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**Initial Approval**  
January, 2002

**Re-Approved**  
March, 2021

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**Report Owner**

**The Dow Chemical Company**  
1881 West Oak Parkway  
Marietta, GA 30062

**Approved Manufacturing Locations**

**The Dow Chemical Company**  
1881 West Oak Parkway  
Marietta, GA 30062

**Product**

**Voramers MB 3099** Two-Part Polyurethane  
Foam Adhesive

**Evaluation Report Information**

[www.dow.com](http://www.dow.com)  
**DOW** Contact: Shawn George - (678) 832-7077

**General Details**

**Voramers MB 3099** adhesive is used to bond wood framing to gypsum in ceiling and wall construction without the use of mechanical fasteners. The manufacturing location listed above has an approved Quality Assurance Manual to manufacture the **Voramers MB 3099** Two-Part Polyurethane Adhesive and is inspected quarterly by **ICC Pei**.

**Product Description**

**Voramers MB 3099** is a two-part polyurethane foam adhesive system. It is applied by pumping two components at a 1 to 1 volumetric ratio under pressure through heating equipment to produce one continuous bead. The two components are comprised of "**Voramers MB 3099** Polyol" and "Voramer ME 3044 Isocyanate". The Voramer ME 3044 ISO is a pre-mixed standard material shipped from a supplier and the **Voramers MB 3099** Polyol component is manufactured by **The Dow Chemical Company**. This adhesive does not off-gas Formaldehyde into the air.

**Containers and Storage**

The A & B components are shipped in 250 gallon disposable totes, 55 gallon steel drums and 350 gallon returnable tanks. Storage of these containers should be in an indoor conditioned place between 70°F. and 90°F. Unopened containers will have a storage life of up to six months in these conditions.

**General Product Use and Limitations**

The gypsum board being used shall be in compliance with ASTM C 1396 and clean and dry with loose dust blown off and free from liquids, oil, grease, etc. Recommended gypsum temperature is greater than 50°F. **Voramers MB 3099** adhesive shall be applied in an ambient temperature range of 50°F. to 100°F. The adhesive is applied along the intersection of the vertical plane of the wooden member and the horizontal plane of the gypsum board according to **The Dow Chemical Company** Application Instructions. The adhesive temperature at the heater block and hose shall be between 90°F. and 125°F. After the last bead is applied, the structure shall not be moved for a minimum of two minutes. The structure shall stay in the same ambient conditions for the first 24 hours.

**Voramers MB 3099** adhesive shall be used on a maximum wood framing spacing of 16"o.c. for walls and 24" o.c. ceiling applications. The fillet beads produced shall be sized per Figure 1 and per Table 2, Note 1 for wall shear design values. A bead shall never be greater than 1-1/2" in size. The adhesive beads are applied along one side of field framing and along both sides at gypsum seams.

- The **Voramers MB 3099** adhesive shall be installed according to **The Dow Chemical Company** Application Instructions. A copy of these instructions must be made easily available at the assembly areas.
- This Evaluation is for **Voramers MB 3099** to be applied in an indoor manufacturing facility and shall not be applied in an outdoor uncontrolled environment.
- **Voramers MB 3099** adhesive is to be manufactured at **The Dow Chemical Company** plant in Marietta, GA following their approved quality assurance program with unannounced inspections by **ICC Pei**.
- The use of **Voramers MB 3099** adhesive in a fire rated assembly is not within the scope of this **PER**.
- A vapor barrier shall not be used between the adhesive and the substrates.
- **Voramers MB 3099** is to be applied to the back side standard raw gypsum board only and shall not for other gypsums such as foil backed, moisture resistant or water resistant gypsums.
- Construction of assemblies using **Voramers MB 3099** and their design values shall be as described in the following test reports.
- **Voramers MB 3099** adhesive shall not be used for insulation or be considered insulation.

### **Building Code Compliance**

Must be used with an approved thermal barrier not less than 1/2" (12.7mm) gypsum wallboard or approved material equivalent in compliance with the requirements of the 2006 IRC, Section R314.4 and the 2009, 2012, 2015, 2018 and 2021 IRC, Section R316.4.

Must be used with an approved thermal barrier not less than 1/2" (12.7mm) gypsum wallboard or approved material equivalent in compliance with the requirements of the 2006, 2009, 2012, 2015, 2018 and 2021 IBC, Section 2603.4

This product should be submitted to the Code Official for approval as an alternative material when used as alternative fastening method for drywall to framing applications in accordance with Section 104.11 as referenced in the 2021 IRC and IBC.

The HUD Code does not require a thermal barrier for adhesives.

October, 2016 Texas Industrialized Housing and Buildings Administrative Rules - Section: 70.103. (c) (2)

NC Residential Code, 2012 Edition - Section R316.6

ASTM E84-01 - Class A Fire Rating: Flame Spread Index - 10 and Smoke Development Index - 25

Meets or exceeds Acceptance Criteria of UL-1715 for use with 3/8" Gypsum Wallboard after 15 Minute Exposure Requirements, where flames shall not extend to the extremities or through the doorway opening of the tested specimen.

