACED WALL PANELS ARE REQUIRED IN EACH BRACED WALL LINE



NOTES:

- BRACED WALL LINES AT EXTERIOR WALLS SHALL HAVE A BRACED WALL PANEL LOCATED AT EACH END OF THE BRACED WALL LINE.
EXCEPTION: FOR METHOD WSP, THE BRACED WALL PANEL SHALL BE PERMITTED TO BEGIN NO MORE THAN 10 FEET FROM EACH END OF THE BRACED WALL LINE PROVIDED:



- MIXING BRACING METHODS WITHIN A BRACED WALL LINE IS NOT PERMITTED.

**INTERMITTENT BRACING METHODS BASED ON SEISMIC DESIGN CATEGORY
(AS A FUNCTION OF BRACED WALL LINE LENGTH)^a**

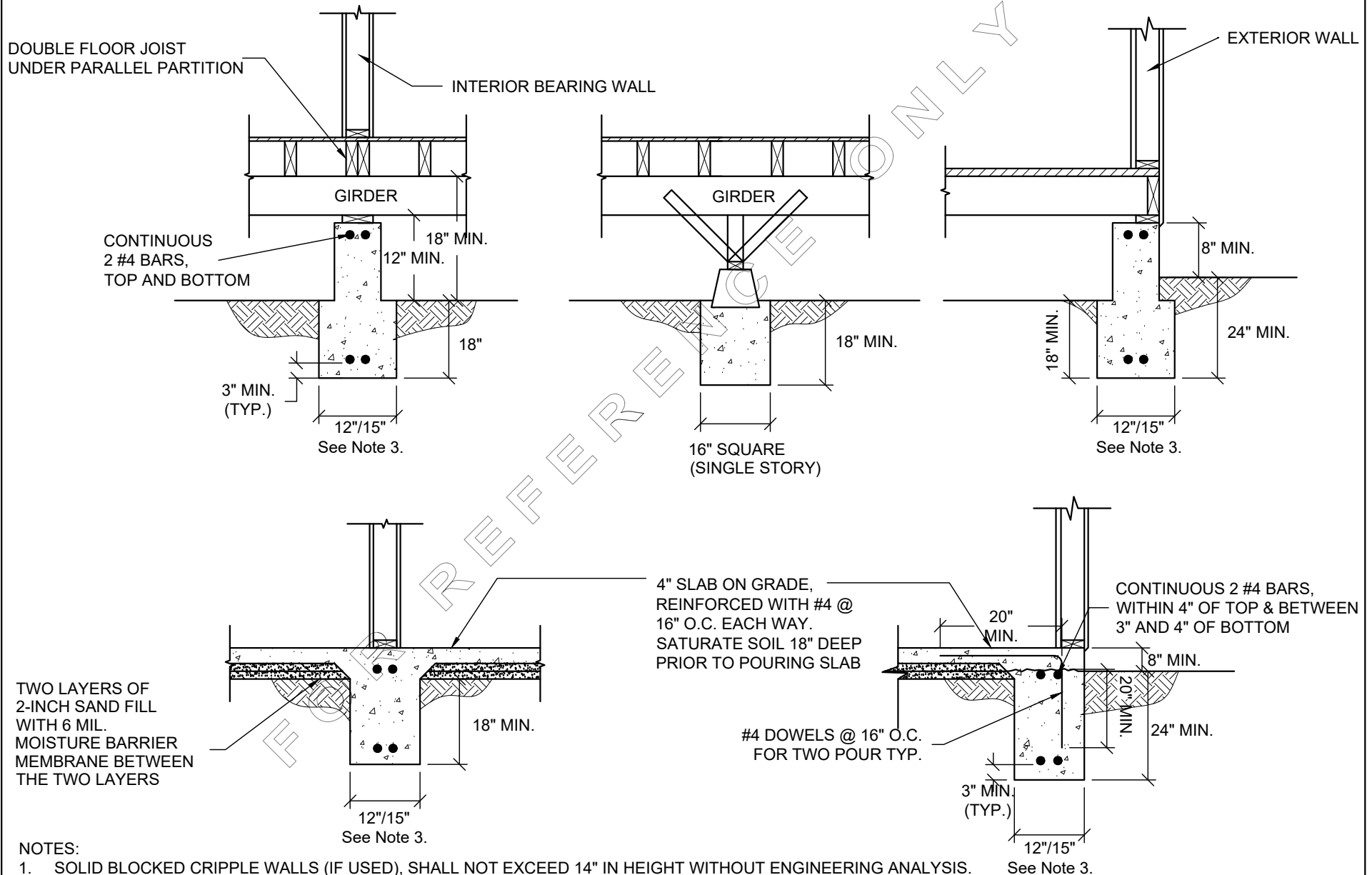
ROOF/CEILING DEAD LOAD = 15 PSF WALL HEIGHT = 10 FT FLOOR DEAD LOAD = 10 PSF BRACED WALL LINE SPACING ≤ 25 FT SOIL CLASS = D			MINIMUM TOTAL LENGTH (feet) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE ^f	
SEISMIC DESIGN CATEGORY (SDC)	STORY LOCATION	BRACED WALL LINE LENGTH	METHODS GB ^{b,e} AND PCP ^{c,e}	METHOD WSP ^d
SDC D ₀ OR D ₁		10	8	4
		20	12	4
		30	18	6
		40	24	8
		50	30	10
SDC D ₂		10	8	4
		20	16	5
		30	24	7.5
		40	32	10
		50	40	12.5

