ICC-ES Evaluation Report

ESR-5083

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Subject to renewal March 2025

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES **Section: 06 05 23.10—Adhesives** **DIVISION: 09 00 00—FINISHES** **Section: 09 29 10—Gypsum Board Accessories**	**REPORT HOLDER:** **THE DOW CHEMICAL COMPANY**	**EVALUATION SUBJECT:** **VORAMER MB 3099 TWO-PART POLYURETHANE FOAM ADHESIVE**	

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, 2015 and 2012 *International Building Code*® (IBC)
- 2024, 2021, 2018, 2015 and 2012 *International Residential Code*® (IRC)

Properties evaluated:

- Gypsum board attachment
- Surface-burning characteristics

2.0 USES

Voramer MB 3099 Two-Part Polyurethane Foam Adhesive is used to attach various gypsum board materials to wood framing in walls and ceilings without the use of mechanical fasteners.

3.0 DESCRIPTION

Voramer MB 3099 is a two-part polyurethane foam adhesive system. It is applied by pumping two components at a volumetric ratio of 1 to 1 under pressure through heating equipment to produce one continuous bead. The two components are “Voramer MB 3099 Polyol” and " Voramer MB 3044 Isocyanate". The polyol and isocyanate components are shipped in 250-gallon (946 l) disposable totes, 55-gallon (208 l) steel drums and 350-gallon (1,325 l) returnable tanks. Storage of these containers shall be in an indoor, dry location with temperature between 59°F and 95°F (15°C and 35°C). Unopened containers have a storage life of up to 9 months in these conditions.

Voramer MB 3099 has a flame-spread index not exceeding 25 and a smoke-developed index not exceeding 450 when tested at a width of 1½ inches (38.1 mm) in accordance with ASTM E84.

4.0 INSTALLATION

4.1 Installation:

Gypsum board being attached must comply with ASTM C1396. All substrate surfaces must be clean, dry, and free of dust, wax, ice, and loose particles and must have a surface temperature greater than or equal to 50°F (10°C). Voramer MB 3099 adhesive must be applied at an ambient temperature range of 50°F to 100°F (10°C to 37.8°C). Adhesive is applied along the intersection of the gypsum and wood framing according to The Dow Chemical Company Application Instructions. The adhesive temperature at the heater block and hose shall be between 90°F (32.2°C) and 125°F (51.7°C). After the last bead is applied, the attachment must not be moved for a minimum of two minutes. The wall or ceiling assembly must stay at the same ambient conditions for the first 24 hours.

Voramer MB 3099 adhesive must be used on wood framing with a maximum spacing of 16 inches (406 mm) on center for walls and 24 inches (610 mm) on center for ceiling applications. The beads produced must be sized per Figure 1 and Table 1, and a bead must not be greater than $1^1/_2$ inch (38.1 mm) in size. The adhesive beads are applied along one side of field framing and along both sides at gypsum/sheathing seams.

Panels consisting of gypsum wallboard complying with ASTM C1396 adhered to wood framing using Voramer MB 3099 adhesive were tested under static racking load in accordance with Section 14 of ASTM E72. See Table 1 for ultimate shear loads. The reported ultimate shear loads do not include any safety factors. Determination of the allowable design values and applicability for seismic and wind designs is outside the scope of the evaluation report and must be justified to the satisfaction of the code official.

5.0 CONDITIONS OF USE:

The Voramer MB 3099 Two-Part Polyurethane Foam Adhesive described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Materials and methods of installation must comply with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

5.2 Voramer MB 3099 is to be applied in an indoor manufacturing facility and must not be applied in an outdoor, uncontrolled environment.

5.3 Use of Voramer MB 3099 adhesive in a fire-resistance rated assembly is outside the scope of this report.

5.4 A vapor barrier must not be used between the adhesive and the substrates.

5.5 The adhesive must be separated from the building interior by a thermal barrier of $^1/_2$-inch (12.7 mm) gypsum wallboard installed in accordance with IBC Section 2603.4 or 2024 IRC Section R303.4 (2021, 2018, 2015 and 2012 IRC Section R316.4), as applicable.

5.6 Application of Voramer MB 3099 adhesive is limited to the back side of gypsum board complying with ASTM C1396. Application of the adhesive to foil backed, moisture resistant or water-resistant gypsum boards is outside the scope of this report.

5.7 The constructed panels using the Voramer MB 3099 adhesive must comply with the requirements of IBC Section 803.14 (Section 803.12 of the 2015 IBC, Section 803.10 of the 2012).

5.8 Voramer MB 3099 Two-Part Polyurethane Foam Adhesive is manufactured at The Dow Chemical Company plant in Marietta, GA under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

6.1 Report of Figure 1 testing in accordance with ASTM C557 testing.

6.2 Reports of racking load testing in accordance with Section 14 of ASTM E72.

6.3 Report of surface-burning characteristics testing in accordance with ASTM E84.

6.4 Reports of fire test of interior finish material in accordance with UL 1715.

6.5 Quality documentation in accordance with the ICC-ES Acceptance Criteria for Quality Documentation (AC10), dated May 2022.

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-5083) along with the name, registered trademark, or registered logo of the report holder must be included in the product label.

