Proposed Modification to the Florida Building Code

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Section No.: R202; R614

Text of Modification [additions underlined; deletions ~~stricken~~]:

R606.2 Thickness of masonry. The minimum nominal thickness of exterior concrete masonry walls shall be 8 inches or shall be designed in accordance with Section R606.1. ~~The nominal thickness of masonry walls shall conform to the requirements of Sections R606.2.1 through R606.2.4.~~

R606.2.1 Minimum thickness. Reserved. ~~The minimum thickness of masonry bearing walls more than one story high shall be 8 inches (203 mm). Solid masonry walls of one-story dwellings and garages shall not be less than 6 inches (152 mm) in thickness when not greater than 9 feet (2743 mm) in height, provided that when gable construction is used, an additional 6 feet (1829mm) is permitted to the peak of the gable. Masonry walls shall be laterally supported in either the horizontal or vertical direction at intervals as required by Section R606.9.~~

R606.2.2 Reserved. ~~Rubble stone masonry wall. The minimum thickness of rough, random or coursed rubble stone masonry walls shall be 16 inches (406 mm).~~

R606.2.3 Change in thickness. Where walls of masonry of hollow units or masonry-bonded hollow walls are decreased in thickness, a course of *solid masonry* shall be constructed between the wall below and the thinner wall above, or special units or construction shall be used to transmit the loads from face shells or wythes above to those below.

R606.2.4 Parapet walls. Unreinforced *solid masonry* parapet walls shall not be less than 8 inches (203 mm) in thickness and their height shall not exceed four times their thickness. Unreinforced hollow unit masonry parapet walls shall be not less than 8 inches (203 mm) thick, and their height shall not exceed three times their thickness. Masonry parapets in areas subject to wind loads ~~of 30 pounds per square foot (1.44 kN/m^2),~~ shall be reinforced in accordance with ACI 530/ASCE 5/TMS 402. Masonry parapets located in Seismic Design Category D0, D1 or D2, or on townhouses in Seismic Design Category C shall be reinforced in accordance with Section R606.12.

R606.5 ~~Allowable stresses Allowable compressive stresses in masonry shall not exceed the values prescribed in Table R606.5.~~ Concrete masonry units shall be hollow or solid unit masonry in accordance with ASTM C 90 and shall have a minimum net area compressive strength of 1900 psi in compliance with ASTM C 90. Mortar shall comply with Section R607.1. In determining the stresses in masonry, the effects of all loads and conditions of loading and the influence of all forces affecting the design and strength of the several parts shall be taken into account.

R606.6 Piers. Reserved. ~~The unsupported height of masonry piers shall not exceed ten times their least dimension. When structural clay tile or hollow concrete masonry units are used for isolated piers to support beams and girders, the cellular spaces shall be filled solidly with concrete or Type M or S mortar, except that unfilled hollow piers may be used if their unsupported height is not more than four times their least dimension. Where hollow masonry units are solidly filled with~~
~~concrete or Type M, S or N mortar, the allowable compressive stress shall be permitted to be increased as provided in Table R606.5.~~

R606.6.1 Pier cap. Hollow piers shall be capped with 4 inches (102 mm) of *solid masonry* or concrete, a masonry cap block, or shall have cavities of the top course filled with concrete or grout, or other *approved* methods.

R606.8 ~~Stack b~~ Bond. Masonry walls shall be running bond or stack bond construction. ~~In unreinforced masonry where masonry units are laid in stack bond, longitudinal reinforcement consisting of not less than two continuous wires each with a minimum aggregate cross-sectional area of 0.017 square inch (11 mm^2) shall be provided in horizontal bed joints spaced not more than 16 inches (406 mm) on center vertically.~~

R606.8.1 Joint reinforcement stack bond. When masonry units are laid in stack bond, horizontal joint reinforcement shall be placed in bed joints at not more than 16 inches on center. Horizontal joint reinforcement shall be a minimum of 9-gage and shall be in addition to required vertical reinforcement, Joint reinforcement shall be embedded in accordance with R606.9.6.

TABLE R606.5
ALLOWABLE COMPRESSIVE STRESSES FOR EMPIRICAL DESIGN OF MASONRY

CONSTRUCTION; COMPRESSIVE STRENGTH OF UNIT, GROSS AREA	ALLOWABLE COMPRESSIVE STRESSES[a] GROSS CROSS-SECTIONAL AREA[b]	
	Type M or S Mortar	Type N mortar
Solid masonry of brick and other solid units of clay or shale; sand-lime or concrete brick:		
8,000 + psi	350	300
4,500 psi	225	200
2,500 psi	160	140
1,500 psi	115	100
Grouted[c] masonry, of clay or shale; sand-lime or concrete:		
4,500 psi	225	200
2,500 psi	160	140
1,500 psi	115	100
Solid masonry of solid concrete masonry units:		
3,000+ psi	225	200
2,000 psi	160	140
1,200 psi	115	100
Masonry of hollow load-bearing units:		
2,000+ psi	140	120
1,500 psi	115	100
1,000 psi	75	70
700 psi	60	55
Hollow walls (cavity or masonry bonded[d]) solid units:		
2,500+ psi	160	140
1,500 psi	115	100
Hollow units	75	70
Stone ashlar masonry:		
Granite	720	640

Limestone or marble	450	400
Sandstone or cast stone	360	320
Rubble stone masonry:		
Coarse, rough or random	120	100

For SI: 1 pound per square inch = 6.895 kPa.

a. Linear interpolation shall be used for determining allowable stresses for masonry units having compressive strengths that are intermediate between those given in the table.
b. Gross cross-sectional area shall be calculated on the actual rather than nominal dimensions.
c. See Section R608.
d. Where floor and roof loads are carried upon one wythe, the gross cross-sectional area is that of the wythe under load; if both wythes are loaded, the gross cross-sectional area is that of the wall minus the area of the cavity between the wythes. Walls bonded with metal ties shall be considered as cavity walls unless the collar joints are filled with mortar or grout.

R606.9 Lateral support. Masonry walls shall be laterally supported in either the horizontal or the vertical direction. The maximum spacing between lateral supports shall not exceed the distances in Table R606.9. Lateral support shall be provided by cross walls, pilasters, buttresses or structural frame members when the limiting distance is taken horizontally, or by floors or roofs when the limiting distance is taken vertically.

TABLE R606.9
SPACING OF LATERAL SUPPORT FOR MASONRY WALLS

a. Except for cavity walls and cantilevered walls, the thickness of a wall shall be its nominal thickness measured perpendicular to the face of the wall. For cavity walls, the thickness shall be determined as the sum of the nominal thicknesses of the individual wythes. For cantilever walls, except for parapets, the ratio of height to nominal thickness shall not exceed 6 for solid masonry, or 4 for hollow masonry. For parapets, see Section R606.2.4.
b. An additional unsupported height of 6 feet is permitted for gable end walls.

R606.9.1 Horizontal lateral support. Lateral support in the horizontal direction provided by intersecting masonry walls shall be provided by one of the methods in Section R606.9.1.1 or Section R606.9.1.2.
R606.9.1.1 Bonding pattern. Fifty percent of the units at the intersection shall be laid in an overlapping masonry bonding pattern, with alternate units having a bearing of not less than 3 inches (76 mm) on the unit below.
R606.9.1.2 Metal reinforcement. Interior nonloadbearing walls shall be anchored at their intersections, at vertical intervals of not more than 16 inches (406 mm) with joint reinforcement of at least 9 gage [0.148 inch (4mm)], or 1/4-inch (6 mm) galvanized mesh hardware

~~cloth. Intersecting masonry walls, other than interior nonloadbearing walls, shall be anchored at vertical intervals of not more than 8 inches (203 mm) with joint reinforcement of at least 9 gage and shall extend at least 30 inches (762 mm) in each direction at the intersection. Other metal ties, joint reinforcement or anchors, if used, shall be spaced to provide equivalent area of anchorage to that required by this section.~~

~~R606.9.2 Vertical lateral support. Vertical lateral support of masonry walls in Seismic Design Category A, B or in Section R606.9.2.1 or Section R606.9.2.2.~~

~~R606.9.2.1 Roof structures. Masonry walls shall be anchored to roof structures with metal strap anchors spaced in accordance with the manufacturer's instructions, 1/2-inch (13 mm) bolts spaced not more than 6 feet (1829 mm) on center, or other approved anchors. Anchors shall be embedded at least 16 inches (406 mm) into the masonry, or be hooked or welded to bond beam reinforcement placed not less than 6 inches (152 mm) from the top of the wall.~~

~~R606.9.2.2 Floor diaphragms. Masonry walls shall be anchored to floor diaphragm framing by metal strap anchors spaced in accordance with the manufacturer's instructions, 1/2-inch-diameter (13 mm) bolts spaced at intervals not to exceed 6 feet (1829 mm) and installed as shown in Figure R606.11(1), or by other approved methods.~~

~~R606.10 Lintels. Masonry over openings shall be supported by steel lintels, reinforced concrete or masonry lintels or masonry arches, designed to support load imposed.~~

~~R606.11 Anchorage. Masonry walls shall be anchored to floor and roof systems in accordance with the details shown in Figure R606.11(1), R606.11(2) or R606.11(3). Footings may be considered as points of lateral support.~~

R606.9 ~~13~~ ~~Protection for r~~ Reinforcement. Reinforcing steel shall be a minimum of Grade 60 No. 5 or No. 4 bars and shall be identified in an approved manner. ~~All bars shall be completely embedded in mortar or grout. Joint reinforcement embedded in horizontal mortar joints shall not have less than $^{5}/_{8}$-inch (15.9 mm) mortar coverage from the exposed face. All other reinforcement shall have a minimum coverage of one bar diameter over all bars, but not less than 3/4 inch (19.1 mm), except where exposed to weather or soil, in which case the mini-mum coverage shall be 2 inches (51 mm).~~

R606.9.1Bundling. Bundling shall be permitted when two bars are required at the same location in a wall or in a bond beam.

R606.9.2 Splicing. Splices shall be lap splices. Non-contact lap splices shall be permitted provided reinforcing bars are not spaced farther apart than 5 inches. Splice lengths shall be in accordance with Table R606.9.2. and shall be a minimum of 25 inches for No. 5 bars

and 20 inches for No. 4 bars.

TABLE R606.9.2
LAP SPLICE LENGTHS

Bar Size (No.)	Lap Length (in.)
3	15
4	20
5	25
6	42
7	59

R606.9.3 Bending. Reinforcement shall be bent in the shop or in the field. All reinforcement shall be bent cold. The diameter of the bend, measured on the inside of the bar, shall not be less than six-bar diameters. Reinforcement partially embedded in concrete shall not be field bent.

EXCEPTION: Where bending is necessary to align dowel bars with a vertical cell, bars partially embedded in concrete shall be permitted to be bent at a slope of not more than 1 inch of horizontal displacement to 6 inches of vertical bar length.

R606.9.4 Clearance from masonry. Reinforcing bars embedded in grouted masonry cells shall have a minimum clear distance between reinforcing bars and any face of a cell of ¼-inch for fine grout or ½-inch for coarse grout.

R606.9.5 Cover for reinforcing steel. Reinforcing bars used in masonry walls shall have a masonry cover, including grout, of not less than 2 inches for masonry units with face exposed to earth or weather and 1½-inch for masonry units not exposed to earth or weather.

R606.9.6 Joint reinforcement embedment. Longitudinal wires of joint reinforcement shall be fully embedded in mortar or grout with a minimum cover of ⅝- inch when exposed to earth or weather and ½-inch when not exposed to earth or weather.

R606.9.7 Cleanout openings. Cleanout openings shall be provided for cells containing spliced reinforcement when the grout pour exceeds 5 feet in height. Where cleanout openings are required, an opening shall be provided in the bottom course of the masonry cell to be filled. Cleanout openings shall have a minimum opening dimension of 3 inches.

R606.9.8 Termination. All vertical wall reinforcement shall be terminated by hooking into a bond beam or footing with a standard hook. Standard hooks shall be formed by bending the vertical wall reinforcement in accordance with Section R606.9.3 or shall be a prefabricated standard hook. Splices to standard hooks shall be lap splices with the minimum extension length beyond the bend for standard hooks of 10 inches for No. 5 bars and 8 inches for No. 4 bars. Hooks at bond beams shall extend to the uppermost horizontal reinforcement of the bond beam and shall be embedded a minimum of 6 inches into the bond beam as detailed in Figure R606.9a and Figure R606.9b. Where multiple bars are required, a single standard hook shall terminate into the bond beam or footing. In narrow footings where the width is insufficient to accommodate a standard 90-degree hook and provide the concrete cover required by Table 1907.7.1 of the Florida Building Code,

Building, the hook shall be rotated in the horizontal direction until the required concrete cover is achieved.

R606.9.9 Continuity multi-story construction. Vertical wall reinforcement in multi-story construction shall extend through bond beams and shall be continuous with the vertical wall reinforcement of the wall above or be offset in accordance with Section R606.9.9.1 and Figure R606.9.9B

Exception: Where more than one bar in the same cell is required for vertical wall reinforcement, only one bar shall be required to be continuous between stories.

R606.9.9.1 Offset reinforcement. Vertical reinforcement shall be permitted to be offset between floor levels. Reinforcement for the lower story shall be anchored into the upper floor level bond beam and reinforcement for the upper story shall be anchored into the bond beams above and below in accordance with Section R606.9.8 and Figures R606.9A and R606.9B.

R606.9.10 ~~R606.14~~ Metal Accessories. Joint reinforcement, anchors, ties and wire fabric shall conform to the following: ASTM A 82 for wire anchors and ties; ASTM A 36 for plate, headed and bent-bar anchors; ASTM A 510 for corrugated sheet metal anchors and ties; ASTM A 951 for joint reinforcement; ASTM B 227 for copper-clad steel wire ties; or ASTM A 167 for stain-less steel hardware.
R606.~~14~~ 10.10.1 Corrosion protection. Minimum corrosion protection of joint reinforcement, anchor ties and wire fabric for use in masonry wall construction shall conform to Table ~~R606.14.1.~~ R606.9.10.1

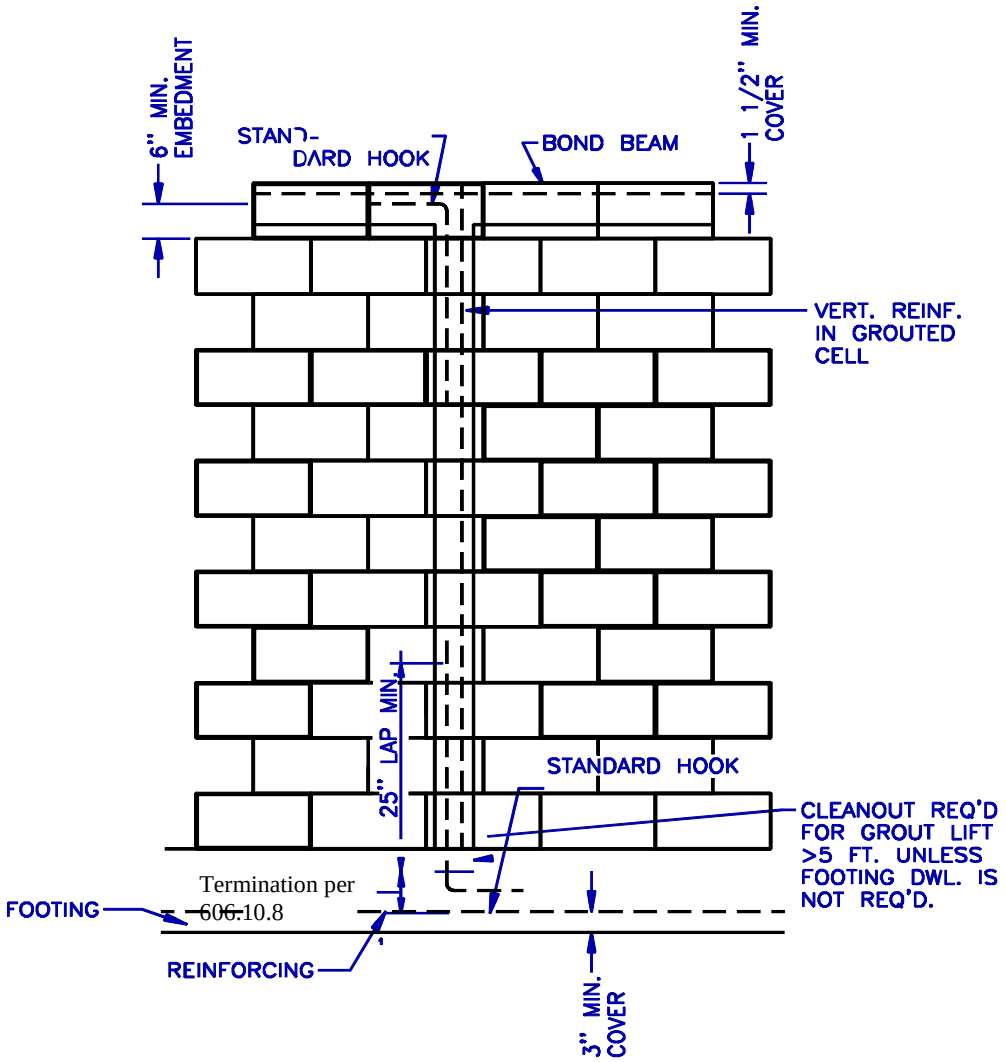


FIGURE R606.9.9A
CONTINUITY OF REINFORCEMENT
ONE STORY MASONRY WALL

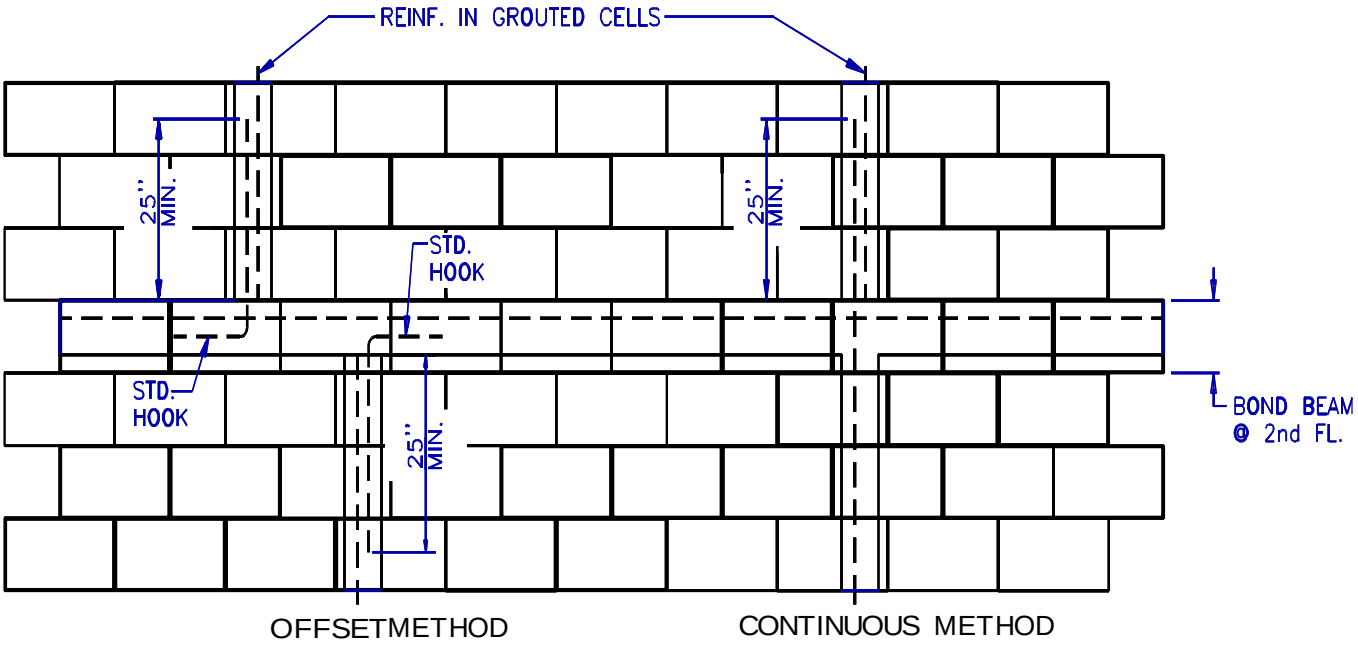


FIGURE R606.9.9B
CONTINUITY OF FIRST AND SECOND FLOOR
VERTICAL WALL REINFORCEMENT

TABLE R606.9.10.1 ~~15.1~~

MINIMUM CORROSION PROTECTION

MASONRY METAL ACCESSORY	STANDARD
Joint reinforcement, interior walls	ASTM A 641, Class 1
Wire ties or anchors in exterior walls completely embedded in mortar or grout	ASTM A 641, Class 3
Wire ties or anchors in exterior walls not completely embedded in mortar or grout	ASTM A 153, Class B-2
Joint reinforcement in exterior walls or interior walls exposed to moist environment	ASTM A 153, Class B-2
Sheet metal ties or anchors exposed to weather	ASTM A 153, Class B-2
Sheet metal ties or anchors completely embedded in mortar or grout	ASTM A 525, Class G-60
Stainless steel hardware for any exposure	ASTM A 167, Type 304

R606.13 ~~Protection for reinforcement.~~ Reserved.