FOR SI: 1 foot = 304.8 mm, 1 pound per square foot = 47.89 Pa.

- Based on Table R602.10.3(3) of the 2017 County of Los Angeles Residential Code.
- Method GB (Gypsum Board) = 1/2" minimum thickness gypsum board with 1-1/2" galvanized roofing nail or 1-1/4" screws, Type W or S for exterior sheathing, or 5d cooler nails, 0.086" diameter, 1-5/8" long, 15/64" head for interior sheathing. Maximum spacing of fasteners shall be at 7" o.c. at panel edges, including top and bottom plates. When Method GB panels are applied to only one face of a braced wall panel, the minimum total length of braced wall panel in the Table shall be doubled.
- Method PCP (Portland Cement Plaster) = 7/8" minimum thickness Portland cement plaster with 1-1/2", 11 gage, 7/16" head nails at 6" spacing (for maximum 16" stud spacing only). Gypsum wall board (1/2" minimum thickness shall be installed on the side of the wall opposite the bracing material, except if the minimum total length of braced wall panel in the Table is multiplied by a factor of 1.5.
- Method WSP (Wood Structural Panel) = 15/32" minimum thickness wood structural panel with 8d common (2-1/2" x 0.131") nails at 6" spacing (panel edge) at 12" spacing (intermediate supports), 3/8" edge distance to panel edge. Gypsum wall board (1/2" minimum thickness) shall be installed on the side of the wall opposite the bracing material, except if the minimum total length of braced wall panel in the Table is multiplied by a factor of 1.5.
- Method GC and PCP braced wall panel h/w ratio shall not exceed 1:1.
- Linear interpolation shall be permitted.



FOUNDATION SYSTEM ON EXPANSIVE SOIL FOR 1 OR 2 STORY R-3/ ACCESSORY U OCCUPANCIES

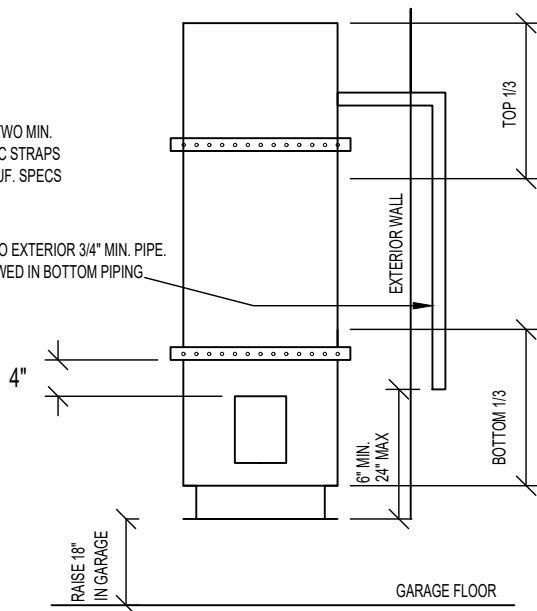


NOTES:

1. SOLID BLOCKED CRIPPLE WALLS (IF USED), SHALL NOT EXCEED 14" IN HEIGHT WITHOUT ENGINEERING ANALYSIS.
2. PERIMETER WALLS, INTERIOR BEARING WALLS AND POSTS SUPPORTED ON CONTINUOUS FOUNDATIONS.
3. 12"/15" - MIN. FOOTING FOR SUPPORTING ONE AND TWO FLOORS RESPECTIVELY.
4. SHEAR TRANSFER DETAILS AND OTHER REQUIREMENTS NOT SHOWN FOR CLARITY.

