

Chapter 6

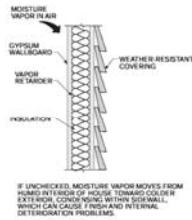
- Provides the requirements for the design and construction of wall systems that are capable of supporting the minimum design vertical loads (dead, live, and snow) and lateral loads (wind or seismic loads).
- The Chapter covers 5 different wall types, wood framed, cold-formed steel, masonry, concrete and Structural insulated panel (SIP)
- It also covers vapor retarders for moisture control
- As well as the criteria for the performance of exterior windows and doors.

Chapter 6

- There are three wall systems related to chapter 6 that will require a fire-resistance rating, they are.
- Exterior walls based on location on the property in accordance with R302
- Walls serving as dwelling unit separations in two-family dwellings in accordance with R302.3
- Common walls between townhouses in accordance with R302.2

Section R601 General

- R601.3 Vapor retarders-In CT, class I or II vapor retarders are required on the interior side of framed walls.
- R601.3.2 Material vapor Retarder class-
 - Class I-Sheet polyethylene, unperforated aluminum foil.
 - Class II-Kraft-faced fiberglass batts.
 - Class III-Latex or enamel paint.



Section R602 Wood Wall Framing

- R602.3 Design and Construction- Structural wall sheathing shall be fastened directly to structural framing members.
- R602.3.1 Stud size, height and spacing-In accordance with table
- R602.3(5).
- Stud spacing based on size and loading conditions.

Section R602 Wood Wall Framing

- R602.6.1 Drilling and notching of top plate
- Removal of any top plate material will reduce the tension/compression capacity of the plate.
- Removal of more than 50% requires 1 ½ " metal strap.

Section R602 Wood Wall Framing

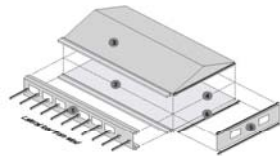
- R602.7 Headers-determined by table R502.5(1) for exterior bearing walls and table R502.5(2) for interior bearing walls and section R602.7.2 for non-bearing wall headers.
- Table R502.5(2) may be used to prescriptively size basement girders in one story dwellings only.

Section R602 Wood Wall Framing

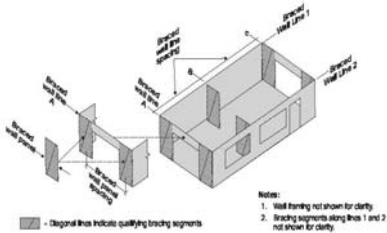
- R602.9 Cripple walls-shall be framed with studs not smaller than the studding above, when wall exceeds 4' in height studs shall be sized as required for an additional story.

Section R602 Wood Wall Framing

- R602.10 Wall Bracing-buildings shall be braced in accordance with this section. **2012 Added R602.12 Simplified wall bracing.** (not applicably in CT only allowed in 90 mph or less)
- Where the building or any portion thereof can not comply they shall be designed and constructed in accordance with R301.1
- The type, amount and number of bracing panels are dependent on the magnitude of the lateral loads.
- R602.10.1 Braced wall lines-it is important to realize that braced wall lines are not always exterior walls. Interior braced wall lines may be required depending on the size of the structure and the wind speeds.



- ① Windload reacting wall carries load to foundation at bottom of wall and roof diaphragm at top of wall
- ② Connections at bottom and top of wall transfer these loads into the foundation and diaphragm
- ③ Raft or floor diaphragm carries load to bracing walls
- ④ Connections between roof/rafter and wall transfers load from diaphragm to bracing walls
- ⑤ Bracing wall carries load from diaphragm to foundation
- ⑥ Transfer of loads from the shear walls to the foundation

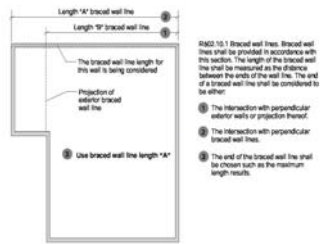


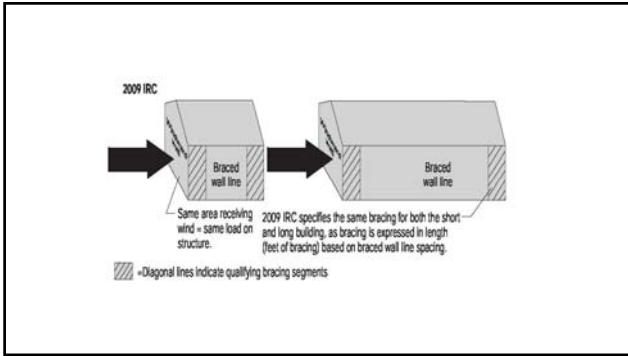
Section R602 Wood Wall Framing

- R602.10.1.1 Braced wall panels-must extend the full height of the wall from sole plate to top plate.
- The permitted height ranges from 8' to 12' some methods only allow 10'.
- They shall be either intermittent or continuous sheath panels.
- 3 methods of mixing-1) Story to story, 2) braced wall line to braced wall line on a given story, 3) Mixing in one braced wall line.

Section R602 Wood Wall Framing

- R602.10.1.2 Length of bracing-For 1 & 2 Family-dwellings- the length is base on Table R602.10.1.2(1) by the wind speed from Appendix R.
- The length is adjusted by the factors in the footnotes to the table.
- In no case shall the minimum length after adjustments be less than 48".
- The 2012 IRC has a single table for all of the adjustment factors.
- Table R602.10.3(2) Wind adjustment factors to the required length of wall bracing.





