

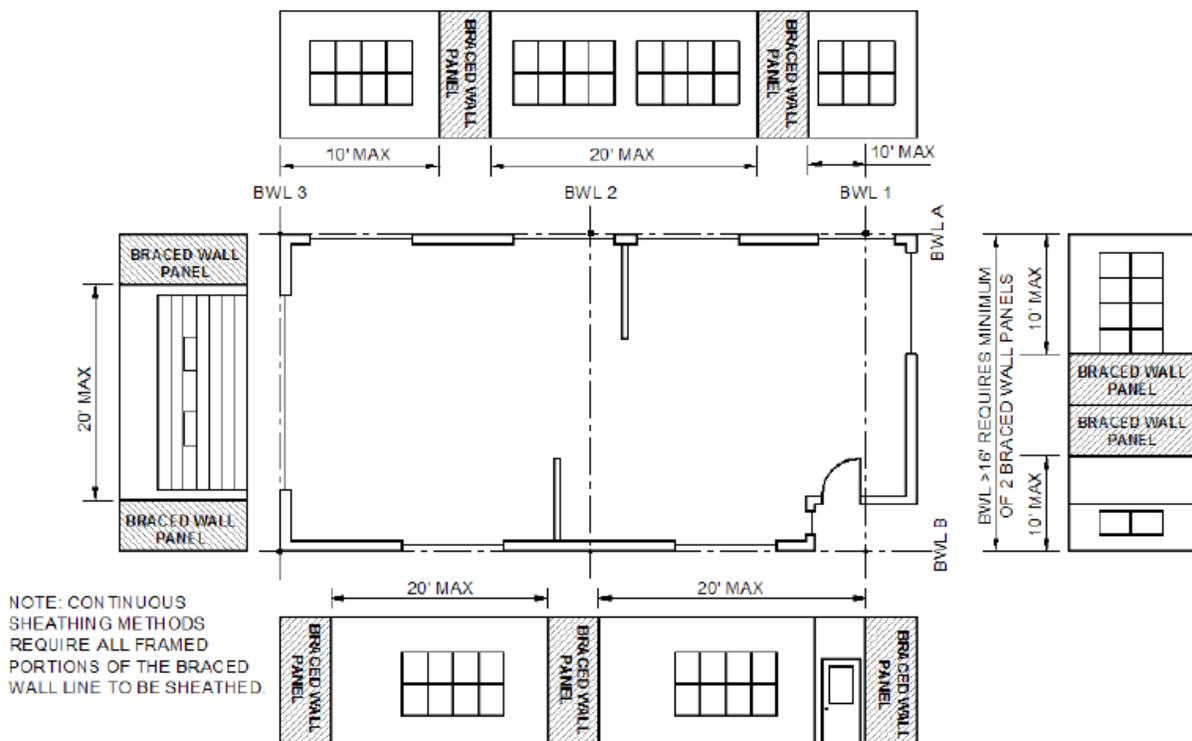
## Conventional Light Frame Wall Bracing

Building designs must consider two kinds of loads: vertical and lateral loads. Vertical loads come from the building weight and its contents (live and dead loads). Lateral loads act horizontally on the building (seismic and wind).

Wall bracing is used to protect life by minimizing structural damage to a building in freak storms and earthquakes. All buildings are required to have some form of lateral bracing. Exterior and interior wall coverings are usually used with conventional light-frame construction.