SEISMIC STRAPS: TWO MIN. APPROVED SEISMIC STRAPS APPLIED PER MANUF. SPECS

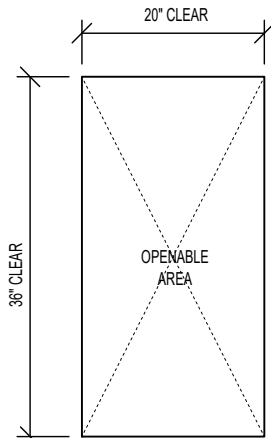
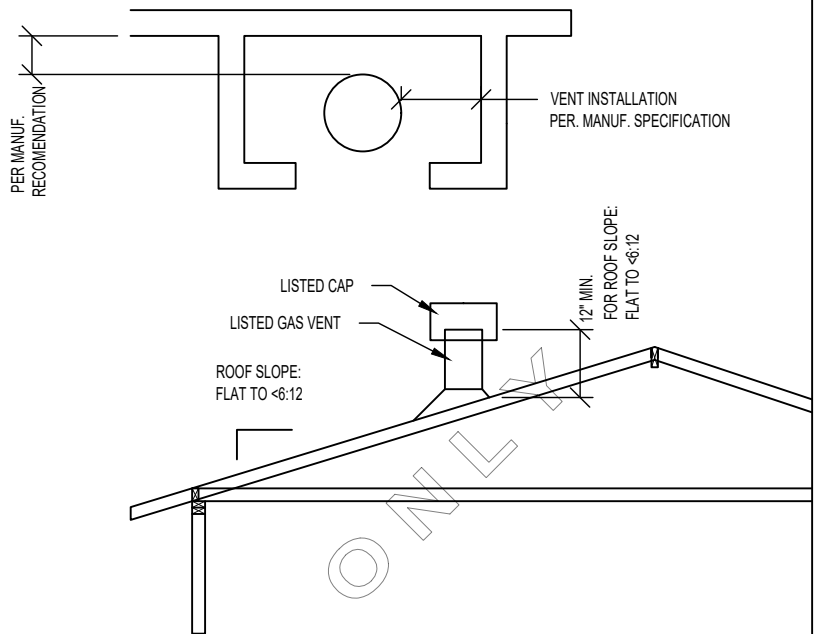
T&P VALVE PIPED TO EXTERIOR 3/4" MIN. PIPE. NO THREADS ALLOWED IN BOTTOM PIPING



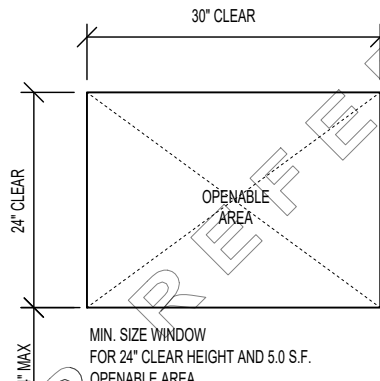
NOTE: NO GAS-FIRED WATER HEATER ALLOWED IN BEDROOMS, BATHROOMS, CLOTHES CLOSETS, OR ANY SPACE OPENING INTO A BEDROOM OR BATHROOM.

WATER HEATER (MC305.1, PC507.2, PC507.13)

VENT (PC509.6.2)



MIN. SIZE WINDOW FOR 20" CLEAR WIDTH AND 5.0 S.F. OPENABLE AREA

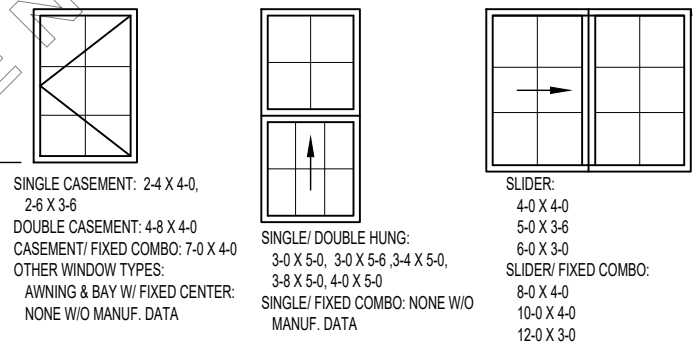


MIN. SIZE WINDOW FOR 24" CLEAR HEIGHT AND 5.0 S.F. OPENABLE AREA

FLOOR LEVEL

1. 20" MIN. CLEAR WIDTH
2. 24" MIN. CLEAR HEIGHT
3. 5.0 SF MIN. OPENABLE AREA AT GRADE-FLOOR ONLY, 5.7 SF MIN. ELSEWHERE.