Section R602 Wood Wall Framing

- Table R602.10.1.2(1)- is based on an exposure category of B, a 30' mean roof height, 10' eave-to-ridge height, 10' wall height per story and 2 braced wall lines per direction of wind.

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Wind Direction	Exposure Category	Roof Height (ft)	Wind Speed (mph)		Design Wind Pressure (psf)	
			Basic	Adjusted	Windward	Leeward
Normal	B	10	35	35	15.0	15.0
		15	40	40	16.5	16.5
	C	10	45	45	18.0	18.0
		15	50	50	19.5	19.5
Parallel	B	10	35	35	15.0	15.0
		15	40	40	16.5	16.5
	C	10	45	45	18.0	18.0
		15	50	50	19.5	19.5

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NUMBER OF BRACED WALL LINES	ADJUSTMENT FACTOR
3	1.30
4	1.45
≥5	1.60

f. Bracing lengths are based on the application of gypsum board finish (or equivalent) applied to the inside face of a braced wall panel. When gypsum board finish (or equivalent) is not applied to the inside face of braced wall panels, the tabulated lengths shall be multiplied by the appropriate factor from the following table:

Section R602 Wood Wall Framing

BRACING METHOD	ADJUSTMENT FACTOR
Method L1B	1.8
Methods DWB, WSP, SFB, PBS, PCP, HPS	1.4

g. Bracing lengths for Method GB are based on the application of gypsum board on both faces of a braced wall panel. When Method GB is provided on only one side of the wall, the required bracing amount shall be doubled. When Method GB braced wall panels installed in accordance with Section R602.10.2 are fastened at 4 inches on corner or panel edges, including top and bottom plates, and are blocked at all horizontal joints, multiply the required bracing percentage for wall bracing by 0.7 shall be permitted.
 h. Method L1B bracing shall have gypsum board attached to at least one side according to the Section R602.10.2 Method GB requirements.
 i. Required bracing length for Methods DWB, WSP, SFB, PBS, PCP and HPS in braced wall lines located in one-story buildings and in the top story of two or three story buildings shall be permitted to be multiplied by 0.80 when an approved hold-down device with a minimum uplift design value of 800 pounds is fastened to the end studs of each braced wall panel in the braced wall line and to the foundation or framing below.

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- Table R602.10.1.2(1) footnote (i)-Required bracing length for methods DWB, WSP, SFB, PBS, PCP and HPS in braced wall lines located in one-story buildings and in the top story of two or three story buildings shall be permitted to be multiplied by 0.80 when and approved hold-down device with a minimum uplift design value of 800 lbs is fastened to the end studs of each braced wall panel in the braced wall line and to the foundation or framing below.*

Section R602 Wood Wall Framing

- R602.10.1.2.1 Braced wall panel uplift load path-when it exceeds 100 PLF the following options are available;
- 1) Installation of an approved uplift framing anchor of sufficient capacity to resist the net uplift force.
- 2) R104.11 permits engineering design to be used to determine other nailing schedules or details that may provide sufficient uplift resistance.

Section R602 Wood Wall Framing

- 3) Engineering analysis can be used to determine the uplift capacity in lieu of table 802.11. Such analysis can take into account roofing materials and other details not accounted for in the table.
- 4) Other referenced documents, such as WFCM for 1 & 2 family-dwellings can be used to generate uplift requirements and prescriptive hold-down requirements.

R602.10.1.2.1 Braced wall panel uplift load path.

1. Fastening in accordance with Table R602.3(1) where:
2. Where the net uplift value at the top of a wall exceeds 100 plf (146 N/mm), installing *approved* uplift framing connectors to provide a continuous load path from the top of the wall to the foundation. The net uplift value shall be as determined in Item 1.2 above.

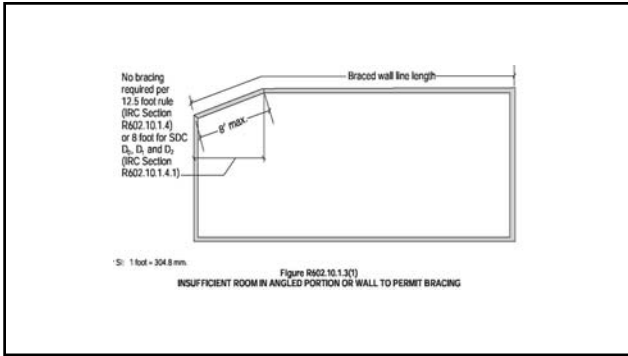
value shall be determined in accordance with Section R802.11 and shall be permitted to be reduced by 60 plf (86 N/mm) for each full wall above.

TABLE R802.11

**TABLE R802.11
REQUIRED STRENGTH OF TRUSS OR RAFTER CONNECTIONS TO RESIST WIND UPLIFT FORCES^{a,b,c,d,e}**
(Pounds per connection)

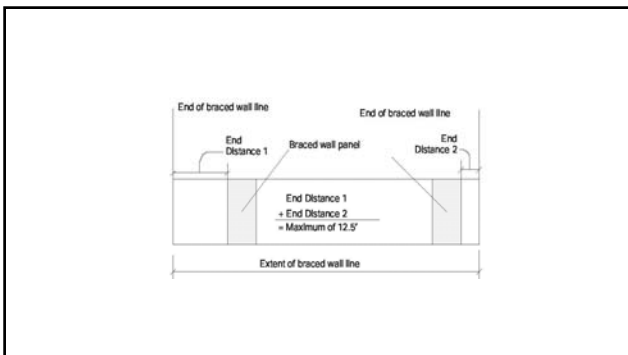
BASIC WIND SPEED (mph) D (second gust)	ROOF SPAN (feet)							OVERHANGS ^f (feet)(feet)
	12	20	24	28	32	36	40	
85	-72	-120	-145	-169	-193	-217	-241	-38.55
90	-91	-151	-181	-212	-242	-272	-302	-43.22
100	-131	-218	-262	-305	-349	-393	-436	-53.36
110	-175	-292	-351	-409	-467	-526	-584	-64.56