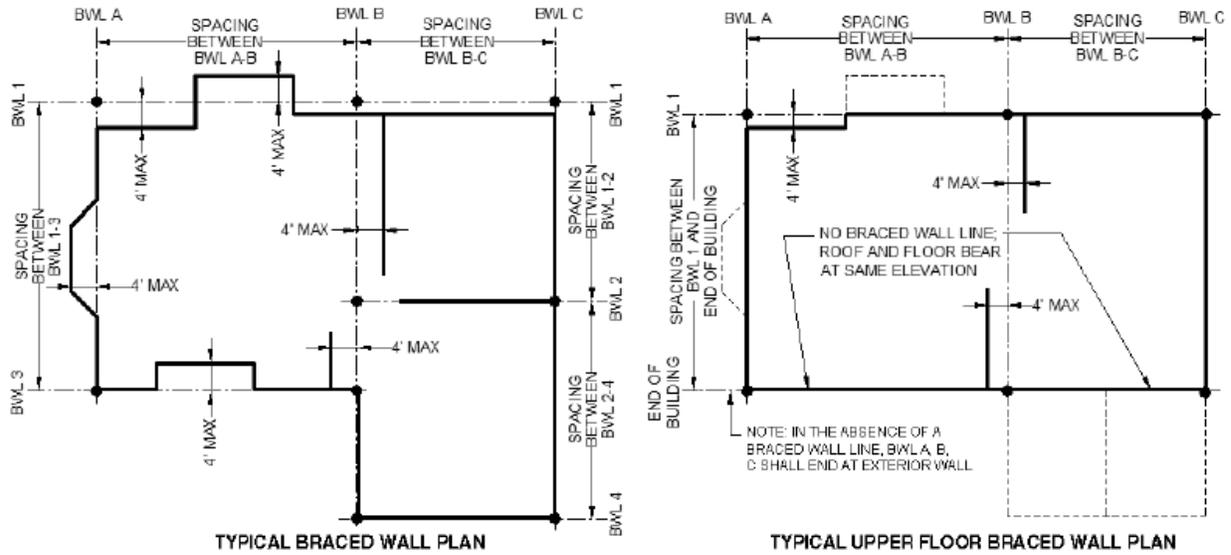
### Braced Wall Panel:

All exterior walls shall be braced in accordance with the International Residential Code Section 602.10. Braced wall lines are basic elements in conventional light frame-construction and shall consist of braced wall panels. These panels shall begin no more than 10 feet from each end of a braced wall line and the distance between adjacent edges of braced wall panels shall be no greater than 20 feet (Figure R602.10.2.2).



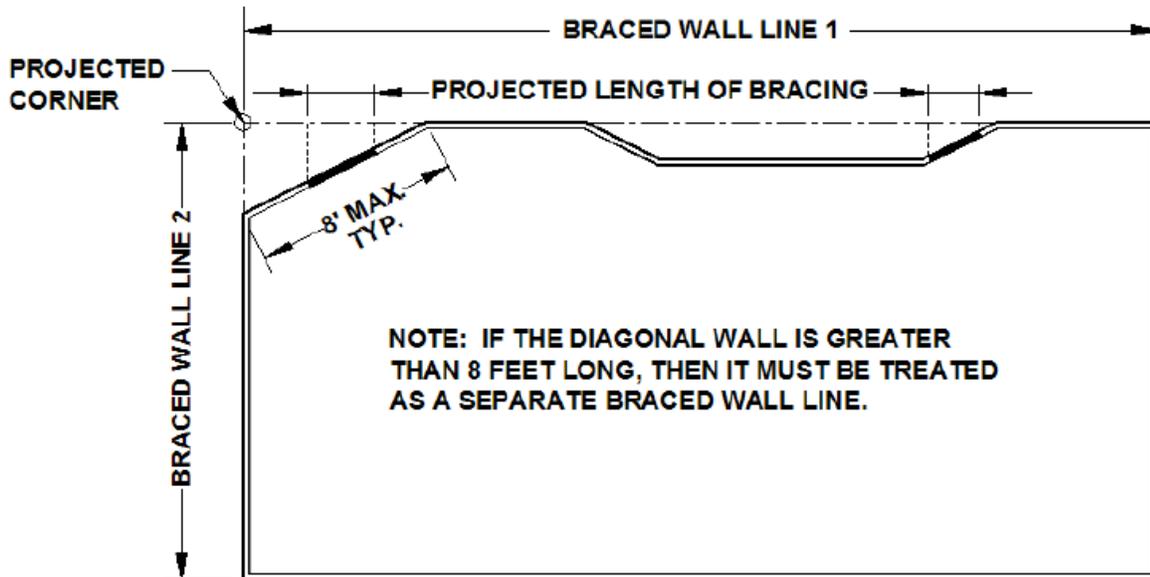
**FIGURE R602.10.2.2  
LOCATION OF BRACED WALL PANELS**

All braced wall lines shall be indicated on the plan, and their spacing shall be a maximum of 60 feet in both the longitudinal and transverse directions in each story. Exterior walls parallel to braced wall lines and all interior walls used as bracing shall not be offset more than 4 feet from a braced wall line (Figure R602.10.1.1).