Meets or exceeds Acceptance Criteria of UL-1715 for use with 1/2" Gypsum Wallboard after 15 Minute Exposure Requirements, where flames shall not extend to the extremities or through the doorway opening of the tested specimen.

Meets or exceeds Acceptance Criteria of UL-1715 for use with 5/8" Gypsum Wallboard after 15 Minute Exposure Requirements, where flames shall not extend to the extremities or through the doorway opening of the tested specimen.

Meets or exceeds adhesion of gypsum panels to wood for 200°F Stability and 30 Minute Exposure Requirements of the 2012 IBC, (Section 803.10 Stability), 2015 IBC (Section 803.12) and the 2018 IBC (Section 803.14).

### **Tested to**

*Pei* Standard No. 89-1 - Simple Span Ceiling or Roof Diaphragm Shear Resistance Test Procedure for Manufactured Homes

*Pei* Standard No. 93-7 - Performance Requirements for Fastening Gypsum Board to Wood Framing using a Two-Part Urethane Adhesive

*Pei* Standard No. 93-8 - Ceiling Board Dead Load Test Procedure

ASTM C 557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing

ASTM E 72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction

ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials

UL-1715 - UL Standard for Safety Fire Test of Interior Finish Material

2012 IBC 803.10 - Wall and Ceiling Finishes Stability at 200°F

**Test Reports for Voramer MB 3099 Adhesive.**

**Table 1: Wall Shear Designs<sup>1,2</sup>**

Framing				Gypsum Orientation	Gypsum Brand	Single or Double Sided	Ultimate Load PLF <sup>3</sup>	Test Report #
Top Plate	Bott. Plate	Studs	Stud Spacing					
1x3	1x3	2x3	16" o.c.	5/16" Vertical	GA-Pacific	Single	635.6	2002-0641
					American Gyp	Single	485.6	2004-0924(A)
					USG Gyp	Single	505.7	2004-0924(B)
					GA-Pacific	Single	502.6	2004-0924(C)
				1/2" Horizontal	USG Gyp	Single	606.1	2004-0924(D)
					GA-Pacific	Single	574.4	2004-0924(E)
					American Gyp	Single	534.3	2004-0924(F)
					AG - Eagle Roc	Single	627.4	2004-1084(A)
					USG Gyp	Single	649.6	2008-1260
					National Gyp	Single	704.8	2008-1642
					ProRoc	Single	754.7	2008-1780
					USG MH UL-TB	Single	824.0	2012-1569(U)
					2x3	2x3	2x3	16" o.c.
5/16" Vertical	USG MH TB	Single	520.0	2014-1760				

**Notes:**

1. Bead sizes as described in each test report
2. Tested in Accordance to ASTM E72 - Static Wall Racking Tests
3. Ultimate load does not include any required safety factors

**Design Values**

Ceiling Diaphragm Design Load = **202 plf** (11' 8" minimum width x 52'-0" Maximum diaphragm span - using 5/16" Gypsum)

Ceiling Diaphragm Design Load = **240 plf** (15' 6" minimum width x 52'-0" Maximum diaphragm span - using 5/16" Gypsum)

Ceiling Diaphragm Design Load = **214.9 plf** (17' 6" minimum width x 52'-0" Maximum diaphragm span - using 1/2" Gypsum)

Ceiling Dead Load Resistance = **15.5 psf** (using 5/16" Gypsum)

**Note:**

Ceiling Diaphragm and Dead Load Resistance testing is valid for all gypsum boards listed below, as long as the gypsum manufactured maintains a third party product listing showing compliance to ASTM C1396.

**Gypsum Brands Tested for Ceiling use**

1/2" American Gypsum Ceiling Board

1/2" CertainTeed Gypsum Easi-Lite™ Gypsum Board

1/2" CertainTeed Gypsum Interior Ceiling Board

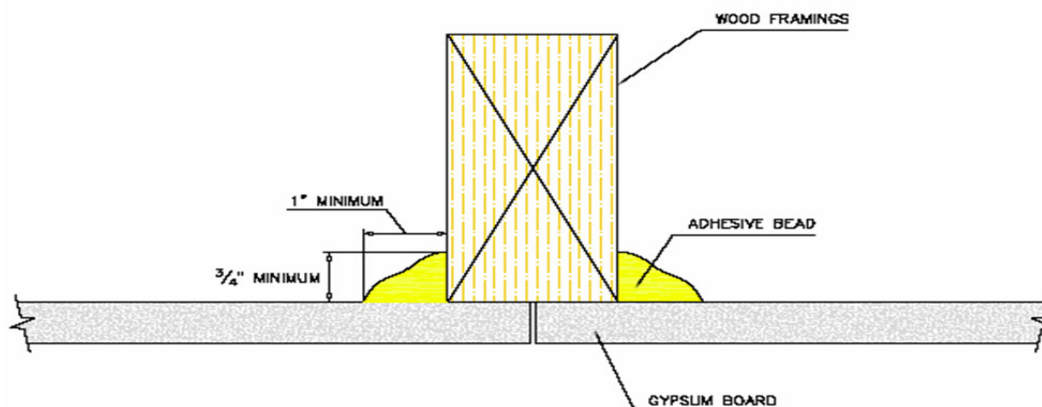
5/16" Georgia-Pacific Gypsum Board

5/16" Gold Bond Gypsum Board

5/16" USG SHEETROCK® MH Gypsum Ceiling Panels

1/2" USG SHEETROCK® Brand MH UltraLight Ceiling Panels ULTRA-BASE™

5/8" Gold Bond® Brand Firecode Type X Gypsum (Dead Load use only)



