

**2508.5.1 Diaphragm proportions.** The maximum allowable diaphragm proportions shall be 1<sup>1</sup>/<sub>2</sub>:1 between shear resisting elements. Rotation or cantilever conditions shall not be permitted.

**2508.5.2 Installation.** Gypsum board used in a horizontal diaphragm ceiling shall be installed perpendicular to ceiling framing members. End joints of adjacent courses of gypsum board shall not occur on the same joist.

**2508.5.3 Blocking of perimeter edges.** All perimeter edges shall be blocked using a wood member not less than 2-inch by 6-inch (51 mm by 159 mm) nominal dimension. Blocking material shall be installed flat over the top plate of the wall to provide a nailing surface not less than 2 inches (51 mm) in width for the attachment of the gypsum board.

**2508.5.4 Fasteners.** Fasteners used for the attachment of gypsum board to a horizontal diaphragm ceiling shall be as defined in Table 2508.5. Fasteners shall be spaced not more than 7 inches (178 mm) on center (o.c.) at all supports, including perimeter blocking, and not more than <sup>3</sup>/<sub>8</sub> inch (9.5 mm) from the edges and ends of the gypsum board.

**2508.5.5 Lateral force restrictions.** Gypsum board shall not be used in diaphragm ceilings to resist lateral forces imposed by masonry or concrete construction.

## **SECTION 2509 GYPSUM BOARD IN SHOWERS AND WATER CLOSETS**

**2509.1 Wet areas.** Showers and public toilet walls shall conform to Sections 1210.2 and 1210.3.

**2509.2 Base for tile.** Glass mat water-resistant gypsum backing panels, discrete nonasbestos fiber-cement interior substrate sheets or nonasbestos fiber-mat reinforced cement substrate sheets in compliance with ASTM C 1178, C 1288 or C 1325 and installed in accordance with manufacturer recommendations shall be used as a base for wall tile in tub and shower areas and wall and ceiling panels in shower areas. Water-resistant gypsum backing board shall be used as a base for tile in water closet compartment walls when installed in accordance with GA-216 or ASTM C 840 and manufacturer recommendations. Regular gypsum wallboard is permitted under tile or wall panels in other wall and ceiling areas when installed in accordance with GA-216 or ASTM C 840.

**2509.3 Limitations.** Water-resistant gypsum backing board shall not be used in the following locations:

1. Over a vapor retarder in shower or bathtub compartments.
2. Where there will be direct exposure to water or in areas subject to continuous high humidity.
3. On ceilings where frame spacing exceeds 12 inches (305 mm) o.c. for <sup>1</sup>/<sub>2</sub>-inch-thick (12.7 mm) water-resistant gypsum backing board and more than 16 inches (406 mm) o.c. for <sup>5</sup>/<sub>8</sub>-inch-thick (15.9 mm) water-resistant gypsum backing board.