**FIGURE R602.10.1.1  
BRACED WALL LINES**

Any portion of a wall along a braced wall line shall be permitted to angle out of plan for a maximum diagonal length of 8 feet. When the angled wall occurs at a corner, the length of the braced wall line shall be measured from the projected corner (Figure R602.10.14).



**FIGURE R602.10.1.4  
ANGLED WALLS**

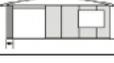
Braced wall panel construction shall be in accordance with one of the 16 methods listed in the International Residential code, Table R602.10.4.

**TABLE R602.10.4  
BRACING METHODS**

METHODS, MATERIAL		MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA <sup>a</sup>	
				Fasteners	Spacing
Intermittent Bracing Method	<b>LIB</b> Let-in-bracing	1 × 4 wood or approved metal straps at 45° to 60° angles for maximum 16" stud spacing		Wood: 2-8d common nails or 3-8d (2 <sup>1</sup> / <sub>2</sub> " long × 0.113" dia.) nails  Metal strap: per manufacturer	Wood: per stud and top and bottom plates  Metal: per manufacturer
	<b>DWB</b> Diagonal wood boards	<sup>3</sup> / <sub>4</sub> " (1" nominal) for maximum 24" stud spacing		2-8d (2 <sup>1</sup> / <sub>2</sub> " long × 0.113" dia.) nails or 2 - 1 <sup>3</sup> / <sub>4</sub> " long staples	Per stud
	<b>WSP</b> Wood structural panel (See Section R604)	<sup>3</sup> / <sub>8</sub> "		Exterior sheathing per Table R602.3(3) Interior sheathing per Table R602.3(1) or R602.3(2)	6" edges 12" field  Varies by fastener
	<b>BV-WSP<sup>e</sup></b> Wood Structural Panels with Stone or Masonry Veneer (See Section R602.10.6.5)	<sup>7</sup> / <sub>16</sub> "	See Figure R602.10.6.5	8d common (2 <sup>1</sup> / <sub>2</sub> " × 0.131) nails	4" at panel edges 12" at intermediate supports 4" at braced wall panel end posts
	<b>SFB</b> Structural fiberboard sheathing	<sup>1</sup> / <sub>2</sub> " or <sup>25</sup> / <sub>32</sub> " for maximum 16" stud spacing		1 <sup>1</sup> / <sub>2</sub> " long × 0.12" dia. (for <sup>1</sup> / <sub>2</sub> " thick sheathing) 1 <sup>3</sup> / <sub>4</sub> " long × 0.12" dia. (for <sup>25</sup> / <sub>32</sub> " thick sheathing) galvanized roofing nails or 8d common (2 <sup>1</sup> / <sub>2</sub> " long × 0.131" dia.) nails	3" edges 6" field
	<b>GB</b> Gypsum board	<sup>1</sup> / <sub>2</sub> "		Nails or screws per Table R602.3(1) for exterior locations Nails or screws per Table R702.3.5 for interior locations	For all braced wall panel locations: 7" edges (including top and bottom plates) 7" field
	<b>PBS</b> Particleboard sheathing (See Section R605)	<sup>3</sup> / <sub>8</sub> " or <sup>1</sup> / <sub>2</sub> " for maximum 16" stud spacing		For <sup>3</sup> / <sub>8</sub> ", 6d common (2" long × 0.113" dia.) nails For <sup>1</sup> / <sub>2</sub> ", 8d common (2 <sup>1</sup> / <sub>2</sub> " long × 0.131" dia.) nails	3" edges 6" field
	<b>PCP</b> Portland cement plaster	See Section R703.6 for maximum 16" stud spacing		1 <sup>1</sup> / <sub>2</sub> " long, 11 gage, <sup>7</sup> / <sub>16</sub> " dia. head nails or <sup>7</sup> / <sub>8</sub> " long, 16 gage staples	6" o.c. on all framing members
	<b>HPS</b> Hardboard panel siding	<sup>7</sup> / <sub>16</sub> " for maximum 16" stud spacing		0.092" dia., 0.225" dia. head nails with length to accommodate 1 <sup>1</sup> / <sub>2</sub> " penetration into studs	4" edges 8" field
	<b>ABW</b> Alternate braced wall	<sup>3</sup> / <sub>8</sub> "		See Section R602.10.6.1	See Section R602.10.6.1