~~**Bars shall be completely embedded in mortar or grout. Joint reinforcement embedded in horizontal mortar joints shall not have less than 5/8-inch (15.9 mm) mortar coverage from the exposed face. All other reinforcement shall have a minimum coverage of one bar diameter over all bars, but not less than 3/4 inch (19 mm), except where exposed to weather or soil, in which case the minimum coverage shall be 2 inches (51 mm)**~~

R606.11 ~~14~~ Beam supports. Beams, girders or other concentrated loads supported by a wall or column shall have a bearing of at least 3 inches (76 mm) in length measured parallel to the beam upon *solid masonry* not less than 4 inches (102 mm) in thickness, or upon a

metal bearing plate of adequate design and dimensions to distribute the load safely, or upon a continuous reinforced masonry member projecting not less than 4 inches (102 mm) from the face of the wall.

R606.11 ~~14~~.1 Joist bearing~~. Joists shall have a bearing of not less than $1^1/_2$ inches (38 mm), except as provided in Section R606.14, and shall be supported in accordance with Figure R606.11(1).~~ Except where supported on a 1-inch by 4-inch (25.4 mm by 102 mm) ribbon strip and nailed to the adjoining stud and as provided in Section 606.11, the ends of each joist shall not have less than 1½ inches (38 mm) of bearing on wood or metal, or less than 3 inches (76 mm) on masonry.

SECTION R607 UNIT MASONRY

R607.1 Mortar. Mortar for use in masonry construction shall be either Type M or S with a f'_m of 1500- psi in accordance with ~~comply with~~ ASTM C 270. ~~The type of mortar shall be in accordance with Sections R607.1.1, and R607.1.2~~ and shall meet the proportion specifications of Table R607. 1 or the property specifications of ASTM C 270.

TABLE R607.1
MORTAR PROPORTIONS[a, b]

ar	Type	PROPORTIONS BY VOLUME							
		Portland Cement[a] or Blended Cement[b]	Mortar Cement			Masonry Cement			Hydrated lime[e] or Lime Putty	Aggregate Damp Loo
			M	S	N	M	S	N		
nt-e	M S N O	1 1 1 —	— — — —	— — — —		— — — —	— — — —		¼ Over ¼ to ½ Over ¼ to 1 ¼ Over 1 ¼ to 2 1/2	
ar ent	M M S S N O	1 — ½ — — —	— 1 — —	— — — —	1 — — —	— — — —	— — — 1		—	
nry ent	M M S S N O	1 — ½ —			— — — —	— 1 — —	— — — 1	— — — —	—	

For SI: 1 cubic foot = 0.0283 m3, 1 pound = 0.454 kg.

a. For the purpose of these specifications, the weight of 1 cubic foot of the respective materials shall be considered to be as follows:

Portland Cement	94 pounds	Masonry Cement	Weight printed on bag
Mortar Cement	Weight printed on bag	Hydrated Lime	40 pounds
Lime Putty (Quicklime)	80 pounds	Sand, damp and loose	80 pounds of dry sand

b. Two air-entraining materials shall not be combined in mortar.

c. Hydrated lime conforming to the requirements of ASTM C 207.

TABLE R607.1
MORTAR PROPORTIONS[a,b]

PROPORTIONS BY VOLUME (cementitious materials)										
Mortar	Type	Portland cement or blended cement	Mortar cement			Masonry cement			Hydrated lime[c] or lime putty	Aggregate ratio (measured in damp, loose conditions)
			M	S	N	M	S	N		
Cement-lime	M	1	—	—	—	—	—	—	1/4	Not less than $2^1/_4$ and more than 3 times the of separate volumes lime, if used, and
	S	1	—	—	—	—	—	—	over 1/4 to 1/2	
	N	1	—	—	—	—	—	—	over 1/2 to $1^1/_4$	
	O	1	—	—	—	—	—	—	over $1^1/_4$ to	
Mortar	M	1	—	—	1	—	—	—	—	
	M	—	1	—	—	—	—	—		
	S	1/2	—	—	1	—	—	—		
	S	—	—	1	—	—	—	—		
	N	—	—	—	1	—	—	—		
	O	—	—	—	1	—	—	—		
Masonry cement	M	1				—	—	1		
	M	—				1	—	—		
	S	1/2				—	—	1		
	S	—				—	1	—		
	N	—				—	—	1		
	O	—				—	—	1		

For SI: 1 cubic foot = 0.0283 m3, 1 pound = 0.454 kg.

d.For the purpose of these specifications, the weight of 1 cubic foot of the respective materials shall be considered to be as follows:

Portland Cement 94 pounds Masonry Cement Weight printed on bag
Mortar Cement Weight printed on bag Hydrated Lime 40 pounds
Lime Putty (Quicklime) 80 pounds Sand, damp and loose 80 pounds of dry sand

e.Two air-entraining materials shall not be combined in mortar.
f. Hydrated lime conforming to the requirements of ASTM C 207.

SECTION R609
GROUTED MASONRY

R609.1.2 Grout lift height. ~~Grouting requirements. Maximum pour heights and the minimum dimensions of spaces provided for grout placement shall conform to Table R609. 1.2.~~ Where the following conditions are met, place grout in lifts not exceeding 12.67 ft (3.86 m).

1. The masonry has cured for at least 4 hours.
2. The grout slump is maintained between 10 and 11 in. (254 and 279 mm).
3. No intermediate reinforced bond beams are placed between the top and the bottom of the pour height.

Otherwise, place grout in lifts not exceeding 5 ft (1.52 m). If ~~the work~~ grouting is stopped for one hour or longer, the horizontal construction joints shall be formed by stopping all tiers at the same elevation and with the grout 1 inch (25.4 mm) below the top.

~~TABLE R609.1.2~~

~~GROUT SPACE DIMENSIONS AND POUR HEIGHTS~~

R609.1.4 Grout placement. All cells containing reinforcement or anchor bolts shall be grouted solid. Grout shall be a plastic mix suitable for pumping without segregation of the constituents and shall be mixed thoroughly. Grout shall have a maximum coarse aggregate size of ⅜-inch, shall be placed at an 8 to 11-inch slump, and shall have a minimum specified compressive strength of 2000 psi at 28 days in accordance with ASTM C 476, or when tested in an approved manner. Grout shall be placed by pumping or by an approved alternate method and shall be placed before any initial set occurs and in no case more than $1^1/_2$ hours after water has been added. Grouting shall be done in a continuous pour, in lifts ~~not exceeding 5 feet (1524 mm). It shall be consolidated by puddling or mechanical vibrating during placing and reconsolidated after excess moisture has been absorbed but before plasticity is lost..~~ in accordance with Section 609.1.2. Grout shall be consolidated at the time of placement in accordance with the following:

1. Consolidate grout pours 12 in. (305 mm) or less in height by mechanical vibration or by puddling.
2. Consolidate pours exceeding 12 in. (305 mm) in height by mechanical vibration, and reconsolidate by mechanical vibration after initial water loss and settlement has occurred.

R609.1.5 Cleanouts. ~~Where required by the building official, cleanouts shall be provided as specified in this section.~~ Cleanouts shall be provided at the bottom course at each pour of grout where such pour exceeds 5 feet (1524 mm) in height and where required by the building official. Cleanouts shall be provided with an opening of sufficient size to permit removal of debris. The minimum opening dimension shall be 3 in. (76.2 mm). The cleanouts shall be sealed before grouting and after inspection.

~~R609.1.5.2 Grouted hollow unit masonry. Cleanouts shall be provided at the bottom course of each cell to be grouted at each pour of grout, where such pour exceeds 4 5 feet (1219 mm) in height.~~

DELETE SECTIONS R609.2, 609.3, AND R609.4 IN THEIR ENTIRETY AND ADD NEW SECTIONS R609.2 THROUGH R609.6 AS FOLLOWS:

R609.2 Bond beams. A reinforced bond beam shall be provided in masonry walls at the top of the wall and at each floor level of each exterior wall. Masonry walls not extending to the roof line shall have a bond beam at the top of the wall.

Exceptions:
1. A bond beam is not required at the floor level for slab-on-ground floors.
2. Gable endwalls shall be in conformance with Section R609.4.

R609.2.1 Bond beam types. Bond beams shall be one of the following:

1. 8" thick x 8" high masonry.
   8" thick x 12" high masonry.
   8" thick x 16" high masonry.

8” thick by 24” high masonry
8" thick x 32" high masonry.

2. **Precast units certified by the manufacturer for the uplift loads as set forth in Table R802.11. Precast units shall be installed in accordance with the manufacturer’s specifications, and approved by the building official.**

R609.2.2 Bond beam reinforcement. The minimum reinforcement for bond beam roof diaphragm chord tension reinforcement steel shall be as set forth in Table R609.2.2A1 through Table R609.2.2A-4 for the appropriate grade of steel and exposure category. The minimum reinforcement for bond beam uplift resisting reinforcement steel shall be as set forth in Tables R609.2.2B-1 through R609.2.2B-8 for the loads set forth in Table R802.11. The total minimum area of bond beam reinforcement shall be the sum of the required area of the diaphragm chord tension steel and the required area of bond beam uplift steel. Bond beam area shall be converted to bar size in accordance with Table R609.2.2C.

R609.2.3 Location of reinforcement. Reinforcement shall be located in the top of bond beams and in the top and bottom of bond beams also serving as lintels.

R609.2.4 Corner continuity. Corner continuity. Reinforcement in bond beams shall be continuous around corners as detailed in Figure R609.2.4.

Exception: In bond beams requiring two reinforcing bars, one bar shall be continuous around corners.

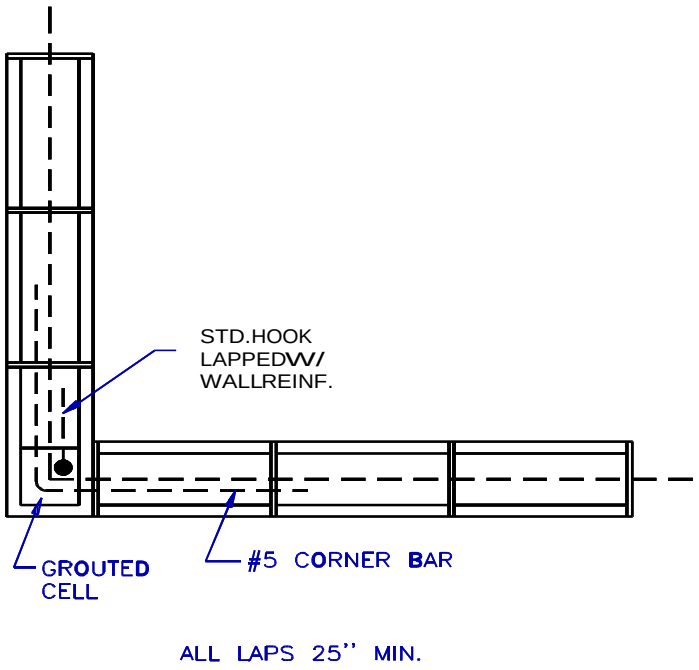


FIGURE R609.2.4
CORNER CONTINUITY OF BOND BEAM AND WALL REINFORCEMENT

R609.2.5 Change in height. Changes in bond beam height shall be permitted as detailed in Figure R609.2.5.

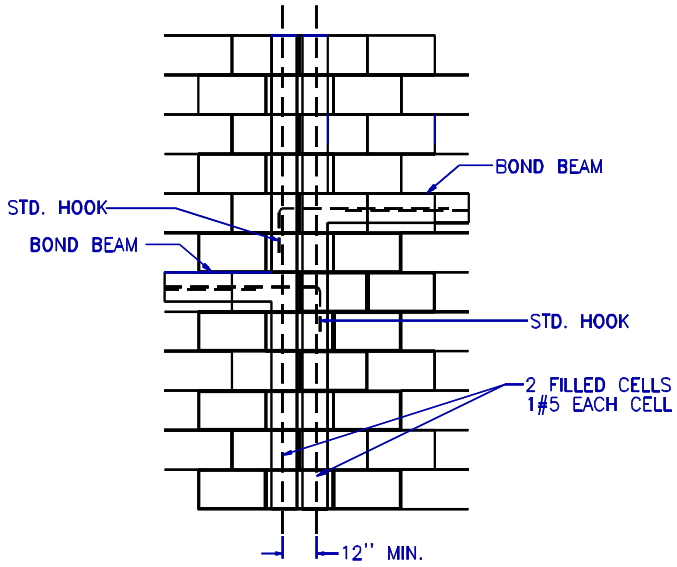


FIGURE R609.2.5
CHANGES IN BOND BEAM HEIGHT

R609.2.6 Precast units reinforcement. Precast bond beams shall properly receive and retain all vertical wall reinforcement. Precast bond beams shall contain the minimum amount of continuous reinforcement set forth in Sections R609.2.2 and R609. 6 as applicable and shall be reinforced at joints to act as drag struts and diaphragm chords.

TABLE R609.2.2A-1 GRADE 60 EXPOSURE B
ROOF DIAPHRAGM CHORD TENSION BOND BEAM STEEL AREA, IN^2

Wind Speed	Building Width	Wall Height	BUILDING LENGTH				
			40	50	60	70	80
100	24	10	0.037	0.052	0.069	0.088	0.110
	24	8	0.030	0.042	0.055	0.071	0.088
	32	10	0.029	0.040	0.053	0.067	0.084
	32	8	0.023	0.032	0.042	0.054	0.067
	40	10	0.026	0.036	0.047	0.059	0.073
	40	8	0.021	0.029	0.037	0.047	0.058
110	24	10	0.045	0.063	0.084	0.107	0.133
	24	8	0.036	0.050	0.067	0.086	0.107
	32	10	0.035	0.048	0.064	0.082	0.101
	32	8	0.028	0.039	0.051	0.065	0.081
	40	10	0.032	0.043	0.057	0.072	0.088
	40	8	0.025	0.035	0.045	0.057	0.070
120	24	10	0.054	0.075	0.099	0.127	0.158
	24	8	0.043	0.060	0.080	0.102	0.127
	32	10	0.041	0.058	0.076	0.097	0.121
	32	8	0.033	0.046	0.061	0.078	0.097
	40	10	0.038	0.052	0.067	0.085	0.105
	40	8	0.030	0.041	0.054	0.068	0.084
130	24	10	0.063	0.088	0.117	0.149	0.186
	24	8	0.050	0.070	0.093	0.120	0.149
	32	10	0.049	0.068	0.089	0.114	0.142
	32	8	0.039	0.054	0.071	0.091	0.113
	40	10	0.044	0.061	0.079	0.100	0.123
	40	8	0.035	0.048	0.063	0.080	0.098
140	24	10	0.073	0.102	0.135	0.173	0.216
	24	8	0.058	0.082	0.108	0.139	0.173
	32	10	0.056	0.078	0.104	0.132	0.164
	32	8	0.045	0.063	0.083	0.106	0.131
	40	10	0.051	0.070	0.092	0.116	0.143
	40	8	0.041	0.056	0.073	0.093	0.114
150	24	10	0.084	0.117	0.155	0.199	0.248
	24	8	0.067	0.094	0.124	0.159	0.198
	32	10	0.065	0.090	0.119	0.152	0.189
	32	8	0.052	0.072	0.095	0.121	0.151
	40	10	0.059	0.081	0.105	0.133	0.164
	40	8	0.047	0.064	0.084	0.106	0.131

Notes:

1. Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel. Select appropriate bar size and number of bars from Table R609.2.2C.

\2. The tabular value for diaphragm chord tension steel area shall be permitted to be reduced by a factor of 0.65 for bond beam spans located in the end zone.

TABLER609.2.2A-2 GRADE 60 ROOF EXPOSURE C
DIAPHRAGM CHORD TENSION BOND BEAM STEEL AREA, IN^2

Wind Speed	Building Width	Wall Height	BUILDING LENGTH				
			40	50	60	70	80
100	24	10	0.052	0.073	0.097	0.124	0.154
	24	8	0.042	0.058	0.077	0.099	0.123
	32	10	0.040	0.056	0.074	0.095	0.118
	32	8	0.032	0.045	0.059	0.076	0.094
	40	10	0.037	0.050	0.066	0.083	0.102
	40	8	0.029	0.040	0.052	0.066	0.082
110	24	10	0.063	0.088	0.117	0.150	0.187
	24	8	0.051	0.071	0.094	0.120	0.149
	32	10	0.049	0.068	0.090	0.114	0.142
	32	8	0.039	0.054	0.072	0.092	0.114
	40	10	0.044	0.061	0.079	0.100	0.124
	40	8	0.035	0.049	0.063	0.080	0.099
120	24	10	0.075	0.105	0.139	0.178	0.222
	24	8	0.060	0.084	0.112	0.143	0.178
	32	10	0.058	0.081	0.107	0.136	0.169
	32	8	0.046	0.065	0.085	0.109	0.135
	40	10	0.053	0.072	0.094	0.119	0.147
	40	8	0.042	0.058	0.076	0.095	0.118
130	24	10	0.088	0.123	0.164	0.209	0.261
	24	8	0.071	0.099	0.131	0.168	0.209
	32	10	0.068	0.095	0.125	0.160	0.199
	32	8	0.055	0.076	0.100	0.128	0.159
	40	10	0.062	0.085	0.111	0.140	0.173
	40	8	0.050	0.068	0.089	0.112	0.138
140	24	10	0.102	0.143	0.190	0.243	0.302
	24	8	0.082	0.114	0.152	0.194	0.242
	32	10	0.079	0.110	0.145	0.185	0.230
	32	8	0.063	0.088	0.116	0.148	0.184
	40	10	0.072	0.098	0.129	0.162	0.200
	40	8	0.057	0.079	0.103	0.130	0.160
150	24	10	0.118	0.164	0.218	0.279	0.347
	24	8	0.094	0.131	0.174	0.223	0.278
	32	10	0.091	0.126	0.167	0.213	0.264
	32	8	0.073	0.101	0.133	0.170	0.212
	40	10	0.082	0.113	0.148	0.187	0.230
	40	8	0.066	0.090	0.118	0.149	0.184

Notes:

1. Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel. Select appropriate bar size and number of bars from Table R609.2.2C.

\2. The tabular value for diaphragm chord tension steel area shall be permitted to be reduced by a factor of 0.65 for bond beam spans located in the end zone.

TABLE 609.2.2A-3 - GRADE 40 EXPOSURE B
ROOF DIAPHRAGM CHORD TENSION BOND BEAM STEEL AREA IN^2

Wind Speed	Building Width	Wall Height	BUILDING LENGTH				
			40	50	60	70	80
	24	10	0.037	0.052	0.069	0.088	0.110
	24	8	0.030	0.042	0.055	0.071	0.088
	32	10	0.029	0.040	0.053	0.067	0.084
	32	8	0.023	0.032	0.042	0.054	0.067
	40	10	0.026	0.036	0.047	0.059	0.073
100	40	8	0.021	0.029	0.037	0.047	0.058
	24	10	0.045	0.063	0.084	0.107	0.133
	24	8	0.036	0.050	0.067	0.086	0.107
	32	10	0.035	0.048	0.064	0.082	0.101
	32	8	0.028	0.039	0.051	0.065	0.081
	40	10	0.032	0.043	0.057	0.072	0.088
110	40	8	0.025	0.035	0.045	0.057	0.070
	24	10	0.054	0.075	0.099	0.127	0.158
	24	8	0.043	0.060	0.080	0.102	0.127
	32	10	0.041	0.058	0.076	0.097	0.121
	32	8	0.033	0.046	0.061	0.078	0.097
	40	10	0.038	0.052	0.067	0.085	0.105
120	40	8	0.030	0.041	0.054	0.068	0.084
	24	10	0.063	0.088	0.117	0.149	0.186
	24	8	0.050	0.070	0.093	0.120	0.149
	32	10	0.049	0.068	0.089	0.114	0.142
	32	8	0.039	0.054	0.071	0.091	0.113
	40	10	0.044	0.061	0.079	0.100	0.123
130	40	8	0.035	0.048	0.063	0.080	0.098
	24	10	0.073	0.102	0.135	0.173	0.216
	24	8	0.058	0.082	0.108	0.139	0.173
	32	10	0.056	0.078	0.104	0.132	0.164
	32	8	0.045	0.063	0.083	0.106	0.131
	40	10	0.051	0.070	0.092	0.116	0.143
140	40	8	0.041	0.056	0.073	0.093	0.114
	24	10	0.084	0.117	0.155	0.199	0.248
	24	8	0.067	0.094	0.124	0.159	0.198
	32	10	0.065	0.090	0.119	0.152	0.189
	32	8	0.052	0.072	0.095	0.121	0.151
	40	10	0.059	0.081	0.105	0.133	0.164
150	40	8	0.047	0.064	0.084	0.106	0.131

Notes:

1. Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C

2. The tabular value for diaphragm chord tension steel area shall be permitted to be reduced by a factor of 0.65 for bond beam spans located in the end zone.

