

**Pei Evaluation Service®** is an accredited ISO Standard 17065 Product Certifier, accredited by the IAS. This **Product Evaluation Report** represents a product that **Pei ES** has Evaluated. This product has a Product Evaluation Service Agreement & Follow-up Inspection Service Agreement. This **Product Evaluation Report** in no way implies warranty for this product or relieves **Foam Supplies, Inc.** of their liabilities for this product. This **PER** is an official document if it is within one year of the initial or re-approval date.

Initial Approval  
July, 2006

Re-Approved  
July, 2018

See all **Pei ES** Listings at: [www.p-e-i.com](http://www.p-e-i.com)

Report Owner  
**Foam Supplies, Inc.**  
4387 North Rider Trail  
Earth City, MO 63045

Approved Manufacturing Location  
**Foam Supplies, Inc.**  
4387 North Rider Trail  
Earth City, MO 63045

Product  
**OnePart-20, OnePart-47, and OnePart-2**  
Polyurethane Structural Adhesive

For Evaluation Report Questions  
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General Details

**OnePart-20, OnePart-47, and OnePart-2** adhesives are used to bond wood, gypsum board, and plywood by applying adhesive beads or roll coat (SIP applications) between these materials.

Product Description

**OnePart-20, OnePart-47, and OnePart-2** are moisture cure polyurethane structural adhesives meant to be used in an indoor manufacturing facility and shall not be applied in an outdoor uncontrolled environment. These adhesives do not off-gas formaldehyde into the air.

Containers and Storage

**OnePart-20, OnePart-47, and OnePart-2** are shipped in 1,000 pound pressurized cylinders, 55 gallon plastic drums, or 250 gallon totes. Storage of these containers should be in an indoor dry place between 50°F. and 90°F. Their shelf-Life is six (6) months from date of manufacture when stored in the original, unopened cylinders.

General Product Use

The gypsum board being used shall meet ASTM C 1396. The lumber is to be kiln dried and graded. Both substrate surfaces shall have a surface temperature not below 60°F and must be clean, dry, and free of dust, ice, and loose particles. All adhesives approved by this **PER** should be applied in an ambient temperature range of 65°F. to 85°F. Each adhesive is applied using a squeeze bottle or pressurized dispensing equipment according to **Foam Supplies Inc.** application instructions. The adhesive temperature in the cylinders should be a minimum of 90°F with an optimum temperature of 125°F. Open cure time is between half a minute and thirty (30) minutes depending on ambient temperature, humidity, and type of adhesive formulation utilized. The structure should stay in the same ambient conditions for the first 24 hours.

Construction of assemblies using **OnePart-20** and its design values should be as described in the test reports noted on page two (2). **OnePart-20** adhesive is best used in gypsum to wood framing for Manufacturing Housing. **OnePart-47** and **OnePart-2** adhesives are for applications utilizing sandwich panel construction.

Listing Criteria

1. The **OnePart-20, OnePart-47 & OnePart-2** adhesives shall be applied according to **Foam Supplies Inc.** Application Instructions. A copy of these instructions must be made easily available at the assembly areas.
2. **OnePart-20, OnePart-47 & OnePart-2** adhesives are manufactured at the **Foam Supplies Inc.** plant in Earth City, MO following their approved quality assurance program with unannounced inspections by **Progressive Engineering Inc.**
3. The use of **OnePart-20, OnePart-47 & OnePart-2** adhesives in a fire rated assembly are not addressed in this evaluation report.
4. A vapor barrier cannot be used between the adhesive and the substrates.
5. **OnePart-20** adhesive is to be applied to the back side of standard raw gypsum and is not intended for other gypsums such as foil backed, moisture resistant or water resistant gypsums.
6. **OnePart-47 & OnePart-2** adhesives are to be applied in sandwich panel construction and are not intended for other applications.

Code Compliance

2012 & 2015 International Residential Code	2012 & 2015 International Building Code
Section R104.11	Section 104.11

**Test Standards**

**OnePart-2, OnePart-47 & OnePart-20** shall be considered Type II Class 2 adhesives as defined in ICC-ES AC05. The one part adhesives are intended for bonding with Oriented Strand Board (OSB) and expanded poly-styrene (EPS) in structural insulated panels.