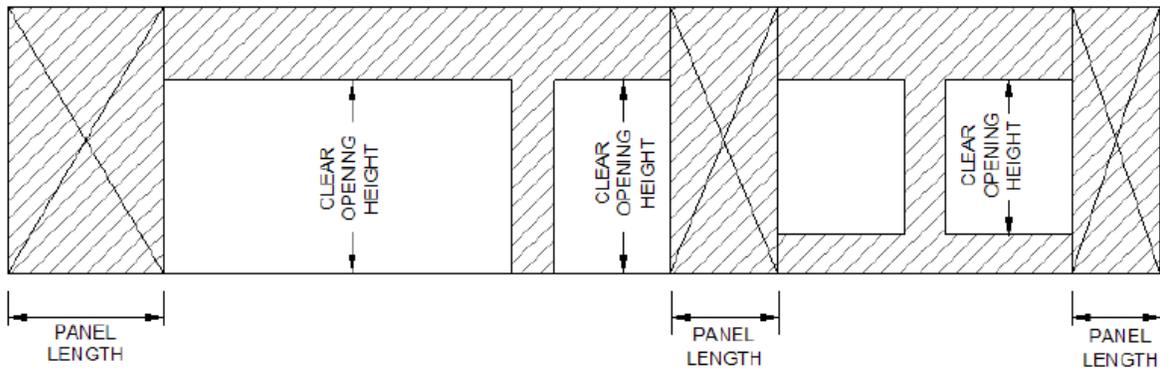
(continued)

**TABLE R602.10.4—continued  
BRACING METHODS**

METHODS, MATERIAL		MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA <sup>a</sup>	
				Fasteners	Spacing
Intermittent Bracing Methods	<b>PFH</b> Portal frame with hold-downs	$\frac{3}{8}$ "		See Section <a href="#">R602.10.6.2</a>	See Section <a href="#">R602.10.6.2</a>
	<b>PFG</b> Portal frame at garage	$\frac{7}{16}$ "		See Section <a href="#">R602.10.6.3</a>	See Section <a href="#">R602.10.6.3</a>
Continuous Sheathing Methods	<b>CS-WSP</b> Continuously sheathed wood structural panel	$\frac{3}{8}$ "		Exterior sheathing per Table <a href="#">R602.3(3)</a> Interior sheathing per Table <a href="#">R602.3(1)</a> or <a href="#">R602.3(2)</a>	6" edges 12" field Varies by fastener
	<b>CS-G<sup>b,c</sup></b> Continuously sheathed wood structural panel adjacent to garage openings	$\frac{3}{8}$ "		See Method CS-WSP	See Method CS-WSP
	<b>CS-PF</b> Continuously sheathed portal frame	$\frac{7}{16}$ "		See Section <a href="#">R602.10.6.4</a>	See Section <a href="#">R602.10.6.4</a>
	<b>CS-SFB<sup>d</sup></b> Continuously sheathed structural fiberboard	$\frac{1}{2}$ " or $\frac{25}{32}$ " for maximum 16" stud spacing		$1\frac{1}{2}$ " long $\times$ 0.12" dia. (for $\frac{1}{2}$ " thick sheathing) $1\frac{3}{4}$ " long $\times$ 0.12" dia. (for $\frac{25}{32}$ " thick sheathing) galvanized roofing nails or 8d common ( $2\frac{1}{2}$ " long $\times$ 0.131" dia.) nails	3" edges 6" field