For 5/8" x 1/2" = 25.4 mm, 1/2" x 3/8" = 30.5 mm, 1/2" x 1/4" = 31.8 mm, 1/2" x 3/16" = 31.8 mm, 1/2" x 1/8" = 31.8 mm, 1/2" x 1/16" = 31.8 mm, 1/2" x 1/32" = 31.8 mm, 1/2" x 1/64" = 31.8 mm, 1/2" x 1/128" = 31.8 mm, 1/2" x 1/256" = 31.8 mm, 1/2" x 1/512" = 31.8 mm, 1/2" x 1/1024" = 31.8 mm, 1/2" x 1/2048" = 31.8 mm, 1/2" x 1/4096" = 31.8 mm, 1/2" x 1/8192" = 31.8 mm, 1/2" x 1/16384" = 31.8 mm, 1/2" x 1/32768" = 31.8 mm, 1/2" x 1/65536" = 31.8 mm, 1/2" x 1/131072" = 31.8 mm, 1/2" x 1/262144" = 31.8 mm, 1/2" x 1/524288" = 31.8 mm, 1/2" x 1/1048576" = 31.8 mm, 1/2" x 1/2097152" = 31.8 mm, 1/2" x 1/4194304" = 31.8 mm, 1/2" x 1/8388608" = 31.8 mm, 1/2" x 1/16777216" = 31.8 mm, 1/2" x 1/33554432" = 31.8 mm, 1/2" x 1/67108864" = 31.8 mm, 1/2" x 1/134217728" = 31.8 mm, 1/2" x 1/268435456" = 31.8 mm, 1/2" x 1/536870912" = 31.8 mm, 1/2" x 1/1073741824" = 31.8 mm, 1/2" x 1/2147483648" = 31.8 mm, 1/2" x 1/4294967296" = 31.8 mm, 1/2" x 1/8589934592" = 31.8 mm, 1/2" x 1/17179869184" = 31.8 mm, 1/2" 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Section R602 Wood Wall Framing

- R602.10.1.4 Braced wall panel location-must be spaced 25' on center, braced wall end distance of 12.5 from one end only or able to divide the 12.5 on both ends.*
- 2012 IRC R602.10.2.2 Locations of braced wall panels-allows for 10 ft. from each end of braced wall line and 20 foot to adjacent edge of braced wall panel.



Section R602 Wood Wall Framing

- R602.10.2 Intermittent braced wall panel construction methods-there are 11 methods, 8 traditional and 3 alternate methods.
- The minimum length required for a single panel is from 48" to 96" depending on the methods.
- The alternate methods can be substituted for any traditional method on a 1 for 1 base.*

Method	Section	Minimum Panel Length	Notes
1.01	1.01	48"	1.01
1.02	1.02	48"	1.02
1.03	1.03	48"	1.03
1.04	1.04	48"	1.04
1.05	1.05	48"	1.05
1.06	1.06	48"	1.06
1.07	1.07	48"	1.07
1.08	1.08	48"	1.08
1.09	1.09	48"	1.09
1.10	1.10	48"	1.10
1.11	1.11	48"	1.11

Section R602 Wood Wall Framing

Method	Section	Minimum Panel Length	Notes
1.01	1.01	48"	1.01
1.02	1.02	48"	1.02
1.03	1.03	48"	1.03
1.04	1.04	48"	1.04
1.05	1.05	48"	1.05
1.06	1.06	48"	1.06
1.07	1.07	48"	1.07
1.08	1.08	48"	1.08
1.09	1.09	48"	1.09
1.10	1.10	48"	1.10
1.11	1.11	48"	1.11

Section R602 Wood Wall Framing

- R602.10.2.1 Intermittent braced wall panel interior finish material- requires ½" gypsum install on the interior wall with exceptions;
- 1) Method GB as both sides of this method must be method GB.
- 2) The 3 narrow wall methods, they were developed without gypsum.
- 3) Where an approved material with in-plane shear resistance equal to gypsum is used.
- 4) Where methods DWB, WSP, SFB, PBS,PCP & HPS lengths are multiplied by a factor of 1.5.

Section R602 Wood Wall Framing

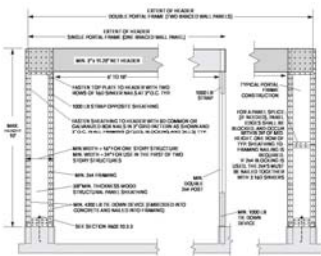
- R602.10.3.1 Adjustment of length of braced wall panels-walls over 10' in height shall have the length increased by a ratio of H/10.
- The aspect ratio adjustment is separate from the required bracing adjustment of R301.3, item1, exception*

Section R602 Wood Wall Framing

- R301.3 Story Height-For wood framed walls the laterally unsupported bearing wall stud height in accordance with Table R602.3(5) plus the floor height of not more than 16".
- The exception allows and increase to 12' walls braced to the table as long as the bracing length is increased by a factor of 1.10 in table R602.10.1.2(1) (Wind) and 1.20 for table R602.10.2.1(2) (Seismic)

Section R602 Wood Wall Framing

- R602.10.3.3 Method PFH-each leg is equivalent to 4' of bracing.
- Requires hold down straps embedded in the foundation
- One anchor bolt 5/8".
- Supported directly onto the foundation.
- Foundation reinforced with #4 bars top and bottom lapped 15".
- Single story application allows 16" length
- First story of 2-story allows 24" length.