TABLE 609.2.2A-4 - GRADE 40 EXPOSURE C
ROOF DIAPHRAGM CHORD TENSION BOND BEAM STEEL AREA IN^2

Wind Speed	Building Width	Wall Height	BUILDING LENGTH				
			40	50	60	70	80
	24	10	0.052	0.073	0.097	0.124	0.154
	24	8	0.042	0.058	0.077	0.099	0.123
	32	10	0.040	0.056	0.074	0.095	0.118
	32	8	0.032	0.045	0.059	0.076	0.094
	40	10	0.037	0.050	0.066	0.083	0.102
100	40	8	0.029	0.040	0.052	0.066	0.082
	24	10	0.063	0.088	0.117	0.150	0.187
	24	8	0.051	0.071	0.094	0.120	0.149
	32	10	0.049	0.068	0.090	0.114	0.142
	32	8	0.039	0.054	0.072	0.092	0.114
	40	10	0.044	0.061	0.079	0.100	0.124
110	40	8	0.035	0.049	0.063	0.080	0.099
	24	10	0.075	0.105	0.139	0.178	0.222
	24	8	0.060	0.084	0.112	0.143	0.178
	32	10	0.058	0.081	0.107	0.136	0.169
	32	8	0.046	0.065	0.085	0.109	0.135
	40	10	0.053	0.072	0.094	0.119	0.147
120	40	8	0.042	0.058	0.076	0.095	0.118
	24	10	0.088	0.123	0.164	0.209	0.261
	24	8	0.071	0.099	0.131	0.168	0.209
	32	10	0.068	0.095	0.125	0.160	0.199
	32	8	0.055	0.076	0.100	0.128	0.159
	40	10	0.062	0.085	0.111	0.140	0.173
130	40	8	0.050	0.068	0.089	0.112	0.138
	24	10	0.102	0.143	0.190	0.243	0.302
	24	8	0.082	0.114	0.152	0.194	0.242
	32	10	0.079	0.110	0.145	0.185	0.230
	32	8	0.063	0.088	0.116	0.148	0.184
	40	10	0.072	0.098	0.129	0.162	0.200
140	40	8	0.057	0.079	0.103	0.130	0.160
	24	10	0.118	0.164	0.218	0.279	0.347
	24	8	0.094	0.131	0.174	0.223	0.278
	32	10	0.091	0.126	0.167	0.213	0.264
	32	8	0.073	0.101	0.133	0.170	0.212
	40	10	0.082	0.113	0.148	0.187	0.230
150	40	8	0.066	0.090	0.118	0.149	0.184

Notes:

1. Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C.

2. The tabular value for diaphragm chord tension steel area shall be permitted to be reduced by a factor of 0.65 for bond beam spans located in the end zone.

TABLE R609.2.2B-1 GRADE 60
AREA OF STEEL REQUIRED IN BOND BEAM FOR UPLIFT BENDING, IN^2

Uplift, plf	8 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.009	0.021	0.038	0.060	0.088	0.123	NP	NP
150	0.016	0.037	0.067	0.107	0.159	NP	NP	NP
200	0.023	0.053	0.096	0.157	NP	NP	NP	NP
250	0.030	0.069	0.127	0.211	NP	NP	NP	NP
300	0.037	0.086	0.160	0.270	NP	NP	NP	NP
350	0.044	0.103	0.194	NP	NP	NP	NP	NP
400	0.051	0.120	0.230	NP	NP	NP	NP	NP
450	0.058	0.138	0.269	NP	NP	NP	NP	NP
500	0.065	0.156	NP	NP	NP	NP	NP	NP
550	0.073	0.175	NP	NP	NP	NP	NP	NP
600	0.080	0.195	NP	NP	NP	NP	NP	NP
650	0.088	0.215	NP	NP	NP	NP	NP	NP
700	0.095	0.235	NP	NP	NP	NP	NP	NP
750	0.103	0.257	NP	NP	NP	NP	NP	NP
800	0.110	0.280	NP	NP	NP	NP	NP	NP
850	0.118	NP	NP	NP	NP	NP	NP	NP
900	0.126	NP	NP	NP	NP	NP	NP	NP
950	0.134	NP	NP	NP	NP	NP	NP	NP
1000	0.142	NP	NP	NP	NP	NP	NP	NP
1050	0.150	NP	NP	NP	NP	NP	NP	NP
1100	0.158	NP	NP	NP	NP	NP	NP	NP

Note:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel. Select appropriate bar size and number of bars from Table R609.2.2C.**

TABLE R609.2.2B-2 GRADE 60
AREA OF STEEL REQUIRED IN BOND BEAM FOR UPLIFT BENDING, IN^2

Uplift, plf	16 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.005	0.010	0.019	0.029	0.042	0.058	0.076	0.097
200	0.007	0.017	0.030	0.046	0.067	0.092	0.121	0.154
250	0.010	0.023	0.040	0.063	0.092	0.126	0.167	0.214
300	0.013	0.029	0.051	0.081	0.117	0.162	0.214	0.275
350	0.015	0.035	0.062	0.098	0.143	0.197	0.262	NP
400	0.018	0.041	0.073	0.116	0.169	0.234	0.312	NP
450	0.021	0.047	0.084	0.134	0.195	0.271	NP	NP
500	0.023	0.053	0.096	0.152	0.222	0.309	NP	NP
550	0.026	0.059	0.107	0.170	0.249	0.348	NP	NP
600	0.029	0.066	0.118	0.188	0.277	0.388	NP	NP
650	0.032	0.072	0.130	0.206	0.305	0.429	NP	NP
700	0.034	0.078	0.141	0.225	0.334	NP	NP	NP
750	0.037	0.084	0.152	0.244	0.363	NP	NP	NP
800	0.040	0.091	0.164	0.263	0.392	NP	NP	NP
850	0.042	0.097	0.176	0.282	0.422	NP	NP	NP
900	0.045	0.103	0.187	0.302	0.453	NP	NP	NP
950	0.048	0.110	0.199	0.321	NP	NP	NP	NP
1000	0.051	0.116	0.211	0.341	NP	NP	NP	NP
1050	0.053	0.122	0.223	0.362	NP	NP	NP	NP
1100	0.056	0.129	0.235	0.382	NP	NP	NP	NP

Notes:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C.**

TABLE R609.2.2B-3 GRADE 60
AREA OF STEEL REQUIRED IN BOND BEAM FOR UPLIFT BENDING, IN^2

Uplift, plf	24 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.004	0.008	0.014	0.022	0.032	0.043	0.057	0.072
250	0.005	0.012	0.021	0.032	0.047	0.064	0.084	0.106
300	0.007	0.015	0.027	0.043	0.062	0.085	0.111	0.142
350	0.009	0.019	0.034	0.054	0.077	0.106	0.139	0.177
400	0.010	0.023	0.041	0.064	0.093	0.127	0.167	0.213
450	0.012	0.027	0.048	0.075	0.108	0.148	0.195	0.249
500	0.014	0.031	0.054	0.086	0.124	0.170	0.224	0.286
550	0.015	0.034	0.061	0.096	0.140	0.192	0.253	0.323
600	0.017	0.038	0.068	0.107	0.155	0.213	0.282	0.361
650	0.019	0.042	0.075	0.118	0.171	0.235	0.311	0.399
700	0.020	0.046	0.082	0.129	0.187	0.257	0.341	0.438
750	0.022	0.050	0.089	0.140	0.203	0.280	0.371	0.477
800	0.024	0.053	0.095	0.150	0.219	0.302	0.401	0.517
850	0.025	0.057	0.102	0.161	0.235	0.325	0.432	0.558
900	0.027	0.061	0.109	0.172	0.251	0.347	0.462	NP
950	0.029	0.065	0.116	0.183	0.268	0.370	0.494	NP
1000	0.030	0.069	0.123	0.194	0.284	0.394	0.525	NP
1050	0.032	0.072	0.130	0.206	0.301	0.417	0.557	NP
1100	0.034	0.076	0.137	0.217	0.317	0.440	NP	NP

Notes:

1. When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.
2. Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel. Select appropriate bar size and number of bars from Table R609.2.2C.

TABLE R609.2.2B-4 GRADE 60
AREA OF STEEL REQUIRED IN BOND BEAM FOR UPLIFT BENDING, IN^2

Uplift, plf	32 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.003	0.007	0.012	0.019	0.027	0.037	0.048	0.061
300	0.004	0.009	0.017	0.026	0.038	0.052	0.068	0.086
350	0.005	0.012	0.022	0.034	0.049	0.067	0.087	0.111
400	0.007	0.015	0.027	0.042	0.060	0.082	0.107	0.136
450	0.008	0.018	0.031	0.049	0.071	0.097	0.127	0.161
500	0.009	0.020	0.036	0.057	0.082	0.112	0.147	0.187
550	0.010	0.023	0.041	0.065	0.093	0.127	0.167	0.213
600	0.011	0.026	0.046	0.072	0.104	0.143	0.187	0.239
650	0.013	0.029	0.051	0.080	0.116	0.158	0.208	0.265
700	0.014	0.031	0.056	0.088	0.127	0.174	0.228	0.291
750	0.015	0.034	0.061	0.095	0.138	0.189	0.249	0.317
800	0.016	0.037	0.066	0.103	0.149	0.205	0.269	0.344
850	0.018	0.040	0.071	0.111	0.161	0.220	0.290	0.370
900	0.019	0.042	0.076	0.119	0.172	0.236	0.311	0.397
950	0.020	0.045	0.081	0.127	0.183	0.252	0.332	0.424
1000	0.021	0.048	0.085	0.134	0.195	0.267	0.353	0.451
1050	0.022	0.051	0.090	0.142	0.206	0.283	0.374	0.479
1100	0.024	0.053	0.095	0.150	0.218	0.299	0.395	0.506

Notes:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel. Select appropriate bar size and number of bars from Table R609.2.2C**

TABLE 609.2.2B-5 GRADE 40
AREA BOND BEAM/LINTEL UPLIFT STEEL DESIGN

Uplift, plf	8 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.014	0.032	0.057	0.090	0.132	0.184	NP	NP
150	0.024	0.055	0.100	0.160	0.239	NP	NP	NP
200	0.034	0.079	0.144	0.235	NP	NP	NP	NP
250	0.045	0.103	0.191	NP	NP	NP	NP	NP
300	0.055	0.128	0.240	NP	NP	NP	NP	NP
350	0.066	0.154	NP	NP	NP	NP	NP	NP
400	0.076	0.180	NP	NP	NP	NP	NP	NP
450	0.087	0.207	NP	NP	NP	NP	NP	NP
500	0.098	0.234	NP	NP	NP	NP	NP	NP
550	0.109	0.263	NP	NP	NP	NP	NP	NP
600	0.120	NP	NP	NP	NP	NP	NP	NP
650	0.131	NP	NP	NP	NP	NP	NP	NP
700	0.143	NP	NP	NP	NP	NP	NP	NP
750	0.154	NP	NP	NP	NP	NP	NP	NP
800	0.166	NP	NP	NP	NP	NP	NP	NP
850	0.177	NP	NP	NP	NP	NP	NP	NP
900	0.189	NP	NP	NP	NP	NP	NP	NP
950	0.201	NP	NP	NP	NP	NP	NP	NP
1000	0.213	NP	NP	NP	NP	NP	NP	NP
1050	0.225	NP	NP	NP	NP	NP	NP	NP
1100	0.238	NP	NP	NP	NP	NP	NP	NP

Notes:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C.**

TABLE 609.2.2B-6 GRADE 40
AREA BOND BEAM/LINTEL UPLIFT STEEL DESIGN

Uplift, plf	16 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.007	0.016	0.028	0.044	0.063	0.087	0.114	0.145
200	0.011	0.025	0.044	0.069	0.101	0.138	0.181	0.231
250	0.015	0.034	0.061	0.095	0.138	0.190	0.250	0.320
300	0.019	0.043	0.077	0.121	0.176	0.242	0.321	0.413
350	0.023	0.052	0.093	0.147	0.215	0.296	0.393	NP
400	0.027	0.061	0.110	0.174	0.254	0.351	0.468	NP
450	0.031	0.071	0.127	0.200	0.293	0.407	NP	NP
500	0.035	0.080	0.143	0.227	0.333	0.464	NP	NP
550	0.039	0.089	0.160	0.254	0.374	0.523	NP	NP
600	0.043	0.098	0.177	0.282	0.415	0.583	NP	NP
650	0.047	0.108	0.194	0.310	0.458	0.644	NP	NP
700	0.051	0.117	0.211	0.338	0.500	NP	NP	NP
750	0.056	0.126	0.229	0.366	0.544	NP	NP	NP
800	0.060	0.136	0.246	0.394	0.588	NP	NP	NP
850	0.064	0.145	0.264	0.423	0.633	NP	NP	NP
900	0.068	0.155	0.281	0.453	0.679	NP	NP	NP
950	0.072	0.164	0.299	0.482	NP	NP	NP	NP
1000	0.076	0.174	0.317	0.512	NP	NP	NP	NP
1050	0.080	0.183	0.335	0.542	NP	NP	NP	NP
1100	0.084	0.193	0.353	0.573	NP	NP	NP	NP

Notes:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C.**

TABLE 609.2.2B-7 GRADE 40
AREA BOND BEAM/LINTEL UPLIFT STEEL DESIGN

Uplift, plf	24 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.005	0.012	0.021	0.033	0.048	0.065	0.085	0.108
250	0.008	0.017	0.031	0.049	0.070	0.096	0.126	0.160
300	0.010	0.023	0.041	0.065	0.093	0.127	0.167	0.212
350	0.013	0.029	0.051	0.080	0.116	0.159	0.209	0.266
400	0.015	0.034	0.061	0.096	0.139	0.191	0.251	0.319
450	0.018	0.040	0.072	0.112	0.163	0.223	0.293	0.374
500	0.020	0.046	0.082	0.128	0.186	0.255	0.336	0.429
550	0.023	0.051	0.092	0.144	0.209	0.287	0.379	0.485
600	0.025	0.057	0.102	0.161	0.233	0.320	0.423	0.542
650	0.028	0.063	0.112	0.177	0.257	0.353	0.467	0.599
700	0.030	0.069	0.123	0.193	0.280	0.386	0.511	0.657
750	0.033	0.074	0.133	0.209	0.304	0.419	0.556	0.716
800	0.035	0.080	0.143	0.226	0.329	0.453	0.601	0.776
850	0.038	0.086	0.154	0.242	0.353	0.487	0.647	0.837
900	0.040	0.091	0.164	0.259	0.377	0.521	0.694	NP
950	0.043	0.097	0.174	0.275	0.402	0.556	0.741	NP
1000	0.045	0.103	0.185	0.292	0.426	0.590	0.788	NP
1050	0.048	0.109	0.195	0.308	0.451	0.625	0.836	NP
1100	0.051	0.114	0.205	0.325	0.476	0.661	NP	NP

Notes:

1. **When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.**
2. **Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel . Select appropriate bar size and number of bars from Table R609.2.2C.**

TABLE 609.2.2B-8GRADE 40
AREA BOND BEAM/LINTEL UPLIFT STEEL DESIGN

Uplift, plf	32 in. bond beam/lintel span, ft							
	4	6	8	10	12	14	16	18
50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
200	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
250	0.004	0.010	0.018	0.028	0.040	0.055	0.072	0.091
300	0.006	0.014	0.025	0.039	0.057	0.077	0.101	0.129
350	0.008	0.018	0.033	0.051	0.073	0.100	0.131	0.166
400	0.010	0.022	0.040	0.062	0.090	0.123	0.161	0.204
450	0.012	0.026	0.047	0.074	0.107	0.145	0.191	0.242
500	0.014	0.031	0.054	0.085	0.123	0.168	0.221	0.281
550	0.015	0.035	0.062	0.097	0.140	0.191	0.251	0.319
600	0.017	0.039	0.069	0.108	0.157	0.214	0.281	0.358
650	0.019	0.043	0.077	0.120	0.173	0.237	0.312	0.397
700	0.021	0.047	0.084	0.132	0.190	0.260	0.342	0.436
750	0.023	0.051	0.091	0.143	0.207	0.284	0.373	0.476
800	0.025	0.055	0.099	0.155	0.224	0.307	0.404	0.515
850	0.026	0.059	0.106	0.166	0.241	0.330	0.435	0.556
900	0.028	0.064	0.113	0.178	0.258	0.354	0.466	0.596
950	0.030	0.068	0.121	0.190	0.275	0.377	0.497	0.636
1000	0.032	0.072	0.128	0.201	0.292	0.401	0.529	0.677
1050	0.034	0.076	0.136	0.213	0.309	0.425	0.561	0.718
1100	0.035	0.080	0.143	0.225	0.326	0.449	0.592	0.760

Notes:

1When reinforcement required is 0.00, only diaphragm chord tension reinforcement is required.

2Diaphragm chord tension steel area shall be added to bond beam uplift steel area for total required bond beam area of steel Select appropriate bar size and number of bars from Table R609.2.2C.

TABLE R609.2.2C BOND BEAM AREA OF STEEL PROVIDED IN^2/FT			
Number of bars	Bar size		
	No. 4	No. 5	No. 6
1	0.20	0.31	0.44
2	0.40	0.62	0.88

`R609.3 Vertical Reinforcement. Vertical reinforcement shall be provided in conformance with Sections R609.3.1 through R609.3.6.

R609.3.1 One reinforcement bar shall be provided in each corner, including interior corners and corners created by changes in wall direction or offsetting of walls.

R609.3.2 Openings. A minimum of one bar of the size used for vertical wall reinforcement shall be provided on each side of openings wider than 6 feet. If more vertical reinforcement is interrupted by an opening than is provided beside the opening (total in the first and second cells adjacent to the opening), one-half of the equivalent area of reinforcement interrupted by the opening shall be placed on each side of the opening. This reinforcement shall be placed within the first and/or second cells beside the opening.

R609.3.2 Girders. At least one reinforcement bar shall be provided where girders or girder trusses bear on masonry walls.

R609.3.3 Spacing. Vertical reinforcement shall be provided as set forth in Tables R609.3.3.A-1 through Table R609.3.3A-4 and R609.3.3.B-1, through R609.3.3B-4 as applicable.

R609.3.4 Precast bond beams. Vertical reinforcement used in conjunction with precast bond beams shall be spaced the same as for masonry bond beams. Reinforcement shall terminate in the precast beam as set forth in Section R606.9.8.

R609.3.5 Duplication. Reinforcing steel requirements shall not be additive. A single bar shall be permitted to satisfy multiple requirements.

R609.3.6 Termination. Vertical reinforcement shall terminate in footings and bond beams as set forth in Section R606.9.8.