**Continuous Sheathing Methods:**

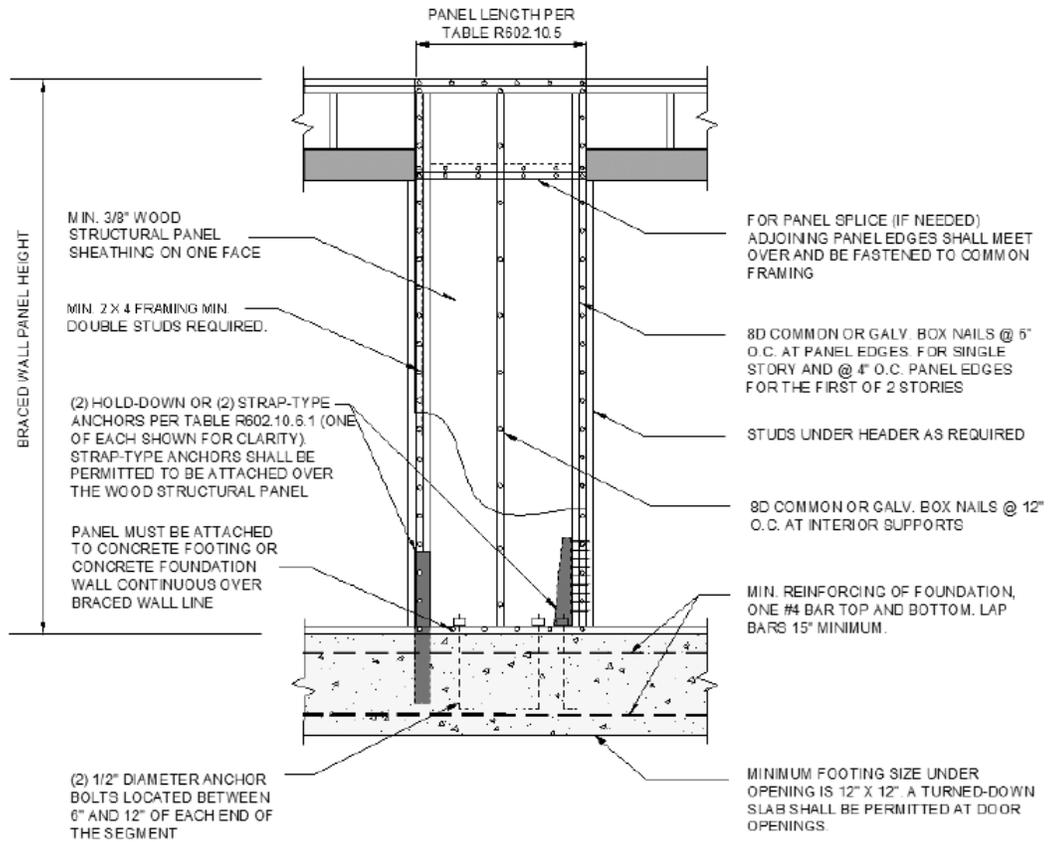
Continuous sheathing methods require structural panel sheathing to be used on all sheathable surfaces on one side of a braced wall line including areas above and below openings and gable end walls (Figure 602.10.5)



