

2021 Virginia Construction Code

CHAPTER 25 GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER

SECTION 2508 GYPSUM CONSTRUCTION

2508.1 General.

Gypsum board, gypsum panel products and gypsum plaster construction shall be of the materials listed in [Tables 2506.2](#) and [2507.2](#). These materials shall be assembled and installed in compliance with the appropriate standards listed in [Tables 2508.1](#) and [2511.1.1](#) and [Chapter 35](#).

TABLE 2508.1
INSTALLATION OF GYPSUM CONSTRUCTION

MATERIAL	STANDARD
Gypsum board and gypsum panel products	GA-216; ASTM C840
Gypsum sheathing and gypsum panel products	ASTM C1280
Gypsum veneer base	ASTM C844
Interior lathing and furring	ASTM C841
Steel framing for gypsum board and gypsum panel products	ASTM C754; C1007

2508.2 Limitations.

Gypsum wallboard or gypsum plaster shall not be used in any exterior surface where such gypsum construction will be exposed directly to the weather. *Gypsum wallboard* shall not be used where there will be direct exposure to water or continuous high humidity conditions. *Gypsum sheathing* shall be installed on exterior surfaces in accordance with [ASTM C1280](#).

2508.2.1 Weather protection.

Gypsum wallboard, gypsum lath or gypsum plaster shall not be installed until weather protection for the installation is provided.

2508.3 Single-ply application.

Edges and ends of *gypsum board* and *gypsum panel products* shall occur on the framing members, except those edges and ends that are perpendicular to the framing members. Edges and ends of *gypsum board* and *gypsum panel products* shall be in moderate contact except in concealed spaces where fire-resistance-rated construction, shear resistance or *diaphragm* action is not required.

2508.3.1 Floating angles.

Fasteners at the top and bottom plates of vertical assemblies, or the edges and ends of *horizontal assemblies* perpendicular to supports, and at the wall line are permitted to be omitted except on shear resisting elements or fire-resistance-rated assemblies. Fasteners shall be applied in such a manner as not to fracture the face paper with the fastener head.

2508.4 Adhesives.

Gypsum board and *gypsum panel products* secured to framing with adhesives in ceiling assemblies shall be attached using an approved fastening schedule. Expandable foam adhesives for fastening *gypsum wallboard* shall conform to [ASTM D6464](#). Other adhesives for the installation of *gypsum wallboard* shall conform to [ASTM C557](#).

2508.5 Joint treatment.

Gypsum board and *gypsum panel product* fire-resistance-rated assemblies shall have joints and fasteners treated.

Exception: Joint and fastener treatment need not be provided where any of the following conditions occur:

1. Where the gypsum board or the gypsum panel product is to receive a decorative finish such as wood paneling, battens, acoustical finishes or any similar application that would be equivalent to joint treatment.
2. On single-layer systems where joints occur over wood framing members.
3. Square edge or tongue-and-groove edge gypsum board (V-edge), gypsum panel products, gypsum backing board or gypsum sheathing.
4. On multilayer systems where the joints of adjacent layers are offset.
5. Assemblies tested without joint treatment.

2508.6 Horizontal gypsum board or gypsum panel product diaphragm ceilings.

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Gypsum board or gypsum panel products shall be permitted to be used on wood joists to create a horizontal *diaphragm* ceiling in accordance with Table 2508.6.

TABLE 2508.6
SHEAR CAPACITY FOR HORIZONTAL WOOD-FRAME GYPSUM BOARD DIAPHRAGM CEILING ASSEMBLIES

MATERIAL	THICKNESS OF MATERIAL (MINIMUM) (inches)	SPACING OF FRAMING MEMBERS (inches)	SHEAR VALUE ^{a, b} (PLF OF CEILING)	MINIMUM FASTENER SIZE
Gypsum board or gypsum panel product	1/2	16 o.c.	90	5d cooler or wallboard nail; 1 ⁵ / ₈ -inch long; 0.086-inch shank; 1 ⁵ / ₆₄ -inch head ^c
Gypsum board or gypsum panel product	1/2	24 o.c.	70	5d cooler or wallboard nail; 1 ⁵ / ₈ -inch long; 0.086-inch shank; 1 ⁵ / ₆₄ -inch head ^c

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.59 N/m.

- a. Values are not cumulative with other horizontal diaphragm values and are for short-term wind or seismic loading. Values shall be reduced 25 percent for normal loading.
- b. Values shall be reduced 50 percent in Seismic Design Categories D, E and F.
- c. 1¹/₄-inch, No. 6 Type S or W screws are permitted to be substituted for the listed nails.

2508.6.1 Diaphragm proportions.

The maximum allowable *diaphragm* proportions shall be 1¹/₂:1 between shear resisting elements. Rotation or cantilever conditions shall not be permitted.

2508.6.2 Installation.

Gypsum board or gypsum panel products 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.

2508.6.3 Blocking of perimeter edges.

Perimeter edges shall be blocked using a wood member not less than 2-inch by 6-inch (51 mm by 152 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 or gypsum panel product.

2508.6.4 Fasteners.

Fasteners used for the attachment of gypsum board or gypsum panel products to a horizontal *diaphragm* ceiling shall be as defined in Table 2508.6. Fasteners shall be spaced not more than 7 inches (178 mm) on center at all supports, including perimeter blocking, and not more than 3/8 inch (9.5 mm) from the edges and ends of the gypsum board or gypsum panel product.

2508.6.5 Lateral force restrictions.

Gypsum board or gypsum panel products shall not be used in *diaphragm* ceilings to resist lateral forces imposed by masonry or concrete construction.