TABLE R609.3.3A-1 GRADE 60
SINGLE STORY AND TOP STORY WALLS PARALLEL TO RIDGE VERTICAL REINFORCEMENT SPACING No. 5 BARS (⅝")

	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
100	8.00	9.87	9.87	9.87	8.34	8.34	8.34
	8.67	9.97	9.97	9.97	8.42	8.42	8.42
	9.33	10.06	10.06	10.06	8.49	8.49	8.49
	10.00	10.14	10.14	10.14	8.57	8.57	8.54
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
110	8.00	8.97	8.97	8.97	7.58	7.58	7.58
	8.67	9.06	9.06	9.06	7.65	7.65	7.65
	9.33	9.14	9.14	9.14	7.72	7.72	7.72
	10.00	9.22	9.22	9.22	7.79	7.79	7.79
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
120	8.00	8.23	8.23	8.23	6.95	6.95	6.95
	8.67	8.30	8.30	8.30	7.01	7.01	7.01
	9.33	8.38	8.38	8.38	7.08	7.08	7.08
	10.00	8.45	8.45	8.45	6.87	6.87	6.87
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
130	8.00	7.59	7.59	7.59	6.41	6.41	6.21
	8.67	7.67	7.67	7.67	6.47	6.14	5.67
	9.33	7.73	7.73	7.57	6.03	5.58	5.19
	10.00	7.80	7.36	6.90	5.44	5.07	4.74
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
140	8.00	7.05	7.05	7.05	5.95	5.76	5.27
	8.67	7.12	7.12	7.01	5.70	5.22	4.82
	9.33	7.18	6.88	6.40	5.14	4.75	4.41
	10.00	6.70	6.24	5.85	4.64	4.32	4.04
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
150	8.00	6.58	6.58	6.58	5.46	4.96	4.54
	8.67	6.64	6.50	6.01	4.91	4.50	4.15
	9.33	6.39	5.91	5.49	4.43	4.09	3.80
	10.00	5.76	5.37	5.02	4.00	3.72	3.48

TABLE R609.3.3A-2 GRADE 60
SINGLE STORY AND TOP STORY WALLS PARALLEL TO RIDGE VERTICAL REINFORCEMENT SPACING No. 4 BARS (½")

	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
100	8.00	9.87	9.87	9.87	8.34	7.97	7.32
	8.67	9.97	9.97	9.97	7.79	7.17	6.65
	9.33	10.06	9.69	9.08	6.98	6.48	6.05
	10.00	9.06	8.72	8.22	6.27	5.87	5.51
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
110	8.00	8.97	8.97	8.76	7.01	6.38	5.85
	8.67	9.06	9.06	9.06	6.83	6.83	6.83
	9.33	8.45	8.45	8.45	5.99	5.99	5.99
	10.00	7.47	7.47	7.47	5.30	5.30	5.30
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
120	8.00	8.23	7.72	7.09	5.75	5.23	4.80
	8.67	8.07	8.07	8.07	5.72	5.72	5.72
	9.33	7.08	7.08	7.08	5.02	5.02	5.02
	10.00	6.26	6.26	6.26	4.43	4.43	4.43
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
130	8.00	7.04	6.41	5.88	4.82	4.38	4.01
	8.67	6.29	5.78	5.35	4.32	3.96	3.66
	9.33	5.65	5.24	4.88	3.89	3.60	3.35
	10.00	5.09	4.75	4.45	3.51	3.27	3.06
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
140	8.00	7.05	7.05	7.05	5.95	5.76	5.27
	8.67	7.12	7.12	7.01	5.70	5.22	4.82
	9.33	7.18	6.88	6.40	5.14	4.75	4.41
	10.00	6.70	6.24	5.85	4.64	4.32	4.04
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
150	8.00	6.58	6.58	6.58	5.46	4.96	4.54
	8.67	6.64	6.50	6.01	4.91	4.50	4.15
	9.33	6.39	5.91	5.49	4.43	4.09	3.80
	10.00	5.76	5.37	5.02	4.00	3.72	3.48

TABLE R609.3.3A-3 GRADE 40
SINGLE STORY AND TOP STORY WALLS PARALLEL TO RIDGE VERTICAL REINFORCEMENT SPACING No. 5 BARS(⅝")

	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
100	8.00	9.87	9.87	9.87	8.34	8.23	7.57
	8.67	9.97	9.97	9.97	8.05	7.41	6.87
	9.33	10.06	10.01	9.38	7.22	6.70	6.25
	10.00	9.36	9.01	8.49	6.48	6.06	5.69
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
110	8.00	8.97	8.97	8.97	7.24	6.59	6.05
	8.67	9.06	9.06	9.06	7.06	7.06	7.06
	9.33	8.73	8.73	8.73	6.19	6.19	6.19
	10.00	7.72	7.72	7.72	5.47	5.47	5.47
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
120	8.00	8.23	7.98	7.33	5.95	5.41	4.96
	8.67	8.30	8.30	8.30	5.92	5.92	5.92
	9.33	7.32	7.32	7.32	5.19	5.19	5.19
	10.00	6.47	6.47	6.47	4.58	4.58	4.58
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
130	8.00	7.27	6.62	6.07	4.98	4.52	4.14
	8.67	6.50	5.98	5.53	4.47	4.10	3.78
	9.33	5.84	5.41	5.04	4.02	3.72	3.46
	10.00	5.26	4.91	4.60	3.63	3.38	3.16
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
140	8.00	6.15	5.59	5.13	4.23	3.84	3.52
	8.67	5.51	5.06	4.67	3.80	3.48	3.21
	9.33	4.95	4.59	4.27	3.43	3.17	2.94
	10.00	4.46	4.16	3.90	3.09	2.88	2.69
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
150	8.00	5.27	4.79	4.39	3.64	3.31	3.02
	8.67	4.73	4.34	4.00	3.27	3.00	2.76
	9.33	4.26	3.94	3.66	2.95	2.73	2.53
	10.00	3.84	3.58	3.35	2.66	2.48	2.32

TABLE R609.3.3A-4 GRADE 40
SINGLE STORY AND TOP STORY WALLS PARALLEL TO RIDGE VERTICAL REINFORCEMENT SPACING No. 4 BARS (½")

	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
100	8.00	8.78	8.04	7.42	5.82	5.31	4.88
	8.67	7.77	7.19	6.69	5.19	4.78	4.43
	9.33	6.83	6.46	6.05	4.66	4.32	4.03
	10.00	6.04	5.81	5.48	4.18	3.91	3.67
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
110	8.00	6.94	6.34	5.84	4.67	4.25	3.90
	8.67	6.42	6.42	6.42	4.56	4.56	4.56
	9.33	5.63	5.63	5.63	4.00	4.00	4.00
	10.00	4.98	4.98	4.98	3.53	3.53	3.53
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
120	8.00	5.64	5.15	4.73	3.84	3.49	3.20
	8.67	5.38	5.38	5.38	3.82	3.82	3.82
	9.33	4.72	4.72	4.72	3.35	3.35	3.35
	10.00	4.17	4.17	4.17	2.95	2.95	2.95
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
130	8.00	4.69	4.27	3.92	3.21	2.92	2.67
	8.67	4.19	3.86	3.57	2.88	2.64	2.44
	9.33	3.77	3.49	3.25	2.60	2.40	2.23
	10.00	3.39	3.17	2.97	2.34	2.18	2.04
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
140	8.00	6.15	5.59	5.13	4.23	3.84	3.52
	8.67	5.51	5.06	4.67	3.80	3.48	3.21
	9.33	4.95	4.59	4.27	3.43	3.17	2.94
	10.00	4.46	4.16	3.90	3.09	2.88	2.69
	Exposure	B	B	B	C	C	C
		Building Width					
Wind Speed	Wall Height	24	32	40	24	32	40
150	8.00	5.27	4.79	4.39	3.64	3.31	3.02
	8.67	4.73	4.34	4.00	3.27	3.00	2.76
	9.33	4.26	3.94	3.66	2.95	2.73	2.53
	10.00	3.84	3.58	3.35	2.66	2.48	2.32

TABLE R609.3.3B-1 GRADE 60

MAXIMUM SPACING OF No. 5 ($^5/_8$")VERTICAL REINFORCEMENT AT CONTINUOUS CONCRETE MASONRY LOWER STORIES OF MULTISTORY AND GABLE ENDS SINGLE STORY OR TOP STORY OF MULTISTORY, FEET

Wind Speed		100		110		120	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	9.87	10.53	8.97	9.57	8.23	8.78
	8.67	9.97	10.59	9.06	9.63	8.30	8.82
	9.33	10.06	10.64	9.14	9.68	8.38	8.87
	10	10.14	10.69	9.22	9.72	8.45	8.91
	12	10.17	10.83	8.38	9.14	7.01	7.65
	14	7.75	8.29	6.37	6.82	5.33	5.70
	16	6.12	6.43	5.03	5.29	4.19	4.41
	18	4.97	5.14	4.07	4.21	3.39	3.51
	20	4.12	4.20	3.38	3.44	2.81	2.86
	22	3.48	3.49	2.84	2.85	2.36	2.36
C	8	8.34	8.89	7.58	8.09	6.95	7.41
	8.67	8.42	8.94	7.65	8.13	7.01	7.45
	9.33	8.49	8.99	7.72	8.17	7.08	7.49
	10	8.57	9.03	7.79	8.21	6.87	7.53
	12	7.21	7.86	5.92	6.47	4.95	5.40
	14	5.47	5.86	4.49	4.81	3.75	4.01
	16	4.31	4.54	3.53	3.72	2.94	3.09
	18	3.49	3.61	2.85	2.95	2.37	2.45
	20	2.89	2.94	2.35	2.40	1.94	1.98
	22	2.43	2.43	1.97	1.98	1.62	1.63

Wind Speed		130		140		150	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	7.59	8.10	7.05	7.52	6.58	7.02
	8.67	7.67	8.15	7.12	7.56	6.64	7.06
	9.33	7.73	8.19	7.18	7.60	6.70	7.10
	10	7.80	8.23	7.08	7.64	6.14	6.85
	12	5.95	6.49	5.10	5.57	4.42	4.83
	14	4.51	4.83	3.86	4.14	3.34	3.58
	16	3.55	3.73	3.03	3.19	2.62	2.76
	18	2.86	2.96	2.44	2.53	2.10	2.18
	20	2.36	2.41	2.01	2.05	1.72	1.76
	22	1.98	1.99	1.68	1.68	1.43	1.44
C	8	6.41	6.84	5.95	6.35	5.56	5.93
	8.67	6.47	6.88	6.01	6.39	5.24	5.96
	9.33	6.52	6.91	5.53	6.37	4.75	5.53
	10	5.83	6.50	5.00	5.58	4.31	4.84
	12	4.19	4.58	3.59	3.92	3.10	3.39
	14	3.16	3.39	2.70	2.90	2.33	2.50
	16	2.47	2.61	2.11	2.22	1.81	1.91
	18	1.99	2.06	1.68	1.75	1.44	1.49
	20	1.63	1.66	1.37	1.40	1.16	1.19
	22	1.35	1.35	1.13	1.14	1.03	1.26

TABLE R609.3.3B-2 GRADE 60

MAXIMUM SPACING OF No. 4 (½")VERTICAL REINFORCEMENT AT CONTINUOUS CONCRETE MASONRY LOWER STORIES OF MULTISTORY AND GABLE ENDS SINGLE STORY OR TOP STORY OF MULTISTORY, FEET

Wind Speed		100		110		120	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	9.87	10.53	8.97	9.57	8.23	8.78
	8.67	9.97	10.59	9.06	9.63	8.07	8.82
	9.33	10.06	10.64	8.45	9.48	7.08	7.95
	10	9.06	10.09	7.47	8.32	6.26	6.97
	12	6.56	7.16	5.40	5.89	4.52	4.93
	14	5.00	5.35	4.11	4.40	3.44	3.68
	16	3.95	4.15	3.24	3.41	2.71	2.85
	18	3.21	3.31	2.63	2.72	2.19	2.27
	20	2.66	2.71	2.18	2.22	1.81	1.84
	22	2.25	2.25	1.83	1.84	1.52	1.53
C	8	8.34	8.89	7.58	8.09	6.20	7.41
	8.67	8.29	8.94	6.83	7.73	5.58	6.48
	9.33	7.28	8.17	5.99	6.73	5.02	5.64
	10	6.43	7.16	5.30	5.90	4.43	4.94
	12	4.65	5.07	3.82	4.17	3.19	3.49
	14	3.53	3.78	2.90	3.10	2.42	2.59
	16	2.78	2.93	2.28	2.40	1.90	2.00
	18	2.25	2.33	1.84	1.90	1.53	1.58
	20	1.86	1.90	1.52	1.55	1.25	1.28
	22	1.57	1.57	1.27	1.28	1.05	1.05

Wind Speed		130		140		150	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	7.59	8.10	6.42	7.52	5.47	6.68
	8.67	6.86	7.76	5.77	6.68	4.93	5.80
	9.33	6.02	6.76	5.17	5.81	4.46	5.05
	10	5.32	5.92	4.57	5.09	3.96	4.42
	12	3.84	4.19	3.29	3.59	2.85	3.12
	14	2.91	3.12	2.49	2.67	2.16	2.31
	16	2.29	2.41	1.96	2.06	1.69	1.78
	18	1.85	1.91	1.58	1.63	1.36	1.41
	20	1.52	1.55	1.30	1.32	1.11	1.13
	22	1.28	1.28	1.08	1.09	0.93	0.93
C	8	5.15	6.29	4.36	5.30	3.73	4.53
	8.67	4.65	5.50	3.94	4.73	3.38	4.09
	9.33	4.21	4.79	3.57	4.11	3.06	3.57
	10	3.76	4.19	3.22	3.60	2.78	3.12
	12	2.70	2.95	2.31	2.53	2.00	2.19
	14	2.04	2.19	1.74	1.87	1.50	1.61
	16	1.60	1.68	1.36	1.43	1.17	1.23
	18	1.28	1.33	1.09	1.13	0.93	0.96
	20	1.05	1.07	0.88	0.90	0.75	0.77
	22	0.87	0.87	0.73	0.73	0.67	0.81

TABLE R609.3.3B-3 GRADE 40

MAXIMUM SPACING OF No. 5 ($^5/_8$")VERTICAL REINFORCEMENT AT CONTINUOUS CONCRETE MASONRY LOWER STORIES OF MULTISTORY AND GABLE ENDS SINGLE STORY OR TOP STORY OF MULTISTORY, FEET

Wind Speed		100		110		120	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	9.87	10.53	8.97	9.57	8.23	8.78
	8.67	9.97	10.59	9.06	9.63	8.30	8.82
	9.33	10.06	10.64	8.73	9.68	7.32	8.21
	10	9.36	10.42	7.72	8.60	6.47	7.20
	12	6.78	7.39	5.58	6.09	4.67	5.10
	14	5.16	5.53	4.25	4.55	3.55	3.80
	16	4.08	4.29	3.35	3.52	2.80	2.94
	18	3.31	3.43	2.72	2.81	2.26	2.34
	20	2.75	2.80	2.25	2.29	1.87	1.90
	22	2.32	2.33	1.90	1.90	1.57	1.58
C	8	8.34	8.89	7.58	8.09	6.40	7.41
	8.67	8.42	8.94	7.06	7.99	5.77	6.69
	9.33	7.52	8.44	6.19	6.95	5.19	5.82
	10	6.65	7.40	5.47	6.10	4.58	5.10
	12	4.80	5.24	3.95	4.31	3.30	3.60
	14	3.65	3.91	3.00	3.21	2.50	2.68
	16	2.88	3.02	2.35	2.48	1.96	2.06
	18	2.33	2.41	1.90	1.97	1.58	1.63
	20	1.92	1.96	1.57	1.60	1.30	1.32
	22	1.62	1.62	1.31	1.32	1.08	1.09

Wind Speed		130		140		150	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	7.59	8.10	6.63	7.52	5.65	6.91
	8.67	7.09	8.02	5.97	6.90	5.09	5.99
	9.33	6.22	6.98	5.35	6.00	4.61	5.21
	10	5.49	6.12	4.72	5.26	4.10	4.57
	12	3.96	4.33	3.40	3.71	2.95	3.22
	14	3.01	3.22	2.58	2.76	2.23	2.39
	16	2.36	2.49	2.02	2.13	1.74	1.84
	18	1.91	1.98	1.63	1.69	1.40	1.45
	20	1.57	1.60	1.34	1.36	1.15	1.17
	22	1.32	1.32	1.12	1.12	0.00	0.00
C	8	5.32	6.50	4.50	5.47	3.86	4.68
	8.67	4.80	5.69	4.07	4.89	3.49	4.22
	9.33	4.35	4.95	3.69	4.25	3.17	3.68
	10	3.88	4.33	3.33	3.72	2.87	3.22
	12	2.79	3.05	2.39	2.61	2.07	2.26
	14	2.11	2.26	1.80	1.93	1.55	1.67
	16	1.65	1.74	1.40	1.48	1.21	1.27
	18	1.32	1.37	1.12	1.16	0.00	0.00
	20	1.08	1.10	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00

TABLE R609.3.3B-4 GRADE 40

GRADE 40MAXIMUM SPACING OF NO. 4 (½") VERTICAL REINFORCEMENT AT CONTINUOUS CONCRETE OR MASONRY LOWER STORIES OF MULTISTORY AND GABLE ENDS SINGLE STORY OR TOP STORY OF MULTISTORY, FEET

Wind Speed		100		110		120	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	8.98	10.23	7.41	8.44	6.21	7.08
	8.67	7.78	8.80	6.42	7.26	5.38	6.09
	9.33	6.83	7.66	5.63	6.32	4.72	5.30
	10	6.04	6.73	4.98	5.55	4.17	4.65
	12	4.38	4.77	3.60	3.93	3.02	3.29
	14	3.33	3.56	2.74	2.93	2.29	2.45
	16	2.63	2.77	2.16	2.27	1.80	1.90
	18	2.14	2.21	1.75	1.81	1.46	1.51
	20	1.77	1.81	1.45	1.48	1.21	1.23
	22	1.50	1.50	1.22	1.23	1.01	1.02
C	8	6.38	7.28	5.08	6.00	4.13	5.03
	8.67	5.53	6.25	4.56	5.15	3.72	4.32
	9.33	4.85	5.44	4.00	4.49	3.35	3.76
	10	4.29	4.78	3.53	3.93	2.95	3.29
	12	3.10	3.38	2.55	2.78	2.13	2.32
	14	2.35	2.52	1.93	2.07	1.61	1.73
	16	1.85	1.95	1.52	1.60	1.26	1.33
	18	1.50	1.55	1.23	1.27	1.02	1.05
	20	1.24	1.26	1.01	1.03	0.84	0.85
	22	1.04	1.05	0.85	0.85	0.70	0.70

Wind Speed		130		140		150	
Exp	Wall Ht	End Zone	Int Zone	End Zone	Int Zone	End Zone	Int Zone
B	8	5.10	6.02	4.28	5.18	3.64	4.46
	8.67	4.57	5.17	3.85	4.45	3.29	3.87
	9.33	4.01	4.50	3.45	3.87	2.97	3.36
	10	3.54	3.95	3.05	3.39	2.64	2.95
	12	2.56	2.79	2.19	2.40	1.90	2.08
	14	1.94	2.08	1.66	1.78	1.44	1.54
	16	1.53	1.61	1.30	1.37	1.13	1.19
	18	1.23	1.27	1.05	1.09	0.90	0.94
	20	1.02	1.03	0.86	0.88	0.74	0.76
	22	0.85	0.85	0.72	0.72	0.00	0.00
C	8	3.43	4.19	2.90	3.53	2.49	3.02
	8.67	3.10	3.67	2.62	3.15	2.25	2.72
	9.33	2.80	3.19	2.38	2.74	2.04	2.38
	10	2.51	2.79	2.15	2.40	1.85	2.08
	12	1.80	1.97	1.54	1.69	1.33	1.46
	14	1.36	1.46	1.16	1.25	1.00	1.08
	16	1.06	1.12	0.91	0.96	0.78	0.82
	18	0.85	0.89	0.72	0.75	0.00	0.00
	20	0.70	0.71	0.00	0.00	0.00	0.00
	22	0.00	0.00	0.00	0.00	0.00	0.00

R609.4 Masonry gables. Gable end walls of concrete or masonry shall be constructed full

height to the roof line.

Exception: Gable end trusses or wood framed gable end walls in conformance with Tables R609.4A and R609.4B and Figure R609.4. Wood gable stud wall connectors shall be capable of resisting the vertical and horizontal loads of Table 609.4B as well as the uplift load stipulated at Figure 609.4. Where masonry gable end walls do not go to the roof a bond beam complying with Section R609.2 shall be provided at the top of the masonry.

R609.4.1 Rake beam. Where concrete or masonry is carried full height to the roof line, a cast-in-place rake beam as detailed in Figure R609.4.1 shall be provided. The minimum thickness of the rake beam from top of masonry shall be 4 inches. One No. 5 continuous reinforcing bar shall be placed in the rake beam along the roof line.

R609.4.2 Vertical reinforcement. Vertical reinforcement shall be provided at the maximum spacing as set forth in Tables R609.3.3B-1 through R609.3.3.B-4 as applicable.

R609.4.3 Termination. Required vertical reinforcement shall terminate at the rake beam in accordance with Section R606.9.8.

R609.4.4 Nailer. A minimum 2x4 nailer for connecting roof sheathing shall be bolted to the top of the wall with a minimum of ½" anchor bolts spaced as set forth in Table R609.4.4. The nailer shall be permitted to be bolted to the inside or outside of the wall.

R609.4.5 Gable Overhang. Gable overhangs up to 2 feet in width complying with Figure R609.4.5 shall be permitted.