**FIGURE R602.10.5  
BRACED WALL PANELS WITH CONTINUOUS SHEATHING**

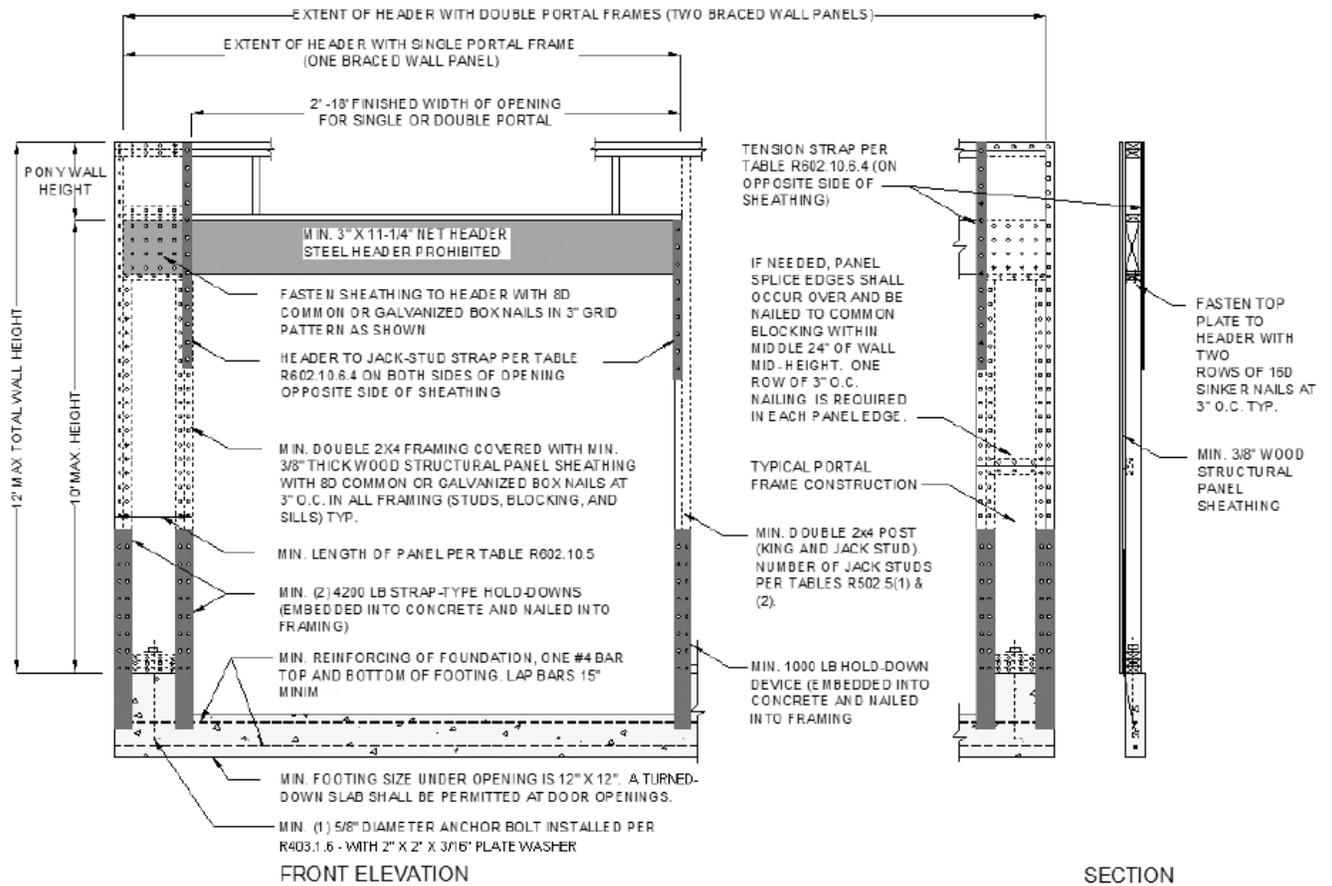
## Alternative Braced Wall Methods:

Method ABW: Alternate Braced wall panels shall be constructed in accordance with Figure R602.10.6.1.