**ICC-ES AC05** - Acceptance Criteria for Sandwich Panel Adhesives

**24 CFR 3280** - Manufactured Home Construction and Safety Standards

**CA 25-4** - Standard for the Evaluation of Adhesives for Structural Use in Multi-Unit Manufactured Housing and Commercial Coach Construction

August, 2017 Texas Industrialized Housing and Buildings Administrative Rules - Section: 70.103 (c) (2)

**ASTM E72** - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction

**ASTM C557** - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing

**Product Documentation**

A Product Evaluation Service Agreement between *Pei Evaluation Service*® and *Foam Supplies Inc.*

A Follow-up Inspection Service Agreement between *Progressive Engineering Inc.* and *Foam Supplies Inc.*

**OnePart-20, OnePart-47 & OnePart-2** Guidelines for Use, Application & Safe Handling.

A Quality Assurance Manual - Dated: April 26, 2018

Safety Data Sheet (SDS) for OnePart-20, OnePart-47 & OnePart-2 - Dated: April 19, 2017

Opinion Letter Dated: April 29, 2002

Test Report No.: FMS020911-1 - ICC-ES AC05 - Dated: February 9, 2011.

Test Report No.: FMS020911-2 - ICC-ES AC05 - Dated: February 9, 2011.

Test Report No.: FMS081309-7 - ICC-ES AC05 - Dated: February 4, 2011.

**The following is a list of test reports for OnePart-20 adhesive**

**C557 Tests**  
2001-1353

**CA 25-4 Tests**  
2000-1768

**ASTM D5582 Formaldehyde**  
2008-1778

**Table 1 - Wall Shear Designs with Gypsum Board<sup>1</sup>**

Framing				Gypsum Orientation	Gypsum Brand	Single or Double Sided	Ultimate Capacity <sup>2</sup> (plf)	Test Report #
Top Plate	Bott. Plate	Studs	Stud Spacing					
1x3	1x3	2x3	16" o.c.	5/16" (or thicker) Vertical	USG Board	Single	448.3	2000-2194
					USG MH	Single	677.6	2001-1215A
					Gold Bond	Single	622.0	2001-1215B
					GA-Pacific	Single	620.3	2001-1215E
					AG EagleRoc	Double	1035.0	2002-0493A
					Gold Bond	Double	969.9	2002-0493B
					U.S. Board	Double	991.2	2002-0493C
				1/2" Horizontal	USG MH	Single	644.8	2001-1542
					Gold Bond	Single	649.0	2001-1543
					USG MH	Single	671.0	2012-1569E
2x3	2x3	2x3	16" o.c.	1/2" Horizontal	USG MH	Double	1082.0	2012-1569S
					USG MH	Single	687.0	2012-1569J
					USG MH	Double	1297.0	2012-1569AE

**Notes:**

1. Bead sizes as described in each test report
2. Ultimate capacity does not include any required safety factors

**Table 2 - Nominal Curing Specifications**

Adhesive	Open Time <sup>1</sup>	Closed Time <sup>2</sup>	Press Time <sup>3</sup>	Press Pressure
OnePart-2	0.5 min	0.5 min	6.0 min	3 psi
OnePart-20	1.25 min	10 Min	67.0 min	3 psi
OnePart-47	3.0 min	27.0 min	300 min	3 psi

**Notes:**

1. Open time is defined as the maximum amount of time elapsed from adhesive application until the adhesive is covered with another substrate.
2. Closed time is the maximum cumulative amount of time elapsed from the adhesive application, when its covered with another substrate, until the assembly is under pressure.
3. Press time is the minimum amount of time the assembly is maintained under pressure.

**Table 3 - Nominal Application Specifications**

Adhesive	Application Method	Coverage (g/ft <sup>2</sup> )	Water Applied (g/ft <sup>2</sup> )	Ambient Temp.	Ambient RH
OnePart-2	Bead or Roll Coat	12	2	73°F	50%
OnePart-20	Bead or Roll Coat	12	2	73°F	50%
OnePart-47	Bead or Roll Coat	12	2	73°F	50%

**Table 4 - Ultimate Tensile & Shear Stress**

Adhesive	Ultimate Tensile Stress (psi)	Ultimate Shear Stress (psi)
OnePart-2	35	40
OnePart-20	40	40
OnePart-47	40	40

**Notes:**

1. Ultimate tensile and shear stress is based on the most restrictive results from testing adhesives under long duration (creep), tensile bond, and/or shear loads and does not take into account the available stresses of any compatible materials based on requirements sections stated in AC 05 9.3 & 9.4

**Product Labeling**

Each cylinder shipped of **OnePart-2**, **OnePart-20**, or **OnePart-47** that is covered by this **PER** must have a label attached with at least the following information:

1. **Foam Supplies Inc.** Name and Address
2. The Product Name
3. Date of Manufacture & Lot No.
4. Shelf Life Information
5. This **PER** Number & *Pei* **ES** Logo

**Acceptable Evaluation Marks**



**Figure 1 - Typical Spray Application Equipment**