Section R602 Wood Wall Framing

- R602.10.3.4 Method PFG-limited to areas of low to moderate SDC A,B & C,
- No hold down devices required
- Restricted to first story of 2-story
- Is an aspect ratio-based system of 4:1
- Minimum length of 24" for 8' wall, 30" for 10' wall
- Braced wall length is equal to 1.5 times the length

Section R602 Wood Wall Framing

- R602.10.4.1.1 Continuous portal frame-Not to exceed 4 in a single braced wall line.
- Maximum of 2 braced wall segments
- Header not to exceed 22'
- Tension straps required
- Allowed on any floor level
- Vertical leg is used to determine length of bracing
- Based on a 6:1 height to length ratio
- Minimum of 16" in an 8' height, allows for pony walls from 0-4' with maximum opening of 18'

TABLE R602.10.4.1
TENSION STRAP CAPACITY REQUIRED FOR RESISTING WIND PRESSURES PERPENDICULAR TO A ASPECT WOOD WALLS^{1,2}

WINDWALL TYPE (WINDWARD SIDE OF WALL)	WINDWALL HEIGHT (ft)	WINDWALL ASPECT RATIO (HEIGHT/SPAN)	WINDWALL EXPOSURE (ft)	WIND SPEED (MPH) (3-SEC)						
				Exposure A		Exposure B		Exposure C		
				30	35	40	45	50	55	
1-4' No. 3 Chalk	8	18	18	1000	1000	1000	1000	1000	1000	
				9	1000	1000	1000	1000	1000	
	1	18	18	1000	1000	1750	2000	2250	2500	
				9	1000	1000	1750	2175	2575	CSE
	2	18	18	1000	1000	1875	2075	2300	2500	
				9	1000	1000	1875	2275	2700	CSE
	4	18	18	1000	1000	2075	2375	2700	4000	
				9	1000	1000	2075	2575	3000	CSE
	2-4' Head Chalk	8	12	12	1000	1000	1000	1000	1000	1000
					9	1000	1000	1000	1000	1000
		1	12	12	1000	1000	1750	2000	2250	2500
					9	1000	1000	1750	2175	2575
2		12	12	1000	1000	1875	2075	2300	2500	
				9	1000	1000	1875	2275	2700	CSE
4		12	12	1000	1000	2075	2375	2700	4000	
				9	1000	1000	2075	2575	3000	CSE

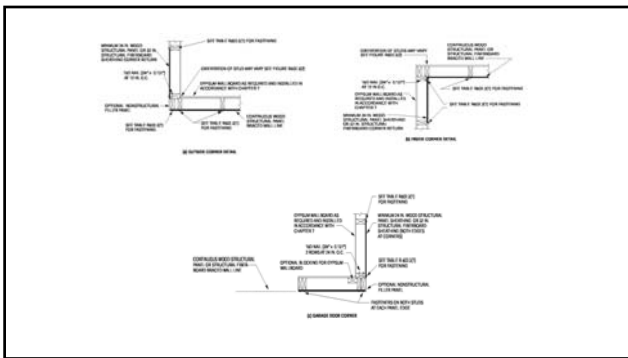
1. 1000 = 100 ft min. 1 base = 300 ft max. 2 panel base = 4 ft max.
 3. CSE = design capacity.
 4. Strap shall be installed in accordance with manufacturer's recommendations.

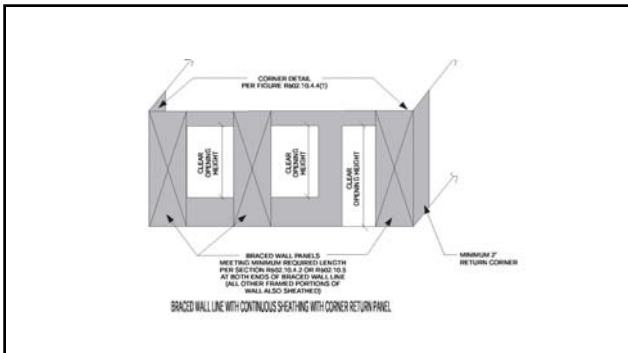
Section R602 Wood Wall Framing

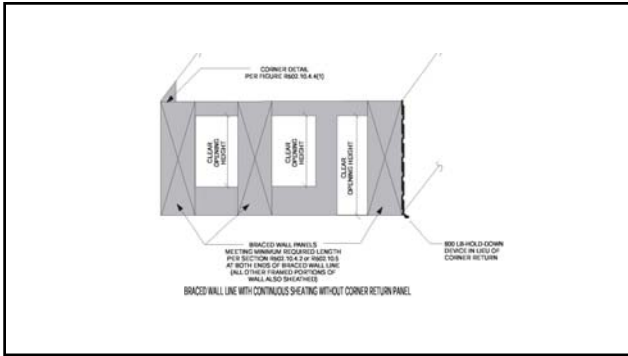
- R602.10.4.3 Length of bracing for continuous sheathing-the length is determined from table R602.10.1.2(1)
- Braced wall panels of full height are counted toward the required length of bracing based on table R602.10.4.2