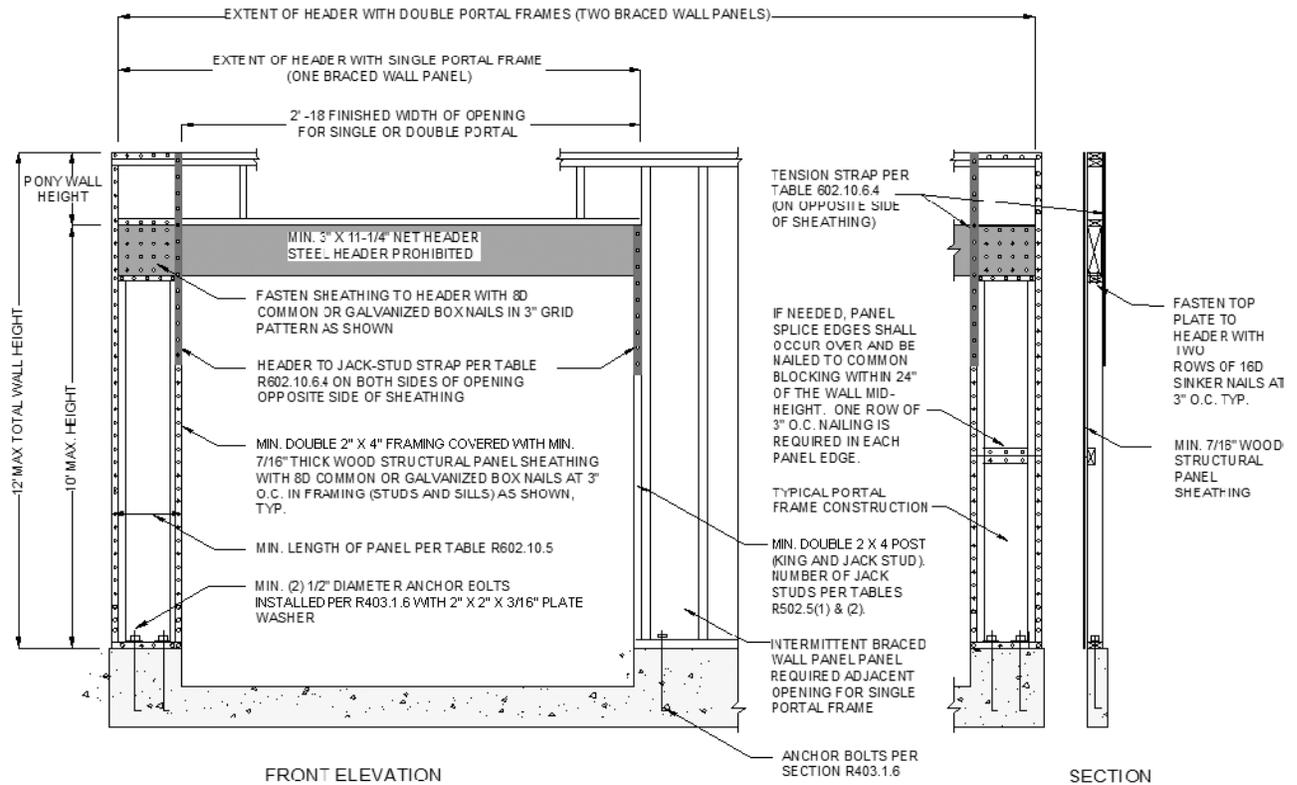
**FIGURE R602.10.6.1  
METHOD ABW—ALTERNATE BRACED WALL PANEL**

Method PFH: Portal Frame with hold-downs shall be constructed in accordance with Figure R602.10.6.2