**FIGURE 1 : Ceiling use bead sizes**

**Product Labeling**

Each cylinder shipped of **Voramers MB 3099** that is covered by this **PER** must have a label attached with at least the following information:

1. **The Dow Chemical Company** Name and Address
2. Date of manufacture or Lot No.
3. Expiration Date
4. This **PER** Number & the approved marks noted below
5. Component name
6. A or B Designation (color coded - Red for Isocyanate. Blue for Polyol)

**Acceptable Evaluation Marks****Product Documentation**

A Product Evaluation Service Agreement between *Pei Evaluation Service*<sup>®</sup> and [The Dow Chemical Company](#)  
 A Follow-up Inspection Service Agreement between *Progressive Engineering Inc.* and [The Dow Chemical Company](#)  
 A SDS for **Voramers MB 3099** Polyol - Dated: 12/11/2019  
 A SDS for Voramers MB 3044 Isocyanate - Dated: 8/31/2021  
 Voramers<sup>™</sup> Industrial Adhesive User Information  
 Opinion Letter - Dated: April 15, 2005

**Ceiling Diaphragm Test Reports**

A *PEI* test report no. 2001-1461 - Full Scale Cathedral Ceiling Diaphragm Test on a 15'-6" x 52'-0" Ceiling using Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive - Dated: 11/5/2001  
 A *PEI* test report no. 2001-1464 - Full Scale Ceiling Diaphragm Test on a 15'-6" x 52'-0" Flat Ceiling using Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive - Dated: 11/2/2001  
 A *PEI* test report no. 2001-1504 - Full Scale Ceiling Diaphragm Test on a 11'-8" x 52'-0" Flat Ceiling using Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive - Dated: 11/5/2001  
 A *PEI* test report no. 2001-1505 - Full Scale Cathedral Ceiling Diaphragm Test on a 11'-8" x 52'-0" Ceiling using Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive - Dated: 10/24/2001 - Revised: 11/8/2001  
 A *PEI* test report no. 2012-0690 - Full Scale Ceiling Diaphragm Test on a 17'-6" x 52'-0" Cathedral Ceiling using Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive and 1/2" American Gypsum Ceiling Board - Dated: 5/10/2012

**Ceiling Dead Load Test Reports**

A *PEI* test report no. 2001-1506 - Ceiling Dead Load Test using Voramers 3099 and 5/16" Gypsum - Dated: 9/28/2001 - Revised - 5/8/2002  
 A *PEI* test report no. 2002-1383 - Ceiling Dead Load Test using Voramers<sup>®</sup> MB 3099 and 5/8" Gypsum - Dated: 8/23/2002

**Stability at 200°F Test Report**

A *PEI* test report no. 2013-0631 - 2012 IBC 803.10 Wall and Ceiling Finishes Stability at 200°F Using Voramers<sup>®</sup> MB 3099 Two-Part Polyurethane Adhesive - Dated: 5/20/2013

**PEI Standard 93-7 Test Report**

A *PEI* test report no. 2002-1291 - PEI Standard No. 93-7 Test on Voramers<sup>®</sup> MB 3099/Voramers<sup>®</sup> ME 3044 Adhesive - Dated: 10/4/2002

**ASTM E84 Test Report**

A test report file no. FH-1317 - Surface Burning Characteristics ASTM E-84-01 Dow Chemical Corporation - Voramers MB 3099 / Voramers ME 3044 - Dated: 5/30/2002

**UL-1715 Test Reports**

A test report no. RCB 0302 - UL-1715 Fire Test of Interior Finish Material - using 1/2" Gypsum - The Dow Chemical Company - Dated: 11/11/2003  
 A test report no. RCB 0304 - UL-1715 Fire Test of Interior Finish Material - using 3/8" Gypsum - The Dow Chemical Company - Dated: 11/13/2003  
 A test report no. RCB 0501 - UL-1715 Fire Test of Interior Finish Material - using 5/8" Gypsum - The Dow Chemical Company - Dated: 5/4/2005

**Small Scale Paddle Testing**

A *PEI* test report no. 2021-6067(A) - Small Scale Paddle Test using Voramers MB3099 Polyol Two-Part Adhesive with an Increased Hose Temperature of 125°F and the Substrate at 74°F. - Dated 4-9-2021.  
 A *PEI* test report no. 2021-6067(B) - Small Scale Paddle Test using Voramers MB3099 Polyol Two-Part Adhesive with an Increased Hose Temperature of 125°F and the Substrate at 50°F. - Dated 4-8-2021.