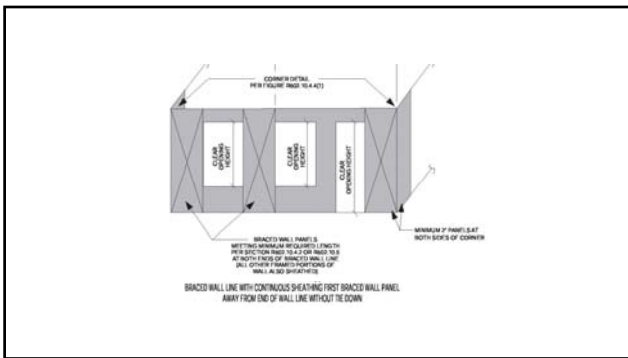
Section R602 Wood Wall Framing

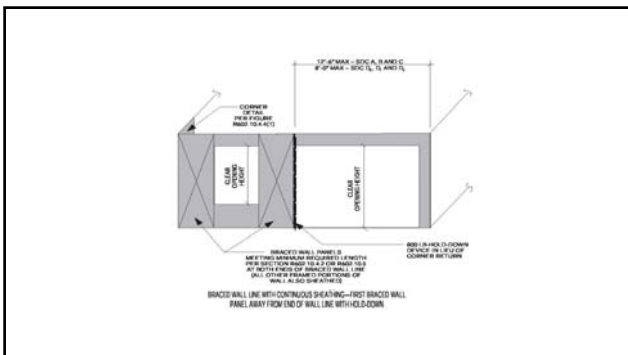
- R602.10.4.4 Continuously sheathed braced wall panel locations and corner construction-Located on each end of braced wall line and at least every 25' on center.
- A minimum 24" corner return on both ends of braced wall line. No 24" corner return requires 800 lb. hold-down device fastened to the corner stud to foundation or framing below.
- If both braced wall panels meet at the corner and one is spaced away from the corner both braced panels require 800 lb. hold-down device.











Section R602 Wood Wall Framing

- R602.10.5 Continuously sheathed braced wall lines using method CS-SFB-only allowed in 100 mph wind speeds or less
- CS-G and CS-PH not applicable to CS-SFB
- The length shall comply with Table R602.5.2
- Only allowed in walls with 10' height
- Minimum 32" corner return

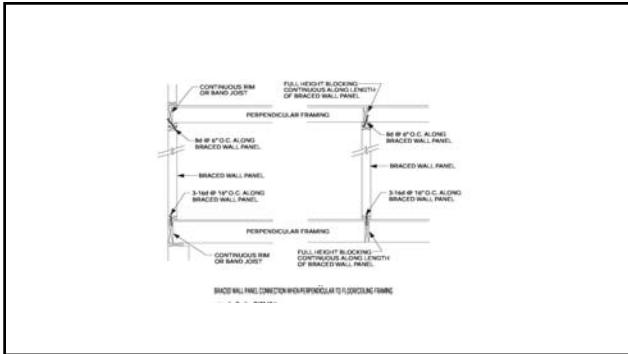
TABLE R602.5.2
MINIMUM LENGTH REQUIREMENTS FOR STRUCTURAL FIBERBOARD BRACED WALL PANELS IN A CONTINUOUSLY SHEATHED WALL^a

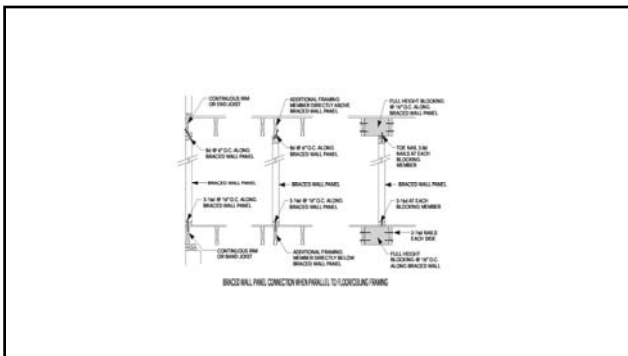
MINIMUM LENGTH OF STRUCTURAL FIBERBOARD BRACED WALL PANELS (feet)			MINIMUM OPENING CLEAR HEIGHT NEXT TO THE STRUCTURAL FIBERBOARD BRACED WALL PANEL (ft or wall height)
8-foot wall	9-foot wall	10-foot wall	
48	54	60	300
32	36	40	85
24	27	30	67

^a For 10' - 15' 4" max. 1 foot = 304.8 mm.
^b Interpolation is permitted.

Section R602 Wood Wall Framing

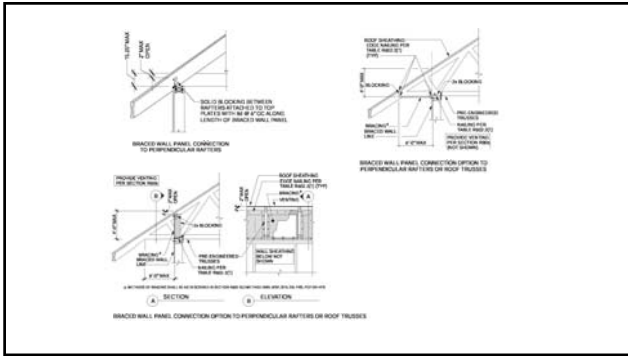
- R602.10.6 Braced wall panel connections shall be connected to floor framing or foundations.
- Done with rim joist or blocking between joist*