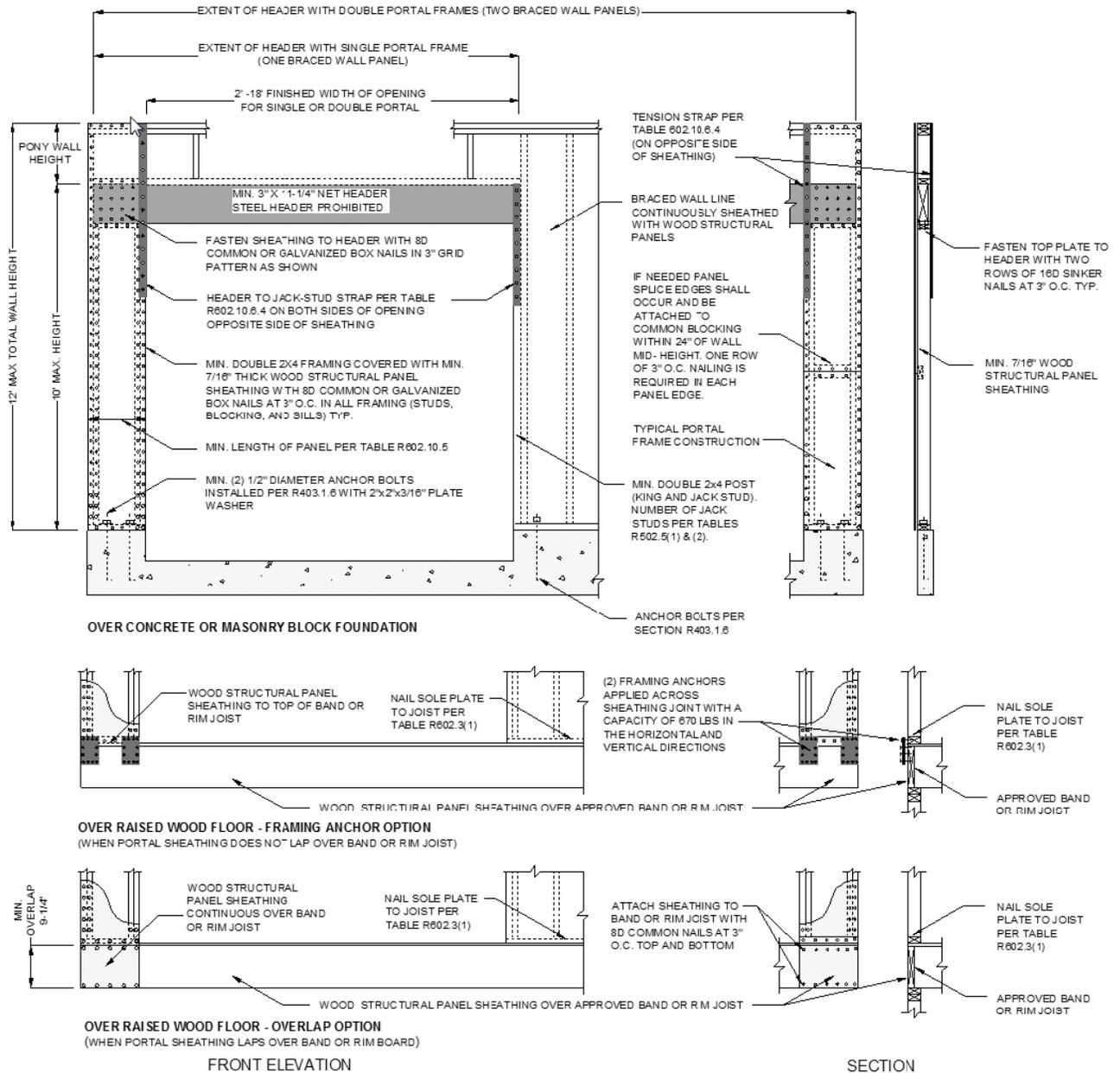
**FIGURE R602.10.6.2**  
**METHOD PFH—PORTAL FRAME WITH HOLD-DOWNS**

Method PFG: Portal frame at garage door openings shall be constructed in accordance with Figure R602.10.6.3. Note this method is allowed on either side of garage door openings.



**FIGURE R602.10.6.3**  
**METHOD PFG—PORTAL FRAME AT GARAGE DOOR OPENINGS IN SEISMIC DESIGN CATEGORIES A, B AND C**

Method CS-PF: Continuously sheathe portal frame shall be constructed in accordance with Figure 602.10.6.4. The number of continuously sheathed portal frame panels in a single braced wall line shall not exceed four.



**FIGURE R602.10.6.4**  
**METHOD CS-PF—CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION**

**Important to know:**

Where a building or portion of the building does not comply with one or more of the requirements listed above, those portions shall be designed in by an Arizona licensed registrant in accordance with accepted engineering practice.