



FIRE-RESISTANT GYPSUM SHEATHING (GA-254-07)

Gypsum sheathing is manufactured with a water-resistive gypsum core and paper. It is a versatile, economical, water-resistive sheathing. Gypsum sheathing is intended for use as a substrate under exterior wall claddings in any climate. Gypsum sheathing is designed to be mechanically attached to the outside surface of exterior wall framing spaced up to 24 in. (610 mm) o.c. using either nails, screws, or staples. Gypsum sheathing is manufactured in a wide range of lengths to meet the demanding needs of the construction industry. Easily sized, cut, and installed, gypsum sheathing is the sheathing of choice wherever fire resistance ratings or noncombustible materials are required. Low material and labor costs are important economic advantages gained by the use of this water-resistive sheathing.

USES

Gypsum sheathing can be used with virtually all exterior wall claddings, including wood siding and shingles, panel siding, vinyl or metal siding, masonry or brick veneer, portland cement stucco, and Exterior Insulation and Finish Systems (EIFS).¹

Mechanically attached exterior wall claddings are attached through the sheathing and into the wall framing.

Exterior Insulation and Finish Systems (EIFS) that incorporate gypsum sheathing are used with either mechanical fasteners or adhesives for the application of the insulation, depending on the EIFS manufacturer's recommendations. The performance of EIFS and recommendations for the proper method of attachment are the sole responsibility of the EIFS manufacturer and/or applicator.

Fire Protection

The natural noncombustible core of gypsum sheathing protects the framing from the hazards of fires occurring outside the building, even when covered by combustible siding. When exposed to high temperatures, chemically combined water in the gypsum is gradually released, providing protection until all of its combined water is completely driven off. In addition to its fire resistance properties, gypsum sheathing has a low flame spread rating² of less than 25 as compared to a rating of 100 for red oak. Where fire-rated and/or sound control systems are desired or required, the test report or listing should be reviewed for complete information on systems and component parts used to achieve the necessary fire or sound rating.³

Structural Integrity

Racking tests have been conducted for the Gypsum Association by an independent laboratory according to ASTM Method E 72. Refer to *Application of Gypsum Sheathing* (GA-253) for details.

Wall Bracing – Building codes permit the use of vertically applied 4 ft. (1220 mm) wide panels of ½ in. (12.7 mm) gypsum sheathing in place of continuous diagonal wall bracing.

Shear Walls – In areas where potential wind or seismic forces require shear walls to resist lateral forces, building codes provide allowable shear values for walls having gypsum sheathing applied to wood framing. Specific values with construction requirements and limitations are contained in the building codes.

Vapor Permeability

Gypsum sheathing typically has an average vapor permeance of 20 perms (dry cup method). This is well above the accepted minimum of five perms when the “U” value of the wall is less than 0.25 and a vapor retarder not exceeding one perm is installed on the interior side of the framing and avoids a double vapor retarder condition.

Code Compliance

Gypsum sheathing complies with building code requirements for use as structural sheathing in frame construction. Consult the local building code for specific details of construction and permissible shear values.

STORAGE

Gypsum sheathing shall be properly supported on a level platform and fully protected from weather, direct sunlight exposure, and condensation. Refer to *Handling Gypsum Panel Products*, GA-801 for proper storage and handling requirements.

1 See *Recommended Specifications: Application and Finishing of Gypsum Panel Products*, GA 216, for exterior ceilings, soffits, and sills.

2 Tested in accordance with ASTM E 84 or CAN/ULC-S102

3 See the *Fire Resistance Design Manual*, GA-600, for specific system details.

WEATHER PROTECTION

Gypsum sheathing is designed for use as a substrate that is covered by an exterior wall cladding. Local weather conditions will dictate the length of time gypsum sheathing may be left exposed; however, it should perform satisfactorily if exposed to the elements for up to one month. The gypsum sheathing shall be covered immediately with a water-resistive barrier if exposure time will be extended or weather conditions will be severe.

A weather-resistive barrier is required when sheathing is used in exterior portland cement stucco walls. For other specific weather resistive barrier requirements, consult the local building code or cladding manufacturer.

Window and Door Openings

To keep water out of the stud cavity, it is recommended that rough openings be properly protected by means such as flashing, weeps, or caulking. Avoid details that trap water and follow the window and door manufacturers' recommendations for proper installation.

DESCRIPTION

Gypsum sheathing manufactured to meet the requirements of ASTM C 1396/C 1396M has the following characteristics:

	½ in. (12.7 mm) Sheathing*	⅝ in. (15.9 mm) Type X Sheathing*
Width	**4 ft (1220 mm)	**4 ft (1220 mm)
Standard Lengths	8 ft (2440 mm)	8 ft (2440 mm)
Edges	**Square	**Square
Surface	Water resistive	Water resistive
R-value	0.45 (RSI 0.079)	0.48 (RSI 0.085)

* ASTM C 1396/C 1396M also covers other lengths and thicknesses. (Consult individual manufacturers for their product specifications.)
** Also available 2 ft (610 mm) wide with square or tongue and groove (T&G) edges.

APPLICATION

Gypsum sheathing is to be installed in accordance with *Application of Gypsum Sheathing, GA-253*.

Characteristics, properties, or performance of materials or systems herein described are based on data obtained under controlled test conditions. The Gypsum Association and its member companies make no warranties or other representations as to the characteristics, properties, or performance of any materials in actual construction.

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GYPSUM ASSOCIATION
6525 Belcrest Road, Ste 480
Hyattsville, MD 20782
301-277-8686
Fax: 301-277-8747
www.gypsum.org