TABLE R609.4A

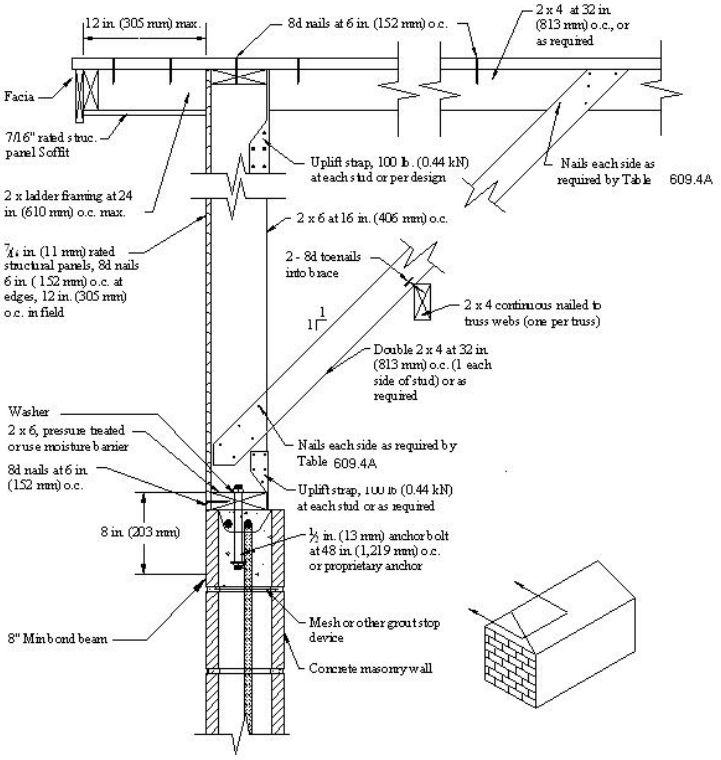
WOOD GABLE BRACE NAILING

			RAKE HEIGHT					
		NAIL SIZE	12	14	16	18	20	22
EXPOSURE B	100	10d	4	4	5	5	6	6
		8d	6	7	8	8	9	10
	110	10d	4	5	6	6	7	7
		8d	7	8	9	10	11	11
	120	10d	5	6	7	7	8	8
		8d	9	10	11	12	13	13
	130	10d	6	7	8	9	10	10
		8d	10	11	13	14	15	15
	140	10d	7	8	9	10	11	11
		8d	12	13	15	16	18	18
	150	10d	4	4	5	5	6	6
		8d	6	7	8	8	9	9
EXPOSURE C	100	10d	5	6	7	7	8	8
		8d	8	9	11	12	13	13
	110	10d	6	7	8	9	10	10
		8d	10	11	13	14	15	15
	120	10d	7	8	9	10	11	11
		8d	12	14	15	17	18	18
	130	10d	9	10	11	12	13	13
		8d	14	16	18	20	22	22
	140	10d	10	12	13	14	15	15
		8d	16	19	21	23	25	25
	150	10d	12	13	15	16	18	18
		8d	19	21	24	26	29	29

TABLE R609.4B
WOOD GABLE STUD CONNECTOR LOADS

	WIND SPEED	ROOF ZONE	CONNECTOR LOAD		WALL ZONE
			VERT	HORIZ [1]	
EXPOSURE B	100	2E	43	16	1E
		2E	43	11	1
	110	2E	53	20	1E
		2E	53	13	1
	120	2E	62	23	1E
		2E	62	15	1
	130	2E	73	27	1E
		2E	73	18	1
	140	2E	85	32	1E
		2E	85	21	1
	150	2E	98	36	1E
		2E	98	24	1
EXPOSURE C	100	2E	61	23	1E
		2E	61	15	1
	110	2E	74	28	1E
		2E	74	18	1
	120	2E	88	33	1E
		2E	88	22	1
	130	2E	103	38	1E
		2E	103	25	1
	140	2E	119	45	1E
		2E	119	30	1
	150	2E	137	51	1E
		2E	137	34	1

FIGURE R609.4
GABLE END BRACING FOR MASONRY WALLS NOT CONTINUOUS TO THE ROOF DIAPHRAGM



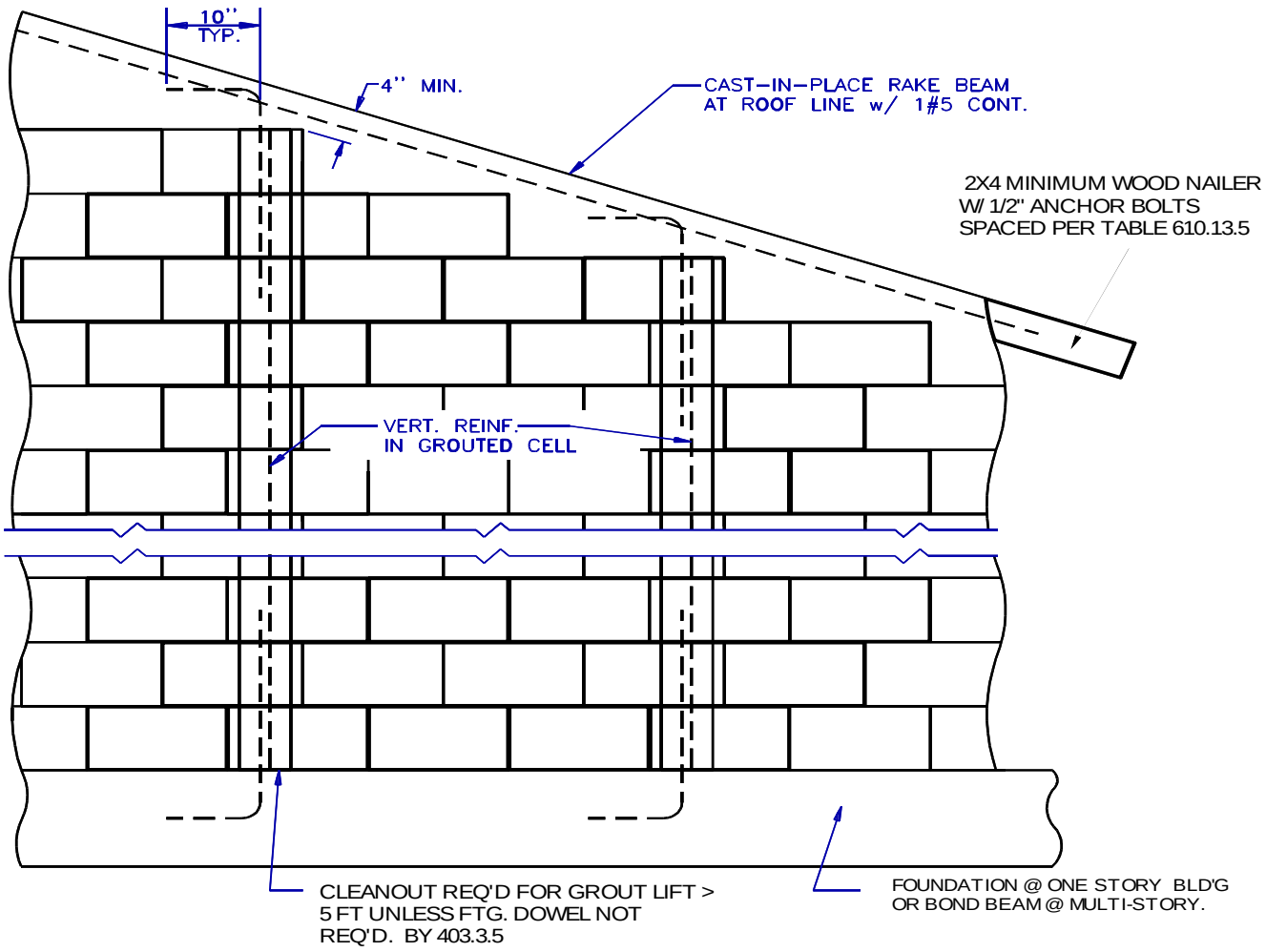


FIGURE R609.4.1
CONTINUOUS GABLE ENDWALL REINFORCEMENT
ONE AND MULTISTORY

TABLE R609.4.4
ANCHOR BOLT SPACING FOR ATTACHING 2X4 MINIMUM WOOD NAILER TO RAKE BEAM

Required Roof Diaphragm Capacity	½-Inch Anchor Bolt Maximum Spacing
≤ 105	6'-0"
145	5'-0"
195	4'-0"
230	3'-6"
270	3'-0"
325	2'-6"
415	2'-0"
565	1'-6"
700	1'-2"
845	1'-0"

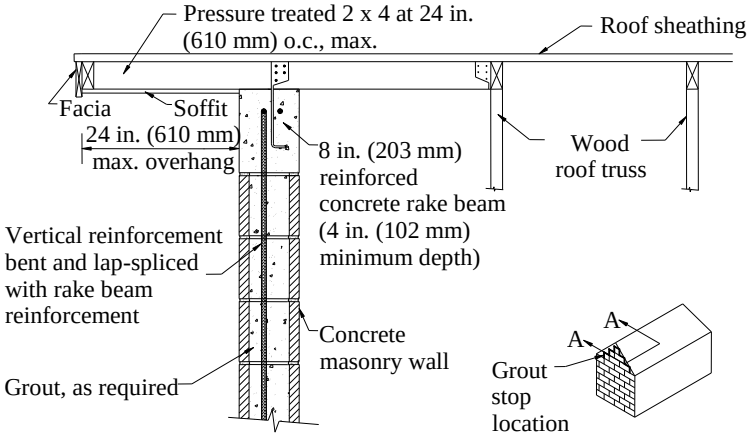


Figure R609.4.5 Gable Overhang

R609.5 Exterior shearwalls. Each exterior wall shall have the required length of effective shearwall to resist horizontal movement or forces at the ends of diaphragms in conformance with this section.

R609.5.1 Shearwall lengths. The required shearwall segment length shall be as set forth in Table R609.5.1A through Table R609.5.1F as applicable.

R609.5.2 Multi-Story Shearwalls. Shearwall segments in an upper story shall be located directly over and within the length of shearwall segments in the story below. Reinforcement at the ends of shearwall segments shall be continuous from the bond beam of the upper story through the story below.

Exception: Offsetting of vertical reinforcement as set forth in Section R606.9.9.1 shall be permitted.

R609.5.3 The connector load for total shear at the top story wall shall be determined in accordance with Table R609.5.3A and Figure R609.5.3. Transverse connector loads shall be in accordance with Table R 609.5.3B and Figure R609.5.3

R609.5.4 Endwall roof shear loads shall be in accordance with Table R609.5.4.

TABLE R609.5.1A GRADE 60
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE NO. 4 REINFORCEMENT
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.96	1.37	1.87	2.19	2.96	3.86	3.22	4.33	5.61
	110	1.16	1.66	2.26	2.65	3.59	4.67	3.90	5.24	6.79
	120	1.39	1.98	2.69	3.16	4.27	5.56	4.64	6.24	8.08
	130	1.63	2.32	3.16	3.70	5.01	6.52	5.44	7.32	9.49
	140	1.89	2.69	3.66	4.29	5.81	7.57	6.31	8.49	11.00
	150	2.17	3.09	4.21	4.93	6.67	8.68	7.24	9.75	12.63
C	100	1.14	1.65	2.27	2.89	3.94	5.17	4.50	6.04	7.81
	110	1.38	1.99	2.75	3.50	4.77	6.26	5.44	7.31	9.45
	120	1.64	2.37	3.27	4.17	5.68	7.45	6.48	8.69	11.25
	130	1.93	2.78	3.84	4.89	6.66	8.74	7.60	10.20	13.20
	140	2.24	3.23	4.46	5.67	7.73	10.14	8.81	11.83	15.31
	150	2.57	3.71	5.12	6.51	8.87	11.64	10.12	13.59	17.57

REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE
NO. 5 REINFORCEMENT
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.77	1.10	1.49	1.75	2.37	3.08	2.57	3.46	4.48
	110	0.93	1.33	1.81	2.12	2.86	3.73	3.11	4.19	5.43
	120	1.11	1.58	2.15	2.52	3.41	4.44	3.70	4.98	6.46
	130	1.30	1.85	2.52	2.96	4.00	5.21	4.35	5.85	7.58
	140	1.51	2.15	2.93	3.43	4.64	6.04	5.04	6.78	8.79
	150	1.73	2.47	3.36	3.94	5.33	6.94	5.79	7.78	10.09
C	100	0.91	1.32	1.82	2.31	3.15	4.13	3.59	4.82	6.24
	110	1.10	1.59	2.20	2.80	3.81	5.00	4.35	5.84	7.55
	120	1.31	1.90	2.61	3.33	4.54	5.95	5.17	6.94	8.98
	130	1.54	2.22	3.07	3.90	5.32	6.98	6.07	8.15	10.54
	140	1.79	2.58	3.56	4.53	6.17	8.10	7.04	9.45	12.23
	150	2.05	2.96	4.09	5.20	7.09	9.30	8.08	10.85	14.04

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths normal to the ridge are per lineal foot of building length.

Multiply tabular values by building length for total shear wall length required.

TABLE R609.5.1B GRADE 60
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE
NO. 4 REINFORCEMENT
ROOF ANGLE 30^0

Exp	Wind Speed	TOP STORY BUILDING WIDTH			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY BUILDING WIDTH			1ST STORY OF 3 STORY BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	0.99	1.46	2.02	2.11	2.93	3.86	3.08	4.24	5.57
	110	1.20	1.76	2.45	2.56	3.55	4.68	3.73	5.14	6.74
	120	1.42	2.10	2.91	3.04	4.22	5.56	4.44	6.11	8.02
	130	1.67	2.46	3.42	3.57	4.95	6.53	5.21	7.17	9.41
	140	1.94	2.85	3.96	4.14	5.74	7.57	6.04	8.32	10.91
	150	2.22	3.28	4.55	4.76	6.59	8.69	6.94	9.55	12.53
C	100	1.19	1.78	2.51	2.81	3.94	5.25	4.30	5.90	7.72
	110	1.44	2.15	3.03	3.41	4.77	6.35	5.20	7.14	9.34
	120	1.71	2.56	3.61	4.05	5.67	7.56	6.19	8.50	11.12
	130	2.01	3.01	4.24	4.76	6.66	8.87	7.26	9.97	13.05
	140	2.33	3.49	4.91	5.52	7.72	10.28	8.42	11.57	15.13
	150	2.67	4.00	5.64	6.33	8.87	11.81	9.67	13.28	17.37

REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE
NO. 5 REINFORCEMENT
ROOF ANGLE 30^0

Exp	Wind Speed	TOP STORY BUILDING WIDTH			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY BUILDING WIDTH			1ST STORY OF 3 STORY BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	0.79	1.16	1.61	1.69	2.34	3.09	2.46	3.39	4.45
	110	0.96	1.41	1.95	2.04	2.83	3.73	2.98	4.10	5.38
	120	1.14	1.67	2.32	2.43	3.37	4.44	3.55	4.88	6.40
	130	1.33	1.97	2.73	2.85	3.95	5.22	4.16	5.73	7.52
	140	1.55	2.28	3.16	3.31	4.59	6.05	4.83	6.64	8.72
	150	1.78	2.62	3.63	3.80	5.26	6.94	5.54	7.63	10.01
C	100	0.95	1.42	2.00	2.25	3.15	4.19	3.43	4.71	6.17
	110	1.15	1.72	2.42	2.72	3.81	5.07	4.15	5.70	7.46
	120	1.37	2.05	2.88	3.24	4.53	6.03	4.94	6.79	8.88
	130	1.60	2.40	3.38	3.80	5.32	7.08	5.80	7.96	10.42
	140	1.86	2.78	3.93	4.41	6.17	8.21	6.73	9.24	12.09
	150	2.14	3.20	4.51	5.06	7.08	9.43	7.72	10.60	13.87

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at

exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.
3. Portions of walls with openings shall not be considered part of the shear wall length.
4. Required shearwall lengths normal to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

TABLE R609.5.1C GRADE 60
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE
NO. 4 REINFORCEMENT
ROOF ANGLE 45^0

Exp	Wind Speed	TOP STORY BUILDING WIDTH			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY BUILDING WIDTH			1ST STORY OF 3 STORY BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	1.26	1.93	2.76	1.26	3.40	4.60	3.43	4.86	6.55
	110	1.52	2.33	3.34	2.89	4.12	5.57	4.15	5.89	7.92
	120	1.81	2.78	3.97	3.43	4.90	6.63	4.94	7.00	9.43
	130	2.13	3.26	4.66	4.03	5.75	7.78	5.80	8.22	11.07
	140	2.47	3.78	5.41	4.67	6.67	9.02	6.73	9.53	12.84
	150	2.83	4.34	6.21	5.36	7.65	10.35	7.72	10.94	14.73
C	100	1.57	2.46	3.59	3.24	4.70	6.45	4.30	5.90	7.72
	110	1.89	2.97	4.34	3.92	5.69	7.81	5.20	7.14	9.34
	120	2.25	3.54	5.17	4.67	6.77	9.29	6.19	8.50	11.12
	130	2.65	4.15	6.07	5.48	7.94	10.90	7.26	9.97	13.05
	140	3.07	4.81	7.03	6.36	9.21	12.65	8.42	11.57	15.13
	150	3.52	5.52	8.08	7.30	10.58	14.52	9.67	13.28	17.37

REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE
NO. 5 REINFORCEMENT
ROOF ANGLE 45^0

Exp	Wind Speed	TOP STORY BUILDING WIDTH			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY BUILDING WIDTH			1ST STORY OF 3 STORY BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	1.01	1.54	2.20	1.90	2.72	3.68	2.74	3.88	5.23
	110	1.22	1.86	2.67	2.30	3.29	4.45	3.32	4.70	6.33
	120	1.45	2.22	3.17	2.74	3.91	5.29	3.95	5.59	7.53
	130	1.70	2.60	3.72	3.22	4.59	6.21	4.63	6.57	8.84
	140	1.97	3.02	4.32	3.73	5.33	7.20	5.37	7.61	10.25
	150	2.26	3.46	4.96	4.28	6.11	8.27	6.17	8.74	11.77
C	100	1.25	1.96	2.87	2.59	3.75	5.15	3.80	5.36	7.19
	110	1.51	2.37	3.47	3.13	4.54	6.24	4.60	6.49	8.70
	120	1.80	2.82	4.13	3.73	5.41	7.42	5.47	7.72	10.35
	130	2.11	3.31	4.84	4.38	6.35	8.71	6.42	9.06	12.15
	140	2.45	3.84	5.62	5.08	7.36	10.10	7.45	10.51	14.09
	150	2.81	4.41	6.45	5.83	8.45	11.59	8.55	12.06	16.18

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at

exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths normal to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

TABLE R609.5.1D GRADE 60
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.032	0.032	0.031	0.085	0.084	0.084	0.137	0.137	0.137
	110	0.039	0.038	0.038	0.102	0.102	0.102	0.166	0.166	0.166
	120	0.046	0.046	0.045	0.122	0.122	0.121	0.198	0.198	0.197
	130	0.054	0.054	0.053	0.143	0.143	0.142	0.232	0.232	0.231
	140	0.063	0.062	0.061	0.166	0.166	0.165	0.269	0.269	0.268
	150	0.072	0.071	0.071	0.191	0.190	0.189	0.309	0.309	0.308
C	100	0.045	0.044	0.044	0.119	0.118	0.118	0.193	0.192	0.192
	110	0.054	0.054	0.053	0.144	0.143	0.143	0.233	0.233	0.232
	120	0.064	0.064	0.063	0.171	0.171	0.170	0.277	0.277	0.276
	130	0.076	0.075	0.074	0.201	0.200	0.199	0.326	0.325	0.324
	140	0.088	0.087	0.086	0.233	0.232	0.231	0.378	0.377	0.376
	150	0.101	0.100	0.099	0.267	0.267	0.265	0.434	0.433	0.432

REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.025	0.025	0.025	0.068	0.067	0.067	0.110	0.110	0.109
	110	0.031	0.031	0.030	0.082	0.082	0.081	0.133	0.133	0.132
	120	0.037	0.036	0.036	0.097	0.097	0.097	0.158	0.158	0.157
	130	0.043	0.043	0.042	0.114	0.114	0.114	0.186	0.185	0.185
	140	0.050	0.050	0.049	0.133	0.132	0.132	0.215	0.215	0.214
	150	0.057	0.057	0.056	0.152	0.152	0.151	0.247	0.247	0.246
C	100	0.036	0.036	0.035	0.095	0.095	0.094	0.154	0.154	0.153
	110	0.043	0.043	0.042	0.115	0.114	0.114	0.186	0.186	0.185
	120	0.051	0.051	0.051	0.137	0.136	0.136	0.222	0.221	0.221
	130	0.060	0.060	0.059	0.160	0.160	0.159	0.260	0.260	0.259
	140	0.070	0.070	0.069	0.186	0.185	0.185	0.302	0.301	0.300
	150	0.080	0.080	0.079	0.213	0.213	0.212	0.346	0.346	0.345

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at

exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.
3. Portions of walls with openings shall not be considered part of the shear wall length.
4. Required shearwall lengths parallel to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

TABLE R609.5.1E GRADE 60
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE 30^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.053	0.061	0.070	0.099	0.107	0.116	0.145	0.153	0.162
	110	0.064	0.074	0.084	0.119	0.129	0.140	0.175	0.185	0.196
	120	0.076	0.088	0.100	0.142	0.154	0.167	0.209	0.221	0.233
	130	0.089	0.103	0.118	0.167	0.181	0.196	0.245	0.259	0.274
	140	0.103	0.119	0.137	0.193	0.210	0.227	0.284	0.300	0.318
	150	0.118	0.137	0.157	0.222	0.241	0.261	0.326	0.345	0.365
C	100	0.074	0.085	0.098	0.138	0.150	0.162	0.203	0.215	0.227
	110	0.089	0.103	0.118	0.167	0.181	0.197	0.246	0.260	0.275
	120	0.106	0.123	0.141	0.199	0.216	0.234	0.292	0.309	0.327
	130	0.124	0.144	0.165	0.234	0.253	0.275	0.343	0.363	0.384
	140	0.144	0.167	0.192	0.271	0.294	0.318	0.398	0.421	0.445
	150	0.166	0.192	0.220	0.311	0.337	0.366	0.457	0.483	0.511

REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE 30^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
	100	0.042	0.049	0.056	0.079	0.085	0.093	0.116	0.122	0.129
	110	0.051	0.059	0.067	0.095	0.103	0.112	0.140	0.148	0.157
	120	0.060	0.070	0.080	0.113	0.123	0.133	0.167	0.176	0.186
	130	0.071	0.082	0.094	0.133	0.144	0.156	0.195	0.207	0.219
	140	0.082	0.095	0.109	0.154	0.167	0.181	0.227	0.240	0.254
	150	0.094	0.109	0.125	0.177	0.192	0.208	0.260	0.275	0.291
C	100	0.059	0.068	0.078	0.110	0.120	0.130	0.162	0.171	0.181
	110	0.071	0.082	0.094	0.134	0.145	0.157	0.196	0.207	0.220
	120	0.085	0.098	0.112	0.159	0.172	0.187	0.234	0.247	0.261
	130	0.099	0.115	0.132	0.187	0.202	0.219	0.274	0.290	0.307
	140	0.115	0.133	0.153	0.217	0.235	0.254	0.318	0.336	0.356
	150	0.132	0.153	0.176	0.249	0.270	0.292	0.365	0.386	0.408