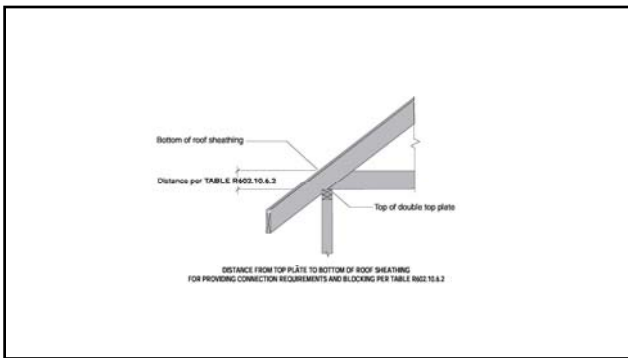




Section R602 Wood Wall Framing

- R602.10.6.2 Connections to roof framing-exterior braced wall panels shall be connected to roof framing.
- Complex roof shapes used in modern design have necessitated prescriptive connection details to ensure an effective load path exists.
- The roof and floor sheathing are the structural diaphragm that the wall bracing must connect to.*





SEISMIC DESIGN CATEGORY AND WIND SPEED	DISTANCE	
	Bottom of roof sheathing to top of top plate (See Figure R602.10.6.2)	to ceiling ^a
SDC A, B, C and wind speed less than 100 mph	9.25' or less	Not Required per Section R602.10.6.2, Item 3, Roof Framing (Block) per Section R602.10.6.2
	Greater than 9.25' to 15.25'	Required per Section R602.10.6.2, Item 3 and Figure R602.10.6.2(1)
SDC D ₁ , D ₂ or wind speed 100 mph or greater	15.25' or less	Required per Section R602.10.6.2, Item 3 and Figure R602.10.6.2(2)
	15.25' to 40'	Required per Section R602.10.6.2, Item 4 or Figure R602.10.6.2(2) or R602.10.6.2(3)

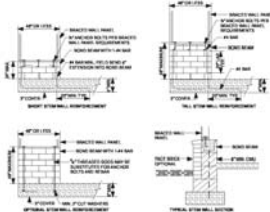
Fig. 5: 1 in. = 24 in. 1 mile per hour = 0.41 m/s.
^a Buffer or brace connector to top plate per Table R602.3(1).

Section R602 Wood Wall Framing

- R602.10.7 Braced wall panel support-contains requirements for circumstances not addressed such as cantilevered floors, elevated post and pier foundations and masonry stem walls.
- Floor cantilevers supporting braced wall lines must have solid blocking at the nearest bearing wall location for SDC A, B & C there is not details for wind speeds.

Section R602 Wood Wall Framing

- Elevated post and pier foundations supporting braced wall panels must be engineered in accordance with the IBC or referenced documents.
- Masonry stem walls 4' or less in length and height require reinforcing based on figure R602.10.7.
- Over 4' engineering design.
- Stem walls over 4' in length no reinforcing required.



Section R602 Wood Wall Framing

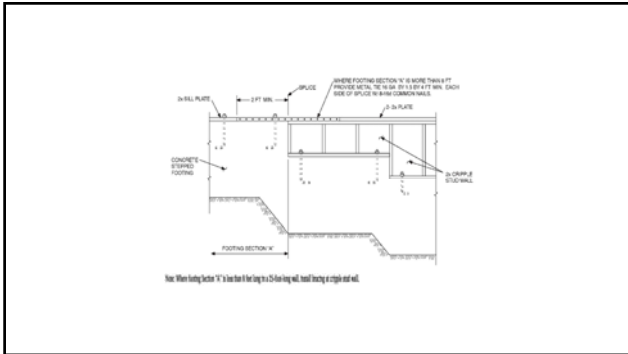
- R602.10.8 Panel joints-requires all vertical and horizontal joints in panel sheathing used for bracing occur over common framing, vertical over common studs, horizontal over blocking.
- There are 3 exceptions;
- 1) Wall segments not counted as braced wall panels, no horizontal blocking.

Section R602 Wood Wall Framing

- 2) Where the bracing provided is twice the minimum required by the table for methods WSP, SFB, GB, PBS, or HPS no horizontal blocking required.
- 3) GB panels installed horizontally, blocking horizontally not required.

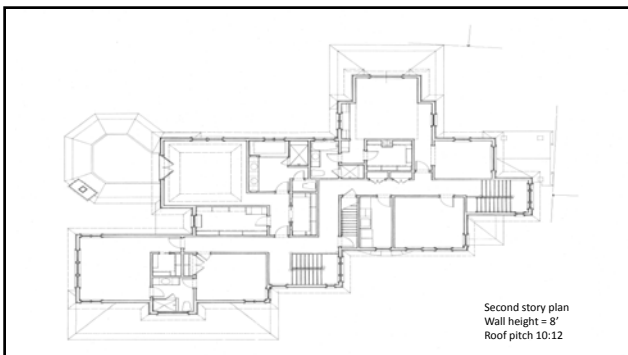
Section R602 Wood Wall Framing

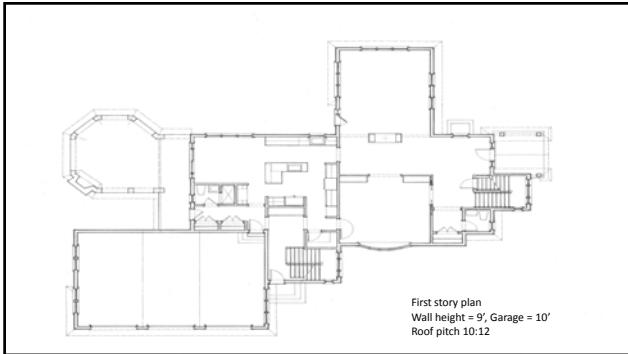
- R602.10.9 Cripple wall bracing-shall be braced with the length and type of bracing required for the wall above in accordance with Table R602.10.1.2(2) and the length of bracing shall be multiplied by a factor of 1.15 and the spacing shall be decreased to 18' from 25'.