7.2 In addition, product labeling must include the product name, date of manufacture and shelf-life information.

7.3 The report holder's contact information is the following:

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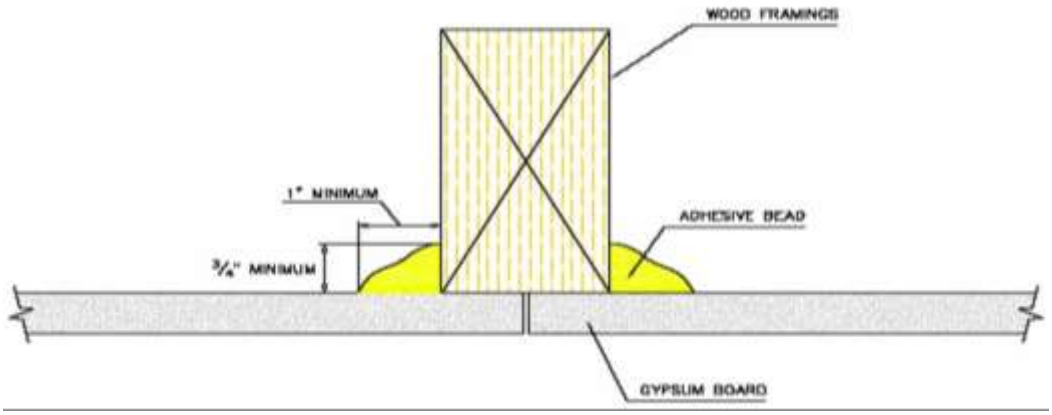

FIGURE 1—APPLICATION OF VORAMER MB 3099 POLYOL TWO-PART POLYURETHANE FOAM ADHESIVE

TABLE 1—IN-PLANE SHEAR LOADING ON WOOD FRAME (SECTION 14 OF ASTM E72)

ASSEMBLY NUMBER	TOP PLATE / BOTTOM PLATE[3]	STUDS / STUD SPACING[3]	SINGLE / DOUBLE SIDED	ORIENTATION	PANEL	ADHESIVE SIZE	ULTIMATE LOAD (plf)[1]
1	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center	Single	5/16" Vertical	Gold Bond Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1-1/8" on gypsum along plates: 1-7/8"	635.6
2	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		5/16" Vertical	American Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1-1/8" on gypsum along plates: 1-7/8"	485.6
3	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		5/16" Vertical	USG Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1-1/4" on gypsum along plates: 1-1/4"	505.7
4	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		5/16" Vertical	Georgia Pacific Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1" on gypsum along plates: 1-1/8"	502.6
5[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	USG Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1" on gypsum along plates: 1-1/4"	606.1
6[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	Georgia Pacific Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1" on gypsum along plates: 1-1/4"	574.4
7[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	American Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1" on gypsum along plates: 1-1/8"	534.3
8[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	American Gypsum Eagle Roc Board	on side of the studs: 15/16" on side of plates: 1-1/8" on gypsum along studs: 1-1/16" on gypsum along plates: 1-1/2"	627.4
9[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	USG Gypsum Sheetrock Board	on side of the studs: 15/16" on side of plates: 1-1/8" on gypsum along studs: 1-1/16" on gypsum along plates: 1-1/2"	649.6
10[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	National Gypsum Board	on side of the studs: 3/4" on side of plates: 1" on gypsum along studs: 1" on gypsum along plates: 1-5/8"	704.8
11[2]	1x3 SPF ungraded	2x3 stud grade SPF, 16" on center		1/2" Horizontal	ProRoc Gypsum Board	on side of the studs: 15/16" on side of plates: 1-1/8" on gypsum along studs: 1-1/8" on gypsum along plates: 1-5/8"	754.7
12[2]	1x3 stud grade SPF	2x3 stud grade SPF, 16" on center		1/2" Horizontal	SHEETROCK Brand MH UltraLight Panels Tuf-Base	on side of the studs: 1" on side of plates: 1-3/8" on gypsum along studs: 1-1/4" on gypsum along plates: 2-1/8"	824.0
13[2]	2x3 stud grade SPF	2x3 stud grade SPF, 16" on center		1/2" Horizontal	SHEETROCK Brand MH UltraLight Panels Tuf-Base	on side of the studs: 7/8" on side of plates: 1-1/4" on gypsum along studs: 1" on gypsum along plates: 1-3/4"	798.0
14	2x3 stud grade SPF	2x3 stud grade SPF, 16" on center		5/16" Vertical	USG SHEETROCK Brand MH Gypsum Board	on side of the studs: 7/8" on side of plates: 1-3/8" on gypsum along studs: 1-1/16" on gypsum along plates: 1-3/4"	520.0

For SI: 1 inch = 25.4 mm, 1 plf = 14.6 N/m.

[1]Ultimate load values do not include any safety factors.
[2]Gypsum board seam treated with joint tape and joint compound.
[3]Tabulated lumber dimension are nominal dimensions. Actual dimensions are as follows:

Nominal Lumber Size	Actual Lumber Dimensions
1 x 3	0.75 x 2.5 inches
2 x 3	1.5 x 2.5 inches