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at

exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths parallel to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

TABLE R609.5.1F GRADE 60
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE 45^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.070	0.085	0.100	0.116	0.131	0.146	0.163	0.177	0.192
	110	0.085	0.102	0.121	0.141	0.158	0.177	0.197	0.214	0.233
	120	0.101	0.122	0.144	0.168	0.188	0.211	0.234	0.255	0.277
	130	0.119	0.143	0.169	0.197	0.221	0.247	0.275	0.299	0.325
	140	0.138	0.166	0.196	0.228	0.256	0.287	0.319	0.347	0.377
	150	0.158	0.191	0.225	0.262	0.294	0.329	0.366	0.398	0.433
C	100	0.099	0.119	0.140	0.163	0.183	0.205	0.228	0.248	0.270
	110	0.119	0.144	0.170	0.198	0.222	0.248	0.276	0.300	0.326
	120	0.142	0.171	0.202	0.235	0.264	0.295	0.328	0.357	0.388
	130	0.167	0.201	0.237	0.276	0.310	0.347	0.385	0.419	0.456
	140	0.193	0.233	0.275	0.320	0.360	0.402	0.447	0.486	0.529
	150	0.222	0.267	0.316	0.367	0.413	0.461	0.513	0.558	0.607

REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE
NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH
ROOF ANGLE 45^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.056	0.068	0.080	0.093	0.105	0.117	0.130	0.141	0.154
	110	0.068	0.082	0.097	0.113	0.126	0.141	0.157	0.171	0.186
	120	0.081	0.097	0.115	0.134	0.150	0.168	0.187	0.204	0.221
	130	0.095	0.114	0.135	0.157	0.177	0.197	0.219	0.239	0.260
	140	0.110	0.133	0.157	0.182	0.205	0.229	0.255	0.277	0.301
	150	0.126	0.152	0.180	0.209	0.235	0.263	0.292	0.318	0.346
C	100	0.079	0.095	0.112	0.130	0.147	0.164	0.182	0.198	0.215
	110	0.095	0.115	0.136	0.158	0.177	0.198	0.220	0.240	0.261
	120	0.113	0.137	0.161	0.188	0.211	0.236	0.262	0.285	0.310
	130	0.133	0.160	0.189	0.220	0.248	0.277	0.308	0.335	0.364
	140	0.154	0.186	0.220	0.256	0.287	0.321	0.357	0.388	0.422
	150	0.177	0.213	0.252	0.293	0.330	0.369	0.410	0.446	0.485

Notes:

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.
2. Minimum shear wall segment length shall be 2'-0". A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.
3. Portions of walls with openings shall not be considered part of the shear wall length.
4. Required shearwall lengths parallel to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

TABLE 609.5.1G GRADE 40
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE NO. 4 REINFORCEMENT[1,2,3,5]
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	1.42	2.02	2.75	3.23	4.37	5.69	4.74	6.38	8.27
	110	1.72	2.44	3.33	3.90	5.28	6.88	5.74	7.72	10.01
	120	2.04	2.91	3.97	4.65	6.29	8.19	6.83	9.19	11.91
	130	2.40	3.41	4.65	5.45	7.38	9.61	8.01	10.78	13.97
	140	2.78	3.96	5.40	6.33	8.56	11.14	9.29	12.50	16.21
	150	3.19	4.55	6.20	7.26	9.82	12.79	10.67	14.35	18.61
C	100	1.68	2.43	3.35	4.26	5.81	7.62	6.62	8.89	11.50
	110	2.03	2.94	4.05	5.16	7.03	9.22	8.01	10.76	13.92
	120	2.42	3.49	4.82	6.14	8.36	10.97	9.54	12.81	16.57
	130	2.84	4.10	5.66	7.20	9.82	12.88	11.19	15.03	19.44
	140	3.30	4.76	6.56	8.35	11.38	14.94	12.98	17.43	22.55
	150	3.78	5.46	7.53	9.59	13.07	17.15	14.90	20.01	25.89

Notes :
1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.
2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.
3. Portions of walls with openings shall not be considered part of the shear wall length.
4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.
5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.
6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1H GRADE 40
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE GRADE 40 NO. 5 REINFORCEMENT[1,2,3,6]
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	1.14	1.62	2.21	2.59	3.50	4.56	3.80	5.12	6.63
	110	1.38	1.96	2.67	3.13	4.24	5.52	4.60	6.19	8.02
	120	1.64	2.33	3.18	3.73	5.04	6.57	5.48	7.37	9.55
	130	1.92	2.74	3.73	4.37	5.92	7.71	6.43	8.65	11.21
	140	2.23	3.18	4.33	5.07	6.86	8.94	7.45	10.03	13.00
	150	2.56	3.65	4.97	5.82	7.88	10.26	8.56	11.51	14.92
C	100	1.35	1.95	2.69	3.42	4.66	6.11	5.31	7.13	9.23
	110	1.63	2.36	3.25	4.13	5.64	7.40	6.43	8.63	11.16
	120	1.94	2.80	3.87	4.92	6.71	8.80	7.65	10.27	13.29
	130	2.28	3.29	4.54	5.77	7.87	10.33	8.98	12.05	15.59
	140	2.64	3.82	5.26	6.70	9.13	11.98	10.41	13.98	18.08
	150	3.03	4.38	6.04	7.69	10.48	13.75	11.95	16.05	20.76

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1I GRADE 40
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE NO. 4 REINFORCEMENT[1,2,3,5]

ROOF ANGLE 30^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	1.46	2.14	2.98	3.11	4.32	5.69	4.54	6.25	8.20
	110	1.76	2.59	3.60	3.77	5.22	6.89	5.50	7.57	9.92
	120	2.10	3.09	4.29	4.48	6.21	8.19	6.54	9.00	11.81
	130	2.46	3.62	5.03	5.26	7.29	9.62	7.67	10.57	13.86
	140	2.85	4.20	5.84	6.10	8.46	11.15	8.90	12.25	16.07
	150	3.28	4.82	6.70	7.01	9.71	12.80	10.22	14.07	18.45
C	100	1.75	2.62	3.69	4.15	5.80	7.73	6.33	8.69	11.37
	110	2.12	3.17	4.47	5.02	7.02	9.35	7.66	10.52	13.76
	120	2.52	3.77	5.32	5.97	8.36	11.13	9.11	12.51	16.37
	130	2.96	4.43	6.24	7.01	9.81	13.06	10.70	14.69	19.22
	140	3.43	5.14	7.24	8.12	11.37	15.15	12.41	17.03	22.29
	150	3.94	5.90	8.31	9.33	13.06	17.39	14.24	19.55	25.58

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1J GRADE 40

REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE NO. 5 REINFORCEMENT[1,2,3,6]

ROOF ANGLE 30^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	1.17	1.72	2.39	2.50	3.46	4.56	3.64	5.01	6.58
	110	1.41	2.08	2.89	3.02	4.19	5.52	4.41	6.07	7.96
	120	1.68	2.48	3.44	3.60	4.98	6.57	5.24	7.22	9.47
	130	1.97	2.91	4.04	4.22	5.85	7.71	6.15	8.47	11.11
	140	2.29	3.37	4.68	4.89	6.78	8.95	7.14	9.83	12.89
	150	2.63	3.87	5.37	5.62	7.79	10.27	8.19	11.28	14.80
C	100	1.40	2.10	2.96	3.32	4.65	6.20	5.08	6.97	9.12
	110	1.70	2.54	3.58	4.02	5.63	7.50	6.14	8.43	11.03
	120	2.02	3.03	4.27	4.79	6.70	8.92	7.31	10.04	13.13
	130	2.37	3.55	5.01	5.62	7.87	10.47	8.58	11.78	15.41
	140	2.75	4.12	5.81	6.52	9.12	12.15	9.95	13.66	17.87
	150	3.16	4.73	6.66	7.48	10.47	13.94	11.42	15.68	20.52

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1K GRADE 40
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE NO. 4 REINFORCEMENT[1,2,3,5]
ROOF ANGLE 45[0]

Exp	Wind Speed	TOP STORY BUILDING WIDTH			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY BUILDING WIDTH			1ST STORY OF 3 STORY BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	1.85	2.84	4.06	1.85	5.01	6.78	5.06	7.16	9.65
	110	2.24	3.44	4.92	4.25	6.06	8.20	6.12	8.67	11.67
	120	2.67	4.09	5.85	5.06	7.22	9.76	7.28	10.32	13.89
	130	3.13	4.80	6.87	5.93	8.47	11.45	8.54	12.11	16.30
	140	3.63	5.57	7.97	6.88	9.82	13.28	9.91	14.04	18.90
	150	4.17	6.39	9.14	7.90	11.27	15.25	11.38	16.12	21.70
C	100	2.31	3.62	5.29	4.78	6.92	9.50	6.33	8.69	11.37
	110	2.79	4.38	6.40	5.78	8.38	11.50	7.66	10.52	13.76
	120	3.32	5.21	7.61	6.88	9.97	13.68	9.11	12.51	16.37
	130	3.90	6.11	8.93	8.07	11.70	16.06	10.70	14.69	19.22
	140	4.52	7.09	10.36	9.36	13.57	18.63	12.41	17.03	22.29
	150	5.19	8.14	11.89	10.75	15.58	21.38	14.24	19.55	25.58

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1L GRADE 40
REQUIRED SHEARWALL LENGTH PARALLEL TO RIDGE NO. 5 REINFORCEMENT[1,2,3,6]
ROOF ANGLE 45^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	1.49	2.28	3.26	2.82	4.02	5.44	4.05	5.75	7.74
	110	1.80	2.76	3.94	3.41	4.86	6.58	4.91	6.95	9.36
	120	2.14	3.28	4.69	4.06	5.79	7.83	5.84	8.27	11.14
	130	2.51	3.85	5.51	4.76	6.79	9.19	6.85	9.71	13.07
	140	2.91	4.46	6.39	5.52	7.88	10.65	7.95	11.26	15.16
	150	3.35	5.12	7.33	6.34	9.04	12.23	9.12	12.93	17.40
C	100	1.85	2.90	4.24	3.83	5.55	7.62	5.62	7.93	10.63
	110	2.24	3.51	5.13	4.64	6.72	9.22	6.80	9.59	12.87
	120	2.66	4.18	6.10	5.52	8.00	10.97	8.09	11.42	15.31
	130	3.13	4.90	7.16	6.48	9.38	12.88	9.50	13.40	17.97
	140	3.62	5.68	8.31	7.51	10.88	14.94	11.01	15.54	20.84
	150	4.16	6.53	9.54	8.62	12.49	17.15	12.64	17.84	23.92

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1M GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE GRADE 40 NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,5]
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.047	0.047	0.046	0.125	0.124	0.124	0.202	0.202	0.202
	110	0.057	0.057	0.056	0.151	0.151	0.150	0.245	0.245	0.244
	120	0.068	0.067	0.067	0.180	0.179	0.178	0.291	0.291	0.290
	130	0.079	0.079	0.078	0.211	0.210	0.209	0.342	0.342	0.341
	140	0.092	0.092	0.091	0.244	0.244	0.243	0.397	0.396	0.395
	150	0.106	0.105	0.104	0.281	0.280	0.279	0.455	0.455	0.454
C	100	0.066	0.066	0.065	0.175	0.174	0.174	0.284	0.283	0.283
	110	0.080	0.079	0.078	0.212	0.211	0.210	0.343	0.343	0.342
	120	0.095	0.094	0.093	0.252	0.251	0.250	0.409	0.408	0.407
	130	0.111	0.111	0.109	0.295	0.295	0.294	0.480	0.479	0.478
	140	0.129	0.128	0.127	0.343	0.342	0.340	0.556	0.556	0.554
	150	0.148	0.147	0.146	0.393	0.393	0.391	0.639	0.638	0.636

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1N GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE GRADE 40 NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,6]
ROOF ANGLE ≤ 23^0

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.038	0.037	0.037	0.100	0.100	0.099	0.162	0.162	0.162
	110	0.046	0.045	0.045	0.121	0.121	0.120	0.196	0.196	0.196
	120	0.054	0.054	0.053	0.144	0.144	0.143	0.234	0.233	0.233
	130	0.064	0.063	0.063	0.169	0.169	0.168	0.274	0.274	0.273
	140	0.074	0.073	0.073	0.196	0.196	0.195	0.318	0.318	0.317
	150	0.085	0.084	0.083	0.225	0.225	0.224	0.365	0.365	0.364
C	100	0.053	0.053	0.052	0.140	0.140	0.139	0.228	0.227	0.227
	110	0.064	0.064	0.063	0.170	0.169	0.169	0.275	0.275	0.274
	120	0.076	0.076	0.075	0.202	0.201	0.201	0.328	0.327	0.326
	130	0.089	0.089	0.088	0.237	0.236	0.235	0.385	0.384	0.383
	140	0.104	0.103	0.102	0.275	0.274	0.273	0.446	0.446	0.444
	150	0.119	0.118	0.117	0.316	0.315	0.313	0.512	0.511	0.510

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1O GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,5]

ROOF ANGLE 30

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.077	0.090	0.103	0.145	0.158	0.171	0.213	0.226	0.239
	110	0.094	0.108	0.124	0.176	0.191	0.207	0.258	0.273	0.289
	120	0.111	0.129	0.148	0.209	0.227	0.246	0.307	0.325	0.344
	130	0.131	0.151	0.174	0.246	0.266	0.288	0.360	0.381	0.403
	140	0.152	0.176	0.201	0.285	0.309	0.335	0.418	0.442	0.468
	150	0.174	0.202	0.231	0.327	0.354	0.384	0.480	0.507	0.537
C	100	0.108	0.126	0.144	0.204	0.221	0.239	0.299	0.316	0.335
	110	0.131	0.152	0.174	0.247	0.267	0.290	0.362	0.383	0.405
	120	0.156	0.181	0.207	0.293	0.318	0.345	0.431	0.455	0.482
	130	0.183	0.212	0.243	0.344	0.373	0.404	0.505	0.534	0.565
	140	0.213	0.246	0.282	0.399	0.433	0.469	0.586	0.620	0.656
	150	0.244	0.283	0.324	0.458	0.497	0.538	0.673	0.711	0.753

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length required.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1P GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,6]
ROOF ANGLE 30

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.062	0.072	0.082	0.117	0.126	0.137	0.171	0.181	0.191
	110	0.075	0.087	0.100	0.141	0.153	0.166	0.207	0.219	0.232
	120	0.089	0.103	0.119	0.168	0.182	0.197	0.246	0.260	0.276
	130	0.105	0.121	0.139	0.197	0.214	0.231	0.289	0.306	0.323
	140	0.122	0.141	0.161	0.228	0.248	0.268	0.335	0.355	0.375
	150	0.140	0.162	0.185	0.262	0.284	0.308	0.385	0.407	0.431
C	100	0.087	0.101	0.115	0.163	0.177	0.192	0.240	0.254	0.268
	110	0.105	0.122	0.140	0.198	0.214	0.232	0.290	0.307	0.325
	120	0.125	0.145	0.166	0.235	0.255	0.276	0.345	0.365	0.386
	130	0.147	0.170	0.195	0.276	0.299	0.324	0.405	0.429	0.453
	140	0.170	0.197	0.226	0.320	0.347	0.376	0.470	0.497	0.526
	150	0.196	0.227	0.260	0.368	0.399	0.432	0.540	0.571	0.604

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1Q GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE NO. 4 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,5]
ROOF ANGLE 450

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
	Wind	BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Speed	24	32	40	24	32	40	24	32	40
B	100	0.104	0.125	0.147	0.172	0.193	0.215	0.240	0.261	0.283
	110	0.125	0.151	0.178	0.208	0.233	0.261	0.290	0.315	0.343
	120	0.149	0.180	0.212	0.247	0.278	0.310	0.345	0.375	0.408
	130	0.175	0.211	0.249	0.290	0.326	0.364	0.405	0.441	0.479
	140	0.203	0.244	0.289	0.336	0.378	0.422	0.469	0.511	0.555
	150	0.233	0.281	0.332	0.386	0.434	0.485	0.539	0.587	0.638
C	100	0.145	0.175	0.207	0.240	0.270	0.302	0.336	0.365	0.397
	110	0.176	0.212	0.250	0.291	0.327	0.365	0.406	0.442	0.481
	120	0.209	0.252	0.298	0.346	0.389	0.435	0.484	0.526	0.572
	130	0.245	0.296	0.349	0.406	0.457	0.510	0.567	0.618	0.672
	140	0.285	0.343	0.405	0.471	0.530	0.592	0.658	0.716	0.779
	150	0.327	0.393	0.465	0.541	0.608	0.680	0.756	0.822	0.894

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.
2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.
3. Portions of walls with openings shall not be considered part of the shear wall length.
4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length.
5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.
6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1R GRADE 40
REQUIRED SHEARWALL LENGTH PERPENDICULAR TO RIDGE NO. 5 REINFORCEMENT PER FOOT OF BUILDING LENGTH[1,2,3,4,6]
ROOF ANGLE 45[0]

		TOP STORY			1ST STORY OF 2 STORY OR 2ND STORY OF 3 STORY			1ST STORY OF 3 STORY		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
Exp	Wind Speed	24	32	40	24	32	40	24	32	40
B	100	0.083	0.100	0.118	0.138	0.155	0.173	0.192	0.209	0.227
	110	0.100	0.121	0.143	0.166	0.187	0.209	0.232	0.253	0.275
	120	0.120	0.144	0.170	0.198	0.223	0.249	0.277	0.301	0.327
	130	0.140	0.169	0.200	0.232	0.261	0.292	0.325	0.353	0.384
	140	0.163	0.196	0.232	0.270	0.303	0.339	0.376	0.410	0.445
	150	0.187	0.225	0.266	0.310	0.348	0.389	0.432	0.470	0.511
C	100	0.116	0.140	0.166	0.193	0.217	0.242	0.269	0.293	0.319
	110	0.141	0.170	0.201	0.233	0.262	0.293	0.326	0.355	0.386
	120	0.168	0.202	0.239	0.278	0.312	0.349	0.388	0.422	0.459
	130	0.197	0.237	0.280	0.326	0.366	0.409	0.455	0.495	0.539
	140	0.228	0.275	0.325	0.378	0.425	0.475	0.528	0.575	0.625
	150	0.262	0.316	0.373	0.434	0.488	0.545	0.606	0.660	0.717

Notes :

1. The cumulative shear wall segment length for each side of the building shall be equal to or greater than the tabular shear wall length required. If the required shear wall segment length provided is not continuous the total shear wall length required shall be increased by 8" for each additional shear wall segment on a side.

2. Minimum shear wall segment length shall be 2'-0". A grouted cell with reinforcing steel shall be provided at each end of every shear wall segment. A minimum length of 24 inches (610 mm) of solid wall segment, extending the full height of each wall, shall be provided at exterior corners of exterior walls. A fully grouted cell with reinforcing steel shall be provided at each end of every shear wall segment.

3. Portions of walls with openings shall not be considered part of the shear wall length.

4. Required shearwall lengths perpendicular to the ridge are per lineal foot of building length. Multiply tabular values by building length for total shear wall length.

5. Shearwall lengths for no. 4 reinforcement are based on shearwall segment height of 80 inches. And shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment lengths and heights.

6. Shearwall lengths for no. 5 reinforcement are based on shearwall segment height of 96 inches and shearwall segment length of 24 inches. Multiply tabular length by shearwall adjustment factor from Table 609.5.1S for other segment height lengths and heights.

TABLE 609.5.1S
SHEARWALL LENGTH ADJUSTMENT FACTOR GRADE 40 STEEL

Area of Steel, in^2	MAX SEGMENT HT (in.)[1]	MINIMUM SEGMENT LENGTH (inches)						
		24	32	40	48	56	64	72
0.20 (No. 4)	80	1.00	0.94	0.90	0.87	0.85	0.84	0.82
	88	1.09	1.02	0.98	0.95	0.93	0.91	0.90
	96	1.19	1.11	1.07	1.03	1.01	0.99	0.98
	104	1.28	1.20	1.15	1.11	1.09	1.07	1.05
0.31 (No. 5)	80	1.00	0.93	0.89	0.87	0.85	0.83	0.82
	88	1.10	1.02	0.98	0.95	0.93	0.91	0.90
	96	1.00	0.93	0.89	0.87	0.85	0.83	0.82
	104	1.29	1.20	1.15	1.11	1.09	1.07	1.05

1. Segment height is the distance from the bottom of the segment to the top of the tallest opening adjacent to the segment.