Section R602 Wood Wall Framing

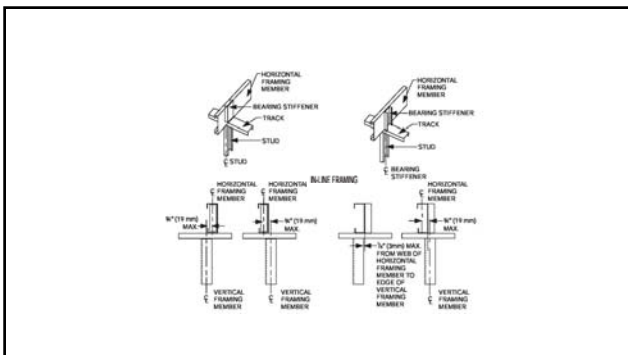
- R602.11 Wall anchorage-specifies how the braced wall line sill plates are to be anchored to the foundation and R403.1.6 specifies the minimum number, size and spacing of anchor bolts.





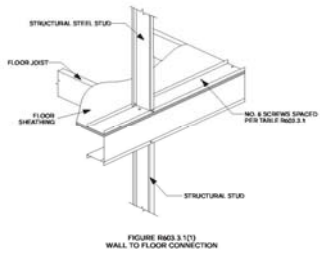
Section R603 Steel Wall Framing

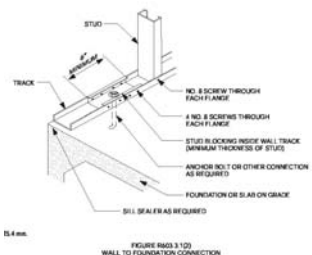
- R603.1.2 In-line framing-is the preferred framing method, providing a direct load path from the transfer of forces from the joist to the studs.
- Allowed accepted industry practice of a 3/4" tolerance.

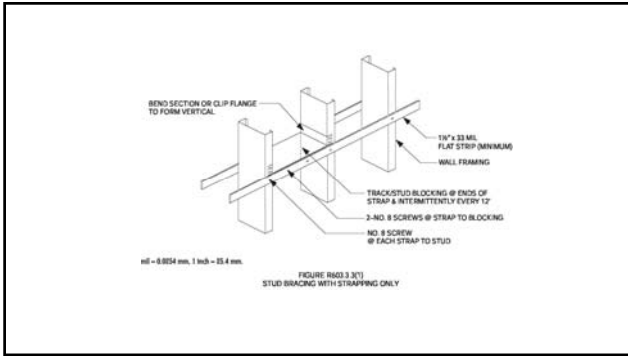


Section R603 Steel Wall Framing

- R603.3.1 Wall to foundation or floor connection-Shall be in accordance with table R603.3.1.







Section R603 Steel Wall Framing

- R603.5 Exterior wall covering-shall be installed to manufactures instructions.
- R603.9 Structural sheathing-wood structural panel sheathing of either 7/16" OSB or 15/32" plywood must be installed on all exterior walls.

Section R603 Steel Wall Framing

- R603.9.2 Determination of minimum length of full height sheathing- Determined by table 603.9.2(1)
- Expressed in % of wall length.
- As wall height increases the wall length increases by a multiplier
- The resulting % can't be less than 20%
- Sheathing 48" wide uninterrupted by openings meets minimum length requirements.*

Section R603 Steel Wall Framing

- R603.9.3 Structural sheathing fastening-Table R603.3.2(1) requires 6" on center for edges and 12" on center in the field with #8 screws.
- When installing continuously sheathed braced wall lines using #8 screws spaced 4" on center on the edges and 12" in the field the full height sheathing is multiplied by 0.72

Section R603 Steel Wall Framing

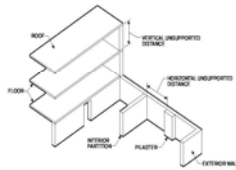
- R603.9.4 Uplift connection requirements-based on wind criteria in section R603.9.4.1.
- Where a reduction is taken for closer spacing hold-down devices will be required in accordance with R603.9.4.2
- R603.9.4.1-when wind speeds are greater than 100 mph in exposure C the uplift connections shall be provided in accordance with AISI S230, E13.3 and F7.2
- R603.9.4.2-where sheathing is adjusted by R603.9.2.3 a 4,300 lbs. hold down shall be provided at each end of full-height sheathing used to meet minimum % requirements.

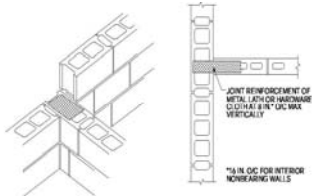
Section R606 General Masonry Construction

- R606.4.1 Bearing on support-At least 2/3s the thickness of the bottom course must bear directly on the supporting construction; i.e.; foundation walls, lintels or headers.
- R606.4.2 Support at foundation-supported on at least a 8" thick foundation.
- Where the supported wall is thicker than the 8" foundation there must be corbeling with solid or mortar filled masonry.
- R606.8 Stack bond-controls cracking in unreinforced walls as long as longitudinal reinforcement is used in the horizontal beds.