EMERGENCY ESCAPE/ RESCUE OPENING (R310)

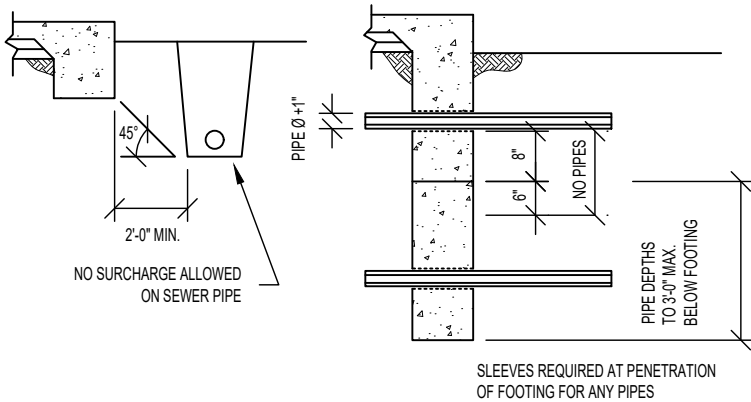


SINGLE CASEMENT: 2-4 X 4-0, 2-6 X 3-6
 DOUBLE CASEMENT: 4-8 X 4-0
 CASEMENT/ FIXED COMBO: 7-0 X 4-0
 OTHER WINDOW TYPES:
 AWNING & BAY W/ FIXED CENTER:
 NONE W/O MANUF. DATA

SINGLE/ DOUBLE HUNG:
 3-0 X 5-0, 3-0 X 5-6, 3-4 X 5-0,
 3-8 X 5-0, 4-0 X 5-0
 SINGLE/ FIXED COMBO: NONE W/O
 MANUF. DATA

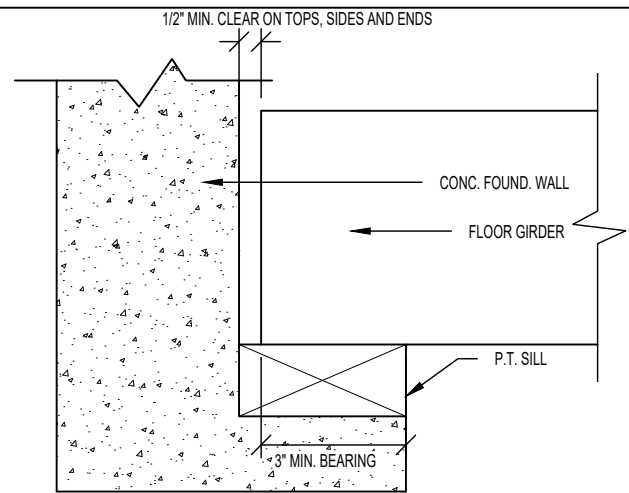
SLIDER:
 4-0 X 4-0
 5-0 X 3-6
 6-0 X 3-0
 SLIDER/ FIXED COMBO:
 8-0 X 4-0
 10-0 X 4-0
 12-0 X 3-0

NOTE: SIZES ARE TAKEN FROM DATA SUPPLIED BY WINDOW MANUFACTURERS. HOWEVER, THESE ARE GENERAL DIMENSIONS AND MUST BE VERIFIED WITH ACTUAL WINDOWS INSTALLED TO MEET MINIMUM EGRESS REQUIREMENTS.



SLEEVES REQUIRED AT PENETRATION OF FOOTING FOR ANY PIPES

TRENCHES AT FOOTINGS



GIRDER (R317.1 / R502.6)

EMERGENCY ESCAPE /
RESCUE WINDOW (SEE PAGE 6)

RESIDENTIAL REQUIREMENTS:

NOTES:

1. AN AUTOMATIC RESIDENTIAL FIRE SPRINKLER SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH SECTION R313.3 OR NFPA 13D FOR A NEW ONE- AND TWO-FAMILY DWELLING. (R313)
2. CARBON MONOXIDE (CMA) AND SMOKE ALARMS (SA) ARE REQUIRED FOR ALTERATIONS, REPAIRS OR ADDITIONS WHERE A PERMIT VALUATION EXCEEDS \$1,000 (R314 & R315):
 - A. CARBON MONOXIDE ALARMS SHALL BE PROVIDED IN EXISTING DWELLINGS OR SLEEPING UNITS THAT HAVE ATTACHED GARAGES OR FUEL-BURNING APPLIANCES. LOCATE SUCH ALARMS OUTSIDE OF EACH SEPARATE DWELLING UNIT SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S).
 - B. SMOKE ALARMS SHALL BE INSTALLED IN EACH SLEEPING ROOM AND OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOM(S).
3. NEW CONSTRUCTION - 120V WITH BATTERY BACKUP AND INTERCONNECTED. EXISTING CONSTRUCTION - BATTERY OPERATED.
4. GARAGE FLOOR SURFACE SHALL BE OF APPROVED NON-COMBUSTIBLE MATERIAL. (R309)
5. DUCTS PENETRATING WALLS OR CEILINGS SEPARATING THE DWELLING FROM THE GARAGE SHALL BE CONSTRUCTED OF A MIN. 26 GAGE SHEET STEEL OR APPROVED MATERIAL. (R302.5)
6. EVERY INTERIOR DOOR IN A DOORWAY THROUGH WHICH OCCUPANTS PASS SHALL HAVE A MINIMUM WIDTH OF 32".

MINIMUM ROOM DIMENSIONS: (R304 & R305)

1. HABITABLE ROOMS SHALL HAVE A FLOOR AREA OF NOT LESS THAN 70 SQ. FT.
2. HABITABLE ROOMS SHALL NOT BE LESS THAN 7 FT. IN ANY HORIZONTAL DIMENSION.
3. HABITABLE SPACE AND HALLWAYS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FT. BATHROOMS, TOILET ROOMS, AND LAUNDRY ROOMS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 6'-8".

LIGHTING: (R303)

ALL ROOMS REQUIRE NATURAL LIGHT BY MEANS OF EXTERIOR WINDOWS OR SKYLIGHTS MIN. 8% OF THE FLOOR AREA OF THE ROOM.

VENTILATION: (R303)

ALL ROOMS REQUIRE NATURAL VENTILATION BY MEANS OF OPENABLE WINDOWS MIN. 4% OF THE FLOOR AREA OF THE ROOM.

IF LESS THAN 60" ABOVE STANDING SURFACE (R308.4), WINDOWS AT SHOWERS & TUBS SHALL BE TEMPERED.

SHOWER DOORS SHALL SWING OUT. NET AREA OF SHOWER RECEPTOR SHALL BE MIN. 1024 SQ. IN. OF FLOOR AREA, AND ENCOMPASS 30 IN. Ø CIRCLE (PC 408.6)

6" HIGH NONABSORBENT SURFACE AT SHOWER WALLS (R307.2)

16"X24" UNDERFLOOR ACCESS THROUGH A PERIMETER WALL (R408.4)

GLAZING SHALL MEET THE FOLLOWING:

U-FACTOR = 0.32 MAX, SHGC - 0.25 MAX.

GLAZING AREA LIMITS:

20% MAX OF TOTAL FLOOR AREA.

5% MAX OF THAT CAN BE WEST FACING.

(CLIMATE ZONE 8, 9, 14 ONLY)

OTHERWISE PROVIDE TITLE 24 ENERGY CALCULATIONS.

UNDER-FLOOR AND ROOF VENTILATION (R408 & R806)

1. UNDER-FLOOR SPACES SHALL BE VENTILATED BY OPENINGS INTO THE UNDER-FLOOR SPACE EXTERIOR WALLS. SUCH OPENINGS SHALL HAVE A NET AREA OF NOT LESS THAN 1 SQUARE FOOT FOR EACH 150 SQUARE FEET OF UNDER-FLOOR AREA. ONE VENTILATION OPENING SHALL BE LOCATED WITHIN 3-FT OF EACH CORNER OF THE BUILDING AND PROVIDE CROSS VENTILATION. VENTILATION OPENINGS SHALL BE COVERED WITH CORROSION RESISTANT MESH W/ LEAST DIMENSION NOT EXCEEDING 1/4".
2. THE NET FREE VENTILATING AREA OF ENCLOSED ATTICS AND ENCLOSED RAFTER SPACES SHALL NOT BE LESS THAN 1/150 OF THE AREA OF THE SPACE VENTILATED. EXCEPT THAT REDUCTION OF TOTAL THE AREA TO 1/300 IS PERMITTED PROVIDED THAT AT LEAST 50% AND NOT MORE THAN 80% OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3- FEET ABOVE THE AVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. AS AN ALTERNATIVE, THE NEW FREE CROSS-VENTILATION AREA MAY BE REDUCED TO 1/300 WHEN A CLASS I OR CLASS II VAPOR BARRIER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING. A MINIMUM OF 1-INCH CLEARANCE SHALL BE PROVIDED BETWEEN THE INSULATION AND ROOF SHEATHING.