TABLE R609.5.3A
TOTAL SHEAR AT TOP OF TOP STORY WALL[1, 2]

EXPO-SURE	WIND SPEED	VEL PRESSURE	ROOF ANGLE UP TO 45 BUILDING WIDTH			ROOF ANGLE UP TO 30 BUILDING WIDTH		
			24	32	40	24	32	40
B	100	15.2	2022	3113	4456	1568	2319	3215
	110	18.4	2447	3767	5392	1897	2806	3890
	120	22.0	2912	4483	6417	2258	3339	4630
	130	25.8	3418	5262	7531	2649	3919	5433
	140	29.9	3964	6102	8734	3073	4545	6301
	150	34.3	4550	7005	10027	3527	5218	7234
C	100	21.4	2835	4365	6248	2198	3251	4507
	110	25.9	3431	5282	7560	2660	3934	5454
	120	30.8	4083	6286	8997	3165	4682	6491
	130	36.1	4792	7377	10559	3715	5495	7618
	140	41.9	5557	8555	12246	4308	6372	8835
	150	48.1	6380	9821	14058	4946	7315	10142

1. Loads are based on 10' wall height. Multiply by 0.9 for 8' wall heights
2. To determine individual connector load parallel to the wall) divide shear value by the number of connectors (Load F1 from Figure 609.5.3)

TABLE R609.5.3B
TRANSVERSE CONNECTOR LOAD (F2)[1, 2]

EXPO-SURE	WIND SPEED	VEL PRESSURE	ROOF ANGLE < 23°		R00F ANGLE > 23°
			Edge Zone	Int Zone	
B	100	15.2	394	319	289
	110	18.4	477	386	349
	120	22.0	568	460	416
	130	25.8	667	539	488
	140	29.9	773	626	566
	150	34.3	887	718	650
C	100	21.4	553	448	405
	110	25.9	669	541	490
	120	30.8	796	644	583
	130	36.1	935	756	684
	140	41.9	1084	877	793
	150	48.1	1244	1007	911

1. Loads are based on 10' wall height. Multiply by 0.8 for 8' wall height.
2. F2 load in accordance with Figure R609.5.3

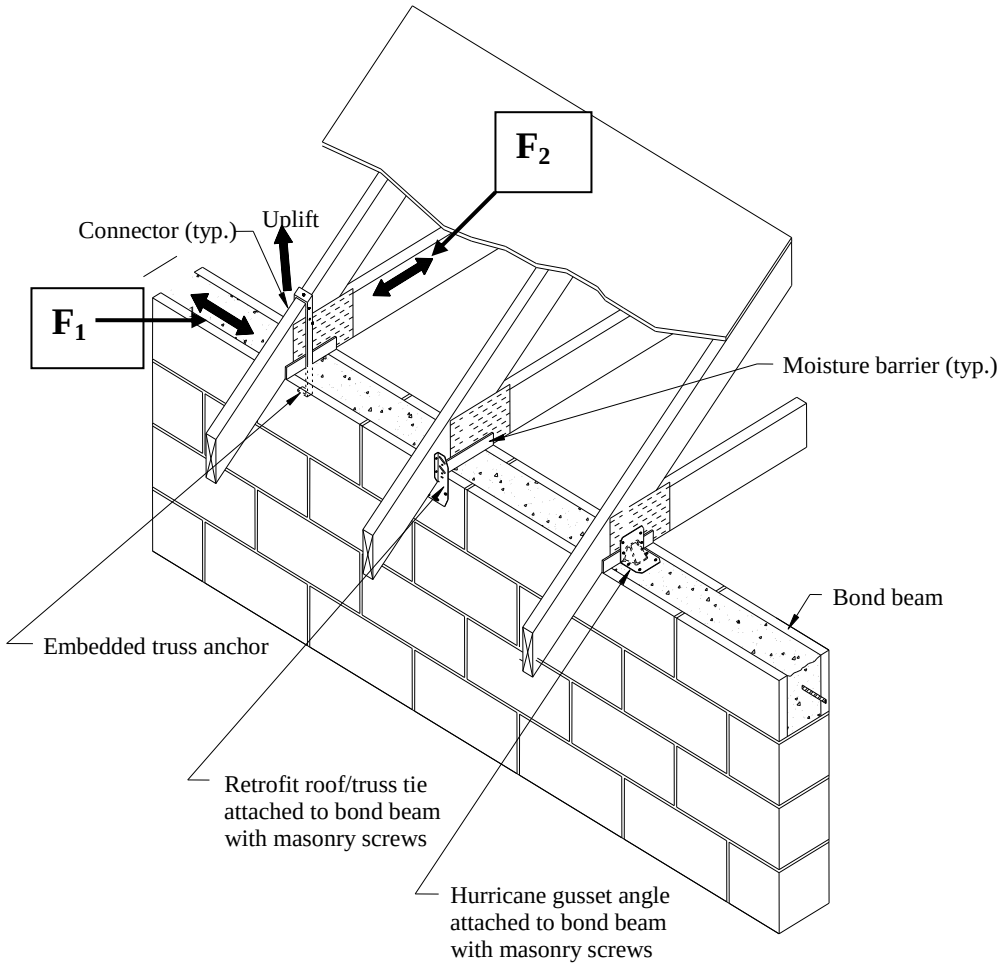


FIGURE R609.5.3
TYPICAL ROOF TO WALL CONNECTIONS

TABLE R609.5.4
END WALL ROOF SHEAR PER FOOT OF BUILDING LENGTH

EXP	WIND SPEED	POUNDS PER FT OF BLDG LENGTH FOR 23° ROOF SLOPE			POUNDS PER FT OF BLDG LENGTH FOR 30° ROOF SLOPE			POUNDS PER FT OF BLDG LENGTH FOR 45° ROOF SLOPE		
		BUILDING WIDTH			BUILDING WIDTH			BUILDING WIDTH		
		24	32	40	24	32	40	24	32	40
B	100	43.6	42.8	43.1	76.9	87.8	100.1	104.4	123.8	145.1
	110	52.7	51.8	52.2	93.1	106.3	121.1	126.3	149.8	175.5
	120	62.8	61.7	62.1	110.8	126.5	144.2	150.3	178.3	208.9
	130	73.7	72.4	72.8	130.0	148.5	169.2	176.4	209.2	245.1
	140	85.4	84.0	84.5	150.8	172.2	196.2	204.6	242.6	284.3
	150	98.1	96.4	97.0	173.1	197.7	225.3	234.8	278.5	326.4
C	100	61.1	60.1	60.4	107.9	123.2	140.4	146.3	173.6	203.4
	110	73.9	72.7	73.1	130.5	149.0	169.9	177.1	210.0	246.1
	120	88.0	86.5	87.0	155.3	177.4	202.1	210.7	249.9	292.9
	130	103.3	101.5	102.1	182.3	208.1	237.2	247.3	293.3	343.7
	140	119.8	117.7	118.4	211.4	241.4	275.1	286.8	340.2	398.6
	150	137.5	135.2	136.0	242.7	277.1	315.8	329.2	390.5	457.6

Notes:
1. Tabular values between 23° and 30° and between 30° and 45° are permitted to be interpolated.
2. Multiply by total building length for total end wall shear. Divide total shear by building width for required shear capacity of roof diaphragm and connections

R609.6 Assemblies and beams spanning openings.

R609.6.1 Pre-engineered Assemblies for Masonry Walls.

R609.6.1.1 Unreinforced masonry units above an opening and 8 inch high bond beams above an opening shall be supported by an assembly.

R609.6.1.2 Pre-engineered assemblies shall be selected from a manufacturer's approved schedule or other approved tables for the load capacities based on the appropriate minimum gravity load carrying capacities established in Tables 609.6.1.2(1), 609.6.1.2(2), and 609.6.1.2(3).

R609.6.1.3 Pre-engineered assemblies may function as a bond beam over an opening provided that:

1. **The bond beam reinforcement is continuous through the assembly.**
2. **The assembly has an uplift rating that equals or exceeds the appropriate value stipulated in Table 609.6.1.2(1) if the lintel directly supports a roof.**

EXCEPTION: If the reinforcement in the top of the assembly is equal to or greater than the reinforcement required in the bottom of the assembly by the manufacturer, uplift need not be considered.

R609.6.1.4 Pre-engineered assemblies spanning openings shall extend a minimum of 4 inches nominal past each side of the opening.

TABLE R609.6.1.2(1)
SUPERIMPOSED LOADS
MINIMUM RATED LOAD CAPACITY OF 6 INCH OR 8 INCH THICK PRE-ENGINEERED ASSEMBLIES SPANNING OPENINGS OF ONE STORY AND TOP STORY OF MULTI-STORY BUILDINGS

Roof Span (ft)	Uplift (plf)			
	Gravity (plf)	100 mph	120 mph	140 mph
42	150	85	112	165
12	330	152	204	305
24	600	262	351	525
36	870	374	502	745
44	1,050	451	605	900
52	1,230	530	710	1,055
60	1,410	609	816	1,215

NOTES:

1. **All loads are superimposed at the top of the wall and do not include dead loads of the bond beam or masonry above the assembly. Add 100% of additional dead loads to the gravity loads and subtract 85% of these loads from the uplift loads.**
2. **Use 4-foot roof span for assemblies in endwalls.**
3. **For total roof dead loads over 10 psf, increase gravity loads by the following amount:**

$$\frac{\text{(Roof Dead Load - 10 psf) x (Roof Span + 2 ft)}}{2}$$

4. **Uplift rating is required only if a pre-engineered assembly is used to directly support a roof. (See Section R609.6.1.3(2) for cases where uplift need not be considered.)**

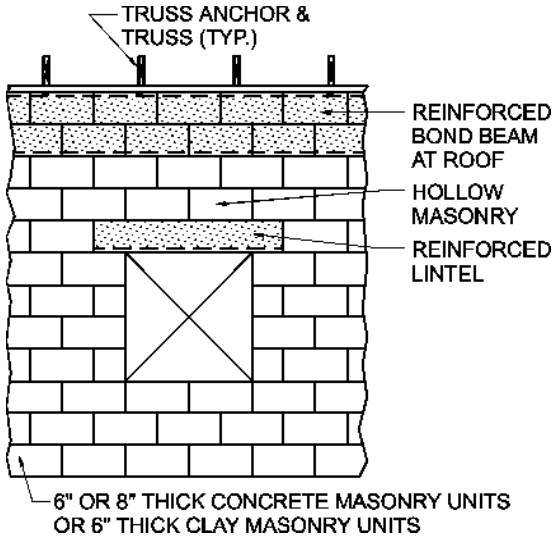


TABLE R609.6.1.2(2)
SUPERIMPOSED LOADS MINIMUM RATED LOAD CAPACITY OF 8 INCH THICK PRE-ENGINEERED ASSEMBLIES SPANNING OPENINGS OF BOTTOM STORY OF TWO-STORY BUILDINGS, SECOND AND BOTTOM STORIES OF THREE-STORY BUILDINGS—WOOD FLOOR SYSTEM

Floor[1] Span (ft)		Minimum Rated Gravity Load Assembly (plf)				
		Assembly Clear Span (ft)				
	4	6	8	12	16	20
4[2]	210	260	310	410	510	610
12	430	480	530	630	730	830
24	760	810	860	960	1,060	1,160
36	1,090	1,140	1,190	1,290	1,390	1,490
44	1,310	1,360	1,410	1,510	1,610	1,710
52	1,530	1,580	1,630	1,730	1,830	1,930
60	1,750	1,800	1,850	1,950	2,050	2,150

NOTES:

1. For a wall supporting floors on both sides, enter Table with the sum of the 2 full spans. NOTE: Tabular values are for 1/2 the load of the full span shown.
2. Use 4 ft building width for assemblies in walls not supporting floors (normally endwalls and interior masonry walls and shearwalls).
3. The values in this table may be interpolated.
4. These loads take into account the dead load of any masonry in the wall above the assembly and live and dead loads of the roof and floor supported. Dead load of the assembly is not included in the table and if not included in the pre-engineered concrete design must be added to the loads in the table.
5. This table is applicable for all roof dead loads.

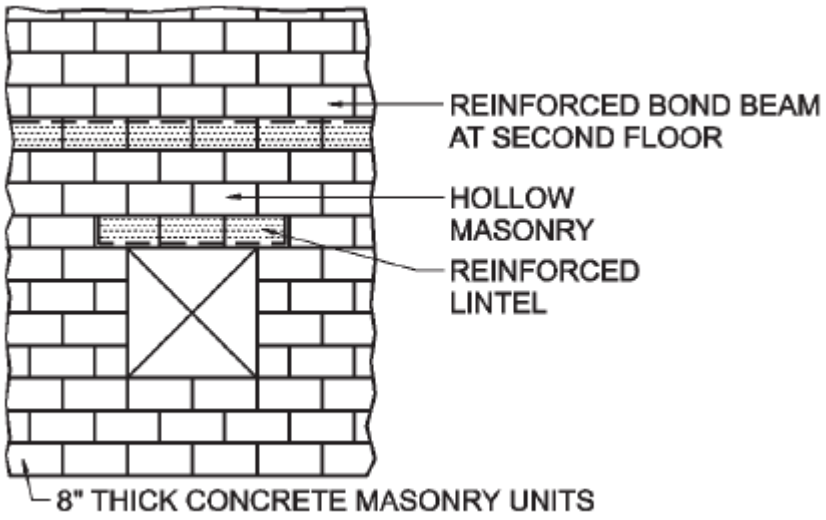
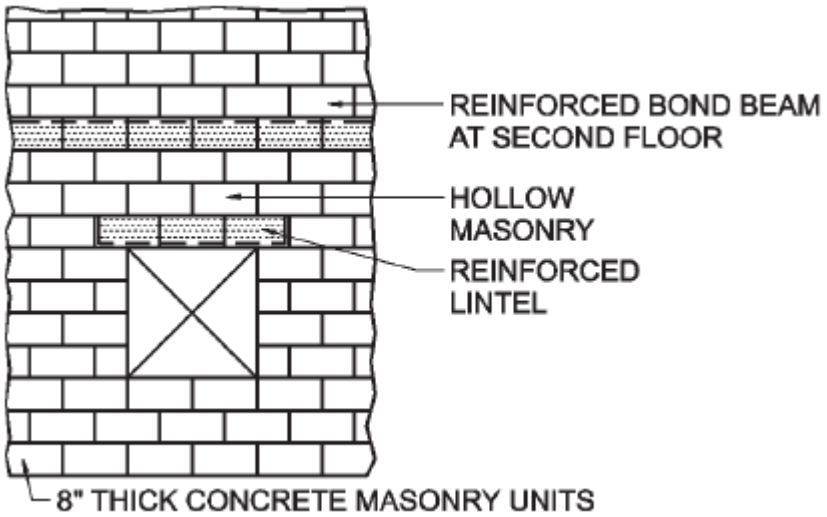


TABLE R609.6.1.2(3)
SUPERIMPOSED LOADS
MINIMUM RATED LOAD CAPACITY OF NOMINAL 8 INCH THICK PRE-ENGINEERED ASSEMBLIES SPANNING OPENINGS OF BOTTOM STORY OF TWO-STORY BUILDINGS, SECOND AND BOTTOM STORIES OF THREE-STORY BUILDINGS—HOLLOWCORE FLOOR SYSTEM

Floor[1] Span (ft)	Minimum Rated Gravity Load of Assembly (plf)					
	Assembly Clear Span (ft)					
	4	6	8	12	16	20
42	290	340	390	490	590	690
12	670	720	770	870	970	1,070
24	1,240	1,290	1,340	1,440	1,540	1,640
36	1,810	1,860	1,910	2,010	2,110	2,210
44	2,190	2,240	2,290	2,390	2,490	2,590
52	2,570	2,620	2,670	2,770	2,870	2,970
60	2,950	3,000	3,050	3,150	3,250	3,350

NOTES:

1. For a wall supporting floors on both sides, enter Table with the sum of the 2 full spans. NOTE: Tabular values are for 1/2 the load of the full span shown.
2. Use 4 ft building width for assemblies in non-floor bearing walls (normally endwalls and interior masonry walls and shearwalls).
3. The values in this table may be interpolated.
4. These loads take into account the dead load of any masonry in the wall above the assembly and live and dead loads of the roof and floor supported. Dead load of the assembly is not included in the table and if not included in the pre-engineered concrete assembly design must be added to the loads in the table.
5. This table is applicable for all roof dead loads.



609.6.2 Continuous Bond Beams Spanning Openings.

609.6.2.1 Under the provisions of this section, bond beams shall:

1. **Be 16 inches high nominal over openings, except cast-in-place concrete bond beams which may be 12 inches high nominal.**
2. **Have top reinforcement continuous over the wall and opening.**
3. **Have bottom reinforcement extending past each side of the opening a minimum of 24 inches for concrete walls and 4 inches for masonry walls.**
4. **Meet the provisions of Tables R609.6.2.1(1), R609.6.2.1 (2), and R609.6.2.1 (3) as appropriate.**

609.6.2.2 Top reinforcement required over the opening which is in addition to that required over the wall shall extend past the opening a minimum of 24 inches.

609.6.2.3 When pre-engineered assemblies are utilized to form the bottom portion of the bond beam over the opening in masonry walls, the bottom reinforcement of the pre-engineered assemblies shall be counted toward the additional bottom reinforcement required over the opening.

R609.6.3 Bond beams combined with lintels.

R609.6.3.1 The provisions of this section shall apply when the lintel, the wall area between the lintel and the bond beam, and the bond beam itself are solid grouted masonry units or cast together as one unit.

R609.6.3.2 Combined bond beams/lintels shall meet the requirements of the appropriate Table 609.6.3.2(1), (2), or (3).

R609.6.3.3 Top reinforcement which is in addition to that required in the bond beam over the wall shall extend a mini-mum of 24 inches past each side of the opening. Top bond beam reinforcement shall be continuous over wall and opening.

609.6.3.4 Bottom reinforcing shall extend past each side of the opening a minimum of 24 inches for concrete walls and 4 inches for masonry walls. When using a precast lintel, the reinforcing in the precast lintel shall be included when determining the total amount of bottom reinforcement furnished.

609.6.3.5 For masonry walls, a cleanout shall be provided in the cells directly above the ends of the lintel when the reinforcing steel in the bottom of the lintel is more than 22 inches below the top of the bond beam.

TABLE R609.6.2.1(1)
MAXIMUM CLEAR SPAN CAPACITY OF CONTINUOUS BOND BEAMS ACTING AS LINTELS
ONE STORY AND TOP STORY OF MULTI-STORY BUILDINGS

Roof Span (ft)	Maximum Allowable Clear Span (ft-in)[5]											
	Bond Beam 6" Thick Wall[1,2,4]						Bond Beam 8" Thick Wall[1,2,4]					
	16-1	16-2	C12-1	C12-2	C16-1	C16-2	16-1	16-2	C12-1	C12-2	C16-1	C16-2
43	16-0	17-4	16-0	20-8	18-0	24-8	16-0	18-8	15-4	20-8	17-4	23-4
12	12-0	13-4	12-0	15-4	14-0	18-8	12-8	14-0	11-4	16-0	13-4	18-0
24	8-8	8-8	9-4	10-8	10-8	14-8	10-0	11-4	8-8	12-8	10-8	14-8
36	6-8	6-8	8-0	8-0	9-4	11-4	8-8	8-8	7-4	10-0	8-8	12-0
44	6-0	6-0	7-4	7-4	8-0	10-0	7-4	7-4	6-8	8-8	8-0	11-4
52	5-4	5-4	6-0	6-0	8-0	8-8	6-8	6-8	6-8	8-0	7-4	10-8
60	4-8	4-8	6-0	6-0	7-4	8-0	6-0	6-0	6-0	7-4	7-4	10-0

NOTES:

1) **Designation of bond beam types over openings:**
   a) **Letter C designates a concrete bond beam. All other bond beams are masonry.**
   b) **The first number denotes the nominal height of the bond beam in inches.**
   c) **The second number denotes the number of No.5 reinforcing bars in the top and the bottom of the beam. A single (1) No.7 bar may be used in lieu of 2 No.5 bars. The bottom reinforcing steel shall be located no more than 2 3/4 inches clear distance from the bottom of masonry bond beams and 1 1/2 inches for concrete bond beams.**
2) **All bond beams have reinforcement in the top as required by Tables R609.2.2A-1 through 609.2.2A-4 and Tables R609.2.2B-1 throughR609.2.2B-8 as appropriate. If 2 No.5 are required in this table and only 1 No.5 is required by Table R609.2.2A-1 through R609.2.2A-4 and Tables R609.2.2B-1 through R609.2.2B-8 as appropriate, the additional bar shall be placed in the top of the bond beam over the opening and shall extend past the opening a minimum of 24 inches.**
3) **Use 4 foot roof span for lintels in endwalls.**
4) **The bottom reinforcement in precast lintels may be used to satisfy the continuous bond beam bottom reinforcement requirement.**
5) **For roof dead loads more than 10 psf:**
   a. **For 20 psf roof dead load, multiply allowable clear spans by 0.85.**
   b. **For 30 psf roof dead load, multiply allowable clear spans by 0.75.**
   c. **Values for other roof dead loads may be interpolated.**