Section R606 General Masonry Construction

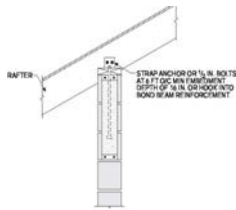
- R606.9 Lateral support-walls shall be laterally supported in either the horizontal or vertical direction.
- The spacing is in accordance with table R606.9
- Lateral support provided by cross-walls, pilasters, buttresses, or structural framing for horizontal and by floors and roofs for vertical.
- R606.9.1 Horizontal lateral support- between intersecting walls shall be anchored by either a bonding pattern or metal reinforcing.

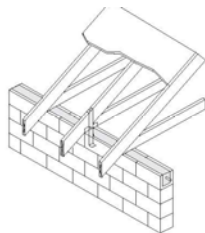




Section R606 General Masonry Construction

- R606.9.2.1 Roof structures- anchored with metal straps spaced to manufactures instructions, 1/2" bolts spaced not more than 6' on center or other approved anchors.
- Embedded 16" or hooked or welded to bond beam placed 6" from the top of the wall.
- R606.9.2.2 Floor diaphragm-anchored by metal straps to manufactures instructions, 1/2" bolts spaced 6' or other approved methods.



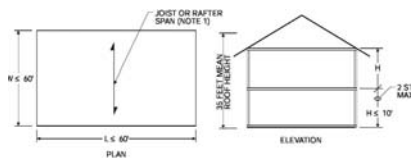


Section R606 General Masonry Construction

- R606.11 Anchorage-masonry walls depend on floors and roofs for out of plane lateral support.
- R606.13 Protection for reinforcement-must be completely embedded.
- Horizontal joints minimum 5/8" coverage, all others one bar depth over all bars but not less than 1/4".
- Where exposed to weather or soils 2" minimum coverage.

Section R611 Exterior Concrete Wall Construction

- R611.2 Applicability limits-walls not greater than 60" in plan dimensions.
- Floors with clear spans not greater than 32'.
- Roofs with clear spans not greater than 40'.
- 35' mean roof height or 2 stories above grade.
- These limits were developed for prescriptive requirements.



- NOTES:
1. MAXIMUM CLEAR SPANS: 32 FT (LOOR JOISTS), 40 FT (RAFTERS)
 2. MAXIMUM GROUND SNOW 70 PSF
 3. MAXIMUM WIND SPEED 130 MPH, EXPOSURE B, 110 mph, EXPOSURE C, OR 100 mph, EXPOSURE D
 4. SEISMIC DESIGN CATEGORY A, B OR C FOR DETACHED ONE- AND TWO-FAMILY DWELLINGS, A OR B FOR TOWNHOUSES

Section R611 Exterior Concrete Wall Construction

- R611.3 Concrete wall systems-the shapes, thickness and cross sectional dimensions are determined by table R611.3.
- There are three types;
- 1) Flat wall systems with minimum wall thickness of 4".
- 2) Waffle-grid system with 6" minimum for horizontal and vertical cores.
- 3) Screen-grid systems with 6" minimum for horizontal and vertical cores.

Section R611 Exterior Concrete Wall Construction

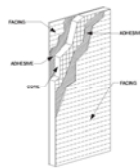
- R611.4 Stay-in-place forms-May or may not meet the energy code requirements.
- The forming material must meet the flame spread and smoke-development requirements of R302.9 and for foam plastic R316.3.
- A moisture barrier on the exterior face is generally required and should be considered a minimum acceptable practice.

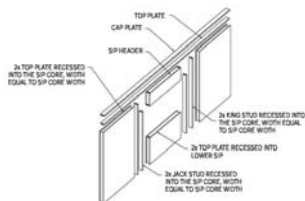
Section R611 Exterior Concrete Wall Construction

- R611.4.2 Interior covering-protected as required by R316.4 and R702.3.4, if gypsum is installed it shall be mechanically fastened.
- R316.4 Thermal barrier-used to separate foam plastics from the interior, an approved thermal barrier is defined as ½" gypsum or equivalent material.
- R611.4.3 Exterior wall covering-shall be protected from sunlight and physical damage by an approved exterior wall covering such as masonry veneer or stucco.

Section R613 Structural Insulated Panel Wall Construction

- R613.2 Applicability limits-controls construction of exterior and interior load bearing walls not greater than 60' perpendicular to joist or truss spans.
- Not greater than 40' in width parallel to joist or truss spans.
- Not greater than 2 stories with each wall not more than 10'.
- R613.4.1 Labeling-Third-party labeling is required for the entire Sip assembly once fabrication is completed.
- The label must have the manufactures name/logo, identification of the assembly and quality assurance agency.





**Section R613 Structural Insulated Panel
Wall Construction**

- R613.5 Wall construction-Sip walls shall be constructed and designed in accordance with tables R613.5(1) & R613.5(2), the walls shall be fastened to other wood building components in accordance with Tables R602.3(1) through R602.3(4)
- Framing shall be attached in accordance with R602.3(1) unless otherwise provided for in R613.

**Section R613 Structural Insulated Panel
Wall Construction**

- R613.5.1 Top Plate connection-SIP walls shall be capped with a double top plate installed to provide overlapping at the corners and intersections.
- The lower plate must fit inside the core and the upper plate must match the width of the panel.
- R613.5.2 Bottom (sole) plate connection-SIP wall shall have full bearing on a sole plate having a width equal to the nominal width of the foam core.

**Section R613 Structural Insulated Panel
Wall Construction**

- R613.5.3 Wall bracing-SIP panels must be evaluated as a continuously sheathed braced wall line.
- The sole plate must be connected in accordance with the braced wall panel requirements of table R602.3(1)
- R613.6 Interior load-bearing walls-shall be constructed as specified for exterior walls.

Chapter 6