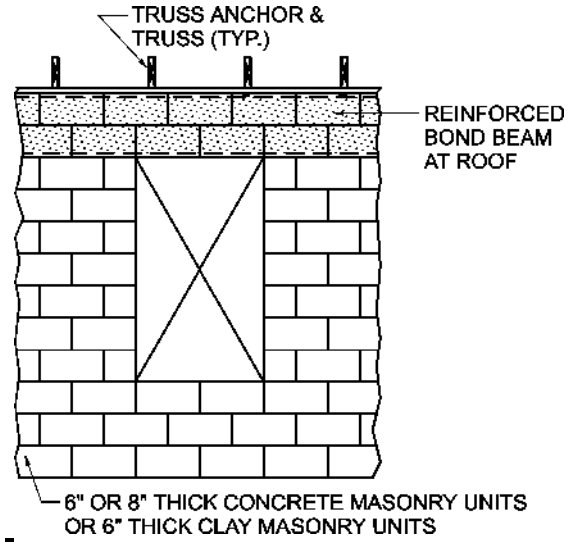


TABLE R609.6.2.1.(2)
MAXIMUM CLEAR SPAN CAPACITY OF CONTINUOUS BOND BEAMS ACTING AS LINTELS BOTTOM STORY OF TWO-STORY BUILDINGS, SECOND AND BOTTOM STORIES OF THREE-STORY BUILDINGS—WOOD FLOOR SYSTEM

Building Width (ft)	Bond Beam 8" Thick Wall[1,2,4]						
	16-1	16-2	C1-1	C12-2	C16-1	C16-2	C16-3
	Maximum Allowable Clear Span (ft-in)[5]						
4[3]	11-4	13-4	10-8	14-0	12-0	15-4	18-0
12	10-0	11-4	9-4	12-0	10-8	14-0	16-0
24	8-8	8-8	8-0	10-0	8-8	12-0	12-8
36	6-8	6-8	6-8	8-0	8-0	10-8	10-8
44	6-0	6-0	6-0	7-4	7-4	9-4	9-4
52	5-4	5-4	6-0	6-8	6-8	8-8	8-8
60	4-8	4-8	5-4	6-0	6-8	8-0	8-0

NOTES:

1. **Designation of bond beam over openings:**
   a. **Letter C designates a concrete bond beam. All other bond beams are masonry.**
   b. **The first number denotes the nominal height of the bond beam in inches.**
   c. **The second number denotes the number of No.5 reinforcing bars in the top and the bottom of the beam. 1 No.7 may be used in lieu of 2 No.5. The bottom rein-forcing steel shall be located no more than 2 3/4 inches clear distance from the bottom of masonry bond beams and 1 1/2 inches for concrete bond beams.**
2. **All bond beams shall have reinforcement in the top in accordance with Section R609.6.2.**
3. **Use 4 foot floor span for lintels in walls parallel to hollowcore.**
4. **The bottom reinforcement in precast lintels may be used to satisfy the continuous bond beam bottom reinforcement requirement.**
5. **This table is applicable for all roof dead loads.**

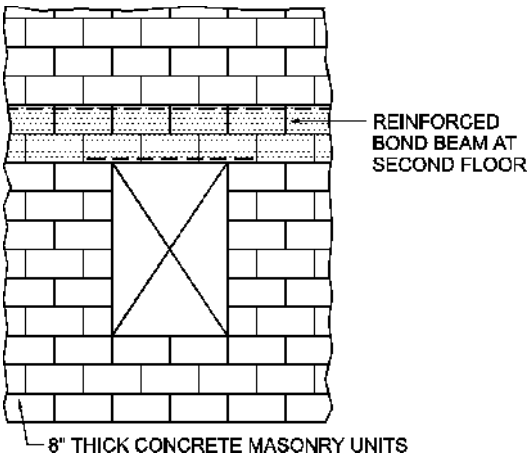


TABLE R609.6.2.1(3)
MAXIMUM CLEAR SPAN CAPACITY OF
CONTINUOUS BOND BEAMS ACTING AS LINTELS
BOTTOM STORY OF TWO-STORY BUILDINGS, SECOND AND BOTTOM STORIES OF THREE-STORY BUILDINGS—HOLLOWCORE SECOND FLOOR

Building Width (ft)	Bond Beam 8" Thick Wall1,2,4						
	16-1	16-2	C12-1	C12-2	C16-1	C16-2	C16-3
	Maximum Allowable Clear Span (ft-in)5						
4[3]	10-8	12-0	10-0	13-4	11-4	14-8	17-4
12	8-8	9-4	8-0	10-8	9-4	12-0	13-4
24	6-0	6-0	6-0	7-4	7-4	10-0	10-0
36	4-8	4-8	5-4	6-0	6-0	8-0	8-0
44	4-0	4-0	4-8	5-4	6-0	7-4	7-4
52	4-0	4-0	4-8	4-8	5-4	6-8	6-8
60	3-4	3-4	4-0	4-0	5-4	6-0	6-0

NOTES:

1. Designation of bond beam over openings:
   - d. Letter C designates a concrete bond beam. All other bond beams are masonry.
   - e. The first number denotes the nominal height of the bond beam in inches.
   - f. The second number denotes the number of No.5 reinforcing bars in the top and the bottom of the beam. 1 No.7 may be used in lieu of 2 No.5. The bottom rein-forcing steel shall be located no more than 2 3/4 inches clear distance from the bottom of masonry bond beams and 1 1/2 inches for concrete bond beams.
2. All bond beams shall have reinforcement in the top in accordance with Section R609.6.2.
3. Use 4 foot floor span for lintels in walls parallel to hollowcore.
4. The bottom reinforcement in precast lintels may be used to satisfy the continuous bond beam bottom rein-forcement requirement.
5. This table is applicable for all roof dead loads.

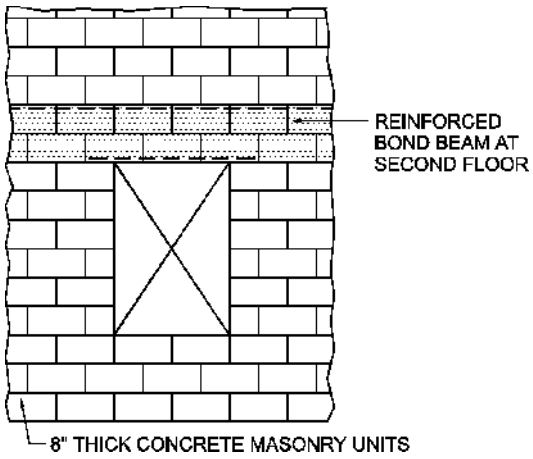


TABLE R609.6.3.2(1)
COMBINED BOND BEAM/LINTELS
ONE STORY AND TOP STORY OF MULTI-STORY BUILDINGS

Bond Beam Height	Roof Span (ft)	Maximum Allowable Clear Span (ft-in)[5]															
		Combined Bond Beam/Lintel 8" Thick Wall[1,2,]															
		12-1	12-2	16-1	16-2	24-1	24-2	24-3	32-2	32-3	32-4	40-2	40-3	40-4	48-3	48-4	48-5
6"	4[3]	11-4	12-0	14-8	16-0	18-8	22-8	23-4	27-4	29-4	30-0	29-4	34-0	35-4	38-0	39-4	40-8
	12	8-0	8-8	11-4	12-0	14-8	17-4	17-4	18-8	22-9	23-3	24-8	24-8	28-9	29-4	31-4	33-4
	24	6-0	6-9	8-8	8-8	11-4	14-0	14-0	18-0	18-0	18-0	20-0	22-0	20-0	26-0	26-0	26-0
	36	4-8	4-8	6-8	6-8	10-0	10-8	10-8	14-0	14-0	14-0	17-4	17-4	17-4	20-8	20-8	20-8
	44	4-0	4-0	6-0	6-0	9-4	9-4	9-4	12-8	12-8	12-8	15-4	15-4	15-4	18-0	18-0	18-0
	52	3-4	3-4	5-4	5-4	8-0	8-0	8-0	11-4	11-4	11-4	14-0	14-0	14-0	16-8	16-8	16-8
	60	3-4	3-4	4-8	4-8	7-4	7-4	7-4	10-0	10-0	10-0	12-8	12-8	12-8	15-4	15-4	15-4
8"	4[3]	12-0	12-8	14-8	16-8	17-4	23-4	24-8	25-4	30-0	30-8	26-8	32-8	35-4	34-0	39-4	40-8
	12	8-8	9-4	11-4	13-4	14-0	18-8	20-8	21-4	24-8	26-0	22-8	28-0	30-0	29-4	34-0	35-4
	24	6-8	7-4	9-4	10-0	11-4	15-4	16-0	17-4	20-8	21-4	19-4	23-4	25-4	25-4	28-8	30-0
	36	6-0	6-0	8-0	8-8	9-4	13-4	13-4	15-4	17-4	17-4	16-8	20-8	21-4	22-0	24-8	24-8
	44	5-4	5-4	7-4	7-4	8-8	11-4	11-4	14-0	15-4	15-4	16-0	18-8	18-8	20-8	22-0	22-0
	52	4-8	4-8	6-8	6-8	8-0	10-0	10-0	13-4	14-0	14-0	14-8	17-4	17-4	19-4	20-0	20-0
	60	4-0	4-0	6-0	6-0	8-0	9-4	9-4	12-8	12-8	12-8	14-0	15-4	15-4	18-8	18-8	18-8

NOTES:

1. Designation of combined bond beam/lintels:

a. The first number denotes the nominal height of the bond beam/lintel in inches.

b. The second number denotes the number of No.5 reinforcing bars in the bottom of the bond beam/lintel. The equivalent or greater area of reinforcement may be obtained by using reinforcement other than No.5. For example, when 3 No.5 are required 1 No.9 may be used. Also, 1 No.7 may be used to replace 2 No.5 or 2 No.7 to replace 4 No.5. The bottom reinforcing steel is to be located not more than 2 3/4 inches clear distance from the bottom of the lintel.

2. All bond beams shall have reinforcement in the top in accordance with R609.2.2A-1 through R609.2.2A-4 and Tables R609.8.2B-1 throughR609.8.2B-8, as appropriate.

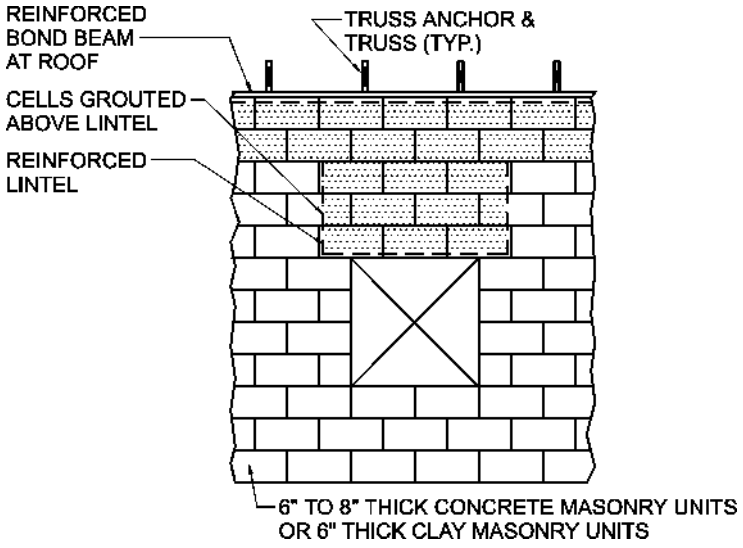

REINFORCED
BOND BEAM
AT ROOF
TRUSS ANCHOR &
TRUSS (TYP.)
CELLS GROUTED
ABOVE LINTEL
REINFORCED
LINTEL
6" TO 8" THICK CONCRETE MASONRY UNITS
OR 6" THICK CLAY MASONRY UNITS

TABLE R609.3.2.2(2)
COMBINED BOND BEAM/LINTELS
BOTTOM STORY OF TWO-STORY BUILDINGS, SECOND AND BOTTOM STORIES OF THREE STORY BUILDINGS - WOOD FLOOR SYSTEM

Floor Span Supported (ft)	Combined Bond Beam/Lintel 8" Thick Wall[1,2,]									
	12-2	16-2	24-2	24-3	32-2	32-3	40-3	40-4	48-3	48-4
	Maximum Allowable Clear Span (ft-in)[5]									
4[3]	9-4	12-0	16-0	16-8	18-0	20-0	22-8	24-0	24-0	26-8
12	8-0	10-8	14-0	15-4	16-0	18-8	20-8	22-0	22-0	24-0
24	6-0	8-8	12-0	12-0	14-0	15-4	18-0	18-0	20-0	20-8
36	4-8	6-8	10-0	10-0	12-8	13-4	16-0	16-0	18-0	18-0
44	4-0	6-0	9-4	9-4	12-0	12-0	14-8	14-8	16-8	16-8
52	4-0	5-4	8-8	8-8	10-8	10-8	13-4	13-4	16-0	16-0
60	3-4	4-8	8-0	8-0	10-0	10-0	12-8	12-8	14-8	14-8

Notes:

1. Designation of combined bond beam/lintels:

a. The first number denotes the nominal height of the bond beam/lintel in inches.

b. The second number denotes the number of No.5 reinforcing bars in the bottom of the bond beam/lintel. The equivalent or greater area of reinforcement may be obtained by using reinforcement other than No.5 bars. For example, when 3 No.5 are required, 1 No.9 may be used. Also, 1 No.7 may be used to replace 2 No.5 or 2 No.7 may be used to replace 4 No.5. The bottom reinforcing steel is to be located not more than 2 3/4 inches clear distance from the bottom of the lintel.

2.All bond beams shall have reinforcement in the top in accordance with Section 609.6.2.

3.Use 4 foot floor span for walls parallel to hollowcore (nonloadbearing).

4.All The bottom reinforcement in precast lintels may be used to satisfy the continuous bond beam bottom reinforcement requirement.

5.This table is applicable for all roof dead loads.

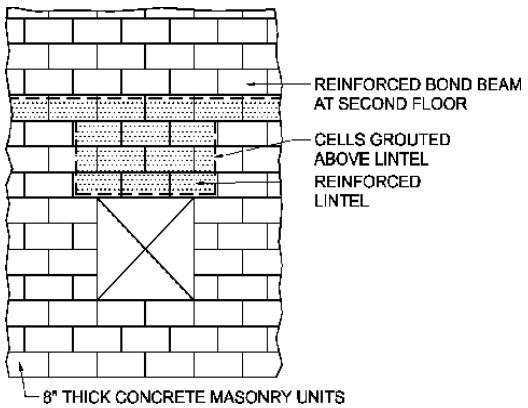


TABLE R609.6.3.2(3)
COMBINED BOND BEAM/LINTELS
BOTTOM STORY OF TWO-STORY BUILDINGS , SECOND AND BOTTOM STORIES OF THREE-STORY BUILDINGS - HOLLOWCORE FLOOR SYSTEM

Floor Span Supported (ft)	Combined Bond Beam/Lintel 8" Thick Wall[1,2,]									
	12-2	16-2	24-2	24-3	32-2	32-3	40-3	40-4	48-3	48-4
	Maximum Allowable Clear Span (ft-in)[5]									
4[3]	8-8	11-4	15-4	16-0	17-4	19-4	22-0	23-4	23-4	25-4
12	6-8	9-4	12-8	12-8	14-8	16-0	18-8	18-8	20-8	21-4
24	4-8	6-0	9-4	9-4	12-0	12-0	14-8	14-8	17-4	17-4
36	3-4	4-8	7-4	7-4	10-0	10-0	12-0	12-0	14-8	14-8
44	2-8	4-0	6-8	6-8	8-8	8-8	11-4	11-4	13-4	13-4
52	2-8	4-0	6-0	6-0	8-0	8-0	10-0	10-0	12-0	12-0
60	2-8	3-4	5-4	5-4	7-4	7-4	9-4	9-4	11-4	11-4

Notes:

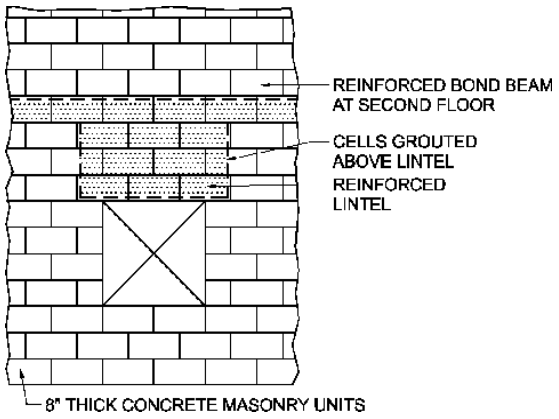
1) **Designation of combined bond beam/lintels:**
   a) **The first number denotes the nominal height of the bond beam/lintel in inches.**
   b) **The second number denotes the number of No.5 reinforcing bars in the bottom of the bond beam/lintel. The equivalent or greater area of reinforcement may be obtained by using reinforcement other than No.5 bars. For example, when 3 No.5 are required, 1 No.9 may be used. Also, 1 No.7 may be used to replace 2 No.5 or 2 No.7 may be used to replace 4 No.5. The bottom reinforcing steel is to be located not more than 2 3/4 inches clear distance from the bottom of the lintel.**

2.All bond beams shall have reinforcement in the top in accordance with Section 609.6.2.

3.Use 4 foot floor span for walls parallel to hollowcore (non-loadbearing).

4.All The bottom reinforcement in precast lintels may be used to satisfy the continuous bond beam bottom reinforcement requirement.

5.This table is applicable for all roof dead loads.



SECTION R614
COMBNED CONCRETE, MASONRY, OR ICF AND WOOD EXTERIOR WALL CONSTRUCTION

R614.1 General. This section prescribes construction requirements for individual building elements where one or more exterior walls above the foundation contain multiple construction types. Where specific construction requirements are not specifically prescribed in this section, the requirements in the applicable sections of each material shall govern.

R614.2 Concrete, masonry, or ICF fïrst story wood frame second and third story.

Rl614.2.1 Foundation. The foundation system shall be designed in accordance with Chapter 4.

R61,4.2.2 First-story construction. The concrete, masonry or ICF first-story shall be in accordance with Chapter 6 for the applicable first-story construction method.

R614.2.3 Floor systems. The second- and third-story floor system shall be in accordance with Chapter 5.

R614.2.4 Second- and third-story construction. The second-and third-story walls, ceilings and roof shall be in accordance with the appropriate sections in Chapters 6, 8, and 9.

R614.2.5 Shear wall connections. Second-story shearwalls shall be connected to first-story walls in accordance with Tables 3.2A, 3.2B, 3.2C, A-3.24, 4 3.28 or A-3.2C of the AF&PA Wood Frame Construction Manual for One- and Two-Family Dwellings as applicable.

R614.3 Wood frame gable endwalls above concrete, masonry, or ICF walls. This condition is not permitted unless there is a ceiling diaphragm in accordance with Figures 3.7a and 3.15 of the AF&PA Wood Frame Construction Manual for One- and Two-Family Dwellings.

R614.3.1 Gable construction. Gable construction shall be in accordance with the AF&PA Wood Frame Construction Manual for One- and Two-Family Dwellings.

R614.3.2 Wall construction. Concrete, masonry or ICF wall construction shall be in accordance with Chapter 6.

R614.3.3 Gable connection. The connection of the wood frame gable endwall to the concrete, masonry or ICF wall shall be in accordance with Figures R614.3(1) and R614.3(2), or Figure R609.4.

Fiscal Impact Statement [Provide documentation of the costs and benefits of the proposed modifications to the code for each of the following entities. Cost data should be accompanied by a list of assumptions and supporting documentation. Explain expected benefits.]:

A. Impact to local entity relative to enforcement of code: No impact on cost to enforce. Provisions have been in code for years.

B. Impact to building and property owners relative to cost of compliance with code: The proposed changes do not have a fiscal impact on property owners unless to reduce the costs of construction by providing clear and concise prescriptive means for code compliance.

C. Impact to industry relative to cost of compliance with code: The proposed changes do not have a fiscal impact on the construction industry unless to reduce the costs of plan review and inspection by providing clear and concise prescriptive means for code compliance.

D Impact to small business: The proposed changes do not have a fiscal impact on the construction industry unless to reduce the costs of plan review and inspection by providing clear and concise prescriptive means for code compliance.

Rationale [Provide an explanation of why you would like this Proposed Modification to the Florida Building Code.]: The code as adopted does not contain prescriptive structural provisions which may be used in the State of Florida. The proposed modifications provide prescriptive provisions for the construction of masonry structures for the various basic wind speeds and exposure categories prevalent in the state. The provisions are based on the latest edition of nationally recognized standards.

Please explain how the proposed modification meets the following requirements:

1. Has a reasonable and substantial connection with the health, safety, and welfare of the general public: The proposal has a reasonable and substantial connection with the health, safety, and welfare of the general public by providing prescriptive methods of complying with the code provisions regarding wind resistance of residential structures.

2. Strengthens or improves the code, and provides equivalent or better products, methods, or systems of construction: The proposal strengthens and improves the code by providing prescriptive construction methods for the construction of wind resistant residential structures within the State for Florida.

3. Does not discriminate against materials, products, methods, or systems of construction of demonstrated capabilities: The proposal addresses sections of the code related to masonry construction and does not discriminate against materials, products, methods or systems of construction.

4. Does not degrade the effectiveness of the code: The proposal increases the effectiveness of the code by providing prescriptive methods for building wind resistant masonry dwellings in the State of Florida.